Naval Facilities Engineering Command Southwest
BRAC PMO West
San Diego, CA

Final
Remedial Action Completion Report

Remedial Action in Parcel D-1 Phase I
Hunters Point Naval Shipyard
San Francisco, California

April 2018

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Prepared for:

Department of the Navy
Naval Facilities Engineering Command Southwest
BRAC PMO West
33000 Nixie Way, Bldg. 50
San Diego, CA 92147

Prepared by:

Aptim Federal Services, LLC
4005 Port Chicago Highway, Suite 200
Concord, CA 94520

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Michael Ayala, PE
Primary Author
Technical Lead

April 27, 2018
Date

Lisa Bercik, PE
Project Manager

April 27, 2018
Date

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Acronyms and Abbreviations

ABC	aggregate base course
AC	asphaltic concrete
APTIM	Aptim Federal Services, LLC
ASTM	ASTM International
Bay	San Francisco Bay
BMP	best management practices
CB&I	CB&I Federal Services LLC
CCSF	City and County of San Francisco
ChaduxTt	ChaduxTt, A Joint Venture of St. George Chadux Corp. and Tetra Tech EM Inc.
COC	chemical of concern
CSO	Caretaker Site Office
DBR	*Final Design Basis Report, Parcel D-1, Hunters Point Shipyard, San Francisco, California*
EPP	environmental protection plan
FFA	Federal Facilities Agreement
FWV	fieldwork variance
HPNS	Hunters Point Naval Shipyard
IR	Installation Restoration
LLRW	low-level radioactive waste
LUC	land use control
LUC RD	*Land Use Control Remedial Design, Parcel D-1, Hunters Point Naval Shipyard, San Francisco, California*
Navy	U.S. Department of the Navy
O&M	operation and maintenance
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PPE	personal protective equipment
RA	remedial action
RACR	remedial action completion report
RAO	remedial action objective
RAWP	*Final Revision 1, Final Remedial Action Work Plan, Remedial Action in Parcel D-1, Hunters Point Naval Shipyard, San Francisco, California*
RD	remedial design
RG	remediation goal
ROD	*Final Record of Decision for Parcels D-1 and UC-1, Hunters Point Shipyard, San Francisco, California*
ROICC	Resident Officer in Charge of Construction
RPM	Remedial Project Manager
SFRA	San Francisco Redevelopment Agency
SVOC	semivolatile organic compound

TCRA	time-critical removal action
TSP	total suspended particulates
VOC	volatile organic compound

1.0 Overview

This Remedial Action Completion Report (RACR) presents the specific tasks and procedures implemented by Aptim Federal Services, LLC (APTIM) during the installation of the durable cover at Parcel D-1 Phase I, Hunters Point Naval Shipyard (HPNS), San Francisco, California (Figure 1). This RACR also documents the completion of the remedial action (RA) to address potential chemicals of concern (COCs) in soil, groundwater, and radiologically impacted soil and structures in Parcel D-1 Phase I. The RA at Parcel D-1 Phase II is ongoing and is not addressed in this RACR. The Phase I durable cover portion of the RA was performed for the U.S. Department of the Navy (Navy), Naval Facilities Engineering Command Southwest, under Contract No. N62473-12-D-2005, Contract Task Order 0003. Base Realignment and Closure Program Management Office West managed the work elements under this Contract Task Order.

The time-critical removal action (TCRA) for radiologically impacted soil and structures at Parcel D-1 was completed in two phases. The first phase is summarized in the *Final Radiological Removal Action Report, Radiological Surveys of Buildings and Ground Surfaces, and Storm Drain and Sanitary Sewer Removal, Parcel D-1, Phase 1, Hunters Point Naval Shipyard, San Francisco, California* (CB&I Federal Services LLC [CB&I], 2014). The second phase is described in the *Removal Action Completion Report, Parcel D-1, Phase II Radiological Remediation and Support* (Gilbane, 2017). During the second phase of the TCRA, low-level radiological objects were discovered in areas that were not considered radiologically impacted. The Navy determined that these objects were within the fill soil used to expand the shipyard after 1946. Due to the unexpected low-level radiological objects in Parcel D-1 Phase II, only the Phase I portion of the durable cover was completed at this time. The completion of the Phase II portion of the durable cover is being completed under another contract, and construction is planned for 2018.

The Parcel D-1 RA for the durable cover was executed in accordance with the following documents:

- *Final Revision 1, Final Remedial Action Work Plan, Remedial Action in Parcel D-1, Hunters Point Naval Shipyard, San Francisco, California* (RAWP; CB&I, 2016)
- *Final Design Basis Report, Parcel D-1, Hunters Point Shipyard, San Francisco, California* (DBR; ChaduxTt, A Joint Venture of St. George Chadux Corp. and Tetra Tech EM Inc. [ChaduxTt], 2011a), including the design drawings and construction specifications

The objective of the DBR (ChaduxTt, 2011a) and the RAWP (CB&I, 2016) was to implement the selected remedy for soil as established in the *Final Record of Decision for Parcels D-1 and*

UC-1, Hunters Point Shipyard, San Francisco, California (ROD; Navy, 2009). As the ROD specifies, the DBR (ChaduxTt, 2011a) included limited removal of chemicals in soil and a durable soil cover over the entire parcel to break potential exposure pathways. The remedial design (RD) for Parcel D-1 also included monitoring for volatile organic compounds (VOCs) in groundwater and a focused soil gas survey to monitor vapors below ground. The RD included land use control (LUC) restrictions to limit exposure of future landowners or users of the property to potentially residual hazardous substances and to maintain the integrity of the remedy. Chemical hot spot removal was performed in 2011 (ERRG, 2011) and the soil gas survey was performed in 2010 (Sealaska Environmental Services, 2013). This RACR describes the installation of the durable soil cover at Parcel D-1 Phase I only.

1.1 Project Schedule

The project schedule, as modified due to field conditions, is included as Figure 2. Field mobilization was May 31, 2016. Subgrade preparation occurred from July 7 through December 1, 2016. Seawall stabilization began on July 11 and ended on September 14, 2016. Paving activities started November 28, 2016, and ended on December 22, 2016. Extension of monitoring wells, installation of fence, and the final topographical survey took place in December 2016 and January 2017. Operation and maintenance (O&M) began on February 6, 2017.

1.2 Site Conditions and Background

This subsection presents a discussion of the site location, site description and history, nature and extent of contamination, and institutional and LUC.

1.2.1 Site Location

HPNS is located in southeastern San Francisco on a peninsula that extends east into the San Francisco Bay (Bay) (Figure 1). HPNS consists of 866 acres: 420 acres on land and 446 acres underwater in the Bay. Parcel D-1 is located on the southeastern portion of the former 98-acre Parcel D. Parcel D-1 is approximately 49 acres. Parcel D-1 Phase I is approximately 27 acres, and Phase II is approximately 22 acres (Figure 3).

1.2.2 Site Description and History

In 1940, the Navy obtained ownership of HPNS for shipbuilding, repair, and maintenance activities. After World War II, activities at HPNS shifted to submarine maintenance and repair. HPNS was also the site of the Naval Radiological Defense Laboratory from the late-1940s until 1969. HPNS was deactivated in 1974 and remained relatively unused until 1976. Between 1976 and 1986, the Navy leased most of HPNS to Triple A Machine Shop, Inc., a private ship repair company. In 1987, the Navy resumed occupancy of HPNS (Navy, 2009).

HPNS property was placed on the National Priorities List in 1989 pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 as amended by the Superfund Amendments and Reauthorization Act of 1986, because past shipyard operations left hazardous substances on site. In 1991, HPNS was designated for closure pursuant to the Defense Base Closure and Realignment Act of 1990. Closure at HPNS involves conducting environmental remediation and making the property available for nondefense use. Former Parcel D, which is in the central portion of the shipyard, was formerly part of the industrial support area and was used for shipping, ship repair, and office and commercial activities. Former Parcel D was divided into Parcels D-1, D-2, G, and UC-1.

Parcel D-1 is owned by the federal government under the jurisdiction of the Navy and is planned to be transferred to the City and County of San Francisco (CCSF). Based on the CCSF's reuse plan, Parcel D-1 is expected to be zoned to accommodate mixed uses, including industrial and maritime industrial uses (Former San Francisco Redevelopment Agency [SFRA], 1997). However, reuse plans are subject to change by the local government, and the *Amended Hunters Point Redevelopment Plan* (Former SFRA, 2010) contains scenarios that include residential reuses for portions of Parcel D-1.

Parcel D-1 consists of flat lowlands that were constructed by placing borrowed fill material from various sources, including crushed serpentinite bedrock from the adjacent highland and dredged sediments with surface elevations between 0 to 10 feet above mean sea level. The serpentinite bedrock and serpentine bedrock-derived fill material consist of minerals that naturally contain asbestos and relatively high concentrations of arsenic, manganese, nickel, and other metals. The hydrostratigraphic units present at Parcel D-1 are the same as at former Parcel D: A-aquifer, aquitard zone, B-aquifer, and a bedrock water-bearing zone. In addition, there is a layer of fill (1 to over 120 feet thick) overlying bedrock (SulTech, 2007); groundwater may be present in the fill and in the bedrock. Groundwater beneath Parcel D-1 includes the shallow A-aquifer and the deeper B-aquifer. Groundwater is not currently used for any purpose at Parcels D-1 (Navy, 2009).

Groundwater in the A-aquifer is not suitable as a potential source of drinking water. Groundwater in the B-aquifer underneath Parcel D-1 has a low potential as a future source of drinking water. Use of the B-aquifer groundwater is controlled by the CCSF and the San Francisco Public Utility Commission prohibits the use of groundwater in this area of the city. The San Francisco Bay Region of the California Regional Water Quality Control Board concurred with the Navy's conclusion that the groundwater in the A-aquifer is not suitable as a source of drinking water (Navy, 2009). The groundwater at Parcel D-1 generally flows toward the Bay.

Parcel D-1 ecology is limited to plant and animal species adapted to the industrial environment. Viable terrestrial habitat is inhibited at Parcel D-1 because nearly all of the ground surface is paved or covered by structures. No threatened or endangered species are known to inhabit Parcels D-1 or its immediate vicinity (Navy, 2009).

1.2.3 Nature and Extent of Contamination

Activities associated with known or potential chemical releases at Parcel D-1 were identified and environmental investigations were conducted to identify and assess the nature and extent of contaminants in soil and groundwater. The following subsections summarize the nature and extent of contamination. Further details on the nature and extent of contamination are discussed in the ROD (Navy, 2009) and the *Revised Final Feasibility Study for Parcel D, Hunters Point Shipyard, San Francisco, California* (SulTech, 2007). The remedy was selected to remove or leave in place and cover soil where contaminant concentrations exceeded remediation goals (RGs) to prevent human exposure. No ecological risk has been identified associated with the site (Navy, 2009).

1.2.3.1 Soil

The COCs in soil at Parcel D-1 include metals, VOCs, semivolatile organic compounds (SVOCs), and radionuclides, and have been addressed by the remedy in consideration of current and reasonably anticipated future land uses. The Navy has removed waste materials and soil from various areas across Parcel D-1 since 1991. However, contaminants including polycyclic aromatic hydrocarbons (PAHs) resulting from industrial activities remained; areas where PAHs exceeded RGs were excavated as part of the final remedy (ERRG, 2011; ERRG, 2014). Six hotspot locations were successfully remediated in Parcel D-1. Approximately 200 cubic yards of soil was removed from the hotspot locations and disposed off-site (ERRG, 2011; ERRG, 2014).

1.2.3.2 Radionuclides

The Navy identified radiologically impacted sites, including buildings, equipment, and infrastructure at Parcel D-1 associated with the former use of general radioactive materials and decontamination of ships used during atomic weapons testing in the South Pacific (Naval Sea Systems Command, 2004). The Navy performed a TCRA to address potential radioactive contamination in buildings, fill areas, former building sites, storm drains, and sanitary sewers at Parcel D-1 (Navy, 2006). The TCRA was completed in two phases. Navy contractors CB&I completed Phase I and Gilbane completed Phase II. The TCRA involved the following:

- Surveying radiologically impacted structures and former building sites
- Decontaminating (and demolishing if necessary) buildings and former building sites
- Excavating radiologically impacted storm drain and sanitary sewer lines

- Screening, separating, and disposing of radioactively contaminated excavated materials at an off-site, low-level radioactive waste (LLRW) facility

The radionuclides of concern at Parcel D-1 include cesium-137, cobalt-60, plutonium-239, radium-226, strontium-90, thorium-232, tritium (hydrogen-3), and uranium-235. The cleanup associated with the TCRA for radionuclides meets the RGs established in the ROD (Navy, 2009) as presented in the *Final Radiological Removal Action Report, Radiological Surveys of Buildings and Ground Surfaces, and Storm Drain and Sanitary Sewer Removal, Parcel D-1, Phase 1, Hunters Point Naval Shipyard, San Francisco, California* (CB&I, 2014) and the *Removal Action Completion Report, Parcel D-1, Phase II Radiological Remediation and Support* (Gilbane, 2017). Consequently, the RD developed in the DBR (ChaduxTt, 2011a) does not include further remediation for radionuclides.

1.2.3.3 Groundwater

The COCs in groundwater at Parcel D-1 include VOCs and metals and have been addressed by the remedy in consideration of current and reasonably anticipated future land uses. The Navy conducted a treatability study at Parcels G and D-1 in 2008 to evaluate technologies to address VOCs in groundwater (Alliance Compliance Group, 2010). The treatability study addressed the groundwater plumes identified in the ROD (Navy, 2009) at Installation Restoration (IR) Sites 9, 33, and 71 and included additional delineation and assessment of the plumes as well as treatment of two VOC plume areas using zero-valent iron. The VOC plumes at IR Sites 9 and 33 are located on Parcel G. The VOC plume at IR Site 71 overlaps the boundary between Parcels G and D-1. The delineation and assessment phase concluded that treatment was necessary only for VOC plumes at IR Sites 9 and 71. A total of about 148,000 pounds of zero-valent iron was injected at 97 injection locations. The post-injection results from the treatability study showed concentrations of VOCs in groundwater and soil gas decreased. As a result of the treatability study, concentrations of VOCs in groundwater at Parcel D-1 decreased to concentrations below the RGs established in the ROD.

Consequently, the RD developed in the DBR (ChaduxTt, 2011a) does not include further remediation for VOCs in groundwater. Therefore, the DBR proposed monitoring for groundwater and soil gas to evaluate the potential for rebound in concentrations of VOCs after the treatability study.

Groundwater monitoring is conducted throughout HPNS under the basewide groundwater monitoring program (Trevet, 2017a). Wells currently being monitored are shown in Figure 3. For Parcel D-1, the COCs in groundwater are identified as VOCs and arsenic. In 2012, the VOC monitoring program at Parcel D-1 was optimized because concentrations were below the RGs and were stable or decreasing (CE2-Kleinfelder, 2012). The current monitoring program includes semiannual sampling for VOC and metals analysis for three San Francisco Bay margin

monitoring wells (IR71MW20A, IR22MW16A, and IR55MW02A). VOCs are monitored semiannually at one well (IR71MW20A) because the well currently delineates the downgradient edge of IR-71 East VOC plume in Parcel G (CE2-Kleinfelder, 2012). Two wells (IR22MW16A and IR55MW02A) are monitored semiannually for metals (Trevet, 2017a). In May 2017, no COCs exceeded their respective RGs at Parcel D-1 (Trevet, 2017b). The *Final Remedial Action Monitoring Plan, Parcel D-1, Hunters Point Shipyard, San Francisco, California* (ChaduxTt, 2011b) objectives for these wells are to monitor the potential migration of COCs into previously uncontaminated areas and potential migration toward San Francisco Bay and to monitor the changes in concentrations within a plume, including the effects of remedial actions and previous treatability studies. Current monitoring of these wells will continue in accordance with the *Final Remedial Action Monitoring Plan, Parcel D-1, Hunters Point Shipyard, San Francisco, California* (ChaduxTt, 2011b) because redevelopment has not yet been completed (Trevet, 2017b).

1.2.3.4 Soil Vapor

An investigation of potential chemicals in soil vapor was conducted in September 2010 for areas within Parcels B, D-1, G, and UC-2 (Sealaska Environmental Services, 2013). A total of 150 soil gas samples were collected from 110 locations encompassing 89 1-acre grid blocks. In addition, 29 soil samples were collected for geotechnical analysis to obtain physical parameters used for assessing the potential for vapor intrusion. Results from the investigation were evaluated for potential risk to human health using a basewide approach developed for HPNS (ChaduxTt, 2011c). A total of 30 grid blocks were sampled at Parcel D-1. Soil gas results collected from eight blocks indicated a potential risk to a future residential receptor that exceeded 10^{-6}. VOCs exceeding soil gas action levels in Parcel D-1 included benzene, ethyl benzene, tetrachloroethene, trichloroethene, methylene chloride, and chloroform (Sealaska Environmental Services, 2013). Consequently, the area requiring institutional controls for VOC vapors was recommended to be reduced from all of Parcel D-1 to the eight blocks where the potential risk exceeded 10^{-6} (Figure 3).

1.3 Deviations from Planning Documents

Fieldwork variances (FWVs) prepared and approved in coordination with remedial activities at Parcel D-1 are included in Appendix A of this RACR. During the Parcel D-1 RA, four FWVs were implemented during the execution of this project. The FWVs include the following:

- FWV-001: Revises Table E.1, "Import Material Comparison Criteria," for constituents with RGs established in the ROD (Navy, 2009) and for metals with Hunters Point Naval Ambient Levels.

- FWV-002: Revises RAWP (CB&I, 2016) Section 6.2.9, "Seawall Stabilization," for the installation of high-density polyethylene liner where holes have daylighted through the seawall.
- FWV-003: Provides clarification for compaction requirements in areas requiring seawall stabilization.
- FWV-004: Retracted.
- FWV-005: Revises the RAWP to clarify seawall stabilization and installation of the durable cover in areas with structurally sound interior seawalls.

1.4 Remedial Action Completion Report Organization

This RACR consists of eight sections and is organized as follows:

- **Section 1.0, "Overview"—**Section 1.0 provides an overview of the project, the project schedule, discusses site conditions and background, deviations from planning documents, and the RACR organization.
- **Section 2.0, "Remedial Action Objectives"—**Section 2.0 presents the remedial action objectives (RAOs) for this RA.
- **Section 3.0, "Remedial Action Construction Activities"—**Section 3.0 describes the RA construction activities.
- **Section 4.0, "Demonstration of Completion"—**Section 4.0 provides information to demonstrate completion of the Parcel D-1 Phase I RA described herein and the achievement of the RAOs for soil that were identified in the ROD through the installation and maintenance of the durable cover.
- **Section 5.0, "Ongoing Activities"—**Section 5.0 discusses activities currently ongoing at Parcel D-1 Phase I to maintain the remedy.
- **Section 6.0, "Community Involvement"—**Section 6.0 describes the community involvement activities associated with this RA.
- **Section 7.0, "Certification Statement"—**Section 7.0 presents the RACR certification statement.
- **Section 8.0, "References"—**Section 8.0 includes a list of documents used to compile this RACR.
- **Appendices A through M—**Submittals, Pre-construction and Mutual Understanding Meeting Minutes, Stormwater Management Paperwork, Photograph Log, Construction As-Builts, Import Sampling Results and Data Validation, Geotechnical Data, Water Quality Monitoring Results, Waste Data and Waste Manifests, Pre-Final and Final Inspection Checklist, the Fact Sheet, and responses to agency comments on the draft RACR are included as Appendices A, B, C, D, E, F, G, H, I, J, K, L, and M, respectively.

2.0 Remedial Action Objectives

The ROD (Navy, 2009) presents the RAOs for Parcel D-1 COCs in soil and groundwater. The RAOs for Parcel D-1 were developed in conjunction with the regulatory agencies and are listed as follows by medium:

- Soil RAOs:
  - Prevent exposure to PAHs and metals in soil at concentrations above RGs developed in the Human Health Risk Assessment for the following exposure pathways: ingestion of, outdoor inhalation of, and dermal exposure to surface and subsurface soil by industrial workers or construction workers.
  - Prevent exposure to VOCs in soil gas at concentrations that would pose unacceptable risk via indoor inhalation of vapors. RGs for VOCs to address exposure via indoor inhalation of vapors have been superseded based on COC identification information from soil gas surveys. Action levels were established for soil gas, which account for vapors from both soil and groundwater, and were calculated based on a cumulative risk level of 10^{-6} using the accepted methodology for risk assessments at HPNS.
- Groundwater RAOs:
  - Prevent exposure by industrial workers to VOCs in the A-aquifer groundwater at concentrations above RGs via indoor inhalation of vapors from groundwater.
  - Prevent or minimize exposure of construction workers to metals and VOCs in the A-aquifer groundwater at concentrations above RGs from dermal exposure and inhalation of vapors from groundwater.
- Radiologically Impacted Soil and Structures RAOs
  - Prevent exposure to radionuclides of concern in concentrations that exceed RGs for potentially complete exposure pathways.

The remedy selected in the ROD (Navy, 2009) includes excavation of soil contaminated with PAHs, removal of existing soil stockpiles that potentially contain COCs, soil vapor controls for VOCs, institutional controls, and a durable cover to provide a physical barrier to minimize contact with metals that are within the naturally occurring background range. This RACR describes the Phase I durable cover component of the final remedy and documents the completion of the RA to address potential COCs in soil, groundwater, and radiologically impacted soil and structures at Parcel D-1 Phase I. The RA at Parcel D-1 Phase II is ongoing and is not addressed in this RACR.

3.0 Remedial Action Construction Activities

RA construction activities included the following:

- Pre-construction activities
- Mobilization
- Utility survey
- Site preparation
- Site maintenance
- Site security services
- Air monitoring
- Topographic survey, field observations, and photographic documentation
- Durable cover installation
- Water quality monitoring
- Protection and extension of existing monitoring wells
- Installation of fence and signage
- Final as-built survey and installation of survey monument
- Waste characterization, disposal, and recycling
- Completion inspections
- Site cleanup and demobilization

3.1 Pre-Construction Activities

Pre-construction activities included permitting and notifications, meetings, and establishing temporary construction facilities. The following subsections describe the activities that were performed in preparation for remediation work.

3.1.1 Permitting and Notifications

CB&I obtained necessary authorizations from the HPNS Caretaker Site Office (CSO) and the Resident Officer in Charge of Construction (ROICC) for performing the RA at Parcel D-1. Prior to field activities, CB&I notified the Navy Remedial Project Manager (RPM), ROICC, CSO, appropriate fire department personnel, and HPNS security as to the nature of the anticipated work.

The work was conducted in accordance with Section 121(e) of Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C., Section 9621[e]), as amended, which states that no federal, state, or local permits will be required for the portion of any removal or RA conducted entirely on site. Because this work was executed to support a RA and was conducted entirely on site, no other permits and fees were required for the RA. However, substantive provisions of applicable or relevant and appropriate requirements specified in the ROD (Navy, 2009) were fulfilled.

CB&I maintains a current annual excavation permit from the California Occupational Safety and Health Administration (Permit No. 2012-906196). The required 24-hour notification was provided before excavation activities began. Underground Service Alert (1.800.227.2600) was notified to obtain utility clearance a minimum of 72 hours prior to any intrusive activities. The permits and notifications were maintained for the duration of the field activities.

3.1.2 Pre-Construction and Mutual Understanding Meeting

Prior to mobilization, a pre-construction and mutual understanding meeting was held on May 19, 2016. The attendees included the Navy RPM, the ROICC, the CSO representative, and CB&I personnel. The purpose of this meeting was to develop a mutual understanding of the remedial activities and the contractor quality control details, including forms to be used, administration of on-site work, and coordination of the construction management and production. The meeting agenda and sign-in sheet are included in Appendix B.

3.1.3 Construction Quality Control Meetings

Contractor quality control meetings were held on a weekly basis throughout the course of fieldwork. At a minimum, the ROICC and the Project Quality Control Manager attended this meeting. The Navy RPM, and other site personnel, subcontractor, and vendor representatives attended as appropriate.

3.1.4 Health and Safety Meetings

Daily tailgate safety meetings were held before starting work. Construction staff, including subcontractors, attended these meetings and signed a tailgate safety meeting form. The meetings were held by the Site Safety and Health Officer and covered various safety issues.

3.1.5 Temporary Construction Facilities

An exclusion zone was established around the work area and delineated with temporary fencing and had appropriate signage posted. Temporary facilities were mobilized to the site and included restroom(s), hand washing station(s), security fencing, stormwater runoff controls, and secure storage (conex) boxes for storage of materials. The construction site layout, including parking areas, laydown areas, and temporary construction facilities, is shown on Figure 4.

3.2 Mobilization

Mobilization activities included site preparation, movement of equipment and materials to the site, and orientation and training of field personnel. On May 19, 2016, the appropriate Navy personnel, including the Lead RPM, RPM, ROICC and CSO, were notified regarding the planned schedule for mobilization and site remediation activities.

Upon receipt of the appropriate authorizations, field personnel, temporary facilities, and construction materials were mobilized to the jobsite on May 31, 2016. Dedicated laydown areas established in the field during mobilization, were used for short-term storage of equipment and materials.

3.3 Utility Survey

A geophysical survey was performed of the Phase I area from June 6 to 8, 2016, following a review of existing as-built drawings of Parcel D-1. The geophysical survey was conducted to identify any active subsurface utilities that may exist via ground-penetrating radar and/or an electromagnetic instrument.

With the exception of one live electrical line used to power the Gun Mole Crane aircraft warning light, encountered utility lines were determined to be inactive following consultation with the subject utility company and the CSO representative. The location of the remaining electrical conduit is shown on as-built drawing C4 (Appendix F).

3.4 Site Preparation

Best management practices (BMPs) were implemented along the site perimeter and around stockpiles to prevent sediment from entering and leaving the site in accordance with the Stormwater Management Plan included in the Environmental Protection Plan (EPP; Appendix B to the RAWP; CB&I, 2016). Vegetation was cleared and grubbed as appropriate, and debris was removed for disposal. Additional debris and refuse were removed from within buildings at the site, in accordance with the Waste Management Plan (Appendix A to the RAWP; CB&I, 2016) and as described in Section 3.14 of this report.

Prior to intrusive activities, the vegetation was cleared from Parcel D-1 Phase I. The vegetation was managed as debris in accordance with the Waste Management Plan (Appendix A to the RAWP; CB&I, 2016). Mechanical equipment was used to cut the overgrown vegetation. Weed-eaters/whackers and chainsaws were used to clear the vegetation growing over areas that were sloped, uneven, bumpy, or too densely vegetated to allow for mechanical equipment access.

Aggressive dust control methods were implemented during earthwork and soil-handling activities by continuously wetting the work areas in accordance with the Dust Control Plan

included in the EPP (Appendix B to the RAWP; CB&I, 2016). On-site stockpiles and disturbed areas were sprayed with dyed (green) "Gorilla Snot®" to stabilize the soil and minimize dust generation.

3.5 Site Maintenance

Good housekeeping practices were followed during site work. Periodic cleanup was conducted to keep the site and adjacent properties free from accumulations of waste materials, rubbish, and windblown debris resulting from operations. The field engineering staff inspected BMPs prior to, during, and after all precipitation events following the criteria established in the Stormwater Pollution Prevention Plan (EPP, Appendix B to the RAWP; CB&I, 2016). During the dry season, BMP inspections were conducted at least once weekly. Inspection reports are included in Appendix C. Streets affected by the work were swept clean. Storage, staging, and work areas, along with all stairs and walkways on the site, were kept free of obstructions and debris. Tools and materials were neatly stored in a conex box.

3.6 Site Security Services

Unarmed security guards patrolled the site during nonworking hours. Tools and small equipment were secured daily in locked conex storage boxes. Air monitoring equipment, heavy equipment, and other equipment too large for the conex were monitored by security during nonworking hours.

3.7 Air Monitoring

Prior to commencing earthmoving activities, air monitoring stations were set up upwind and downwind of the construction activities at locations shown on Figure 4. Air monitoring was performed in accordance with the EPP (Appendix B to the RAWP; CB&I, 2016). The project monitored and sampled for particulate matter less than 10 microns in diameter, total suspended particulates (TSP), arsenic, lead, manganese, and asbestos during earthmoving activities. Data were not collected from November 24 through 28, 2016, because the site was shut down for the holidays; there was no site work during the holidays. Data were not collected on the following dates because of rain:

- October 3, 2016
- October 14 through 17, 2016
- October 25, 2016
- October 27 through November 4, 2016
- November 21 through 23, 2016, and
- December 6 through 22, 2016

Data were not collected on the following dates as described as follows:

- June 21, 2016, downwind sample for TSP and metals: The sample filter blew away in the wind and was not able to be retrieved.
- June 9, 2016 and November 7, 2016, downwind samples for asbestos: The sample filters were overloaded with non-fibrous particles making asbestos fiber counting not possible. TSP and particulate matter less than 10 microns in diameter results from the downwind sample location on these dates were below their respective action levels.
- August 29, 2016, upwind sample for asbestos: The sample filter was damaged due to a spider web on the filter media.

None of the construction activities exceeded the established threshold limit values at any time during project execution. Air monitoring results are provided in Appendix D.

3.8 Topographic Survey, Field Observations, and Photographic Documentation

A pre-construction topographic survey was performed by CBL Professional Services Inc., under the direction of a State of California licensed land surveyor, on May 12 and 16, 2016. Data from this survey were used to establish horizontal and vertical controls for the site, and to assess the pre-RA site topographic features, such as high and low points and the limits of the durable cover, which provided the basis for calculating the cut and fill quantities. The pre-construction topographic survey is provided in Appendix F.

Field observations were recorded daily and submitted electronically to the RPM, ROICC, and CSO on a daily basis as part of the Daily Production Report and Quality Control Report.

Photographs of the site were collected during the implementation of the RA activities. Photographs were taken during each aspect of work in order to provide a detailed photographic history of the RA. Electronic versions of the photographs providing the date, location, and a description of activities shown can be viewed in the photograph log (Appendix E).

3.9 Durable Cover Installation

The selected remedy at Parcel D-1, as specified in the ROD (Navy, 2009) and detailed in the DBR (ChaduxTt, 2011a), includes the installation of a durable cover intended to prevent human exposure to potential residual concentrations of COCs in the underlying soil (Navy, 2009). The durable cover consists of asphalt paving (new or existing), concrete, or the existing building foundations provided the foundations are intact and in good condition. Figure 5 presents a conceptual cross section of the asphalt pavement cover. The final cover grade for the site can be found in the as-built drawings (Appendix F). During all construction activities, dust was mitigated per the Dust Monitoring Plan included in the EPP (Appendix B to the RAWP; CB&I, 2016).

3.9.1 Seawall Stabilization

Repairs were necessary to the subgrade surface behind the Parcel D-1 Phase I seawalls and along portions of the piers to provide a stable vertical surface for tying the durable cover. Where necessary along the existing seawall, granular fill was used to restore the area behind the seawall to meet the surrounding grade so that the newly constructed durable cover could be projected to the edge of the site at a uniform grade. In areas where more than 18 inches of fill were required to match the final grade, gabion baskets were used to stabilize the seawall. As described is this report, gabion baskets, as manufactured by Maccaferri Terramesh, consisted of double twisted rectangular wire mesh basket (in accordance with ASTM International [ASTM] A 975) filled with fractured rock. Approximately 650 linear feet of the seawall was stabilized using gabion baskets (Figure 6). Gabion baskets were anchored as needed into the existing subgrade using horizontal layers of welded wire mesh as horizontal tie-backs, thus minimizing the outward pressure placed upon the weakened seawalls. A typical seawall repair cross section is provided in Figure 7.

Prior to installation of the gabion baskets, repair areas were prepared by excavating material to create a flat surface to install the baskets. Debris and refuse were removed or cut at grade to provide a clean surface. Each basket, typically measuring 9 feet long by 6 feet wide by 3 feet high, was filled with 4-inch to 8-inch fractured rock. Where more than one basket was required to match grade, the baskets were stacked inside the edge of the existing concrete seawall as shown on Figure 7. The individual baskets were then wired together. Depending on the degree of erosion, different areas required different arrangements of gabion baskets. In accordance with FWV 002 (Appendix A), in areas where holes daylighted through the existing seawall, geotextile filter fabric was placed beneath the backfill and extended up the inside of the wall to minimize the loss of backfill material during and after repair work behind the seawall. To further reduce the potential for loss of backfill due to erosion, a geotextile filter fabric was also installed above the gabion structures to prevent fines from entering the Bay. New asphalt pavement was installed over the gabion stabilized areas as discussed in Section 3.9.2 of this report.

Along Berth 15 of the Gun Mole Pier (Figure 6), an approximately 40-foot long segment of seawall was identified as heavily corroded. In accordance with FWV 005 (Appendix A), gabion baskets were installed along the interior sheet pile wall rather than the outer seawall. The durable cover was installed to the edge of the gabion baskets and a fence and an entry gate were installed surrounding the area to prevent pedestrian or automotive traffic from gaining access. Figure 8 provides the cross section of Berth 15. A photograph of the area with fencing is included as Photograph 92 in the Photograph Log (Appendix E).

At the eastern end of the Gun Mole Pier, Berths 17, 18, and 19 were stabilized with ¼-ton (18-inch) riprap (Figure 6). Before the riprap was put in place, the debris and refuse on this

portion of the site were removed or cut at grade to provide a clean surface for the riprap. A layer of geotextile fabric was placed on the exposed soil to minimize fines from entering the Bay as well as to prevent the underlying soil from "piping" through the stone. Riprap was placed over the geotextile fabric starting from the bottom of the area and continued up the slope. Distribution of the various sizes of riprap was obtained by controlled dumping of loads during final placement. The riprap extends from the edge of new asphalt pavement, beyond the seawall and out to the low tide line. Compaction of riprap was not required and placement was finished to present an even surface, free of mounds and windrows. A typical riprap stabilization detail is provided in Figure 9.

During seawall stabilization work, BMPs were implemented to minimize sediments from entering the Bay. BMPs included fiber rolls, sand bags, and the use of anchored turbidity curtains. Water quality monitoring is discussed in Section 3.10 of this report.

3.9.2 Existing Surface with No Asphalt

New asphalt pavement cover was installed over the portions of the site shown on Figure 6. The newly constructed durable cover included a minimum 4 inches of untreated aggregate base course (ABC) material and a minimum 2 inches of asphaltic concrete (AC) wear surface, for a total minimum cover thickness of 6 inches (Figure 5). Clean imported fill and regrading over the site was used to build up the existing ground surface where necessary to meet the prescribed foundation grade prior to construction of the durable cover.

Parcel D-1 is generally flat, and some grading of the existing surface was required for preparation of the foundation surface for construction of new asphalt pavement. Low-lying areas were filled with clean import material to minimize the accumulation of stormwater. Import fill met all geotechnical, chemical, and radiological requirements as specified in FWV 001 (Appendix A). Import fill was sampled and analyzed in accordance with the approved Final Backfill Acceptance Plan (Appendix E to the RAWP; CB&I 2016). SVOCs were analyzed using U.S. Environmental Protection Agency Method 8270, which is consistent with the California Department of Toxic Substances Control's *Information Advisory on Clean Import Fill Material* (California Department of Toxic Substances Control, 2001). Using the approved method, some SVOC compounds had laboratory detection limits above the import comparison criteria. The SVOCs were not detected and, because this material was from a borrow source located in a nonindustrial area and was not a site undergoing an environmental cleanup, it can be reasonably concluded these SVOCs are not present in the material. Chemical, radiological, and geotechnical testing results of import fill are included in Appendix G.

Open utility vaults on the South Pier and Gun Mole Pier that could not be filled with import material were sealed prior to subgrade preparation. The open vaults were covered with steel

plates which were tack welded and sealed with foam to provide a water tight surface upon which the final subgrade surface could be constructed.

Water flow patterns were generally maintained toward the Bay and the existing stormwater conveyance features. In accordance with the RAWP (CB&I, 2016), the 10-foot perimeter surrounding each site building was sloped to a minimum 1 percent grade to drain stormwater and minimize accumulation in the vicinity of the building foundations. Care was taken to not obstruct building entry points with the final cover, and the final cover was graded such that it would not extend above the elevation of the foundation slab. Foundation slabs below grade were removed or paved over with new AC. The remainder of the site was graded with a minimum 0.5 percent slope to drain water toward the existing drainage channels thereby minimizing the accumulation of water over the site.

Existing subgrade and imported fill were used to meet the prescribed subgrade elevation. Import fill was tested for compaction, grain size, Atterberg limits, and moisture (Appendices G and H). The subgrade was compacted as necessary before installation of the ABC layer. Site soils that did not meet the compaction requirements were reworked and retested as necessary to achieve the required design specifications. During placement of soil fill, continuous observation by a designated member of the field engineering staff ensured that materials met the suitability requirements and that moisture content was controlled to ensure compaction specifications were met. Geotechnical laboratory testing and field confirmatory tests were performed by Smith-Emery Geotechnical Services, a third party AASHTO certified geotechnical testing firm.

Areas requiring seawall stabilization were excavated to prepare each segment for gabion basket placement. When backfilled, compaction testing was performed at the frequency of 1 test per 30 cubic yards of fill, with a minimum of 1 test at the top layer of each excavation area as described in FWV 003 (Appendix A).

Following import of fill to meet the prescribed elevations, recycled ABC was added and compacted directly onto the prepared subgrade. The use of recycled ABC was approved by the Navy in Submittal 08, Recycled AB Material (Appendix A). The base course was added to a final thickness of at least 4 inches. ABC was tested for compaction; compaction reports are provided in Appendix H.

Following compaction of the newly placed ABC layer, hot mix AC was added as the final wear surface course to a compressed thickness of 2 inches (minimum) to complete the durable cover. As described in this report, hot mix AC is composed of aggregate bound together into a solid by an asphaltic cement (see Submittal 09, Bituminous Mix Design [Asphalt]; Appendix A). Installation of the hot mix AC layer was performed by a subcontractor, Granite Construction Company of Watsonville, California, with quality control oversight from CB&I and

Smith-Emery Geotechnical Services. The mix was manufactured at an off-site mixing plant and transported to the site for spreading by a mechanical spreader. In accordance with the DBR (ChaduxTt, 2011a) and the Testing Plan and Log (Appendix H), two samples were collected per day per mix type from each truck. The uncompacted mix was tested for extraction in accordance with ASTM D 2172 and sieve analysis in accordance with AASHTO T 30. The samples were also tested for stability and flow in accordance with CTM 366. The geotechnical surveyors cored 4-inch diameter cores from the AC surface at the frequency of three cores per 200 tons of asphalt delivered. These samples were measured to confirm minimum 2-inch thickness, and returned to the laboratory for density in accordance with CalTrans Method 308. When allowable density was confirmed at each core location, the cores were filled with a concrete mix following the specifications in Section 03 30 00 of the DBR (ChaduxTt, 2011a) in accordance with RFI-002 (Appendix A). Geotechnical reports are provided in Appendix H.

3.9.3 Existing Asphalt Pavement Requiring New Asphalt or Asphalt Repair

All areas of Parcel D-1 Phase I required new asphalt (Figure 4); therefore, no asphalt repair was performed.

3.9.4 Existing Building Foundations

Five buildings are located within Parcel D-1 Phase I: Buildings 274, 306, 368, 369, and 308 (Figure 4). There are also several former building slabs and concrete utility vaults located on the South Pier and Gun Mole Pier. Existing building foundations and slabs, where intact and in good condition, constitute a durable cover as described in the ROD (Navy, 2009).

Each building slab and foundation were inspected to confirm the condition and make repairs as necessary. Prior to inspections, the buildings were cleared of debris and the building floors were cleaned to facilitate inspection. A transformer was located inside Building 369. The transformer oil was sampled and analyzed, and confirmed to not contain polychlorinated biphenyls (PCBs); the transformer was recycled as discussed in Section 3.14 of this report. General refuse, debris, and other loose materials were disposed in accordance with applicable standards as further discussed in Section 3.14 of this report.

Building 306A was a temporary structure built on wooden skids located adjacent to Building 306. The building was de-constructed and disposed as construction debris. Ceramic electrical insulators were mixed in with the construction debris and upon load out, alarmed the radiological portal monitor. The debris was returned to Parcel D-1 and transferred to the HPNS Basewide Radiological contractor for subsequent disposal by the Navy's LLRW contractor. Waste disposal is further discussed in Section 3.14 of this report.

Building 308 contained a sump with several utility lines exiting the building footprint. While the floor of the concrete sump was visually observed to be intact, openings for the abandoned utility lines were sealed with concrete to minimize the potential migration of surface water.

CB&I inspected building foundations and made note of cracks smaller than ¼ inch during the inspections. Cracks larger than ¼ inch were sealed with Rapid Set® CEMENT ALL® non-shrink grout, conforming to ASTM C 1107, as specified in Section 03 30 00 of the DBR (ChaduxTt, 2011a). Building 274 had large open trenches with exposed soil. The trenches were filled with soil, compacted to a minimum density of 95 percent of the maximum dry density at ±3 percent optimum moisture based on modified Proctor density testing (ASTM D 1557), and then covered with concrete. The openings in the foundations of Buildings 306 and 308, and the former Building 384 foundation were covered with a concrete mix following the specifications in Section 03 30 00 of the DBR. Concrete forms were used during the repair at Building 308 and the former Building 384 foundation to provide a clean edge and to minimize the use of excess concrete. Photographs of the work in progress are included as Photographs 55 through 62 in the Photograph Log (Appendix E). The location of the concrete repairs are shown on as-built drawing C4 (Appendix F).

3.10 Water Quality Monitoring

Prior to commencing seawall stabilization work, a turbidity curtain was deployed surrounding the section of seawall actively worked on to prevent sediments from entering the water column and the Bay. The turbidity curtain was installed in accordance with the manufacturer's instructions and was anchored to the piers and/or seawalls to fully encompass each area of repair. As part of the weekly BMP inspections, the turbidity curtain was routinely inspected (Appendix C). The turbidity curtain was adjusted and/or repaired as needed throughout the project.

During seawall stabilization construction activities, water quality monitoring was performed daily for dissolved oxygen, pH, and turbidity. Prior to beginning seawall stabilization work, water quality monitoring for dissolved oxygen, pH, and turbidity was performed from June 28 through July 1, 2016 to establish background values. Water quality monitoring was performed at one location approximately 20 feet outside the turbidity curtain (at the point of compliance), adjacent to the active work area from July 5 through November 7, 2016. The monitoring location was relocated as needed. The results of the readings from the location outside the curtain were compared to the background values to evaluate the effectiveness of in place controls. Water quality monitoring results are included in Appendix I. Visual indications of turbidity were not observed during seawall work, therefore, monitoring inside turbidity curtains was not performed.

3.11 Protection and Extension of Existing Monitoring Wells

Six existing monitoring wells are located within Parcel D-1 Phase 1 (Figure 4). During fieldwork, the monitoring wells were protected. Once paving was complete, the monitoring wells were extended to meet the final grade. The wells were extended using a polyvinyl chloride extension and a solvent weld schedule 40 polyvinyl chloride coupling, as shown on Drawing C5 (Appendix F). New concrete pads, sloped to drain away from the wells, and well boxes flush to the completed durable cover surface were installed where needed. New elevations were surveyed and are provided in Table 1.

3.12 Installation of Fence and Signage

Following completion of paving, approximately 1,950 feet of fence and one entrance gate were installed along the Parcel D-1 Phase I boundary (Figure 5). The fence and gate were installed along E and Morrell Streets. Signs were posted at the Phase I entry point and along the fence at an approximately 200-foot spacing to warn against trespassing and the hazards associated with the site per specifications provided in the design drawings included in the DBR (ChaduxTt, 2011a). Fence, gate and signage details are provided on the as-built drawing (Appendix F).

As discussed in Section 3.9 of this RACR, approximately 30 feet of fence and a pedestrian entrance gate were installed along a segment of Berth 15 on the Gun Mole Pier to prevent access to a corroded section of seawall. The fence and gate are shown on the as-built drawings (Appendix F). A photograph of the area with fencing is included as Photograph 92 in the Photograph Log (Appendix E).

3.13 Final As-Built Survey and Installation of Survey Monument

Following completion of construction activities, the durable cover was surveyed by the California licensed land surveyor, CBL Professional Services Inc., on February 2 and 3, 2017. The fence line and elevations for the extended monitoring wells were also surveyed. A permanent survey monument was installed on the cover surface as shown in Appendix F. The monument is a brass disk set in concrete and was located and protected as needed to prevent damage. The final as-built survey is included as Appendix F of this RACR.

3.14 Waste Characterization, Disposal, and Recycling

Several waste streams resulted from the Parcel D-1 Phase I remedial activities. These waste streams included soil and debris, metal debris, creosote treated wood, used personal protective equipment (PPE), and miscellaneous trash and debris. A summary of the waste quantities generated and disposed is presented in Table 3.

3.14.1 Soil and Debris

Small quantities of soil were generated from Buildings 308 and 369. The soil was containerized in four 95-gallon overpack drums and staged on-site pending waste characterization and off-site disposal during the Phase II portion of the RA.

Approximately 340 cubic yards of construction debris (including green waste) and 40 cubic yards of concrete debris were generated from RA activities. The debris was disposed as non-hazardous construction debris, with the exception of one bin. Debris originating from Building 306A included ceramic electrical insulators, which were broken and mixed in with the construction debris. Upon load-out through the HPNS radiological portal monitor, the alarm was triggered. The debris was returned to Parcel D-1 and transferred to the HPNS Basewide Radiological contractor for subsequent disposal by the Navy's LLRW contractor. Dates of transportation, disposal weight/volumes, waste class and disposal facilities are summarized in Table 3.

3.14.2 Metal Debris

Approximately 87 tons of metal debris (scrap metal and electronics) were recycled during the Parcel D-1 Phase I RA. A large transformer was located in Building 369. The fluid was sampled and analyzed for PCBs. The results showed no PCBs in the transformer oil; therefore, the transformer was recycled as scrap metal. The metal was transported to the scrap metal recycler, Circosta Iron and Metal Company Inc., located at 1801 Evans Avenue, San Francisco, California. Analytical results for the transformer oil are included in Appendix J.

3.14.3 Other Waste

During clearing and grubbing, large sections of railroad track and creosote treated railroad tie waste were generated. The railroad ties were consolidated and disposed of as non-hazardous special waste. The waste manifests are included in Appendix J.

During subgrade preparation activities, potential asbestos-containing material was uncovered. The material was placed into an overpack drum and transferred to the Navy's waste contractor.

Lighting ballasts were found in Building 369. The ballasts were contained in one 95-gallon overpack container and staged on-site pending waste characterization and off-site disposal during the Phase II portion of the RA.

3.14.4 Used Personal Protective Equipment

On-site activities were performed in Level D PPE. Used PPE was consolidated and disposed as general trash.

3.15 Completion Inspections

Prior to demobilization, a pre-final site walk of Parcel D-1 Phase I was held with the Navy on January 17, 2017. During this site walk, a punch list of items to be corrected was generated by the Project Quality Control Manager. The punch list items were addressed once completed, a final site walk inspection was scheduled. The final site inspection was performed on February 14, 2017. The pre-final and final inspection reports are provided in Appendix K.

3.16 Site Cleanup and Demobilization

Site cleaning activities included removal of excess construction material, BMPs, wood, debris, and other foreign material; and removal of construction equipment and storage boxes. Temporary facilities, including staging areas, containment areas, and temporary fencing, were removed from the work area. Demobilization was completed on February 3, 2017.

4.0 Demonstration of Completion

The RA is deemed to be complete when the RAOs are met. Table 2 summarizes the RAOs for Parcel D-1 Phase I and how they were achieved through proper implementation and satisfactory completion of the final remedy in accordance with the RD, and will continue to be achieved through development and implementation of the post-construction maintenance, repairs, monitoring, and institutional controls. The RA at Parcel D-1 Phase II is ongoing and not addressed in this RACR.

5.0 Ongoing Activities

Ongoing activities associated with the final remedy at Parcel D-1 include monitoring and maintenance of the Phase I durable cover installed as part of this remedy and implementation of LUCs related to the durable covers. As discussed in Section 1.0 of this RACR, only the Phase I portion of the durable cover was completed at this time. The RA at Parcel D-1 Phase II is ongoing and not addressed in this RACR. The completion of the Phase II portion of the durable cover is being completed under another contract, and construction is planned for 2018. The following subsections describe the ongoing components of the remedy.

5.1 Monitoring and Maintenance of Durable Cover

The Parcel D-1 Phase I durable cover, including stabilized seawalls cover, asphalt pavement cover, and repaired building foundations, will continue to be inspected, maintained, and repaired according to the *Final Post-Construction Operation and Maintenance Plan, Remedial Action in Parcel D-1, Hunters Point Naval Shipyard, San Francisco, California* (APTIM, 2018). In general, any deficiencies that reduce the effectiveness of the cover to protect human health and the environment will be corrected. In some cases, damaged areas may need to be temporarily secured to prevent access by the public while repairs are planned and implemented.

5.2 Land Use Controls

The LUC objectives for Parcel D-1 Phase I that apply to the cover design presented in the DBR (ChaduxTt, 2011a) include maintaining the integrity of the cover. The DBR included fencing and signs to control access as part of the remedy; however, fencing and signs are not requirements of the ROD (Navy, 2009) and are not necessary after the site is transferred and redeveloped. The LUCs are described in the *Land Use Control Remedial Design, Parcel D-1, Hunters Point Naval Shipyard, San Francisco, California* (LUC RD; ChaduxTt, 2011d). The current LUC RD will be revised to include additional requirements related to the discovery of radiological objects in the Parcel D-1 Phase II area.

Parcel D-1 is owned by the federal government under the jurisdiction of the Navy and is planned to be transferred to the CCSF. The *Amended Hunters Point Redevelopment Plan* (Former SFRA, 2010) contains scenarios that include residential reuses for portions of Parcel D-1. Residential uses could include dwelling units, live/work units, and group housing, as well as related institutional uses such as schools and child-care facilities. The procedures to modify the durable cover are restricted throughout Parcel D-1 unless prior written approval for these activities is granted by the Federal Facilities Agreement (FFA) signatories. LUCs are described in detail in the LUC RD (ChaduxTt, 2011d), which will be revised to include additional requirements for Parcel D-1 Phase II. Modifications to the durable cover will require a revision of the *Final*

Post-Construction Operation and Maintenance Plan, Remedial Action in Parcel D-1, Hunters Point Naval Shipyard, San Francisco, California (APTIM, 2018) to account for changes in the inspections and repairs necessary to maintain the remedy.

The activity and land use restrictions described in the LUC RD (ChaduxTt, 2011d) will be incorporated into the Quitclaim Deed and Covenant to Restrict Use of Property and will take effect upon transfer to the CCSF and issuance of those documents.

6.0 Community Involvement

Prior to the start of work, the RAWP (CB&I, 2016) was made available to the public at two local repositories: City of San Francisco Main Library and HPNS Library (located near the entrance to the base). Community bus tours were held during the pre-construction planning and construction phases of the project (on May 14, 2016, August 6, 2016, April 8, 2017, and August 5, 2017) to apprise community members of the remediation work being performed at HPNS. At each of the bus tours, the attendees were invited to ask questions of the Navy to discuss and ask representatives from the regulatory agencies questions about the remediation activities at HPNS. The Navy also updated the regulatory agencies on the progress of the project, and that information was relayed to the community through a variety of agency outreach initiatives.

A Fact Sheet was prepared to describe the work performed as part of the RA and to document successful completion of the RA. The Fact Sheet is included in Appendix L and will be distributed electronically and in hard copy to the HPNS community mailing list following final acceptance of this RACR. The HPNS distribution list contains approximately 2,500 recipients.

7.0 Certification Statement

I certify that this RACR memorializes completion of the construction activities to implement the RA at Parcel D-1 Phase I at the former HPNS, San Francisco, California. The RA was implemented pursuant to the ROD (Navy, 2009) and the DBR (ChaduxTt, 2011a), and in accordance with the RAWP (CB&I, 2016), with deviations noted herein. This RACR documents the achievement of the soil, groundwater, and radiologically impacted soil and structures RAOs for Parcel D-1 Phase I achieved through proper implementation and satisfactory completion of the final remedy. The RA at Parcel D-1 Phase II is ongoing and not addressed in this RACR.

The Navy is currently implementing monitoring and maintenance of the Parcel D-1 Phase I durable cover in accordance with the *Final Post-Construction Operation and Maintenance Plan, Remedial Action in Parcel D-1, Hunters Point Naval Shipyard, San Francisco, California* (APTIM, 2018). The LUC objectives will be met by controlling site access until the time of property transfer. The activity and LUC described in the RD will be incorporated into the Quitclaim Deed and Covenant to Restrict Use of Property and will take effect upon transfer and issuance of those documents.

Derek Robinson
BRAC Environmental Coordinator
Hunters Point Naval Shipyard

Date

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Figures

India Basin

San Francisco Bay

CITY AND COUNTY
OF SAN FRANCISCO

PARCEL F

PARCEL B

PARCEL UC-3

PARCEL UC-2

PARCEL UC-1

PARCEL C

PARCEL D-2

PARCEL E-2

PARCEL G

Yosemite Slough

PARCEL D-1

Phase II

Phase I

PARCEL E

PARCEL F

South Basin

San Francisco Bay

Legend

- Parcel D-1
- Parcel Boundary
- Parcel F Boundary
- Buildings

N

0 800 1,600 Feet

U.S. Department of the Navy
BRAC PMO West
San Diego, California

FIGURE 1
HUNTERS POINT NAVAL SHIPYARD
AND PARCEL D-1 LOCATION MAP

REMEDIAL ACTION AT PARCEL D-1
HUNTERS POINT NAVAL SHIPYARD, SAN FRANCISCO, CA

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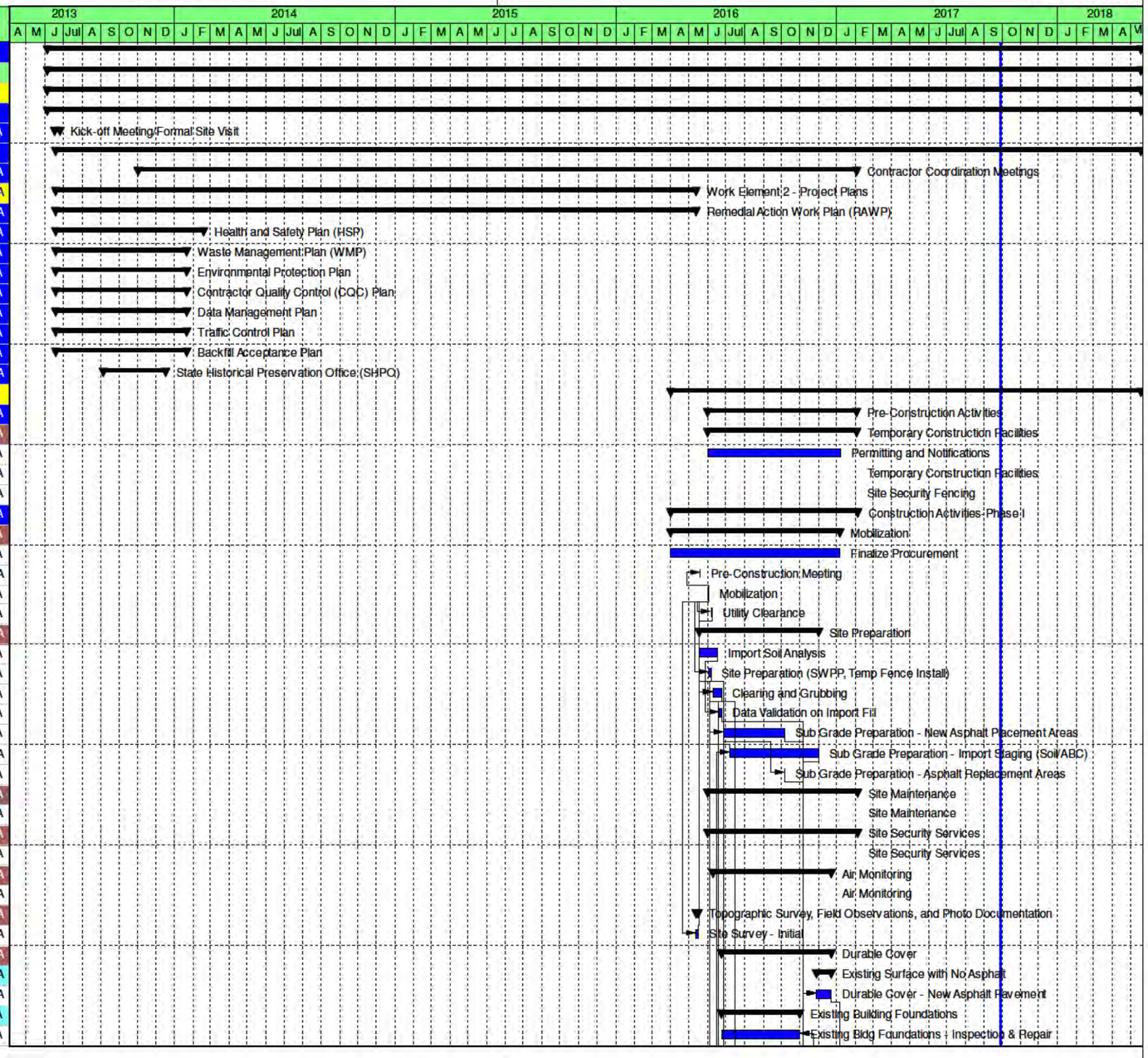
CTO 03 RACR

26-Mar-18 13:28

Activity Name	Completion	Start	Finish
CTO 03 Remedial Action in Parcel D-1, Hunters Point Naval Shipyard, San Francisco,	1257	04-Jun-13 A	18-May-18
CTO 03 Remedial Action in Parcel D-1, Hunters Point Naval Shipyard, San Francisco, CA	1257	04-Jun-13 A	18-May-18
Work Element 1- Meetings, Project Management, and Admin. Support	1257	04-Jun-13 A	18-May-18
Project Mgmt - Project Management & Administrative Support	1257	04-Jun-13 A	18-May-18
Kick-off Meeting/Formal Site Visit	7	17-Jun-13 A	25-Jun-13 A
Project Team Meetings	1247	18-Jun-13 A	18-May-18
Contractor Coordination Meetings	824	01-Nov-13 A	03-Feb-17 A
Work Element 2 - Project Plans	737	18-Jun-13 A	12-May-16 A
Remedial Action Work Plan (RAWP)	737	18-Jun-13 A	12-May-16 A
Health and Safety Plan (HSP)	169	18-Jun-13 A	18-Feb-14 A
Waste Management Plan (WMP)	149	18-Jun-13 A	20-Jan-14 A
Environmental Protection Plan	149	18-Jun-13 A	20-Jan-14 A
Contractor Quality Control (CQC) Plan	149	18-Jun-13 A	20-Jan-14 A
Data Management Plan	149	18-Jun-13 A	20-Jan-14 A
Traffic Control Plan	149	18-Jun-13 A	20-Jan-14 A
Backfill Acceptance Plan	149	18-Jun-13 A	20-Jan-14 A
State Historical Preservation Office (SHPO)	71	05-Sep-13 A	16-Dec-13 A
Work Element 3 - Field Work	541	31-Mar-16 A	18-May-18
Pre-Construction Activities	172	31-May-16 A	03-Feb-17 A
Temporary Construction Facilities	172	31-May-16 A	03-Feb-17 A
Permitting and Notifications	153	31-May-16 A	06-Jan-17 A
Temporary Construction Facilities	172	31-May-16 A	03-Feb-17 A
Site Security Fencing	172	31-May-16 A	03-Feb-17 A
Construction Activities-Phase I	215	31-Mar-16 A	03-Feb-17 A
Mobilization	194	31-Mar-16 A	05-Jan-17 A
Finalize Procurement	194	31-Mar-16 A	05-Jan-17 A
Pre-Construction Meeting	1	19-May-16 A	19-May-16 A
Mobilization	3	31-May-16 A	03-Jun-16 A
Utility Clearance	3	06-Jun-16 A	08-Jun-16 A
Site Preparation	136	18-May-16 A	01-Dec-16 A
Import Soil Analysis	21	18-May-16 A	17-Jun-16 A
Site Preparation (SWPP, Temp Fence Install)	2	03-Jun-16 A	07-Jun-16 A
Clearing and Grubbing	12	09-Jun-16 A	24-Jun-16 A
Data Validation on Import Fill	4	20-Jun-16 A	24-Jun-16 A
Sub Grade Preparation - New Asphalt Placement Areas	71	27-Jun-16 A	06-Oct-16 A
Sub Grade Preparation - Import Staging (Soil/ABC)	102	07-Jul-16 A	01-Dec-16 A
Sub Grade Preparation - Asphalt Replacement Areas	0	06-Oct-16 A	06-Oct-16 A
Site Maintenance	173	31-May-16 A	03-Feb-17 A
Site Maintenance	173	31-May-16 A	03-Feb-17 A
Site Security Services	173	31-May-16 A	03-Feb-17 A
Site Security Services	173	31-May-16 A	03-Feb-17 A
Air Monitoring	136	09-Jun-16 A	22-Dec-16 A
Air Monitoring	136	09-Jun-16 A	22-Dec-16 A
Topographic Survey, Field Observations, and Photo Documentation	3	12-May-16 A	16-May-16 A
Site Survey - Initial	3	12-May-16 A	16-May-16 A
Durable Cover	126	23-Jun-16 A	22-Dec-16 A
Existing Surface with No Asphalt	18	28-Nov-16 A	22-Dec-16 A
Durable Cover - New Asphalt Pavement	18	28-Nov-16 A	22-Dec-16 A
Existing Building Foundations	90	23-Jun-16 A	31-Oct-16 A
Existing Bldg Foundations - Inspection & Repair	90	23-Jun-16 A	31-Oct-16 A



Actual Work
Remaining Work
Critical Remaining Work
Milestone
Summary

Figure 2: Project Schedule / CTO 03 N62473-10-D-0807, Remedial Action in Parcel D-1, Hunters Point Naval Shipyard, San Francisco, CA

CTO 03 RACR

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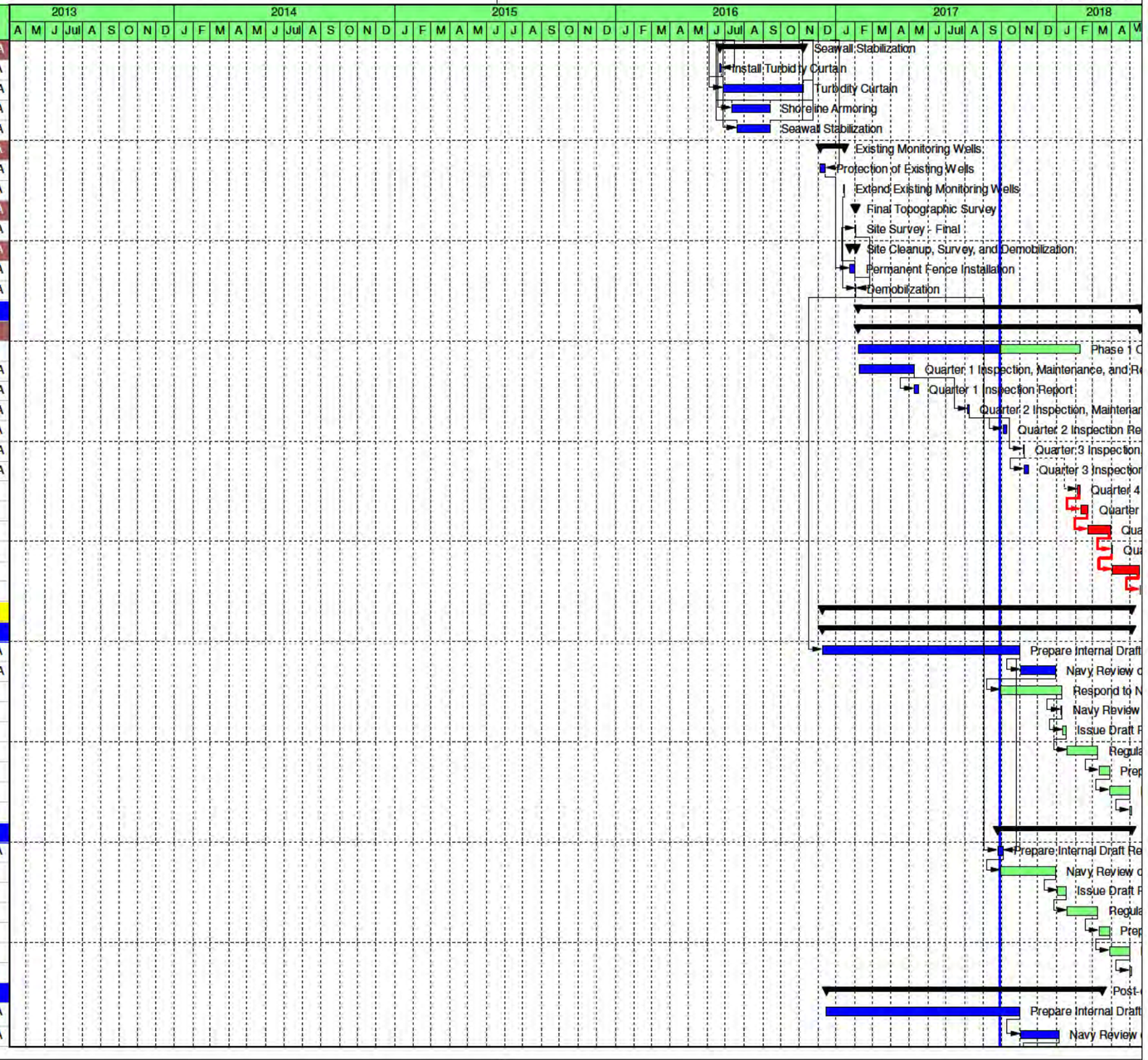
Activity Name	At	Start	Finish
	npletion		
Seawall Stabilization	97	21-Jun-16 A	07-Nov-16 A
Install Turbidity Curtain	3	21-Jun-16 A	23-Jun-16 A
Turbidity Curtain	93	27-Jun-16 A	07-Nov-16 A
Shoreline Armoring	46	11-Jul-16 A	14-Sep-16 A
Seawall Stabilization	40	19-Jul-16 A	14-Sep-16 A
Existing Monitoring Wells	28	05-Dec-16 A	13-Jan-17 A
Protection of Existing Wells	8	05-Dec-16 A	14-Dec-16 A
Extend Existing Monitoring Wells	2	12-Jan-17 A	13-Jan-17 A
Final Topographic Survey	1	01-Feb-17 A	02-Feb-17 A
Site Survey - Final	1	01-Feb-17 A	02-Feb-17 A
Site Cleanup, Survey, and Demobilization	9	23-Jan-17 A	03-Feb-17 A
Permanent Fence Installation	7	23-Jan-17 A	01-Feb-17 A
Demobilization	1	02-Feb-17 A	03-Feb-17 A
Post Construction Activities (Work Element 5 - Operation and Maintenance)	326	06-Feb-17 A	18-May-18
Operation and Maintenance	326	06-Feb-17 A	18-May-18
Phase 1 O&M (1 Year)	256	06-Feb-17 A	08-Feb-18
Quarter 1 Inspection, Maintenance, and Repair	65	08-Feb-17 A	09-May-17 A
Quarter 1 Inspection Report	5	10-May-17 A	16-May-17 A
Quarter 2 Inspection, Maintenance, and Repair	1	07-Aug-17 A	08-Aug-17 A
Quarter 2 Inspection Report	5	04-Oct-17 A	10-Oct-17 A
Quarter 3 Inspection, Maintenance, and Repair	1	06-Nov-17 A	07-Nov-17 A
Quarter 3 Inspection Report	4	08-Nov-17 A	14-Nov-17 A
Quarter 4 Inspection, Maintenance, and Repair	4	05-Feb-18*	08-Feb-18
Quarter 4 Inspection Report - Annual Report Prepare Internal Draft	9	09-Feb-18	21-Feb-18
Quarter 4 Inspection Report - Annual Report Navy Review Internal Draft (10 days)	27	22-Feb-18	30-Mar-18
Quarter 4 Inspection Report - Annual Report Respond to Navy Comments and Issue Draft	1	02-Apr-18	02-Apr-18
Quarter 4 Inspection Report - Annual Report Navy/Agencies Review of Draft (45 calendar days)	33	03-Apr-18	17-May-18
Quarter 4 Inspection Report - Annual Report Respond to Comments and Issue Final	1	18-May-18	18-May-18
Work Element 4 - Reports	355	09-Dec-16 A	04-May-18
Remedial Action Closure Report	355	09-Dec-16 A	04-May-18
Prepare Internal Draft Remedial Action Completion Report	228	09-Dec-16 A	31-Oct-17 A
Navy Review of Internal Draft Remedial Action Completion Report (10 Working Days)	39	01-Nov-17 A	29-Dec-17 A
Respond to Navy Comments	5	02-Jan-18 A	08-Jan-18
Navy Review of RTCs	2	08-Jan-18	09-Jan-18
Issue Draft Remedial Action Completion Report	5	10-Jan-18	16-Jan-18
Regulatory Review of Draft Remedial Action Completion Report (45 Calendar Day Review)	38	17-Jan-18	09-Mar-18
Prepare and Issue Draft Final Remedial Action Completion Report	13	12-Mar-18	28-Mar-18
Regulatory Review of Draft Final Remedial Action Completion Report (30 Calendar Days)	22	29-Mar-18	30-Apr-18
Respond to Regulatory Comments and Issue Final Remedial Action Completion Report	4	01-May-18	04-May-18
Remedial Action Fact Sheet	154	25-Sep-17 A	04-May-18
Prepare Internal Draft Remedial Action Fact Sheet	6	25-Sep-17 A	03-Oct-17 A
Navy Review of Internal Draft Remedial Action Fact Sheet (10 working days)	59	04-Oct-17 A	29-Dec-17
Issue Draft Remedial Action Fact Sheet	11	02-Jan-18	16-Jan-18
Regulatory Review of Draft Remedial Action Fact Sheet (45 Calendar Day Review)	38	17-Jan-18	09-Mar-18
Prepare and Issue Draft Final Remedial Action Fact Sheet	13	12-Mar-18	28-Mar-18
Regulatory Review of Draft Final Remedial Action Fact Sheet (30 Calendar Days)	22	29-Mar-18	30-Apr-18
Respond to Regulatory Comments and Issue Final Remedial Action Fact Sheet	4	01-May-18	04-May-18
Post-construction Operation and Maintenance Plan (O&M)	316	16-Dec-16 A	16-Mar-18
Prepare Internal Draft O&M Plan	223	16-Dec-16 A	31-Oct-17 A
Navy Review of Internal Draft O&M Plan (10 working days)	42	01-Nov-17 A	04-Jan-18 A



Actual Work
Remaining Work
Critical Remaining Work
Milestone
Summary

Figure 2: Project Schedule / CTO 03 N62473-10-D-0807, Remedial Action in Parcel D-1, Hunters Point Naval Shipyard, San Francisco, CA

CTO 03 RACR

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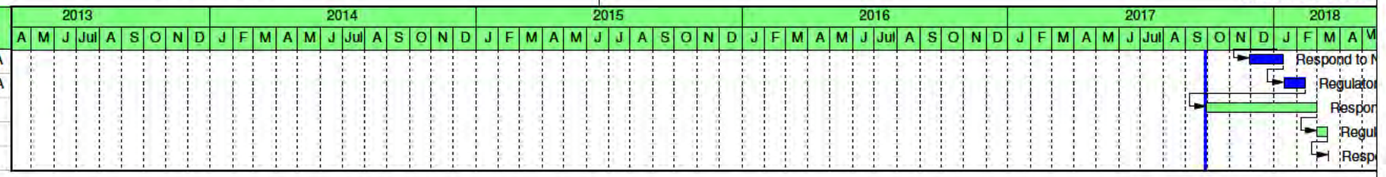
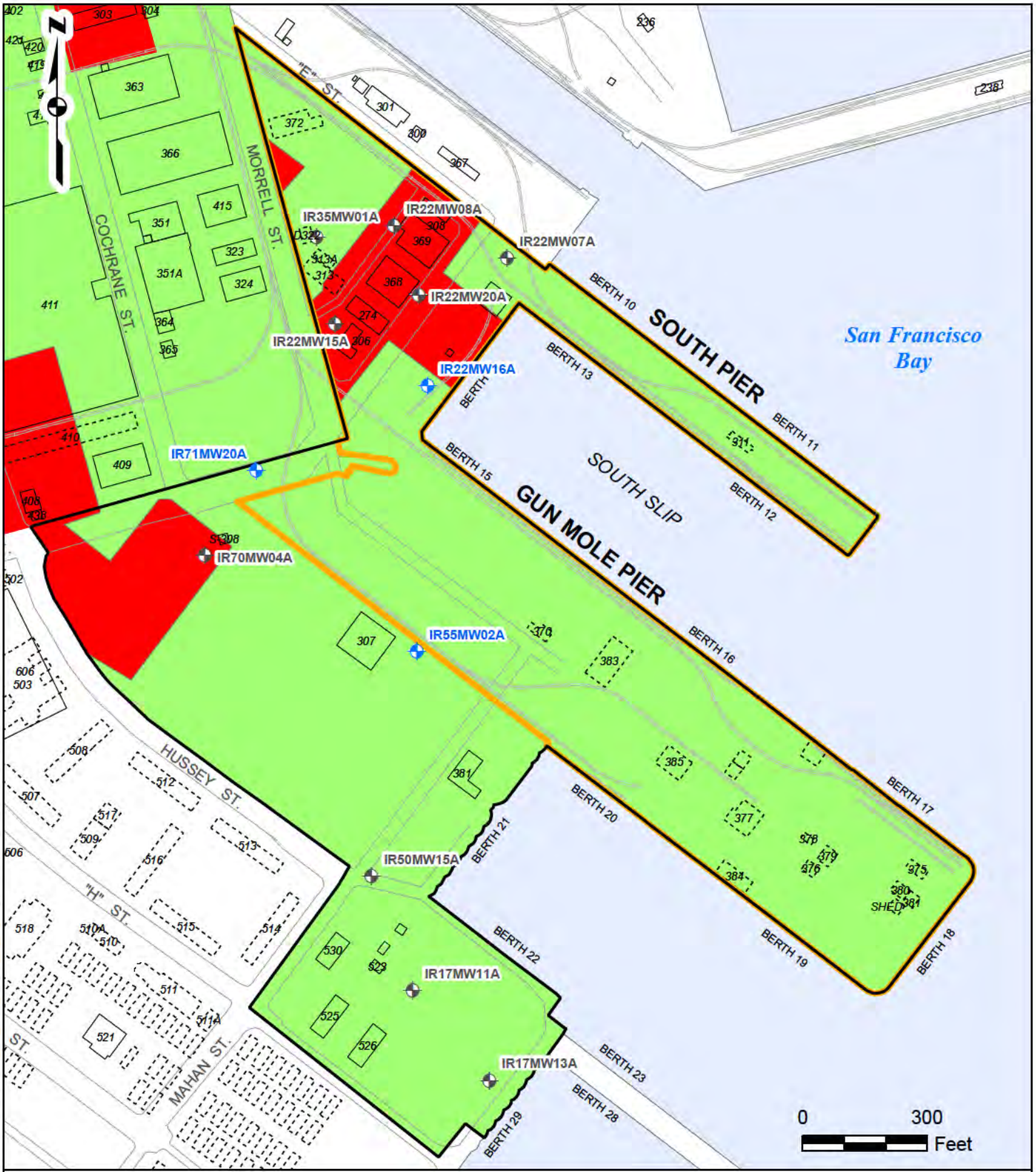
Activity Name	At npletion	Start	Finish
Respond to Navy Comments and Issue Draft O&M Plan	31	28-Nov-17 A	12-Jan-18 A
Regulatory Review of Draft O&M Plan	22	15-Jan-18 A	14-Feb-18 A
Respond to Regulatory Comments and Issue Internal Final O&M Plan	10	15-Feb-18 A	28-Feb-18
Regulatory Review of Internal Final O&M Plan (10 working days)	11	01-Mar-18	15-Mar-18
Respond to Navy Comments and Issue Final O&M Plan	1	16-Mar-18	16-Mar-18



Actual Work
Remaining Work
Critical Remaining Work
Milestone
Summary

Figure 2: Project Schedule / CTO 03 N62473-10-D-0807, Remedial Action in Parcel D-1, Hunters Point Naval Shipyard, San Francisco, CA



Legend

- Phase I
- Area Evalulated; ARIC for VOC Vapors Required
- Area Evalulated; ARIC for VOC Vapors Not Required
- Basewater Groundwater Monitoring Program
- Other Monitoring Well
- Parcel D-1 Boundary
- Building (Existing)
- Building (Demolished)

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BRAC PMO West
San Diego, California

FIGURE 3
PARCEL D-1 MAP

REMEDIAL ACTION AT PARCEL D-1
HUNTERS POINT NAVAL SHIPYARD, SAN FRANCISCO, CA

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PARCEL C

PARCEL G

PARCEL E

PARCEL D-1

Phase I

Phase II

South Pier

Gun Mole Pier

SOUTH SLIP

San Francisco Bay

"F" ST.

MORRELL ST.

COCHRANE ST.

MANSEAU ST.

HUSSEY ST.

MAHAN ST.

"H" ST.

BERTH 10

BERTH 11

BERTH 12

BERTH 13

BERTH 14

BERTH 15

BERTH 16

BERTH 17

BERTH 18

BERTH 19

BERTH 20

BERTH 21

BERTH 22

BERTH 23

BERTH 24

BERTH 27

BERTH 28

BERTH 29

IR22MW07A

IR22MW08A

IR22MW20A

IR35MW01A

IR22MW16A

IR22MW15A

BACKFILLED
BEHIND SEAWALL

AREA FOR RIPRAP
STABILIZATION

PRIMARY SITE
ACCESS POINT

TRACK OUT
PREVENTION
CONTROL POINT

0 250 500 Feet

Legend

- Existing Monitoring Well
- Approximate Location of Turbidity Curtain; Removed
- Windsock
- 6-ft. High Fence
- Stabilized Construction Entrance/Exit
- Phase I
- Newly Constructed Durable Cover
- Building (Existing)
- Parcel Boundary

U.S. Department of the Navy
BRAC PMO West
San Diego, California

FIGURE 4

CONSTRUCTION SITE LAYOUT

REMEDIAL ACTION AT PARCEL D-1
HUNTERS POINT NAVAL SHIPYARD, SAN FRANCISCO, CA

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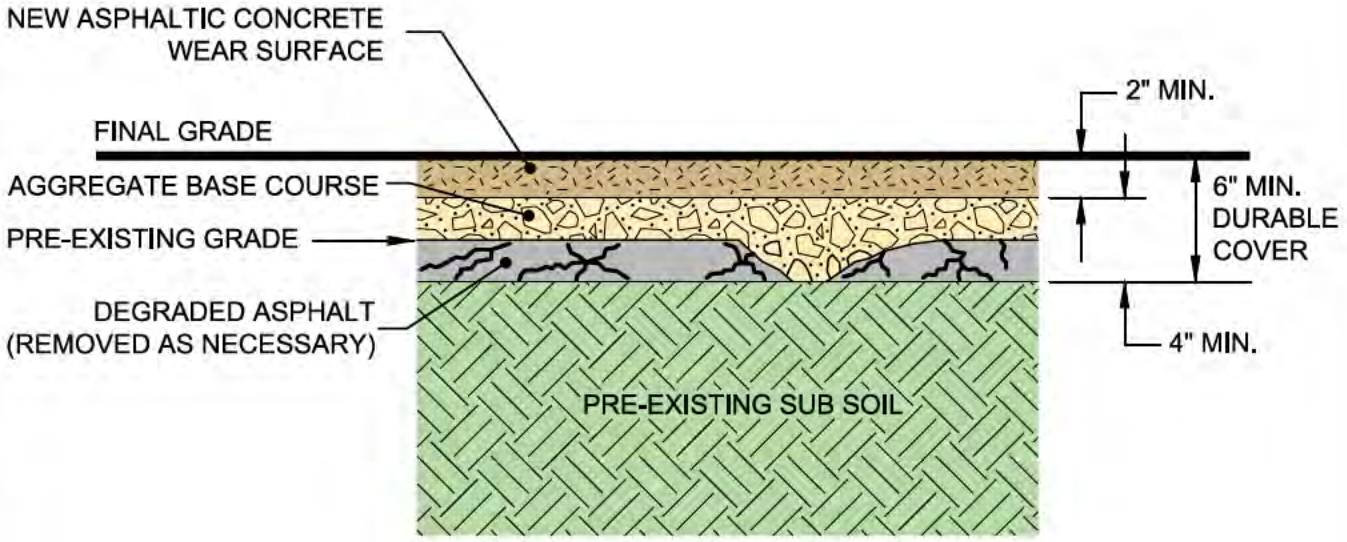
IMAGE	X-REF	OFFICE	DRAWN BY		CHECKED BY	APPROVED BY	DRAWING NUMBER
---	---	Concord	K. BLACK	10/20/17			149831-A6



NEWLY CONSTRUCTED
ASPHALT PAVEMENT

NOT TO SCALE

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BRAC PMO West
San Diego, California

FIGURE 5
TYPICAL CROSS SECTION
OF ASPHALT PAVEMENT COVER

PARCEL D-1 REMEDIAL ACTION
HUNTERS POINT NAVAL SHIPYARD, SAN FRANCISCO, CA

PARCEL C

"E" ST.

MORRELL ST.

COCHRANE ST.

PARCEL G

MANSEAU ST.

HUSSEY ST.

PARCEL D-1

Phase II

Phase I

South Pier

BERTH 10

BERTH 11

BERTH 12

BERTH 13

BERTH 14

SOUTH SLIP

BERTH 15

BERTH 16

BERTH 17

BERTH 18

BERTH 19

BERTH 20

BERTH 21

BERTH 23

BERTH 28

Gun Mole Pier

San Francisco Bay

308

369

368

274

306

307

381

0 200 400 Feet

Legend

- Existing Monitoring Well
- Survey Monument
- Surface Water Flow Direction
- Swale
- 10-ft. Buffer Around All Buildings (1% min. slope away from foundation)
- Asphalt Pavement Cover
- Riprap
- Area of Seawall Stabilization
- Building (Existing)
- Building (Foundation Only)
- Parcel Boundary

U.S. Department of the Navy
BRAC PMO West
San Diego, California

FIGURE 6

FINAL COVER GRADE

REMEDIAL ACTION AT PARCEL D-1
HUNTERS POINT NAVAL SHIPYARD, SAN FRANCISCO, CA

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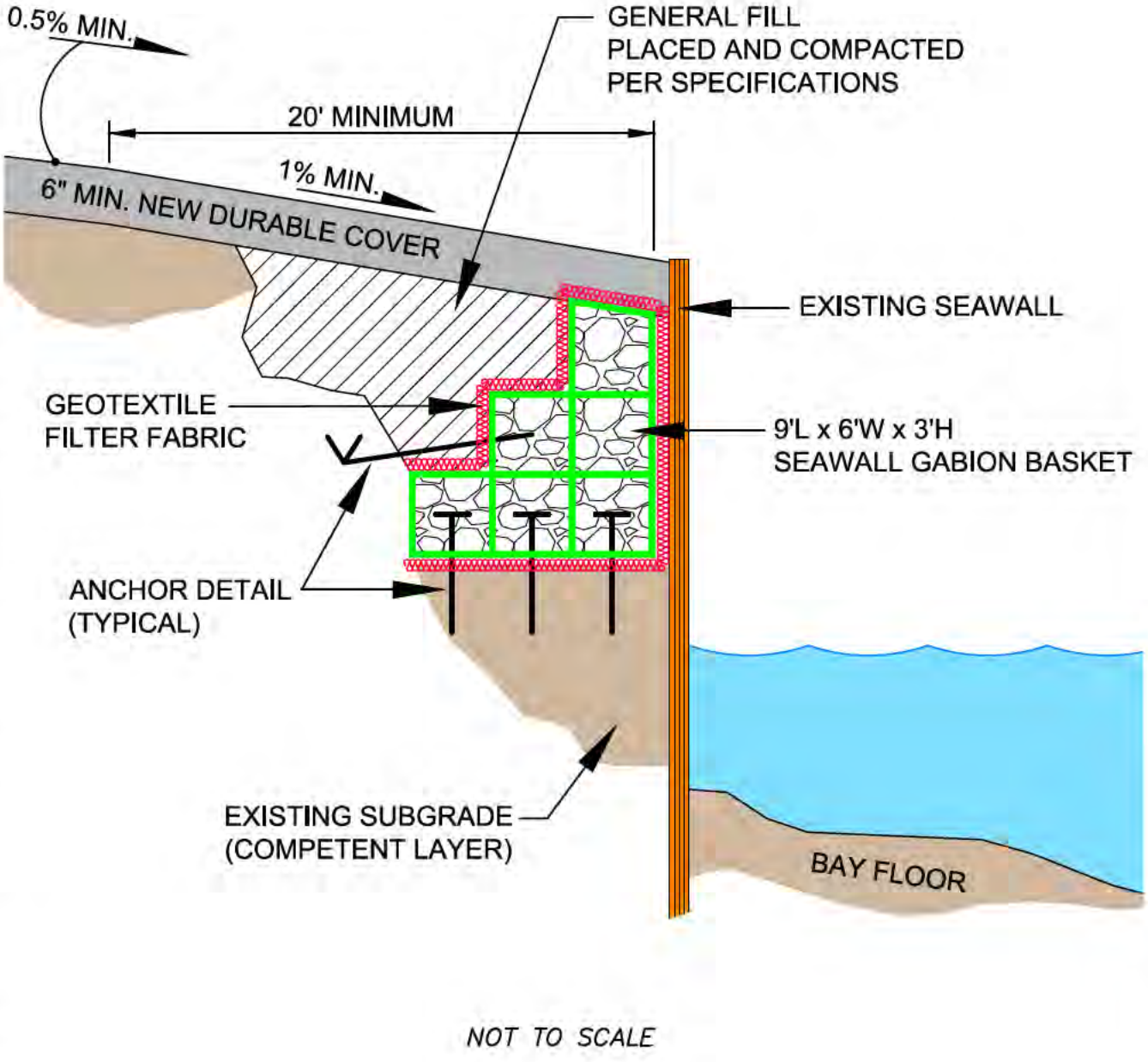

NOT TO SCALE

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BRAC PMO West
San Diego, California

FIGURE 7
SEAWALL REPAIR
CROSS SECTION

PARCEL D-1 REMEDIAL ACTION
HUNTERS POINT NAVAL SHIPYARD, SAN FRANCISCO, CA

IMAGE	X-REF	OFFICE	DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
---	---	Concord	K. BLACK 10/20/17			149831-A4

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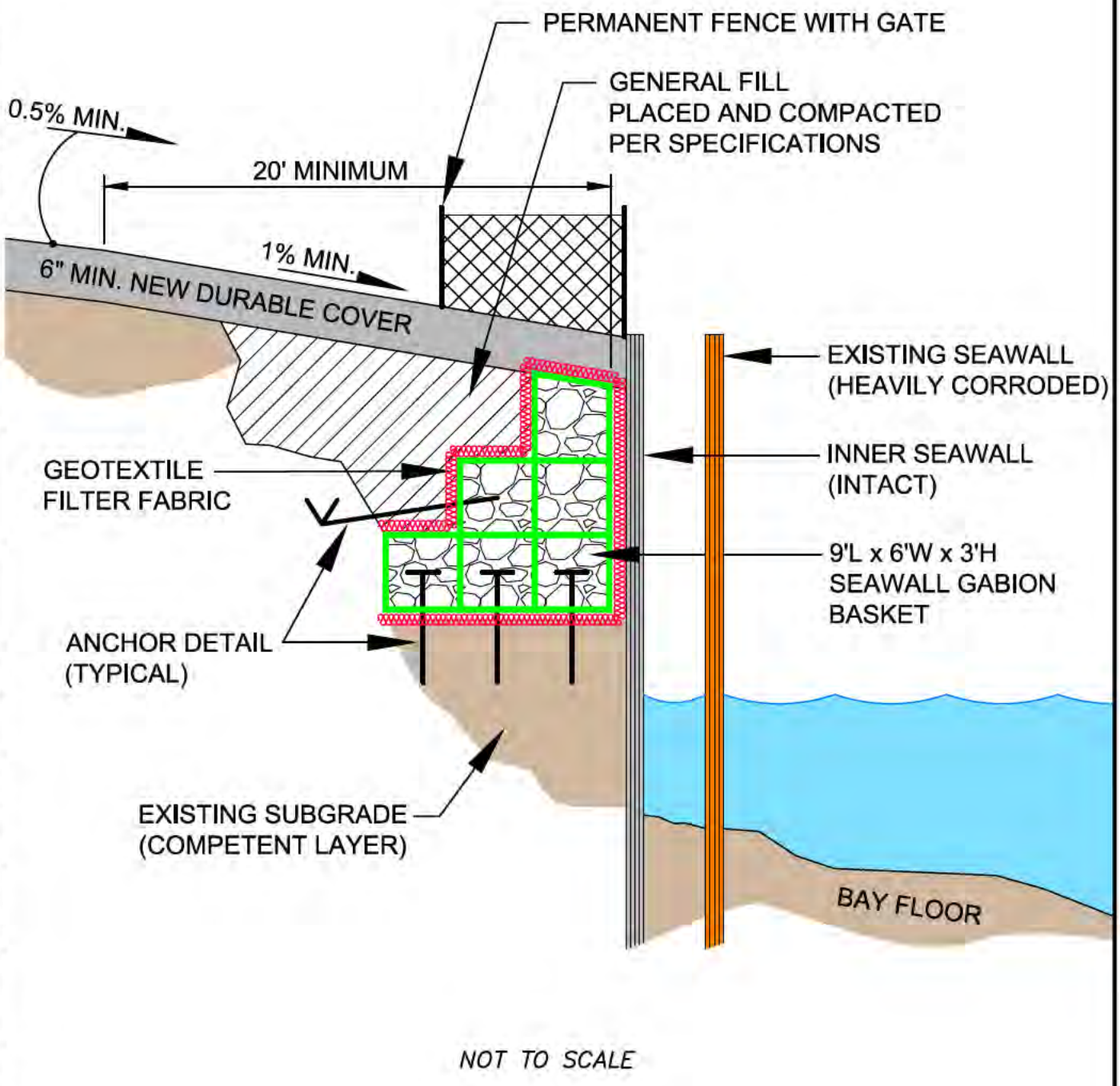

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BRAC PMO West
San Diego, California

FIGURE 8
SEAWALL REPAIR CROSS SECTION
AT BERTH 15, GUN MOLE PIER

PARCEL D-1 REMEDIAL ACTION
HUNTERS POINT NAVAL SHIPYARD, SAN FRANCISCO, CA

DRAWING NUMBER	APPROVED BY	CHECKED BY	DRAWN BY	OFFICE	X-REF	IMAGE
149831-A4			K. BLACK 10/20/17	Concord	---	---

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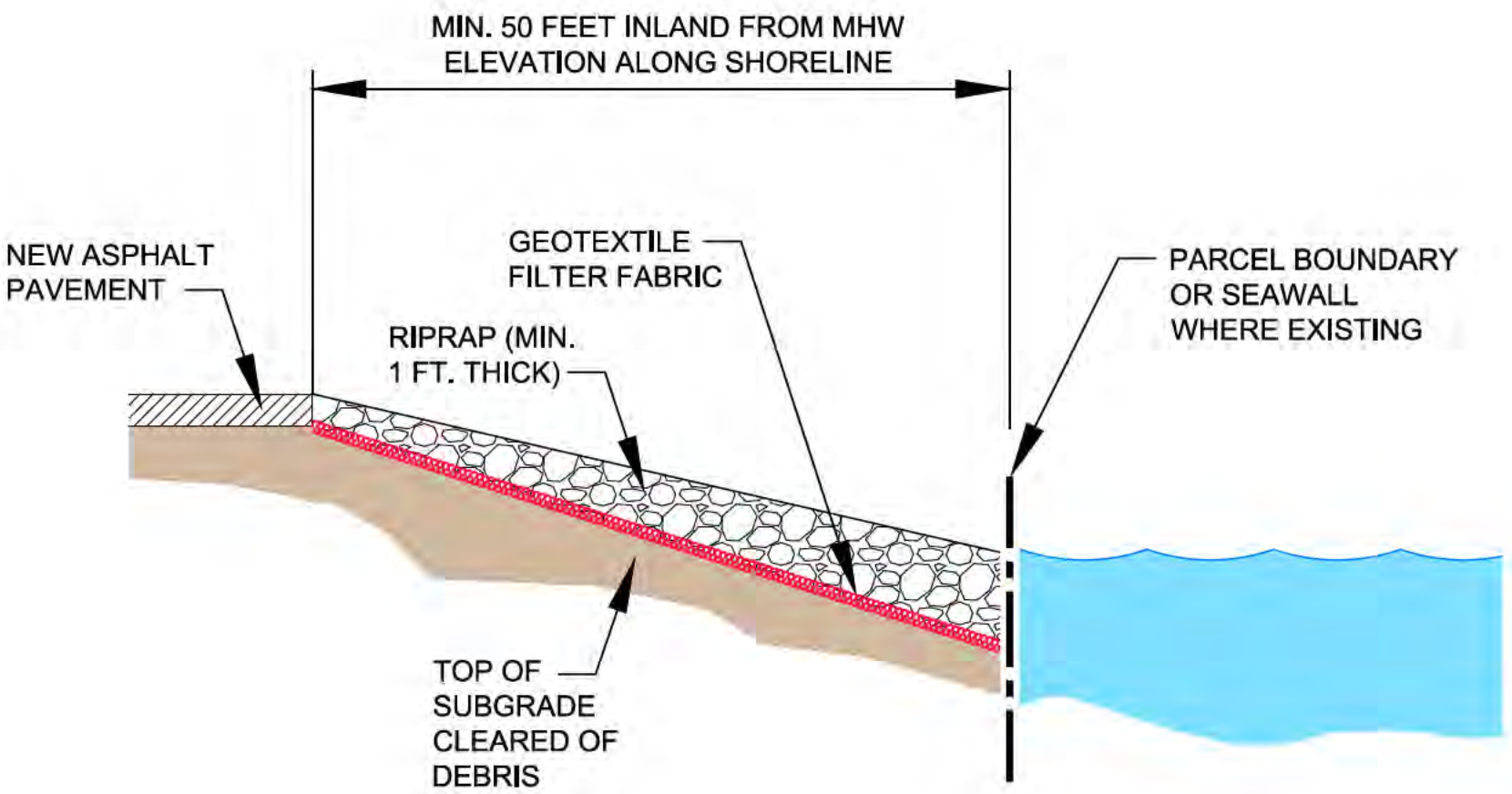
IMAGE	X-REF	OFFICE	DRAWN BY		CHECKED BY		APPROVED BY		DRAWING NUMBER	149831-A7
---	---	Concord	K. BLACK	10/20/17						



NOT TO SCALE

U.S. Department of the Navy
BRAC PMO West
San Diego, California

FIGURE 9
TYPICAL RIPRAP STABILIZATION DETAIL

PARCEL D-1 REMEDIAL ACTION
HUNTERS POINT NAVAL SHIPYARD, SAN FRANCISCO, CA

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Tables

Table 1
Monitoring Well Coordinates

Well ID	Northing	Easting	Top of Casing Elevation (feet above msl)
IR22MW07A	450,787.156	1,461,474.218	8.21
IR22MW08A	450,865.001	1,461,200.108	9.36
IR22MW15A	450,629.22	1,461,057.43	10.66
IR22MW16A	450,478.866	1,461,282.116	8.39
IR22MW20A	450,699.086	1,461,260.221	9.55
IR35MW01A	450,840.087	1,461,013.642	9.38

Notes:

Horizontal coordinates are based on the North American Datum of 1927 (NAD 27) Zone-III (Hunters Point West 1 PID HT0613).

Vertical elevations are based on the National Geodetic Vertical Datum of 1929 (NGVD 29).

msl *mean sea level*

Table 2
Demonstration of Completion of Remedial Action Objectives for Parcel D-1 Phase I

No.	RAO	Demonstration of Completion	RAO Met (Yes/No)
Soil			
1.	Prevent exposure to PAHs and metals in soil at concentrations above RGs developed in the HHRA for the following exposure pathways: Ingestion of, outdoor inhalation of, and dermal exposure to surface and subsurface soil by industrial workers or construction workers.	The Navy excavated hot spot locations where PAHs exceeded RGs. Approximately 200 cy of soil were removed from Parcel D-1 and disposed off-site (ERRG, 2011; ERRG, 2014). The Navy installed a durable cover in Parcel D-1 Phase I to prevent or minimize exposure to COCs in soil by ingestion, outdoor inhalation, and dermal exposure at concentrations exceeding RGs. The durable cover provides a physical barrier to prevent or minimize exposure of humans to COCs above RGs. The durable cover constructed in Parcel D-1 Phase I included seawall stabilization, an asphaltic pavement cover, and repaired building foundations. The specific cover that was installed in Parcel D-1 was designed to be durable and stable to reliably prevent or minimize future exposure to COCs in soil for extended periods of time with minimal maintenance. Routine O&M will be performed to prevent or minimize future exposure of humans to COCs in soil by ingestion, outdoor inhalation, and dermal exposure at concentrations exceeding RGs. The O&M program will ensure that the durable cover remedy is performing as intended.	Yes
2.	Prevent exposure to VOCs in soil gas at concentrations that would pose unacceptable risk via indoor inhalation of vapors. RGs for VOCs to address exposure via indoor inhalation of vapors have been superseded based on COC identification information from soil gas surveys. Action levels were established for soil gas, which account for vapors from both soil and groundwater, and were calculated based on a cumulative risk level of 10^{-6} using the accepted methodology for risk assessments at HPNS.	ICs are in place and being enforced to prevent exposure to high concentrations of VOCs in soil gas. Any proposed construction of enclosed structures must be approved in accordance with the "Covenant(s) to Restrict Use of the Property," Quitclaim Deed(s), LUC RD (ChaduxTt, 2011), and the RMP with approval of the FFA signatories prior to the conduct of such activity within the ARIC for VOC vapors to ensure that the risk of potential exposure to VOC vapors are reduced to acceptable levels that are adequately protective of human health. The Navy performed a soil gas survey in September 2010 for areas within Parcels B, D-1, G, and UC-2 (Sealaska Environmental Services, 2013). A total of 30 grid blocks were sampled at Parcel D-1. Soil gas results collected from eight blocks indicated a potential risk to a future residential receptor that exceeded 10^{-6}. Consequently, the ARIC for VOC vapors was recommended to be reduced from all of Parcel D-1 to the eight blocks where the potential risk exceeded 10^{-6}. The LUC objectives are met by controlling site access until the time of property transfer.	Yes

Table 2 (continued)
Demonstration of Completion of Remedial Action Objective for Parcel D-1 Phase I

No.	RAO	Demonstration of Completion	RAO Met (Yes/No)
Groundwater			
1.	Prevent exposure by industrial workers to VOCs in the A-aquifer groundwater at concentrations above RGs via indoor inhalation of vapors from groundwater.	VOCs in groundwater were treated as part of a treatability study conducted in 2008 (Alliance Compliance Group, 2010). VOCs in groundwater were treated to below the RGs specified in the ROD (Navy, 2009).	Yes
2.	Prevent or minimize exposure of construction workers to metals and VOCs in the A-aquifer groundwater at concentrations above RGs from dermal exposure and inhalation of vapors from groundwater.	VOCs in groundwater were treated as part of a treatability study conducted in 2008 (Alliance Compliance Group, 2010). VOCs in groundwater were treated to below the RGs specified in the ROD (Navy, 2009). The Navy will rely on ICs in the form of environmental restrictive covenants, as provided in LUC RD (ChaduxTt, 2011), at the time of property conveyance, to prevent exposure of humans to groundwater with COC concentrations exceeding RGs through the domestic use pathway. Specifically, IC performance objectives prohibit the use of groundwater and restrict land disturbing activities that may cause or facilitate movement of known contaminated groundwater.	Yes
Radiologically Impacted Soil and Structures RAOs			
1.	Prevent exposure to radionuclides of concern in concentrations that exceed RGs for all potentially complete exposure pathways.	The Navy identified and removed historical subsurface storm drain and sanitary sewer utilities beneath Parcel D-1 and remediated buildings in Parcel D-1 Phase I as part of the TCRA for radionuclides (CB&I, 2014).	Yes

Notes:

ARIC	*area requiring institutional control*	*O&M*	*operation and maintenance*
CB&I	*CB&I Federal Services LLC*	*PAH*	*polycyclic aromatic hydrocarbon*
CDPH	*California Department of Public Health*	*RA*	*remedial action*
COC	*chemical of concern*	*RAO*	*remedial action objective*
cy	*cubic yards*	*RD*	*remedial design*
FFA	*Federal Facilities Agreement*	*RG*	*remediation goal*
HHRA	*human health risk assessment*	*RMP*	*risk management plan*
HPNS	*Hunters Point Naval Shipyard*	*ROD*	*Record of Decision*
IC	*institutional control*	*TCRA*	*time-critical removal action*
LUC	*land use control*	*VOC*	*volatile organic compound*
Navy	*U.S. Department of the Navy*		

Table 2 (continued)
Demonstration of Completion of Remedial Action Objective for Parcel D-1 Phase I

References:

Alliance Compliance Group, 2010, Final Parcels D 1 and G Groundwater Treatability Study Technical Report, IR 09, IR 33, and IR 71, Hunters Point Shipyard, San Francisco, California, March.

CB&I Federal Services LLC, 2014, Final Radiological Removal Action Completion Report, Radiological Surveys of Buildings and Ground Surfaces, and Storm Drain and Sanitary Sewer Removal, Parcel D-1, Phase 1, Hunters Point Naval Shipyard, San Francisco, California, January.

ChaduxTt, A Joint Venture of St. George Chadux Corp and Tetra Tech EM Inc, (ChaduxTt), 2011, Land Use Control Remedial Design, Parcel D-1, Hunters Point Naval Shipyard, San Francisco, California.

ERRG, 2011, Final Remedial Action Completion Report for Soil Hot Spot Locations at Parcels B, D 1, and G and Soil Stockpiles at Parcels D 1 and G, October.

ERRG, 2014, Final Addendum 1 to the Remedial Action Completion Report for Soil Hot Spot Locations at Parcels B, D 1, and G and Soil Stockpiles at Parcels D 1 and G, April.

Sealaska Environmental Services, 2013, Final Technical Memorandum, Soil Vapor Investigation in Support of Vapor Intrusion Assessment, Parcels B, D-1, G, and UC-2, Hunters Point Naval Shipyard, San Francisco, California, March.

U.S. Department of the Navy, 2009, Final Record of Decision for Parcels D 1 and UC 1, Hunters Point Shipyard, San Francisco, California, July 24.

Table 3
Summary of Waste Materials from Parcel D-1 Phase I

Waste Type	Waste Profile Number	Dates of Transportation	Disposal Weight/Volume	Waste Class	Disposal Facility
Construction Debris	NA	June 13–November 8, 2016	340 cy	Non-hazardous (Disposed)	Recology Transfer Station 501 Tunnel Avenue San Francisco, CA 94134
Construction Debris including ceramic electrical insulators	NA	August 2, 2016	20 cy	NA	Transferred to Navy's Radiological Basewide Radiological Contractor for subsequent disposal by the Navy's LLRW Contractor
Scrap Metal	NA	June 24–November 11, 2016	87 tons by weight	Non-hazardous (Recycled)	Circosta Iron & Metal Company Recycling Center 1801 Evans Avenue San Francisco, CA 94124
Concrete Debris	NA	July 12, 2016	40 cy	Non-hazardous (Recycled)	Recology Transfer Station 501 Tunnel Avenue San Francisco, CA 94134
Weathered Wood (creosote)	4212-161-7342	November 7–8, 2016	60 cy	Non-hazardous Special Waste	Keller Canyon Landfill 901 Bailey Road Pittsburg, CA 94565
Soil	NA	NA	Four overpack drums	NA	Pending disposal under Phase II
Lighting Ballasts	NA	NA	One overpack drum	NA	Pending disposal under Phase II
Potential asbestos containing material	NA	July 6, 2017	One overpack drum	NA	Transferred to Navy's Waste Disposal Contractor for disposal

Notes:

CA *California*
cy *cubic yard*
LLRW *low-level radioactive waste*
NA *not applicable*
Navy *U.S. Department of the Navy*

Appendix A
Submittals

(provided on electronic copy only)

SUBMITTAL LOG

REMEDIAL ACTION IN PARCEL D-1
N62473-12-D-2005, CTO 0003

Submittal #	Submittal/ RFI No./FWV	Description	Date Submitted to Navy	Navy Approval Required	Date Approved by Navy	Notes
1	FWV-001	Import material comparison criteria	6/8/2016	Yes	6/14/2016	
2	FWV-002	Seawall stabilization materials	7/29/2016	No	N/A	
3	FWV-003	Compaction Testing Schedule Clarification	8/3/2016	No	N/A	
4	FWV-004	Swale Cover Clarification	8/25/2016	Yes	N/A	FWV-004 retracted.
5	FWV-005	Seawall stabilization at Berth 15	10/6/2016	Yes	10/18/2016	
6	Submittal#006	Cement Mix Design	8/23/2016	Yes	8/27/2016	
7	RFI 001	Bituminous Mix Design (Asphalt) Clarificaiton	10/5/2016	Yes	10/6/2016	RFI submitted due to two (2) mix designs inlcuded in the specs (Marshall mix vs Caltrans mix). Navy specified Caltrans Mix as response.
8	Submittal #008	Recycled AB Material	10/5/1990	Yes	10/6/2016	
9	Submittal #009	Bituminous Mix Design (Asphalt)	10/6/2016	Yes	10/6/2016	
10	FWV-006	Asphalt Density test	10/26/2016	Yes	Not approved	Navy reviewed. Navy directive: follow project specifications for 3 core samples every 200 tons
11	Submittal #011	Signs	12/6/2016	Yes	12/9/2016	
12	Submittal #012	Fencing catalog data (fencing specifications)	12/19/2016	No	N/A	For Navy review only; approval not required.
13	Submittal #013	Monitoring well extensions (product data)	12/19/2016	No	N/A	For Navy review only; approval not required.
14	RFI 002	Asphalt Testing Core Restoration	1/4/2017	Yes	1/9/2017	RFI submitted to support test core hole restoration with fast setting concrete as opposed to asphalt

FIELD WORK VARIANCE

Revised DCN: CBI-2005-0003-0015

Project Name: Remedial Action in Parcel D-1 **DCN:** CBI-2005-0003-0006.R1/F

Project Number: 149831 **Project Manager:** Lisa Bercik **WV #:** 001

Contract Number: N62473-12-D-2005 **SWDIV RPM:** Leslie Howard **Date:** 6/8/2016

CTO Number: 0003 **SWDIV CS:** Cynthia Mafara

Item: Import Material Comparison Criteria **Primary WBS:**

Description *(Include recommended action to resolve changed condition and action taken to date)*

Backfill Acceptance Plan (BAP) Table E.1, "Import Material Comparison Criteria"

Field work variance revises Table E.1, "Import Material Comparison Criteria," for constituents with remediation goals (RGs) established in the Final Record of Decision for Parcels D-1 and C-1 (Navy, 2009) and for metals with Hunters Point Naval Ambient Levels (HPALs). Table E.1, "Import Material Comparison Criteria," is revised to identify the RG or HPAL as the comparison criterion when the RG or HPAL value is greater than the U.S. Environmental Protection Agency Residential Regional Screening Level (EPA RSL). This revision is consistent with import material criteria for the neighboring Parcel C. The revised Table E.1 is attached.

Reason for Change

RGs were established for arsenic, benzo(a)pyrene, and benzo(b)fluoranthene in the Final ROD. The RGs were based on HPALs, practical quantitation limits, and risk-based concentration. HPALs were established based on the ambient metal concentrations at HPNS. The use of HPALs as comparison criteria is justified because local import sources have naturally occurring metal concentrations that exceed EPA RSLs. Furthermore, the import material will be used for subgrade preparation and covered with a durable cover designed to provide a physical barrier to minimize contact with remaining constituents below RGs, including metals that are within naturally occurring background range.

Technical Justification - See above

Estimated Cost Impact	Estimated Schedule Impact	WBS Information
None	None	☐ WBS Code Opened to Capture Cost **Task Title:** **WBS Code:**

Applicable Document(s)

Final Revision 1, Final Remedial Action Work Plan, Appendix E, BAP, Remedial Action in Parcel D-1, Hunters Point Naval Shipyard, San Francisco, California, May 2016

PMO Disposition of Work Variance **Type of Change:**

☐ Monitor; No notice to Navy
Review by _____ (Date)

☒ E-Mail Notification to Navy

☐ Notice of Potential Impact (NOPI)

☐ Request for Additional Funds (RAF)

☐ Other (Please Comment)

Additional Comments

WV prepared by - Lisa Bercik, Project Manager 6/8/2016

Approvals

Project Manager Lisa Bercik **Date:** 6/14/2016

PMO Contracts Manager _____ **Date:** _____

This form documents a newly discovered or developing situation. Submitting a Work Variance (WV) to the PMO allows a PM to direct a variation in work that may put the company at financial risk **for up to one business day**. During that time, he PM gathers additional information, assesses the situation and coordinates with the IT Contracts Administration Manager (and others, as appropriate) to determine further actions.

Close coordination with the Client is expected throughout the process.

FIELD WORK VARIANCE

However, a WV form does not require Client review or approval; it depends solely on the good judgment of the PM to act in the best interest of the Client and the company. By itself, a **WV does not seek anything** (though it may provide the documentation to support a request for additional funding or guidance).

Table E-1
Import Material Comparison Criteria

Analyte	CAS Number	Units	Hunters Point Ambient Level (HPAL)	Comparison Criteria	Comparison Criteria Reference
VOCs					
Acetone	67-64-1	mg/kg	--	61,000	EPA RSL, Residential (Nov 2012)
Benzene	74-43-2	mg/kg	--	1.1	EPA RSL, Residential (Nov 2012)
Bromodichloromethane	75-27-4	mg/kg	--	0.27	EPA RSL, Residential (Nov 2012)
Bromoform	75-25-2	mg/kg	--	62	EPA RSL, Residential (Nov 2012)
Bromomethane	74-83-9	mg/kg	--	7.3	EPA RSL, Residential (Nov 2012)
2-Butanone	78-93-3	mg/kg	--	28000	EPA RSL, Residential (Nov 2012)
Carbon Disulfide	75-15-0	mg/kg	--	820	EPA RSL, Residential (Nov 2012)
Carbon Tetrachloride	56-23-5	mg/kg	--	0.61	EPA RSL, Residential (Nov 2012)
Chlorobenzene	108-90-7	mg/kg	--	290	EPA RSL, Residential (Nov 2012)
Dibromochloromethane	124-48-1	mg/kg	--	0.68	EPA RSL, Residential (Nov 2012)
Chloroethane	75-00-3	mg/kg	--	15,000	EPA RSL, Residential (Nov 2012)
Chloroform	67-66-3	mg/kg	--	0.29	EPA RSL, Residential (Nov 2012)
Chloromethane	74-87-3	mg/kg	--	120	EPA RSL, Residential (Nov 2012)
1,3-Dichloropropene	542-75-6	mg/kg	--	1.7	EPA RSL, Residential (Nov 2012)
1,2-Dichlorobenzene	95-50-1	mg/kg	--	1900	EPA RSL, Residential (Nov 2012)
1,4-Dichlorobenzene	106-46-7	mg/kg	--	2.4	EPA RSL, Residential (Nov 2012)
1,1-Dichloroethane	75-34-3	mg/kg	--	3.3	EPA RSL, Residential (Nov 2012)
1,2-Dichloroethane	107-06-2	mg/kg	--	0.43	EPA RSL, Residential (Nov 2012)
1,1-Dichloroethene	75-35-4	mg/kg	--	240	EPA RSL, Residential (Nov 2012)

Table E-1 (continued)
Import Material Comparison Criteria

Analyte	CAS Number	Units	Hunters Point Ambient Level (HPAL)	Comparison Criteria	Comparison Criteria Reference
cis-1,2-Dichloroethene	156-59-2	mg/kg	--	160	EPA RSL, Residential (Nov 2012)
trans-1,2-Dichloroethene	156-60-5	mg/kg	--	150	EPA RSL, Residential (Nov 2012)
1,2-Dichloropropane	78-87-5	mg/kg	--	0.94	EPA RSL, Residential (Nov 2012)
Ethyl benzene	100-41-4	mg/kg	--	5.4	EPA RSL, Residential (Nov 2012)
Methylene Chloride	75-09-2	mg/kg	--	56	EPA RSL, Residential (Nov 2012)
Methyl isobutyl ketone	108-10-1	mg/kg	--	5300	EPA RSL, Residential (Nov 2012)
Methyl tertiary butyl ether	1634-04-4	mg/kg	--	43	EPA RSL, Residential (Nov 2012)
Naphthalene	91-20-3	mg/kg	--	3.6	EPA RSL, Residential (Nov 2012)
Styrene	100-42-5	mg/kg	--	6300	EPA RSL, Residential (Nov 2012)
1,1,2,2-Tetrachloroethane	79-34-5	mg/kg	--	0.56	EPA RSL, Residential (Nov 2012)
Tetrachloroethene	127-18-4	mg/kg	--	22	EPA RSL, Residential (Nov 2012)
Toluene	108-88-3	mg/kg	--	5000	EPA RSL, Residential (Nov 2012)
1,1,1-Trichloroethane	71-55-6	mg/kg	--	8700	EPA RSL, Residential (Nov 2012)
1,1,2-Trichloroethane	79-00-5	mg/kg	--	1.1	EPA RSL, Residential (Nov 2012)
Trichloroethene	79-01-6	mg/kg	--	0.91	EPA RSL, Residential (Nov 2012)
Vinyl acetate	108-05-4	mg/kg	--	970	EPA RSL, Residential (Nov 2012)
Vinyl Chloride	75-01-4	mg/kg	--	0.06	EPA RSL, Residential (Nov 2012)
Xylene (Total)	1330-20-7	mg/kg	--	630	EPA RSL, Residential (Nov 2012)

Table E-1 (continued)
Import Material Comparison Criteria

Analyte	CAS Number	Units	Hunters Point Ambient Level (HPAL)	Comparison Criteria	Comparison Criteria Reference
SVOCs					
Acenaphthene	83-32-9	mg/kg	--	3,400	EPA RSL, Residential (Nov 2012)
Anthracene	120-12-7	mg/kg	--	17,000	EPA RSL, Residential (Nov 2012)
Benz(a)anthracene	56-55-3	mg/kg	--	0.15	EPA RSL, Residential (Nov 2012)
Benzo(a)pyrene	50-32-8	mg/kg	--	0.33	Parcels D-1 and UC-1 ROD (PQL)
Benzo(b)fluoranthene	205-99-2	mg/kg	--	1.76	Parcels D-1 and UC-1 ROD (RBC)
Benzo(k)fluoranthene	207-08-9	mg/kg	--	1.5	EPA RSL, Residential (Nov 2012)
Bis(2-Chloroethyl) Ether	111-44-4	mg/kg	--	0.21	EPA RSL, Residential (Nov 2012)
Benzoic Acid	65-85-0	mg/kg	--	240,000	EPA RSL, Residential (Nov 2012)
Bis(2-Chloro-1-methylethyl) Ether	108-60-1	mg/kg	--	4.6	EPA RSL, Residential (Nov 2012)
Bis(2-Ethylhexyl) Phthalate	117-81-7	mg/kg	--	35	EPA RSL, Residential (Nov 2012)
Butyl Benzyl Phthalate	85-68-7	mg/kg	--	260	EPA RSL, Residential (Nov 2012)
4-Chloroaniline	106-47-8	mg/kg	--	2.4	EPA RSL, Residential (Nov 2012)
2-Chloronaphthalene	91-58-7	mg/kg	--	6,300	EPA RSL, Residential (Nov 2012)
2-Chlorophenol	95-57-8	mg/kg	--	390	EPA RSL, Residential (Nov 2012)
Chrysene	218-01-9	mg/kg	--	15	EPA RSL, Residential (Nov 2012)
Di-n-Octyl Phthalate	117-84-0	mg/kg	--	730	EPA RSL, Residential (Nov 2012)
Dibenz(a,h)anthracene	53-70-3	mg/kg	--	0.015	EPA RSL, Residential (Nov 2012)
Dibenzofuran	132-64-9	mg/kg	--	78	EPA RSL, Residential (Nov 2012)

Table E-1 (continued)
Import Material Comparison Criteria

Analyte	CAS Number	Units	Hunters Point Ambient Level (HPAL)	Comparison Criteria	Comparison Criteria Reference
1,2-Dichlorobenzene	95-50-1	mg/kg	--	1,900	EPA RSL, Residential (Nov 2012)
1,3-Dichlorobenzene	541-73-1	mg/kg	--	NA	NA
1,4-Dichlorobenzene	106-46-7	mg/kg	--	2.4	EPA RSL, Residential (Nov 2012)
3,3'-Dichlorobenzidine	91-94-1	mg/kg	--	1.1	EPA RSL, Residential (Nov 2012)
2,4-Dichlorophenol	120-83-2	mg/kg	--	180	EPA RSL, Residential (Nov 2012)
Diethyl Phthalate	84-66-2	mg/kg	--	49,000	EPA RSL, Residential (Nov 2012)
Di-N-butyl Phthalate	84-74-2	mg/kg	--	6,100	EPA RSL, Residential (Nov 2012)
Dimethyl Phthalate	131-11-3	mg/kg	--	7,800	EPA RSL, Residential (Nov 2012)
2,4-Dimethylphenol	105-67-9	mg/kg	--	1,200	EPA RSL, Residential (Nov 2012)
2,4-Dinitrophenol	51-28-5	mg/kg	--	120	EPA RSL, Residential (Nov 2012)
2,4-Dinitrotoluene	121-14-2	mg/kg	--	1.6	EPA RSL, Residential (Nov 2012)
Fluoranthene	206-44-0	mg/kg	--	2,300	EPA RSL, Residential (Nov 2012)
2,6-Dinitrotoluene	606-20-2	mg/kg	--	61	EPA RSL, Residential (Nov 2012)
Fluorene	86-73-7	mg/kg	--	2,300	EPA RSL, Residential (Nov 2012)
Hexachlorobenzene	118-74-1	mg/kg	--	0.3	EPA RSL, Residential (Nov 2012)
Hexachlorobutadiene	87-68-3	mg/kg	--	6.2	EPA RSL, Residential (Nov 2012)
Hexachlorocyclopentadiene	77-47-4	mg/kg	--	370	EPA RSL, Residential (Nov 2012)
Hexachloroethane	67-72-1	mg/kg	--	35	EPA RSL, Residential (Nov 2012)
Indeno(1,2,3-cd)pyrene	193-39-5	mg/kg	--	0.15	EPA RSL, Residential (Nov 2012)
Isophorone	78-59-1	mg/kg	--	510	EPA RSL, Residential (Nov 2012)

Table E-1 (continued)
Import Material Comparison Criteria

Analyte	CAS Number	Units	Hunters Point Ambient Level (HPAL)	Comparison Criteria	Comparison Criteria Reference
3/4-Methylphenol	108-39-4	mg/kg	--	6,100	EPA RSL, Residential (Nov 2012)
2-Methylphenol	95-48-7	mg/kg	--	3,100	EPA RSL, Residential (Nov 2012)
Naphthalene	91-20-3	mg/kg	--	3.6	EPA RSL, Residential (Nov 2012)
2-Nitroaniline	88-74-4	mg/kg	--	610	EPA RSL, Residential (Nov 2012)
3-Nitroaniline	99-09-2	mg/kg	--	NA	NA
4-Nitroaniline	100-01-6	mg/kg	--	24	EPA RSL, Residential (Nov 2012)
Nitrobenzene	98-95-3	mg/kg	--	4.8	EPA RSL, Residential (Nov 2012)
N-Nitroso-Di-n-Propylamine	621-64-7	mg/kg	--	0.069	EPA RSL, Residential (Nov 2012)
N-Nitrosodimethylamine	62-75-9	mg/kg	--	0.0023	EPA RSL, Residential (Nov 2012)
N-Nitrosodiphenylamine	86-30-6	mg/kg	--	99	EPA RSL, Residential (Nov 2012)
Pentachlorophenol	87-86-5	mg/kg	--	0.89	EPA RSL, Residential (Nov 2012)
Phenol	108-95-2	mg/kg	--	18,000	EPA RSL, Residential (Nov 2012)
Pyrene	129-00-0	mg/kg	--	1,700	EPA RSL, Residential (Nov 2012)
1,2,4-Trichlorobenzene	120-82-1	mg/kg	--	22	EPA RSL, Residential (Nov 2012)
2,4,5-Trichlorophenol	95-95-4	mg/kg	--	6,100	EPA RSL, Residential (Nov 2012)
2,4,6-Trichlorophenol	88-06-2	mg/kg	--	44	EPA RSL, Residential (Nov 2012)

Table E-1 (continued)
Import Material Comparison Criteria

Analyte	CAS Number	Units	Hunters Point Ambient Level (HPAL)	Comparison Criteria	Comparison Criteria Reference
Organochlorine Pesticides/PCBs					
Chlordane (isomers)	57-74-9	mg/kg	--	1.6	EPA RSL, Residential (Nov 2012)
DDD	72-54-8	mg/kg	--	2.0	EPA RSL, Residential (Nov 2012)
DDE	72-55-9	mg/kg	--	1.4	EPA RSL, Residential (Nov 2012)
DDT	50-29-3	mg/kg	--	1.7	EPA RSL, Residential (Nov 2012)
alpha-BHC	319-84-6	mg/kg	--	0.077	EPA RSL, Residential (Nov 2012)
beta-BHC	319-85-7	mg/kg	--	0.27	EPA RSL, Residential (Nov 2012)
gamma-BHC (Lindane)	58-89-9	mg/kg	--	0.52	EPA RSL, Residential (Nov 2012)
Heptachlor	76-44-8	mg/kg	--	0.11	EPA RSL, Residential (Nov 2012)
Aldrin	309-00-2	mg/kg	--	0.029	EPA RSL, Residential (Nov 2012)
Heptachlor Epoxide	1024-57-3	mg/kg	--	0.053	EPA RSL, Residential (Nov 2012)
Endosulfan	959-98-8	mg/kg	--	370	EPA RSL, Residential (Nov 2012)
Dieldrin	60-57-1	mg/kg	--	0.03	EPA RSL, Residential (Nov 2012)
Endrin	72-20-8	mg/kg	--	18	EPA RSL, Residential (Nov 2012)
Methoxychlor	72-43-5	mg/kg	--	310	EPA RSL, Residential (Nov 2012)
Toxaphene	8001-35-2	mg/kg	--	0.44	EPA RSL, Residential (Nov 2012)
Aroclor-1016	12674-11-2	mg/kg	--	3.9	EPA RSL, Residential (Nov 2012)
Aroclor-1221	11104-28-2	mg/kg	--	0.14	EPA RSL, Residential (Nov 2012)
Aroclor-1232	11141-16-5	mg/kg	--	0.14	EPA RSL, Residential (Nov 2012)
Aroclor-1242	53469-21-9	mg/kg	--	0.22	EPA RSL, Residential (Nov 2012)

Table E-1 (continued)
Import Material Comparison Criteria

Analyte	CAS Number	Units	Hunters Point Ambient Level (HPAL)	Comparison Criteria	Comparison Criteria Reference
Aroclor-1248	12672-29-6	mg/kg	--	0.22	EPA RSL, Residential (Nov 2012)
Aroclor-1254	11097-69-1	mg/kg	--	0.22	EPA RSL, Residential (Nov 2012)
Aroclor-1260	11096-82-5	mg/kg	--	0.22	EPA RSL, Residential (Nov 2012)
TPH					
TPH as gasoline range organics (C6-C10)	86290-81-5	mg/kg	--	315	Basewide TPH Action Level (Shaw Environmental & Infrastructure, Inc., 2007)
TPH as diesel range organics (C10-C24)	68334-30-5	mg/kg	--	1,500	Basewide TPH Action Level (Shaw Environmental & Infrastructure, Inc., 2007)
TPH as motor oil range organics (C24–C36)	NA	mg/kg	--	1,850	Basewide TPH Action Level (Shaw Environmental & Infrastructure, Inc., 2007)
Total TPH	NA	mg/kg	-	3,500	Basewide TPH Action Level (Shaw Environmental & Infrastructure, Inc., 2007)
Metals					
Antimony	7440-36-0	mg/kg	9.05	31	EPA RSL, Residential (Nov 2012)
Arsenic	7440-38-2	mg/kg	11.1	11.1	HPAL
Barium	7440-39-3	mg/kg	314	15,000	EPA RSL, Residential (Nov 2012)
Beryllium	7440-41-7	mg/kg	0.71	160	EPA RSL, Residential (Nov 2012)
Cadmium	7440-43-9	mg/kg	3.14	70	EPA RSL, Residential (Nov 2012)
Chromium	7440-47-3	mg/kg	NA	NA	NA

Table E-1 (continued)
Import Material Comparison Criteria

Analyte	CAS Number	Units	Hunters Point Ambient Level (HPAL)	Comparison Criteria	Comparison Criteria Reference
Cobalt	7440-48-4	mg/kg	NA	23	EPA RSL, Residential (Nov 2012)
Copper	7440-50-8	mg/kg	124	3,100	EPA RSL, Residential (Nov 2012)
Lead	7439-92-1	mg/kg	9	400	EPA RSL, Residential (Nov 2012)
Manganese	7439-96-5	mg/kg	1431	1,800	EPA RSL, Residential (Nov 2012)
Mercury	7439-97-6	mg/kg	2.28	10	EPA RSL, Residential (Nov 2012)
Molybdenum	7439-98-7	mg/kg	2.68	390	EPA RSL, Residential (Nov 2012)
Nickel	7440-02-0	mg/kg	2650	2,650	HPAL
Selenium	7782-49-2	mg/kg	1.95	390	EPA RSL, Residential (Nov 2012)
Silver	7440-22-4	mg/kg	1.43	390	EPA RSL, Residential (Nov 2012)
Thallium	7440-28-0	mg/kg	0.81	0.81	HPAL
Vanadium	7440-62-2	mg/kg	117	390	EPA RSL, Residential (Nov 2012)
Zinc	7440-66-6	mg/kg	110	23,400	EPA RSL, Residential (Nov 2012)
Radionuclides					
Radium-226	13982-63-3	pCi/g	HPNS background value= 0.655 pCi/g	1 pCi/g above background; current	Basewide Radiological Removal Action Memorandum—Revision 2006
Cesium-137	10045-97-3	pCi/g	--	0.133	
Asbestos					
Asbestos	--------	%	--	<0.25	California Air Resources Board

Table E-1 (continued)
Import Material Comparison Criteria

Notes:

EPA RSL, Residential (Nov 2012) denotes U.S. Environmental Protection Agency, 2012, EPA Regional Screening Levels for Residential Soil, November.
Parcels D-1 and UC-1 ROD denotes the Final Record of Decision for Parcels D-1, and UC-1, Hunters Point Shipyard, San Francisco, California (Navy, 2009).
Imported backfill soil sample data will be compared to the EPA RSLs and Parcel D-1 remediation goals. Import material that exceeds screening levels may be brought on site for use as backfill if the concentrations do not exceed the HPAL.

<	*less than*
%	*percent*
HPAL	*Hunters Point Ambient Level*
HPNS	*Hunters Point Naval Shipyard*
mg/kg	*milligram per kilogram*
NA	*not applicable*
PCB	*polychlorinated biphenyl*
pCi/g	*picocuries per gram*
PQL	*practical quantitation limit*
RBC	*risk-based concentration*
SVOC	*semivolatile organic compound*
TPH	*total petroleum hydrocarbons*
VOC	*volatile organic compound*

From:	Howard, Leslie A CTR NAVFAC HQ, BRAC PMO
To:	Bercik, Lisa M.
Cc:	Ng, Shirley S CIV NAVFAC SW; Hanif, Chris; Kalombo, Eddie
Subject:	RE: Parcel D-1 - Field Work Variance 001 - BAP Revision
Date:	Tuesday, June 14, 2016 12:43:43 PM

Thanks Lisa!

Leslie

Leslie A. Howard
Contracted RPM
Navy BRAC PMO West
33000 Nixie Way
Bldg 50, 2nd Floor
San Diego CA 92147
Desk Phone: 619-524-5903
Main Office Phone: 619-524-5096

-----Original Message-----
From: Bercik, Lisa M. [mailto:Lisa.Bercik@CBIFederalServices.com]
Sent: Tuesday, June 14, 2016 11:55 AM
To: Howard, Leslie A CTR NAVFAC HQ, BRAC PMO
Cc: Ng, Shirley S CIV NAVFAC SW; Hanif, Chris; Kalombo, Eddie
Subject: [Non-DoD Source] Parcel D-1 - Field Work Variance 001 - BAP Revision

Hi Leslie,

Field Work Variance (FWV) 001 is attached for your records. The FWV revises the Backfill Acceptance Plan (BAP) import comparison criteria to be consistent with the Final ROD for Parcels D-1 and UC-2, which is consistent with the approach used in the Parcel C Durable Cover BAP. The import material comparison criteria was revised to use remediation goals for arsenic, benzo(a)pyrene, and benzo(b)fluoranthene as well as any metals with Hunters Point Ambient Levels (HPALs) greater than U.S. Environmental Protection Agency Residential Regional Screening Levels (EPA RSLs). The revised Table E.1 is included in the FWV and the changes are underlined.

Thank you,

Lisa

Lisa Bercik, PE, QSD, QSP
Project Manager

Federal Services
619.446.4508 direct
619.213.3389 cell
lisa.bercik@cbifederalservices.com <mailto:lisa.bercik@cbifederalservices.com>

CB&I Federal Services

1230 Columbia Street, Suite 1200
San Diego, California 92101

United States of America

www.cbi.com <http://www.cbi.com/>

FIELD WORK VARIANCE

Revised DCN: CBI-2005-0003-0016

Project Name: Remedial Action in Parcel D-1 **DCN:** CBI-2005-0003-0006.R1/F

Project Number: 149831 **Project Manager:** Lisa Bercik **WV #:** 002

Contract Number: N62473-12-D-2005 **SWDIV RPM:** Leslie Howard **Date:** 7/27/2016

CTO Number: 0003 **SWDIV CS:** Cynthia Mafara

Item: Seawall Stabilization Materials **Primary WBS:**

Description *(Include recommended action to resolve changed condition and action taken to date)*

Final Work Plan, Section 6.2.9 "Seawall Stabilization"

Field work variance revises Work Plan Section 6.2.9, "Seawall Stabilization," for the installation of High Density Polyethylene (HDPE) liner where holes have daylighted through the seawall. Section 6.2.9, "Seawall Stabilization," is revised to clarify that CB&I will install a combination of non-woven geotextile filter fabric and gabion basket structures where the holes have daylighted through the seawall. This solution provides more protection than HDPE line alone. This fabric, Mirafi 180N or an engineered approved equivalent, will help retain fines below the base of the Terramesh structure while allowing water to drain freely.

Reason for Change

The gabion basket product, Terramesh®, is designed for water to flow through to avoid creating additional pressure on the gabion structure. Using HDPE liner would retain seawater in the structure, creating a "bathtub" effect, and thus adding additional stress on the structure. Using geotextile fabric instead of the HDPE liner will retain any fines present, while allowing seawater to flow outward from the seawall.

Technical Justification - See above

Estimated Cost Impact	Estimated Schedule Impact	WBS Information
None	None	☐ WBS Code Opened to Capture Cost **Task Title:** **WBS Code:**

Applicable Document(s)

Final Revision 1, Final Remedial Action Work Plan, Appendix E, BAP, Remedial Action in Parcel D-1, Hunters Point Naval Shipyard, San Francisco, California, May 2016

PMO Disposition of Work Variance

Type of Change:

- ☐ Monitor; No notice to Navy Review by _____ (Date)
- ☒ E-Mail Notification to Navy
- ☐ Notice of Potential Impact (NOPI)
- ☐ Request for Additional Funds (RAF)
- ☐ Other (Please Comment)

Additional Comments

WV prepared by - Sam Hopstone, Field Engineer
7/27/2016
WV reviewed by - Mike Ayala, PE, Project Engineer
7/27/2016

Approvals

Project Manager _____ **Date:** 7/29/2016

PMO Contracts Manager _____ **Date:**

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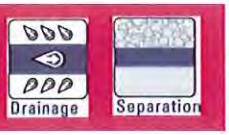
Close coordination with the Client is expected throughout the process.

However, a WV form does not require Client review or approval; it depends solely on the good judgment of the PM to act in the best interest of the Client and the company. By itself, a **WV does not seek anything** (though it may provide the documentation to support a request for additional funding or guidance).

TENCATE GEOSYNTHETICS
Americas

Mirafi® 180N



Mirafi® 180N is a needlepunched nonwoven geotextile composed of polypropylene fibers, which are formed into a stable network such that the fibers retain their relative position. Mirafi® 180N is inert to biological degradation and resists naturally encountered chemicals, alkalis, and acids. Mirafi® 180N meets AASHTO M288-15 Class 1 for Elongation > 50%.

TenCate Geosynthetics Americas Laboratories are accredited by Geosynthetic Accreditation Institute – Laboratory Accreditation Program (GAI-LAP). NTPEP Listed

Mechanical Properties	Test Method	Unit	Minimum Average Roll Value	
			MD	CD
Grab Tensile Strength	ASTM D4632	lbs (N)	205 (912)	205 (912)
Grab Tensile Elongation	ASTM D4632	%	50	50
Trapezoid Tear Strength	ASTM D4533	lbs (N)	80 (356)	80 (356)
CBR Puncture Strength	ASTM D6241	lbs (N)	500 (2224)	
			Maximum Opening Size	
Apparent Opening Size (AOS)	ASTM D4751	U.S. Sieve (mm)	80 (0.18)	
			Minimum Roll Value	
Permittivity	ASTM D4491	sec^{-1}	1.4	
Flow Rate	ASTM D4491	$gal/min/ft^2$ ($l/min/m^2$)	95 (3870)	
			Minimum Test Value	
UV Resistance (at 500 hours)	ASTM D4355	% strength retained	70	

Physical Properties	Unit	Roll Sizes	
Roll Dimensions (width x length)	ft (m)	12.5 x 360 (3.8 x 110)	15 x 300 (4.57 x 91.4)
Roll Area	yd^2 (m^2)	500 (418)	

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365 South Holland Drive
Pendergrass, GA 30567

Tel 706 693 2226
Tel 888 795 0808

Fax 706 693 4400
www.tencate.com

FGS000351
ETQR72

GAI-LAP-25-97

FIELD WORK VARIANCE

Project Name: Remedial Action in Parcel D-1 **DCN:** CBI-2005-0003-0012

Project Number: 149831 **Project Manager:** Lisa Bercik **WV #:** 003

Contract Number: N62473-12-D-2005 **SWDIV RPM:** Leslie Howard **Date:** 8/2/2016

CTO Number: 0003 **SWDIV CS:** Cynthia Mafara

Item: Compaction Testing Schedule for Seawall Stabilization Areas **Primary WBS:**

Description *(Include recommended action to resolve changed condition and action taken to date)*

Work Plan Section 6.2.8.1, "Existing Surface with No Asphalt," and Appendix C, Contractor Quality Control (CQC) Plan, Attachment 7, "Testing Plan and Log," provide compaction testing requirements. This field work variance provides clarification for compaction requirements in areas requiring seawall stabilization. In accordance with the Work Plan, these areas are prepared for stabilization by first excavating the areas to expose the eroded seawall, placing gabion baskets, backfilling, and compacting in 1-foot lifts up to the base course. Each 1-foot lift will be uniformly compacted to a firm and unyielding condition, which will be visually verified and documented by the field engineer. For the seawall stabilization areas requiring gabion basket placement and/or deeper backfill, compaction testing by ASTM D 6938 will be performed at a sampling frequency of one test per every 30 cubic yards (1 test/30 cy) with a minimum of one test per excavation area at the top layer of imported subgrade. Per direction of the field engineer/construction manager, the compaction testing via ASTM D 6938 frequency may be increased to verify compaction has been met. The requirement for "passing" for each test remains as 95 percent of the maximum dry density based on modified Proctor testing (ASTM D 1557). Base course will be added and tested as perscribed in Work Plan Section 6.2.8.1 in 6-inch lifts and compacted to 95 percent of the maximum dry density based on ASTM D 1557. All other backfilling activities will remain as described in the Work Plan.

Reason for Change

The compaction testing frequency that was included in the Testing Plan and Log (CQC Plan, Attachment 7) was designed for the import fill being used as subgrade fill over the majority of the non-paved surface areas. As such, these areas have a much more shallow fill thickness. In the case of the excavation locations associated with the seawall stabilization areas, testing at a frequency of 1 test per 1-foot lift is not necessary or practical. One test per 30 cy will ensure the material has been sufficiently compacted.

Technical Justification - See above

Estimated Cost Impact	Estimated Schedule Impact	WBS Information
None	None	☐ WBS Code Opened to Capture Cost **Task Title:** **WBS Code:**

Applicable Document(s)

Final Revision 1, Final Remedial Action Work Plan, Remedial Action in Parcel D-1, Hunters Point Naval Shipyard, San Francisco, California, May 2016; and Appendix C, CQC Plan, Attachment 7, "Testing Plan and Log"

PMO Disposition of Work Variance **Type of Change:**

☐ Monitor; No notice to Navy
Review by _____ (Date)

☒ E-Mail Notification to Navy

☐ Notice of Potential Impact (NOPI)

☐ Request for Additional Funds (RAF)

☐ Other (Please Comment)

Additional Comments

WV prepared by - Natalie Rothell, Field Engineer on 8/2/2016
WV reviewed by - Mike Ayala, Project Engineer 8/2/2016

Approvals

Project Manager Lisa Bercik **Date:** 8/3/2016

PMO Contracts Manager _____ **Date:** _____

This form documents a newly discovered or developing situation. Submitting a Work Variance (WV) to he PMO allows a PM to direct a variation in work that may put the company at financial risk **for up to one business day**. During hat time, the PM gathers additional information, assesses the situation and coordinates with the IT Contracts Administration Manager (and others, as appropriate) to determine further actions.

FIELD WORK VARIANCE

Close coordination with the Client is expected throughout the process.

However, a WV form does not require Client review or approval; it depends solely on the good judgment of the PM to act in the best interest of the Client and the company. By itself, a **WV does not seek anything** (though it may provide the documentation to support a request for additional funding or guidance).

Testing Plan and Log

Contract No. N62473-12-D-2005 CTO 0003	Remedial Action in Parcel D-1 Hunters Point Naval Shipyard, San Francisco, California	CB&I Federal Services LLC

Specification Section Number	Test Procedure	Test Name	Accredited/ Approved Lab		Sampled by	Location of Test		Frequency of Test	Date Completed	Date Forwarded to Contracting Officer	Remarks
			Yes	No		On site	Off site				
31 00 00	California Test 301	R Value					X	1/source			asphalt fill
31 00 00	ASTM C 136	Classification					X	1/source			riprap
31 00 00	ASTM D 422	Grain Size					X	1/2000 cy			fill
31 00 00	ASTM D 4318	Atterberg Limits					X	1/2000 cy			fill
31 00 00	ASTM 2487	Classification					X	1/2000 cy			fill
31 00 00	ASTM D 1557	Modified Proctor					X	1/5000 cy or change in material			fill
31 00 00	ASTM D 2216	Moisture				X		1/2000 cy			fill
31 00 00	ASTM D 6938	Density & Moisture				X		1/10,000 sf/lift			Fill/subgrade (shallow depths) (minimum one per day and one per building foundation when fill material is placed)
								1/30 cy[1]			Fill/subgrade (Deeper depths, seawall stabilization) Compaction criterion[2] – 95%

Contract No. N62473-12-D-2005 CTO 0003			Remedial Action in Parcel D-1 Hunters Point Naval Shipyard, San Francisco, California							CB&I Federal Services LLC	
Specification Section Number	Test Procedure	Test Name	Accredited/ Approved Lab Yes	 No	Sampled by	Location of Test On site	 Off site	Frequency of Test	Date Completed	Date Forwarded to Contracting Officer	Remarks
31 00 00	ASTM D 1556	Density, Sand Cone				X		1/150,000 sf/lift			subgrade
31 00 00	ASTM D 2216	Moisture				X		1/150,000 sf/lift			subgrade
32 10 00	ASTM D2922	Density				X		1/10,000 sf/lift			AB
32 10 00	ASTM D 3017	Moisture					X	1/source			AB
32 10 00	ASTM D 2172	Extraction				X		2/day/mix			bituminous mix
32 10 00	AASHTO T 30	SieveF				X		2/day/mix			bituminous mix
32 10 00	ASTM D 1559	Stability and Flow				X		2/day/mix			bituminous mix
32 10 00	AASHTO T 230	Density					X	3 cores/200 tons			pavement
32 10 00	Per Section 3.3.2.2c of Spec	Straightedge Test				X					

[1]A minimum of 1 test will be conducted per excavation area. Frequency of testing at any location may increase at the discretion of the field engineer or construction manager. Backfill and compaction will be performed in 1-foot lifts or less to ensure compaction criteria are met. Compaction activities will be visually verified and documented by the field engineer.

[2]Compaction criteria are the percent of compacted density as determined by the ASTM International Method D1557.

FIELD WORK VARIANCE

Project Name: Remedial Action in Parcel D-1 **DCN:** CBI-2005-0003-0014

Project Number: 149831 **Project Manager:** Lisa Bercik **WV #:** 005

Contract Number: N62473-12-D-2005 **SWDIV RPM:** Leslie Howard **Date:** 10/5/2016

CTO Number: 0003 **SWDIV CS:** Cynthia Mafara

Item: Seawall Stabilization at Berth 15 **Primary WBS:**

Description *(Include recommended action to resolve changed condition and action taken to date)*

Final Revision 1, Final Remedial Action Work Plan (RAWP; CB&I, 2016), Section 6.2.9, "Seawall Stabilization," states: "[t]he asphalt pavement along the seawalls will meet the newly constructed or repaired asphalt pavement over the remainder of the area."

This field work variance revises the RAWP to clarify seawall stabilization and installation of the durable cover in areas with structurally sound interior seawalls. Along Berth 15 of the Gun Mole Pier, an approximately 40-foot long segment of seawall was identified as heavily corroded, thus requiring stabilization by installation of gabion baskets in accordance with the approved RAWP. During installation of the gabion baskets, an interior sheet pile wall was identified several feet inward from the outer seawall. This section of interior sheet pile wall is intact and appears to tie-back to both ends (laterally) of the damaged sheet pile section. Removing the interior wall could further damage the outer seawall along this section; therefore, the interior wall was retained and the gabion basket revetment was constructed abutting the interior wall (and not the outer seawall). In accorance with the RAWP, the gabion baskets were covered with filter fabric and the repaired seawall section was backfilled to existing grade. The repair has resulted in an approximately 30-foot long, 3-foot wide gap between the stablized interior wall and the outer seawall edge. The area is currently barricaded with orange construction fencing as a safety and health precaution.

To complete the repair at Berth 15, CB&I will install the durable cover at the edge of the interior stablized seawall. The durable cover will be terminated at approximately 3 feet from the edge of the interior wall and an asphalt curb will be installed to reduce stormwater runoff to the gap between the interior and outer seawalls. Furthermore, CB&I will install a permanent fence, meeting the specifications outlined in the DBR, around the area to prevent pedestrian or automotive traffic from gaining access.

Reason for Change

There is an interior seawall at Berth 15. Removing the interior wall could destabilize the outer seawall because the interior wall appears to tie-back in and support the overall stability of the seawall structure. The durable cover cannot be installed to the edge of the outer seawall because there is an approximately 3-foot gap between the interior and outer seawalls. Filling this gap is not recommended because it would place pressure and stress on the outer seawall and potentially cause the seawall to collapse. CB&I will install the durable cover to the edge of the stabilized interior seawall and fence off access to the gap between the interior and outer seawalls. This approach meets the intent of the DBR.

Technical Justification - See above

Estimated Cost Impact	Estimated Schedule Impact	WBS Information
None	None	☐ WBS Code Opened to Capture Cost **Task Title:** **WBS Code:**

Applicable Document(s)

Final Revision 1, Final Remedial Action Work Plan, Remedial Action in Parcel D-1, Hunters Point Naval Shipyard, San Francisco, California, May 2016

FIELD WORK VARIANCE

PMO Disposition of Work Variance

Type of Change: _____

- [ ] Monitor; No notice to Navy
  Review by _____ (Date)
- [x] E-Mail Notification to Navy
- [ ] Notice of Potential Impact (NOPI)
- [ ] Request for Additional Funds (RAF)
- [ ] Other (Please Comment)

Additional Comments

WV prepared by - Sam Hopstone, Field Engineer on 10/5/2016
WV reviewed by - Mike Ayala, Project Engineer 10/5/2016

Approvals

Project Manager _____ **Date:** 10/6/2016

This form documents a newly discovered or developing situation. Submitting a Work Variance (WV) to the PMO allows a PM to direct a variation in work that may put the company at financial risk **for up to one business day**. During that time, he PM gathers additional information, assesses the situation and coordinates with the CB&I Contracts Administration Manager (and others, as appropriate) to determine further actions.

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Hopstone, Sam

From: Janda, Danielle L CIV <danielle.janda@navy.mil>
Sent: Tuesday, October 18, 2016 10:21 AM
To: Bercik, Lisa M.
Cc: Howard, Leslie A CTR NAVFAC HQ, BRAC PMO; Delong, Douglas E CTR NAVFACHQ, BRAC PMO
Subject: FW: Parcel D-1 - Field Work Variance 005 - Seawall Stabilization at Berth 15
Attachments: FWV 005 - CTO 0003 Seawall Stabilization at Berth 15.pdf

Hi Lisa,

This solution in your field work variance makes sense in order to avoid cost increase. I approve with CB&I moving forward with its implementation.

It doesn't seem to me that this is a long term solution, however. The purpose of the durable cover is to prevent exposure to soil and I understand how the current configuration (combination of gabion baskets and filter and sea wall prevents migration of soil to the Bay and the fencing prevents health and safety concerns), but does this exposed filter fabric require and fencing require more maintenance. Will we be able to say that the RAOs were met by the end of the project. Or should we look at possibly doing more work to stabilize this portion of the seawall?

V/r,
Danielle Janda
(619)524-6041

-----Original Message-----
From: Howard, Leslie A CTR NAVFAC HQ, BRAC PMO
Sent: Tuesday, October 18, 2016 9:40 AM
To: Janda, Danielle L CIV
Subject: FW: Parcel D-1 - Field Work Variance 005 - Seawall Stabilization at Berth 15

Danielle,

Can you possibly reply to Lisa's email regarding approval of the Field Work Variance because I am not permitted to direct the contractors, and the ROICC is not giving approvals related to anything other than health and safety. I have discussed this change with Shirley and Doug, who visited the site in person and they do agree with the change. I have pictures as well if you'd like to see them.

Pat responded to similar requests by CB&I while you were out.

Thanks
Leslie

Leslie A. Howard, CHMM
Environmental Engineering Support II
Navy BRAC PMO West
33000 Nixie Way
Bldg 50, 2nd Floor
San Diego CA 92147

Desk Phone: 619-524-5903
Main Office Phone: 619-524-5096

-----Original Message-----
From: Bercik, Lisa M. [mailto:Lisa.Bercik@CBIFederalServices.com]
Sent: Thursday, October 06, 2016 2:31 PM
To: Howard, Leslie A CTR NAVFAC HQ, BRAC PMO
Cc: Ng, Shirley S CIV NAVFAC SW; Hanif, Chris; Ayala, Mike; Hopstone, Sam
Subject: [Non-DoD Source] Parcel D-1 - Field Work Variance 005 - Seawall Stabilization at Berth 15

Hi Leslie,

Field Work Variance (FWV) 005 is attached for your records. The FWV addresses seawall stabilization at Berth 15 as discussed during our QC meeting on October 4.

Thanks,

Lisa

Lisa Bercik, PE, QSD, QSP
Project Manager

Federal Services
619.446.4508 direct
619.213.3389 cell
lisa.bercik@cbifederalservices.com <mailto:lisa.bercik@cbifederalservices.com>

CB&I Federal Services

1230 Columbia Street, Suite 1200
San Diego, California 92101

United States of America

www.cbi.com <http://www.cbi.com/>

Hopstone, Sam

From: Howard, Leslie A CTR NAVFAC HQ, BRAC PMO <leslie.howard@navy.mil>
Sent: Tuesday, September 27, 2016 6:22 AM
To: Hanif, Chris
Cc: Ng, Shirley S CIV NAVFAC SW
Subject: RE: D2005 CTO003; submittal cement mix design

Morning Chris,

Sorry, I hit send very quickly.

The submittal is approved. Please send future submittals to Shirley and I for review and approval.

Thank you!
Leslie

Leslie A. Howard
Contracted RPM
Navy BRAC PMO West
33000 Nixie Way
Bldg 50, 2nd Floor
San Diego CA 92147
Desk Phone: 619-524-5903
Main Office Phone: 619-524-5096

-----Original Message-----
From: Howard, Leslie A CTR NAVFAC HQ, BRAC PMO
Sent: Tuesday, September 27, 2016 6:21 AM
To: 'Hanif, Chris'
Cc: Ng, Shirley S CIV NAVFAC SW
Subject: RE: D2005 CTO003; submittal cement mix design

"Accepted as Noted, Subject to Contract Requirements"

Leslie A. Howard
Contracted RPM
Navy BRAC PMO West
33000 Nixie Way
Bldg 50, 2nd Floor
San Diego CA 92147
Desk Phone: 619-524-5903
Main Office Phone: 619-524-5096

-----Original Message-----
From: Hanif, Chris [mailto:Chris.Hanif@Cbifederalservices.com]
Sent: Friday, September 23, 2016 10:44 AM
To: Howard, Leslie A CTR NAVFAC HQ, BRAC PMO

Cc: Ng, Shirley S CIV NAVFAC SW
Subject: [Non-DoD Source] D2005 CTO003; submittal cement mix design

Leslie:

Please find attached the submittal for the cement mix design for Parcel D-1.

Central Concrete Company is the provider of the cement.

Central Concrete Supply Company

301 El Charro Rd.

Pleasanton, CA 94588

Contact:

Richard Santoro

408-293-6272

Chris Hanif,CISEC

Project Quality Control Manager

Federal Services

415.840.6134 Cell

chris.hanif@cbifederalservices.com

CB&I Federal Services

200 Fisher Ave.

San Francisco, CA 94124

United States

SUBMITTAL TRANSMITTAL

ACTIVITY ID	DATE
	Sep 22, 2016

CONTRACT NO	CONTRACT TITLE	SUBMI NO
N62473-12-D-2005, CTO 003	Remedial Action in Parcel D-1 Phase 1	006

SUBM ITEM DESCRIPTION
Concrete mix design: spec sheet for the concrete ready-mix for 274, 308, and 384

SUBMITTAL PRIORITY?	(•) HIGH	( ) NORMAL
PREPARED BY CQC MGR?	(•) YES	( ) NO
SCHEDULE REFERENCED?	( ) YES	(•) NO
CRITICAL PATH?	( ) YES	(•) NO

SPEC SECTION	SPEC PARAGRAPH	SPEC PAGE NO
03 30 00	1.3.1	2

chris.hanif@cbifederalservices.com Digitally signed by chris.hanif@cbifederalservices.com DN: cn=chris.hanif@cbifederalservices.com Date: 2016.09.22 11:35:45 -07'00'

CONTRACTOR/QUALITY CONTROL MANAGER DATE

COMMENTS FOR DETAILED REVIEWER:

DETAILED REVIEWER 1 COMMENTS:

Contractor mix design meets the minimum requirements for Strength and Slump.
Please confirm the grading requirements for Coarse Aggregate (ASTM C 33)
Aggregate Size No. 57: 25.0 to 4.75 mm; or
Aggregate Size No. 67: 19.0 to 4.75 mm

DETAILED REVIEWER 1 NAME/SIGNATURE	TITLE	RESPONSE DATE
mike.ayala@cbifederalservices.com	Project Engineer	Sep 23, 2016

DETAILED REVIEWER 2 COMMENTS:

Confirmed grading requirements for course Aggregate Aggregate(ASTM C33) Size No.57:25.0 to 4.75mm; or Aggregate Size No. 67: 19.0 to 4.75mm

DETAILED REVIEWER 2 NAME/SIGNATURE	TITLE	RESPONSE DATE

APPROVER'S COMMENTS:

SUBM STATUS

GOVERNMENT CONSTRUCTION MANAGER DATE

Revised: November 17, 2014

ORCA WASHED GRAVEL 1" x No.4 (25.0 x 4.75mm)

The Orca concrete aggregates are produced at the Orca Quarry, Port McNeill, B.C., in a modern and efficient washing and processing plant opened in March 2007 and distributed via ocean-going ships or barges.

The California Department of Transportation has established that aggregates from this source are innocuous with respect to Alkali Silica Reactivity and has approved them for use in reduced mineral admixture concrete. Caltrans # 12-Can-01 (www.dot.ca.gov/hq/esc/approved_products_list/pdf/aggregate_for_concrete.pdf)

Independent laboratory concrete trial mixes using Orca 1" x #4 gravel and Orca washed concrete sand produced results designated "Low Shrinkage" in accordance with test method ASTM C157 (Modified).

The 1" x No.4 (ASTM Type 57) gravel is produced through a precise computer-controlled blending system from two separate size fractions, 1" x 1/2" (25.0 x 12.5 mm) and 1/2" x No.4 (12.5 x 4.75 mm).

GRADATION – PERCENTAGE PASSING

SIEVE SIZE	ORCA GRAVEL * (Typical Values)		SPECIFICATIONS	
			CALTRANS Per: 90-1.02C(2) (2010)	ASTM C33-03 Type 57
37.5 mm (1-1/2")	100		100	100
25.0 mm (1")	99		88 – 100	95 – 100
19.0 mm (3/4")	82	X = 80	65 – 95 X ± 15	
12.5 mm (1/2")	45			25 – 60
9.5 mm (3/8")	30	X = 25	10 – 40 X ± 15	
4.75 mm (#4)	4		0 – 16	0 – 10
2.36 mm (#8)	1		0 – 6	0 – 5

* Usual Blend Ratio: 60% of 1" x ½" (25.0 x 12.5 mm) with 40% of ½" x No.4 (12.5 x 4.75 mm).

TYPICAL PROPERTIES

	TEST	ORCA	SPECIFICATIONS	
			CALTRANS	ASTM
Specific Gravity, bulk SSD	CT 206	2.88		
Absorption	CT 206	0.5		
Dry Rodded Unit Weight, pcf	CT 212	115		
Cleanness Value	CT 227	>80	75 Min.	
Durability	CT 229	90		
Sodium Sulfate Soundness	CT-214	<1%	10% Max.	12% Max.
Magnesium Sulfate Soundness	C-88	<1%		18% Max.
Los Angeles Abrasion (500 Revs)	C-131	5%	45% Max.	50% Max.
Materials Finer Than No. 200	C-117	<0.5%		1.0% Max.
Lightweight Pieces (Coal or Lignite)	C-123	0.0%		0.5% Max.
Lightweight Pieces (Chert & Shale)	C-123	<0.5%		5.0% Max.
Clay Lumps and Friable Particles	C-142	<0.5%		5.0% Max.
Alkali Silica Reactivity	C-1260	Innocuous	0.15% Max.	0.10% Max.
Alkali Silica Reactivity	C-1293	Innocuous	0.04% Max.	0.04% Max.

Ken Palko, P. Eng.
Vice President, Operations

Orca Sand & Gravel Ltd. • 6505 Island Highway • Port McNeill • BC • V0N 2R0
Telephone: (604) 628-3353 Facsimile: (604) 628-3354

9/2/2016
Customer Name: CB&I Federal Services

Project Name: HUNTERS POINT NAVAL SHIPYARD
200 FISHER AVE
SAN FRANCISCO, CA 94124

Central Concrete Project #:

Central Concrete looks forward to the opportunity to partner with you on another successful project. Enclosed please find the following mix submittals and disclaimers:

Mix #	Usage	Design Strength (psi)
6012PH	3000 PSI 5 " SLUMP	3000

Enclosed are current proportions for the mix designs intended to be used for your project. Please see the list below including alternate materials that could be used. By approving these designs you acknowledge you are approving the use of these alternate materials.

Cement
Lehigh Permanente
Cal Portland Mojave
CEMEX Victorville
Cal Portland Nanjing

Pozzolan
Salt River Materials Group
Headwaters Resources
Nevada Cement

Slag
Lehigh Nippon

Low Shrink Coarse Aggregate
Granite-Aromas
Hanson-Orca
Hanson-Clayton
CEMEX-Clayton

Gravel Coarse Aggregate
Vulcan-Pleasanton
CEMEX-Eliot
Hanson-Sunol
DeSilva Gates-Sunol

Fine Aggregate
Vulcan-Pleasanton
Hanson-Orca
Hanson-SF Yard
Hanson-Oakland Yard
CEMEX-Eliot
Hanson-Sunol
Vulcan-Pilarcitos
DeSilva Gates-Sunol

Lightweight Coarse Aggregates
Glass Mountain Pumice
Frazier Park

To access Central Concrete's and Right Away Redy Mix's Safety Data Sheet for unhardened concrete, please use the following links. We encourage you to post these in your SDS library data base and print these out for easy access in case of an emergency.

Central Concrete Supply Co., Inc. SDS:
http://centralconcrete.com/wp-content/themes/centralconcrete/images/PDFs/Central-Ready-Mixed-Concrete-SDS.pdf

Right Away Redy Mix SDS:
http://rightawayredymix.com/wp-content/uploads/2015/04/Right-Away-Redy-Mix-Ready-Mixed-Concrete-SDS.pdf

Respectfully,

RICHARD SANTORO

CENTRAL
CONCRETE SUPPLY COMPANY

9/2/2016

CB&I Federal Services

Project Name: HUNTERS POINT NAVAL SHIPYARD

Customer/Project Number:

Project Address: 200 FISHER AVE

(Please use this number when calling Central to order)

Below are current proportions for the mix designs intended to be used for your project. Please see the cover letter to see the alternate materials that could be used. By approving these design(s) listed you acknowledge you are approving the use of these alternate materials.

Mix # 6012PH

Mix Description: 6.0SK 1" POLYHEE

Slump: 5.00 ± 1

Usage: 3000 PSI 5 " SLUMP

W/CM Ratio: 0.48

Design Strength: 3000 PSI

Plant: BODE CONCRETE PLANT 30

Material Code	Description	Source Supplier	Design Quantity (lbs/cy)	Volume
Cement	ASTM C150	Lehigh-Permanente	564 lb	2.87
Coarse Aggregate	ASTM C 33 #57	Hanson-Pier 94 - Orca	1365 lb	7.60
Coarse Aggregate	ASTM C 33 #7	Hanson-Pier 94 - Orca	320 lb	1.78
Fine Aggregate	ASTM C 33 Fine Agg	Hanson-Pier 94 - Orca	1714 lb	9.88
Admixture	C494 Type A,F: Polyheed 9	BASF -Cleveland	- -	-
Water	ASTM C1602	Central Concrete-Central Concrete	32.4 gal	4.33
		Air Target:	2.00 %	0.54
		Totals:	4234 lb	27.00

Optional to be added upon request

Site Fresh	ASTM C 494 Type B & D	2 to 6
Site Set	ASTM C 494 Type C	10 to 45
Site Slump	ASTM C 494 Type A, F	1 to 6

CENTRAL
CONCRETE SUPPLY COMPANY

Concrete Mix Design Submittal

Date : 09/02/2016 **No. 16–001186** **Version 1**

Mix Code : **6012PH** Description : **6.0SK 1" POLYHEED**

Sieve Size	Coarse AUGL5AB	Coarse AUGL2AB	Fine AUGLDAB	Combined
2"	100.0	100.0	100.0	100.0
1-1/2"	100.0	100.0	100.0	100.0
1"	99.0	100.0	100.0	99.6
3/4"	82.0	100.0	100.0	92.8
1/2"	45.0	98.0	100.0	77.7
3/8"	30.0	60.0	100.0	68.1
No. 4	4.0	2.0	99.0	51.7
No. 8	1.0	1.0	81.0	41.4
No. 16			66.0	33.3
No. 30			49.0	24.7
No. 50			25.0	12.6
No. 100			6.0	3.0
No. 200			2.0	1.0
DRUW lb/ft3				
% Agg	**40.1**	**9.4**	**50.4**	
% Coarse Agg	**81.0**	**19.0**		
% Fine Agg			**100.0**	
SG	**2.88**	**2.88**	**2.78**	
FM	**6.65**	**6.37**	**2.74**	**4.65**

Prepared By :

RICHARD SANTORO Inside Sales

Revised: June 7, 2016

ORCA WASHED CONCRETE SAND

The Orca concrete aggregates are produced at the Orca Quarry, Port McNeill, B.C., in a modern and efficient washing and processing plant opened in March 2007 and distributed via ocean-going ships or barges.

The California Department of Transportation has established that aggregates from this source are innocuous with respect to Alkali Silica Reactivity and has approved them for use in reduced mineral admixture concrete.
Caltrans # 12-Can-02 (www.dot.ca.gov/hq/esc/approved_products_list/pdf/aggregate_for_concrete.pdf)

Independent laboratory concrete trial mixes using Orca washed concrete sand and Orca 1" x #4 gravel produced results designated "Low Shrinkage" in accordance with test method ASTM C157 (Modified).

GRADATION – PERCENTAGE PASSING

SIEVE SIZE		ORCA SAND (Typical Values)		SPECIFICATIONS		
				CALTRANS Per: 90-1.02C(3) (2010)		ASTM C 33-03
9.50 mm (3/8")		100		100		100
4.75 mm (#4)		99		95 – 100		95 – 100
2.36 mm (#8)		81		65 – 95		80 – 100
1.18 mm (#16)	"A"	66	X = 68	58 – 78	X ± 10	50 – 85
600 µm (#30)	"B"	49	X = 46	37 – 55	X ± 9	25 – 60
300 µm (#50)	"C"	25	X = 24	18 – 30	X ± 6	5 – 30
150 µm (#100)		6		2 – 12		0 – 10
75 µm (#200)		2		0 – 8		0 – 3
	A – B	19		10 – 40		
	B – C	24		10 – 40		
Fineness Modulus		2.65 – 2.85				2.3 – 3.1

TYPICAL PROPERTIES

	TEST	ORCA	SPECIFICATIONS	
			CALTRANS	ASTM
Specific Gravity, bulk SSD	CT 206	2.78		
Absorption	CT 206	0.5		
Dry Rodded Unit Weight, pcf	CT 212	115		
Sand Equivalent	CT 217	85	75 Min.	
Durability	CT 229	80		
Sodium Sulfate Soundness	C-214	<2%	10% Max.	10% Max.
Magnesium Sulfate Soundness	C-88	<1%		15% Max.
Relative Mortar Strength	C-87	110%	95% Min.	
Materials Finer Than No. 200	C-117	<2%	8% Max.	3% Max.
Lightweight Pieces (Coal or Lignite)	C-123	0.3%		0.5% Max.
Clay Lumps and Friable Particles	C-142	<1%		3.0% Max.
Organic Impurities	C-40	Satisfactory		
Alkali Silica Reactivity	C-1260	Innocuous	0.15% Max.	
Alkali Silica Reactivity	C-1293	Innocuous	0.04% Max.	0.04% Max.

Ken Palko, P. Eng.
Vice President, Operations

Orca Sand & Gravel Ltd. • 6505 Island Highway • Port McNeill • BC • V0N 2R0
Telephone: (604) 628-3353 Facsimile: (604) 628 3354

Revised: December 3, 2015

ORCA WASHED GRAVEL 1/2" x No.4 (12.5 x 4.75mm)

The Orca concrete aggregates are produced at the Orca Quarry, Port McNeill, B.C., in a modern and efficient washing and processing plant opened in March 2007 and distributed via ocean-going ships or barges.

The California Department of Transportation has established that aggregates from this source are innocuous with respect to Alkali Silica Reactivity and has approved them for use in reduced mineral admixture concrete.
Caltrans # 12-Can-01 (www.dot.ca.gov/hq/esc/approved_products_list/pdf/aggregate_for_concrete.pdf)

GRADATION – PERCENTAGE PASSING

SIEVE SIZE	ORCA GRAVEL (Typical Values)		SPECIFICATIONS	
			CALTRANS Per: 90-1.02C(4) (2010)	ASTM C33-03 Type 7
19.0 mm (3/4")	100		100	100
12.5 mm (1/2")	98		82 – 100	90 – 100
9.5 mm (3/8")	60	X = 60	45 – 75 X ± 15	40 – 70
4.75 mm (#4)	2		0 – 15	0 – 15
2.36 mm (#8)	<1		0 – 6	0 – 5

TYPICAL PROPERTIES

	TEST	ORCA	SPECIFICATIONS	
			CALTRANS	ASTM
Specific Gravity, bulk SSD	CT 206	2.88		
Absorption	CT 206	0.5		
Dry Rodded Unit Weight, pcf	CT 212	115		
Cleanness Value	CT 227	>80	75 Min.	
Durability	CT 229	90		
Sodium Sulfate Soundness	C-214	<1%	10% Max.	12% Max.
Magnesium Sulfate Soundness	C-88	<1%		18% Max.
Los Angeles Abrasion (500 Revs)	C-131	5%	45% Max.	50% Max.
Materials Finer Than No. 200	C-117	<0.5%		1.0% Max.
Lightweight Pieces (Coal or Lignite)	C-123	0.0%		0.5% Max.
Lightweight Pieces (Chert & Shale)	C-123	<0.5%		5.0% Max.
Clay Lumps and Friable Particles	C-142	<0.5%		5.0% Max.
Alkali Silica Reactivity	C-1260	Innocuous	0.15% Max.	0.10% Max.

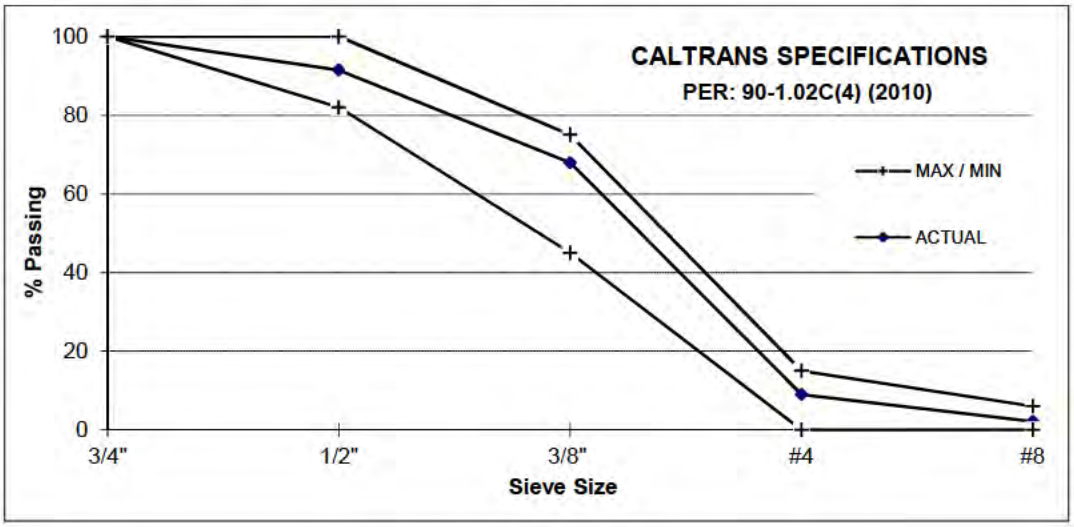
Ken Palko, P. Eng.
Vice President, Operations

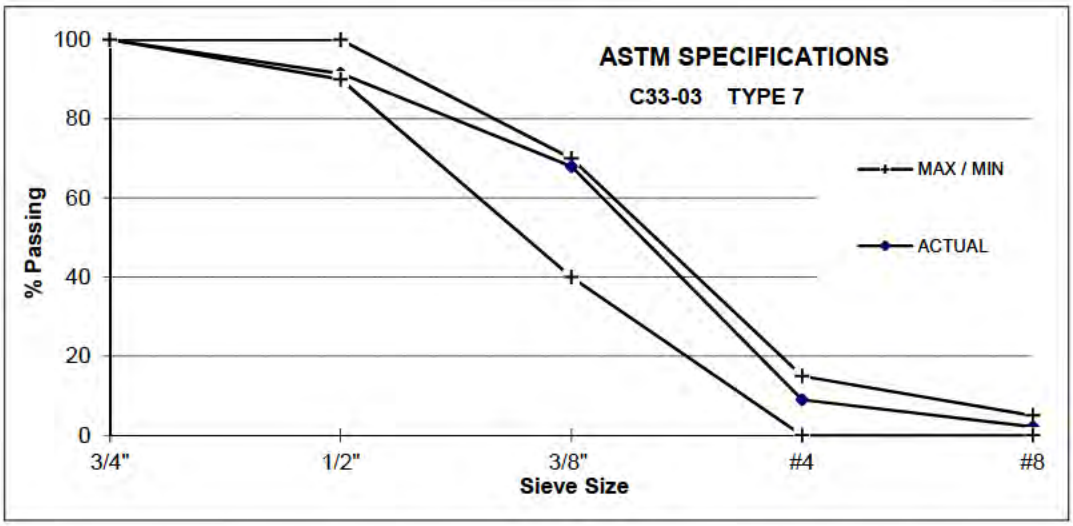
Orca Sand & Gravel Ltd. • 6505 Island Highway • Port McNeill • BC • V0N 2R0
Telephone: (604) 628-3353 Facsimile: (604) 628-3354

VESSEL: Algoma Vision
VOYAGE: 16005
HOLD: 4
MATERIAL: 1/2" X No. 4
DATE: 20-Mar-16

SITE: Orca
TEST NO. SG200316H4

SIEVE	CUM. WEIGHT	CUMULATIVE %		CALTRANS %		ASTM %	
(IMPERIAL)	RETAINED	RETAINED	PASSING	MIN	MAX	MIN	MAX
3/4"	**0.0**	0.0	100.0	100	100	100	100
1/2"	**276.6**	8.5	91.5	82	100	90	100
3/8"	**1040.6**	32.1	67.9	45	75	40	70
#4	**2950.9**	91.0	9.0	0	15	0	15
#8	**3174.0**	97.9	2.1	0	6	0	5
PAN	**3243.4**	100.0	0.0	--	--	--	--





COMMENTS: Average of 3 sample test results. Cleanness Value of composite sample: 94

Revised: June 7, 2016

ORCA WASHED CONCRETE SAND

The Orca concrete aggregates are produced at the Orca Quarry, Port McNeill, B.C., in a modern and efficient washing and processing plant opened in March 2007 and distributed via ocean-going ships or barges.

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Caltrans # 12-Can-02 (www.dot.ca.gov/hq/esc/approved_products_list/pdf/aggregate_for_concrete.pdf)

Independent laboratory concrete trial mixes using Orca washed concrete sand and Orca 1" x #4 gravel produced results designated "Low Shrinkage" in accordance with test method ASTM C157 (Modified).

GRADATION – PERCENTAGE PASSING

SIEVE SIZE		ORCA SAND (Typical Values)		SPECIFICATIONS		
				CALTRANS Per: 90-1.02C(3) (2010)		ASTM C 33-03
9.50 mm (3/8")		100		100		100
4.75 mm (#4)		99		95 – 100		95 – 100
2.36 mm (#8)		81		65 – 95		80 – 100
1.18 mm (#16)	"A"	66	X = 68	58 – 78	X ± 10	50 – 85
600 µm (#30)	"B"	49	X = 46	37 – 55	X ± 9	25 – 60
300 µm (#50)	"C"	25	X = 24	18 – 30	X ± 6	5 – 30
150 µm (#100)		6		2 – 12		0 – 10
75 µm (#200)		2		0 – 8		0 – 3
	A – B	19		10 – 40		
	B – C	24		10 – 40		
Fineness Modulus		2.65 – 2.85				2.3 – 3.1

TYPICAL PROPERTIES

	TEST	ORCA	SPECIFICATIONS	
			CALTRANS	ASTM
Specific Gravity, bulk SSD	CT 206	2.78		
Absorption	CT 206	0.5		
Dry Rodded Unit Weight, pcf	CT 212	115		
Sand Equivalent	CT 217	85	75 Min.	
Durability	CT 229	80		
Sodium Sulfate Soundness	C-214	<2%	10% Max.	10% Max.
Magnesium Sulfate Soundness	C-88	<1%		15% Max.
Relative Mortar Strength	C-87	110%	95% Min.	
Materials Finer Than No. 200	C-117	<2%	8% Max.	3% Max.
Lightweight Pieces (Coal or Lignite)	C-123	0.3%		0.5% Max.
Clay Lumps and Friable Particles	C-142	<1%		3.0% Max.
Organic Impurities	C-40	Satisfactory		
Alkali Silica Reactivity	C-1260	Innocuous	0.15% Max.	
Alkali Silica Reactivity	C-1293	Innocuous	0.04% Max.	0.04% Max.

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LEHIGH
HEIDELBERGCEMENT Group

TECHNICAL SERVICES SALES & MARKETING
12667 Alcosta Blvd., Suite 400
San Ramon, CA 94583
Telephone (925) 244 6500
FAX (925) 244 6586

AASHTO R18
Certified to NSF/ANSI 61

PERMANENTE PLANT
24001 Stevens Creek Blvd.
Cupertino, CA 95014-5659
Telephone (408) 996-4033
FAX (408) 996-4033

CEMENT TEST REPORT

Cement: Permanente Type II/V, Low Alkali; ASTM C 150-16

Production Period: Permanente June 2016 **Report Date:** 7/11/2016

STANDARD CHEMICAL REQUIREMENTS ASTM C 114	TEST RESULTS	ASTM C 150-16 SPECIFICATIONS TYPE II	TYPE V
Silicon Dioxide (SiO2), %	20.9	20.0 Min	----
Aluminum Oxide (Al2O3), %	4.0	6.0 Max	----
Ferric Oxide (Fe2O3), %	3.9	6.0 Max	----
Calcium Oxide (CaO), %	65.3	----	----
Magnesium Oxide (MgO), %	1.3	6.0 Max	6.0 Max
Sulfur Trioxide (SO_3), % Note B	3.4	3.0 Max	2.3 Max
Loss on Ignition (LOI), %	2.5	3.5 Max	3.5 Max
Insoluble Residue, %	0.76	1.5 Max	1.5 Max
Alkalies (Na2O equivalent), %	0.47	0.60 Max	0.60 Max
Tricalcium Silicate (C_3S), % [a]	61	----	----
Dicalcium Silicate (C_2S), % [a]	12	----	----
Tricalcium Aluminate (C_3A), % [a]	4	8 Max	5 Max
Tetracalcium Aluminoferrite (C_4AF), % [a]	11	----	----
2 (C3A) + C4AF, %	19	----	25 Max
PHYSICAL REQUIREMENTS			
(ASTM C 1038) Expansion @ 14 days,%	0.006	0.020 Max	0.020 Max
(ASTM C 452) Expansion @ 14 days,%	0.022	----	0.04 Max
(ASTM C 430) -325 Mesh, %	97.6	----	----
(ASTM C 204) Blaine, m2/kg	378	260 Min	260 Min
(ASTM C114) Limestone, max, % Note C	4.5	5 Max	5 Max
(ASTM C114) Limestone, %CaCO3	74.2	----	----
(ASTM C114) Cement, %CO2	1.47	----	----
(ASTM C 191) Time of Setting - Initial (Vicat)	131	45 Min	45 Min
(ASTM C 191) Time of Setting - Final (Vicat)	248	375 Max	375 Max
(ASTM C 451) False Set, %	85	50 Min	50 Min
(ASTM C 185) Air Content, %	6.0	12 Max	12 Max
(ASTM C 151) Autoclave Expansion, %	-0.01	0.80 Max	0.80 Max
(ASTM C 187) Normal Consistency, %	25.5	----	----
(ASTM C 109) Compressive Strength, psi (MPa)			
1 Day	2036	----	----
3 Day	3554	1450 (10.0) Min	1160 (8.0) Min
7 Day	4490	2470 (17.0) Min	2180 (15.0) Min
28 Day (previous month)	6109	----	3050 (21.0) Min

This cement meets the requirements of specification:

ASTM C150-16 Type II/V, Low Alkali
[a] Adjusted per ASTM C-150-16 Section A1.6
Caltrans Section 90-2.01 - Type II/V Modified
ASTM C 1157 Portland Cement Type HS
AASHTO Practice R18 accredited laboratory
Certified in accordance with Lehigh's Quality Assurance Program effective June 12, 2013

Anna Castillo, Quality Control Manager

Applicable ASTM C 150 Notes:

Note B: There are cases where the optimum SO3 for a particular cement is close to or in excess of the limit in this specification. In such cases where properties of a cement can be improved by exceeding the SO3 limit stated in this table it is permissible to exceed the values in the table, provided it has been demonstrated by Test Method C1038 that the cement with the increased SO3 will not develop expansion in water exceeding 0 020% at 14 days. When the manufacturer supplies cement under this provision, he shall, upon request, supply supporting data to the purchaser.

Note C Limestone addition as per C 150-16 Item 5.1.3

CENTRAL
CONCRETE SUPPLY COMPANY

A U.S. CONCRETE COMPANY

Product: Mixing water used in the Production of Ready Mix Concrete

8/1/2015

Water Test Report

Density: The water density for all Central Concrete production facilities are monitored with an automated device conforming to ASTM C 1603. Documentation of procedures and calibration are maintained at each production facility and can be made available upon request.

TABLE 1 Performance Requirements for Mixing Water

	Limits
Compressive strength, min % control at 7 days[A]	90
Time of setting, deviation from control, h: min[A]	From 1:00 earlier to 1:30 later

[A]Comparisons shall be based on fixed proportions for concrete or mortar mixtures. The control mixture shall be made with 100 % potable or distilled water. The test mixture shall be made with the mixing water that is being evaluated. (See Annex A1).

	Compressive Strength			
	Mix Design	Specific Gravity	Control	Gray
11-Aug-14	450PC5C1	1.09	100%	103%
29-Oct-14	6081	1.10	100%	119%
18-Nov-14	604CC	1.09	100%	101%
12-Dec-14	330PG9Q1	1.09	100%	105%
21-Jan-15	6012	1.07	100%	106%
17-Feb-15	3E5EC9D1	1.06	100%	105%
20-Mar-15	3E5EG9E1	1.03	100%	104%
22-Apr-15	356EG9C1	1.06	100%	99%
24-Jun-15	350PG9E1	1.08	100%	97%
17-Jul-15	4E5EC5C1	1.08	100%	97%

	Time of Setting			
	Mix Design	Control	Gray	Deviation from Control
11-Aug-14	450PC5C1	5.00	4.65	-0:21
29-Oct-14	6081	3.60	3.85	0:15
18-Nov-14	604CC	2.85	3.03	0:12
12-Dec-14	330PG9Q1	4.72	4.13	-0:35
21-Jan-15	6012	4.97	4.72	-0:15
17-Feb-15	3E5EC9D1	3.15	3.00	-0:25
20-Mar-15	3E5EG9E1	4.63	4.45	-0:11
22-Apr-15	356EG9C1	4.33	4.21	-0:07
24-Jun-15	350PG9E1	4.50	4.08	-0:25
17-Jul-15	4E5EC5C1	4.50	4.08	-0:25

TABLE 2 Optional Chemical Limits for Combined Mixing Water[A]

	Limits	Test Method
Maximum concentration in combined mixing water, ppm[B]		
A. Chloride as Cl, ppm		
1 in prestressed concrete, bridge decks, or otherwise designated	500[C]	C114[D]
2 other reinforced concrete in moist environments or containing aluminum embedments or dissimilar metals or with stay-in-place galvanized metal forms	1000[C]	C114[D]
B. Sulfate as SO_4, ppm	3000	C114[D]
C. Alkalies as (Na_2O + 0.658 K_2O), ppm	600	C114[D]
D. Total solids by mass, ppm	50 000	C1603

Corporate Office
755 Stockton Avenue
San Jose, CA 95126

West Bay
San Jose
790 Stockton Avenue
889 Stockton Avenue
457 Queens Lane

South San Francisco
1305 San Mateo Avenue

Redwood City
635 Seaport Avenue

East Bay
Martinez
893 Waterbird Way

Pleasanton
1645 Stanley Boulevard

Oakland
2400 Peralta Street
401 Embarcadero Street

Hayward
1844 W. Winton Avenue

Brentwood
11911 Brentwood Boulevard

Bode
San Francisco
450 Amador Way

BASF
We create chemistry

3

03 30 00	Cast-in-Place Concrete
03 40 00	Precast Concrete
03 70 00	Mass Concrete

MasterPolyheed® 997

Mid-Range Water-Reducing Admixture

Formerly PolyHeed 997*

Description

MasterPolyheed 997 admixture is a patented multi-component, mid-range water-reducing admixture. MasterPolyheed 997 admixture meets ASTM C 494/C 494M requirements for Type A, water-reducing, and Type F, high-range water-reducing, admixtures.

Applications

Recommended for use in:

- All concrete applications where superior workability, pumpability and finishability qualities are desired, in particular, flatwork, pumped concrete and pervious concrete
- Concrete containing manufactured sand and harsh concrete mixtures

Features

- True mid-range water reduction (5-15%) and excellent performance across a wide slump range, especially the difficult slump range of 5-8 in. (125-200 mm)
- Superior workability, pumpability and finishability qualities even in concrete mixtures containing low amounts of cementitious materials
- Superior finishing characteristics for residential/commercial flatwork and formed surfaces

Benefits

- Significantly reduced placement and finishing time resulting in lower in-place concrete costs
- Higher strength at all ages
- Enhanced concrete durability
- Increased service life of concrete structures

Performance Characteristics

Mixture Data: 500 lb/yd^3 (295 kg/m^3) of Type I cement; slump 6-7 in. (150-180 mm); 5-6% air; concrete temperature 70 °F (21 °C); ambient temperature, 70 °F (21 °C).

Setting Time Performance[1]

Mixture	Initial Set (h:min)	Difference (h:min)
Reference	6:01	—
MasterPolyheed 997 admixture @		
5 fl oz/cwt (325 mL/100 kg)	6:22	+0:21
10 fl oz/cwt (650 mL/100 kg)	6:57	+0:56
15 fl oz/cwt (980 mL/100 kg)	7:31	+1:30

MASTER® BUILDERS SOLUTIONS

Compressive Strength, psi (MPa)

Mixture	7-Day	28-Day
Plain	2360 (16.3)	3320 (22.9)
MasterPolyheed 997 admixture @		
5 fl oz/cwt (325 mL/100 kg)	3060 (21.1)	3930 (27.1)
10 fl oz/cwt (650 mL/100 kg)	3740 (25.8)	4610 (31.8)
15 fl oz/cwt (980 mL/100 kg)	4620 (31.9)	5460 (37.7)

[1]Note: The data shown are based on controlled laboratory tests. Reasonable variations from the results shown here may be experienced as a result of differences in concrete making materials and jobsite conditions.

Guidelines for Use

Dosage: MasterPolyheed 997 admixture has a recommended dosage range of 3-15 fl oz /cwt (195-980 mL/100 kg) of cementitious material for most concrete mixes.

As the dosage of MasterPolyheed 997 admixture increases to 15 fl oz/cwt (980 mL/100 kg) of cementitious materials, normal concrete setting characteristics are maintained and early and ultimate compressive strengths increase.

BASF does not recommend the use of dosages outside the recommended range without trial testing. Consult your local sales representative for assistance in determining the dosage for optimum performance.

Product Notes

Corrosivity – Non-Chloride, Non-Corrosive: MasterPolyheed 997 admixture will neither initiate nor promote corrosion of reinforcing or prestressing steel embedded in concrete, or of galvanized steel floor and roof systems. MasterPolyheed 997 admixture does not contain intentionally added calcium chloride or other chloride-based ingredients.

Compatibility: MasterPolyheed 997 admixture may be used in combination with any BASF admixtures. When used in conjunction with other admixtures, each admixture must be dispensed separately into the concrete mixture.

Storage and Handling

Storage Temperature: If MasterPolyheed 997 admixture freezes, thaw at 35 °F (2 °C) or above and completely reconstitute by mild mechanical agitation. **Do not use pressurized air for agitation.**

Shelf Life: MasterPolyheed 997 admixture has a minimum shelf life of 18 months. Depending on storage conditions, the shelf life may be greater than stated. Please contact your local sales representative regarding suitability for use and dosage recommendations if the shelf life of MasterPolyheed 997 admixture has been exceeded.

Packaging

MasterPolyheed 997 admixture is supplied in 55 gal (208 L) drums, 275 gal (1040 L) totes and by bulk delivery.

Related Documents

Safety Data Sheets: MasterPolyheed 997 admixture

Additional Information

For additional information on MasterPolyheed 997 admixture or its use in developing concrete mixtures with special performance characteristics, contact your local sales representative.

The Admixture Systems business of BASF's Construction Chemicals division is the leading provider of solutions that improve placement, pumping, finishing, appearance and performance characteristics of specialty concrete used in the ready-mixed, precast, manufactured concrete products, underground construction and paving markets. For over 100 years we have offered reliable products and innovative technologies, and through the Master Builders Solutions brand, we are connected globally with experts from many fields to provide sustainable solutions for the construction industry.

Limited Warranty Notice

BASF warrants this product to be free from manufacturing defects and to meet the technical properties on the current Technical Data Guide, if used as directed within shelf life. Satisfactory results depend not only on quality products but also upon many factors beyond our control. BASF MAKES NO OTHER WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO ITS PRODUCTS. The sole and exclusive remedy of Purchaser for any claim concerning this product, including but not limited to, claims alleging breach of warranty, negligence, strict liability or otherwise, is shipment to purchaser of product equal to the amount of product that fails to meet this warranty or refund of the original purchase price of product that fails to meet this warranty, at the sole option of BASF. Any claims concerning this product must be received in writing within one (1) year from the date of shipment and any claims not presented within that period are waived by Purchaser. BASF WILL NOT BE RESPONSIBLE FOR ANY SPECIAL, INCIDENTAL, CONSEQUENTIAL (INCLUDING LOST PROFITS) OR PUNITIVE DAMAGES OF ANY KIND.

Purchaser must determine the suitability of the products for the intended use and assumes all risks and liabilities in connection therewith. This information and all further technical advice are based on BASF's present knowledge and experience. However, BASF assumes no liability for providing such information and advice including the extent to which such information and advice may relate to existing third party intellectual property rights, especially patent rights, nor shall any legal relationship be created by or arise from the provision of such information and advice. BASF reserves the right to make any changes according to technological progress or further developments. The Purchaser of the Product(s) must test the product(s) for suitability for the intended application and purpose before proceeding with a full application of the product(s). Performance of the product described herein should be verified by testing and carried out by qualified experts.

* Polyheed 997 became MasterPolyheed 997 under the Master Builders Solutions brand, effective January 1, 2014.

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NSF Certified to NSF/ANSI 61

BASF Corporation
Admixture Systems
www.master-builders-solutions.basf.us

United States
23700 Chagrin Boulevard
Cleveland, Ohio 44122-5544
Tel: 800 628-9990 ■ Fax: 216 839-8821

Canada
1800 Clark Boulevard
Brampton, Ontario L6T 4M7
Tel: 800 387-5862 ■ Fax: 905 792-0651

SUBMITTAL TRANSMITTAL

ACTIVITY ID	DATE
	Oct 5, 2016

CONTRACT NO	CONTRACT TITLE	SUBM NO
N62473-12-D-2005, CTO 003	Remedial Action in Parcel D-1 (Durable Cover)	007

SUBM ITEM DESCRIPTION
Asphalt Mix Design

SUBMITTAL PRIORITY?	(●) HIGH	( ) NORMAL
PREPARED BY CQC MGR?	( ) YES	(●) NO
SCHEDULE REFERENCED?	( ) YES	(●) NO
CRITICAL PATH?	(●) YES	( ) NO

SPEC SECTION	SPEC PARAGRAPH	SPEC PAGE NO
32 10 00	2.1	

Request for clarification of aspahlt mix design

chris.hanif@cbifederalservices.com
Digitally signed by chris.hanif@cbifederalservices.com
DN: cn=chris.hanif@cbifederalservices.com
Date: 2016.10.05 10:29:07 -07'00'

CONTRACTOR/QUALITY CONTROL MANAGER DATE

COMMENTS FOR DETAILED REVIEWER

DETAILED REVIEWER 1 COMMENTS:

DETAILED REVIEWER 1 NAME/SIGNATURE	TITLE	RESPONSE DATE

DETAILED REVIEWER 2 COMMENTS:

DETAILED REVIEWER 2 NAME/SIGNATURE	TITLE	RESPONSE DATE

APPROVER'S COMMENTS:

SUBM STATUS

GOVERNMENT CONSTRUCTION MANAGER DATE

REQUEST FOR INFORMATION

ACTIVITY ID		DATE	October 5, 2016
CONTRACT NO: N62473-12-D-2005 CTO 0003	CONTRACT TITLE: Remedial Action in Parcel D-1	RFI NO	001
RFI SUBJECT: Asphalt Mix Design Clarification		SPEC SECTION: 32 10 00	DWG NO
RFI PRIORITY? (●) HIGH ( ) NORMAL		SPEC PARAGRAPH	DWG DETAIL
POTENTIAL TIME/COST? ( ) YES (●) NO			
SCHEDULE REFERENCED? ( ) YES (●) NO		SPEC PAGE NO	DWG SHEET NO
CRITICAL PATH? (●) YES ( ) NO			

Technical Specification 32 10 00 (Bituminous Concrete Pavement), Section 2.1 (Asphalt Concrete), states:

"2.1 ASPHALT CONCRETE
Apply to new asphalt construction. Section 39 of SS-1, Type B, conforming to ½-inch maximum, medium gradation.

2.1.1 Asphalt Cement
Section 92 of SS-1, Grade PG 64-10

2.1.2 Asphalt Emulsion
Section 94 of SS-1, Grade SS-1h"

SS-1 is the State of California Department of Transportation (CDT) Standard Specification (2006 edition), herein referred to as the Caltrans mix design. Conformance with the minimum requirements of the Caltrans mix design is determined by testing under various California Test Methods (CTM), e.g., CTM #205, 211, 366, etc. The mixture properties listed under Specification 32 10 00, Section 2.4.1 are required to be collected using various American Society for Testing and Materials (ASTM) methods as referenced under Section 1.1 of the specification. These tests methods are not directly translatable to the Caltrans mix design, and they appear to be copied from an alternative common mix design, herein referred to as a Marshall mix design.

Rather than mixing test properties from two separate mix designs, CB&I proposes to report the required test properties for those designed to meet or exceed the applicable specifications listed in SS-1 Sections 39, 92, and 94. The Caltrans mix design was also used at the adjacent Parcel C.

CONTRACTOR PROPOSED SOLUTION:

CB&I proposes to use the Caltrans mix design which is consistent with the adjacent Parcel C and previously approved by the Navy.

lisa.bercik@cbifederalservices.com Digitally signed by lisa.bercik@cbifederalservices.com DN: cn=lisa.bercik@cbifederalservices.com Date: 2016.10.05 09:23:37 -07'00' Oct 5, 2016

CONTRACTOR/PROJECT MANAGER — DATE

RFI ACTION

COMMENTS FOR DETAILED REVIEWER:

Please proceed as described above.

DETAILED REVIEWER 1 RECOMMENDED RFI SOLUTION:

DETAILED REVIEWER 1 NAME/SIGNATURE	TITLE	RESPONSE DATE
BROOKS.GEORGE.PATRICK.1255211966 Digitally signed by BROOKS.GEORGE.PATRICK.1255211966	Buisness Line Team Leader	06 Oct 2016

DETAILED REVIEWER 2 RECOMMENDED RFI SOLUTION:

BROOKS.GEORGE.PATRICK.1255211966 DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USN, cn=BROOKS.GEORGE.PATRICK.1255211966 Date: 2016.10.06 07:40:11 -07'00'

DETAILED REVIEWER 2 NAME/SIGNATURE	TITLE	RESPONSE DATE

RFI RESPONSE:

REQUEST FOR INFORMATION

		ACTIVITY ID	DATE October 5, 2016
CONTRACT NO N62473-12-D-2005 CTO 0003	CONTRACT TITLE Remedial Action in Parcel D-1		RFI NO 001
RFI SUBJECT Asphalt Mix Design Clarification		SPEC SECTION 32 10 00	DWG NO
RFI PRIORITY? (•) HIGH ( ) NORMAL POTENTIAL TIME/COST? ( ) YES (•) NO SCHEDULE REFERENCED? ( ) YES (•) NO CRITICAL PATH? (•) YES ( ) NO		SPEC PARAGRAPH	DWG DETAIL
		SPEC PAGE NO	DWG SHEET NO

GOVERNMENT CONSTRUCTION MANAGER DATE

4296/2C (9/98)

SUBMITTAL TRANSMITTAL

ACTIVITY ID	DATE
	Oct 5, 2016

CONTRACT NO	CONTRACT TITLE	SUBMI NO
N62473-12-D-2005, CTO 003	Remedial Action in Parcel D-1 Phase 1	008

SUBM ITEM DESCRIPTION			
Request for Navy Approval of Recycled AB Material	SUBMITTAL PRIORITY?	(•) HIGH	( ) NORMAL
	PREPARED BY CQC MGR?	( ) YES	(•) NO
	SCHEDULE REFERENCED?	( ) YES	(•) NO
	CRITICAL PATH?	( ) YES	(•) NO

SPEC SECTION	SPEC PARAGRAPH	SPEC PAGE NO
32 10 00 Bituminous Concrete Pavement	Paragraph 2.6 Materials Recycling	32 10 00-6

CB&I has located, sampled, and characterized an aggregate base (AB) source to use at Parcel D-1, Hunters Point Naval Shipyard (HPNS), San Francisco, California. The attached Table 2 includes the chemical and radiological results. The radiological results are draft (7-day) and we expect the final results to meet the radiological comparison criteria.

CB&I sampled the AB material on September 21, 2016. Per Section 3.2.1 of the Final Backfill Acceptance Plan (BAP; Appendix E to the Final Revision 1, Final Remedial Action Work Plan, Remedial Action in Parcel D-1, San Francisco, California, dated May 2016, CB&I), the AB fines were sampled and analyzed for asbestos and total metals in accordance with recommendations of California Department of Toxic Substances Control Information Advisory Clean Imported Fill Material (2001). The AB was also sampled and analyzed for radium-226 to verify that it does not exceed HPNS background limits. Analytical results were compared to the criteria listed in Table E.1 of the BAP (CB&I, 2016) and are provided in Table 2. There are no exceedances of the chemical and radiological comparison criteria.

Per Project Specification 31 10 00, Bituminous Concrete Pavement, Part 2.6 Materials Recycling, "[u]se of all recycled materials requires Contracting Officer approval and demonstration that its use will not adversely affect the site." The specification also states the AB shall meet the requirements of Cal Trans Standard Specification Section 26, Class 2, ¾-inch maximum size gradation.

The recycled AB is clean and consists of processed reclaimed concrete, which conforms to Cal Trans Standard Specification Section 26, Part 26-1.0A. The selected AB meets Cal Trans Standard Specification Section 26 for Class 2 AB with a ¾-inch maximum gradation. The analytical results demonstrate that the use of this material will not adversely affect the site. CB&I respectfully requests Navy approval of this recycled AB material.

chris.hanif@cbifederalservices.com Digitally signed by chris.hanif@cbifederalservices.com DN: cn=chris.hanif@cbifederalservices.com Date: 2016.10.05 15:17:51 -07'00'

CONTRACTOR/QUALITY CONTROL MANAGER DATE

COMMENTS FOR DETAILED REVIEWER:

DETAILED REVIEWER 1 COMMENTS:

Please proceed.

DETAILED REVIEWER 1 NAME/SIGNATURE	TITLE	RESPONSE DATE
BROOKS.GEORGE.PATRICK.1255211966 Digitally signed by BROOKS.GEORGE.PATRICK.1255211966 DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USN, cn=BROOKS.GEORGE.PATRICK.1255211966 Date: 2016.10.06 07:15:59 -07'00'	Business Line Team Leader	06 Oct 2016

DETAILED REVIEWER 2 COMMENTS:

DETAILED REVIEWER 2 NAME/SIGNATURE	TITLE	RESPONSE DATE

APPROVER'S COMMENTS:

SUBMITTAL TRANSMITTAL

ACTIVITY ID	DATE
	Oct 5, 2016

CONTRACT NO	CONTRACT TITLE	SUBMI NO
N62473-12-D-2005, CTO 003	Remedial Action in Parcel D-1 Phase 1	008

SUBM ITEM DESCRIPTION			
Request for Navy Approval of Recycled AB Material	SUBMITTAL PRIORITY?	(•) HIGH	( ) NORMAL
	PREPARED BY CQC MGR?	( ) YES	(•) NO
	SCHEDULE REFERENCED?	( ) YES	(•) NO
	CRITICAL PATH?	( ) YES	(•) NO

SPEC SECTION	SPEC PARAGRAPH	SPEC PAGE NO
32 10 00 Bituminous Concrete Payvement	Paragraph 2.6 Materials Recycling	32 10 00-6

SUBM STATUS

GOVERNMENT CONSTRUCTION MANAGER DATE

TABLE 2
AGGREGATE BASE CHEMICAL AND RADIOLOGICAL DATA

Analtyical Method	Analyte	Comparison Criteria	Units	BLANK		HPNS-D1-AB2-001		HPNS-D1-AB-002		HPNS-D1-AB-003		HPNS-D1-AB-004		HPNS-D1-AB-005		HPNS-D1-AB-006		HPNS-D1-AB-007		HPNS-D1-AB-008		HPNS-D1-AB-009		HPNS-D1-AB-010		HPNS-D1-AB-011		HPNS-D1-AB-012		HPNS-D1-AB-013		HPNS-D1-AB-014		HPNS-D1-AB-015	
				Result	VQ	Result	VQ	Result	VQ	Result	VQ	Result	VQ	Result	VQ	Result	VQ	Result	VQ	Result	VQ	Result	VQ	Result	VQ	Result	VQ	Result	VQ	Result	VQ	Result	VQ	Result	VQ
Metals by EPA 6010/6020/7471	Antimony	31	mg/kg	0.095	U	0.27		0.26	J	0.28		0.34		0.24	J	0.26		0 23	J	0.2	J	0 24		0.25	J	0.46		0.43		0.21	J	0.13	J	0.16	J
	Arsenic	11.1	mg/kg	0 23	U	4.7		4		4 3		4.9		4.4		4.4		4.4		4.4		4.2		4.6		3 9		5		4 3		3 8		4.5	
	Barium	15,000	mg/kg	0 24	U	150		140		150		160		130		140		150		150		160		160		130		150		140		130		140	
	Beryllium	160	mg/kg	0.095	U	0.31		0.32		0.25	J	0.31		0.34		0.32		0 25	J	0 32		0 27		0.27		0.27		0 3		0.23	J	0.25	J	0.34	
	Cadmium	70	mg/kg	0.095	U	0.26		0.68		0 2	J	0.27		0.27		0.2	J	0 38		0.2	J	0 26		0 25	J	0.18	J	0.13	J	0.26		0 2	J	0.2	J
	Chromium	NA	mg/kg	0.19	U	39		36		38		43		34		35		37		38		39		40		36		37		40		32	b	43	b
	Cobalt	23	mg/kg	0.19	U	9 9		9 8		12		9.3		8.8		8.4		9.5		9.4		9.5		9.5		9		11		10		8.8		11	
	Copper	3,100	mg/kg	0.19	U	29		21	b	44		33		26		27		30		29		29		34		23	b	30	b	30	b	25	b	29	b
	Lead	400	mg/kg	0.095	U	29		27		27		33		55		29		33		31		31		31		31		33		32		30		47	
	Manganese	1,800	mg/kg	0.12	U	460		420		470		480		420		410		440		460		590		420		410		450		450		370		390	
	Mercury	10	mg/kg	0.0086	U	0.12		0.12		0.18		0.12		0.16		0.15		0.12		0.12		0.12		0.16		0.1		0.11		0 092		0.12		0.11	
	Molybdenum	390	mg/kg	0.095	U	0 8	b	0.77	b	0.99	b	0.86	b	0.77	b	0.73	b	0.78	b	0 66	b	0 86	b	0.71	b	0.76	b	1.1	b	0.67	b	0.54	b	0.79	b
	Nickel	2,650	mg/kg	0.19	U	45	b	41	b	46	b	44	b	41		40		44		49		43		45		43		47		50		38	b	47	b
	Selenium	390	mg/kg	0.19	U	0.31		0.16	J	0.27		0.22	J	0.16	J	0.16	J	0 21	U	0.19	J	0.14	J	0.12	J	0.21	J	0 3		0.17	J	0.17	J	0.3	
	Silver	390	mg/kg	0.095	U	0.091	J	0.1	J	0 089	J	0 063	J	0 063	J	0 062	J	0.085	J	0.086	J	0.087	J	0.094	J	0.11	J	0.13	J	0 096	J	0 063	J	0.11	J
	Thallium	0.81	mg/kg	0.095	U	0.06	J	0.058	J	0 061	J	0 069	J	0 055	J	0 067	J	0.079	J	0.063	J	0.059	J	0.069	J	0.084	J	0.098	J	0.05	J	0 057	J	0.06	J
	Vanadium	390	mg/kg	0 54	U	55		51		57		51		51		50		55		51		53		52		46		51		49		46	b	54	b
	Zinc	23,400	mg/kg	0 95	U	59		55		63		59		60		55		64		58		62		59		52		62		73		52		62	
Radionuclides by Gamma Spectroscopy	Radium-226	1.633	pCi/g	0.0138	U	0.494		0.476		0.4		0 623		0.464		0 393		0.473		0.464		0.516		0.495		0	U	0.446		0.51		0 548		0.55	
Asbestos by CARB 435	Asbestos	<0.25	%	0	U	0	U	0	U	0	U	0	U	0	U	0	U	0	U	0	U	0	U	0	U	0	U	0	U	0	U	0	U	0	U

TABLE 2
AGGREGATE BASE CHEMICAL AND RADIOLOGICAL DATA

Analtyical Method	Analyte	Comparison Criteria	Units	HPNS-D1-AB-016		HPNS-D1-AB-017		HPNS-D1-AB-018		HPNS-D1-AB-019		HPNS-D1-AB-020		HPNS-D1-AB-021		HPNS-D1-AB-022		HPNS-D1-AB-023		HPNS-D1-AB-024		HPNS-D1-AB-025		HPNS-D1-AB-026		HPNS-D1-AB-027	
				Result	VQ	Result	VQ	Result	VQ	Result	VQ	Result	VQ	Result	VQ	Result	VQ	Result	VQ	Result	VQ	Result	VQ	Result	VQ	Result	VQ
Metals by EPA 6010/6020/7471	Antimony	31	mg/kg	0.19	J	0.18	J	0.15	J	0.14	J	0.12	J	0.46		0.17	J	0.11	J	0.22	J	0 2	J	0.17	J	0.18	J
	Arsenic	11.1	mg/kg	4 6		3.9		4.8		3.7		3.9		4.6		3.8		5		5 2		4.1		4 6		4 2	
	Barium	15,000	mg/kg	130		130		130		130		120		130		130		130		150		150		140		170	
	Beryllium	160	mg/kg	0.31		0.27		0.26	J	0.21	J	0 25	J	0.3		0 22	J	0 27		0.33		0.31		0.21	J	0.28	
	Cadmium	70	mg/kg	0.34		0.15	J	0.26		0.22	J	0 25	J	0 27		0.16	J	0 27		0.29		0 3		0.22	J	0.25	J
	Chromium	NA	mg/kg	34	b	32	b	36	b	34	b	34	b	41	b	37	b	41	b	43	b	40	b	38	b	36	b
	Cobalt	23	mg/kg	9.1		9.7		8.7		9.1		8.3		9.8		9.5		9.2		12		9 9		11		10	
	Copper	3,100	mg/kg	28	b	18	b	21	b	26	b	26	b	24	b	31	b	25	b	27	b	31	b	33	b	27	b
	Lead	400	mg/kg	37		23		27		35		46		35		26		27		37		33		27		26	
	Manganese	1,800	mg/kg	420		390		330		390		380		400		380		380		370		470		390		710	
	Mercury	10	mg/kg	0.13		0.18		0.11		0.16		0.13		0.13		0.089		0.11		0.083		0.11		0.17		0 092	
	Molybdenum	390	mg/kg	0.79	b	0.6	b	0.7	b	0.59	b	0 59	b	0 64	b	0.48	b	0 87	b	0.82	b	0.56	b	0.63	b	0 6	b
	Nickel	2,650	mg/kg	42	b	43	b	40	b	43	b	38	b	51	b	45	b	44	b	48	b	46	b	50	b	41	b
	Selenium	390	mg/kg	0.14	J	0.12	J	0 099	J	0.19	J	0.12	J	0 21	J	0.2	J	0 22	J	0.22	J	0.22	J	0.18	J	0.21	J
	Silver	390	mg/kg	0.084	J	0 091	J	0.11	J	0 085	J	0.082	J	0.096	J	0.068	J	0.067	J	0.09	J	0.084	J	0.07	J	0 075	J
	Thallium	0.81	mg/kg	0.067	J	0.11	U	0 062	J	0.1	U	0.051	J	0.1	U	0.11	U	0.055	J	0.094	U	0.098	U	0.098	U	0.1	U
	Vanadium	390	mg/kg	51	b	45	b	52	b	47	b	44	b	50	b	47	b	50	b	56	b	52	b	54	b	49	b
	Zinc	23,400	mg/kg	60		53		57		51		52		54		52		85		69		62		57		54	
Radionuclides by Gamma Spectroscopy	Radium-226	1.633	pCi/g	0.585		0.447		0.437		0 391		0.604		0.544		0.542		0.596		0.477		0.459		0.509		0.477	
Asbestos by CARB 435	Asbestos	<0.25	%	0	U	0	U	0	U	0	U	0	U	0	U	0	U	0	U	0	U	0	U	0	U	0	U

Notes:
Draft 7-day gamma spectroscopy results are reported. The table will be updated with final results when they become available.
% - percent
b - low response observed; however analytes met minimum response criteria
EPA - U S. Environmental Protection Agency
J - estimated result (detected below reporting limit)
mg/kg - milligram per kilogram
pCi/g - picocurie per gram
RSL - EPA Regional Screening Levels for Residential Soil
U - not detected at or above the reporting limit
VQ - validation qualifier

SUBMITTAL TRANSMITTAL

ACTIVITY ID	DATE
	Oct 6, 2016

CONTRACT NO	CONTRACT TITLE	SUBM NO
N62473-12-D-2005, CTO 003	Remedial Action in Parcel D-1 (Durable Cover)	009

SUBM ITEM DESCRIPTION
Bituminous Mix design(Asphalt)

SUBMITTAL PRIORITY?	( ) HIGH	(•) NORMAL
PREPARED BY CQC MGR?	(•) YES	( ) NO
SCHEDULE REFERENCED?	( ) YES	(•) NO
CRITICAL PATH?	(•) YES	( ) NO

SPEC SECTION	SPEC PARAGRAPH	SPEC PAGE NO
32 10 00	1.3.2	

CB&I is submitting the attached design in accordance with the approval of RFI 001,(proposing the usage of the Caltrans mix design & the required test properties).

chris.hanif@cbifederalservices.com Digitally signed by chris.hanif@cbifederalservices.com Date: 2016.10.06 12:59:18 -07'00'

CONTRACTOR/QUALITY CONTROL MANAGER DATE

COMMENTS FOR DETAILED REVIEWER:

DETAILED REVIEWER 1 COMMENTS:

This mix design will meet or exceed the applicable specifications listed in sections 39 and 92 of the Caltrans Standard Specifications.

DETAILED REVIEWER 1 NAME/SIGNATURE	TITLE	RESPONSE DATE
mike.ayala@cbifederalservices.com	Project Engineer	Oct 6, 2016

DETAILED REVIEWER 2 COMMENTS:

DETAILED REVIEWER 2 NAME/SIGNATURE	TITLE	RESPONSE DATE

APPROVER'S COMMENTS:

Please proceed.

BROOKS.GEORGE.PATRICK.1255211966

Digitally signed by BROOKS.GEORGE.PATRICK.1255211966
DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USN, cn=BROOKS.GEORGE.PATRICK.1255211966
Date: 2016.10.06 13:34:47 -07'00'

SUBM STATUS

GOVERNMENT CONSTRUCTION MANAGER DATE

Graniterock

MATERIAL SUPPLIER / ENGINEERING CONTRACTOR • LICENSE #22

Construction Materials Submittal Package

Date: October 6, 2016
Contractor: Granite Construction
Project: Hunters Point Parcel D-1
Job#:

From:	Thanh Ngo	Tngo@graniterock.com	x
	Shane Tack	Stack@graniterock.com	
	Angie Solorio	Asolorio@graniterock.com	
	Brian Winter	bwinter@graniterock.com	
	Greg Wilkinson	Gwilkinson@graniterock.com	

Branch Locations

Peninsula Road Materials
365 Blomquist Street
Redwood City, CA 94063
650-482-3800

SSF Road Materials
1321 Lowrie Ave.
South San Francisco, CA 94080
650-869-3300

San Jose Road Materials
11711 Berryessa Road
San Jose, CA 95133
408-487-3100

Redwood City Recycle
195 Seaport Blvd
Redwood City, CA 94063
650-482-3840

San Jose Recycle
100 Graniterock Way
San Jose, CA 95136
408-574-3000

Note: **Unless the customer or project owner provides notice to Graniterock Company that one or more of the mixes described in this submittal does not meet the projects specifications, Graniterock Company may, at it's discretion, supply to the project any of the mixes described in this submittal.**

Please return copies of approved submittals upon receipt from the owner.

Graniterock
MATERIAL SUPPLIER / ENGINEERING CONTRACTOR • LICENSE #22

Phone # (650) 482 - 3800
Fax # (650) 482 - 3801

Redwood City Batch Plant Asphaltic Concrete Mix Certification

Date: October 6, 2016
Contractor: Granite Construction
Project: Hunters Point Parcel D-1
Job#:

Product Code: 103

agg. sized	Hot Bin #4 3/4 x 1/2		Hot Bin #3 1/2 x # 4		Hot Bin #2 1/4 x # 8		Hot Bin #1 Sand		Dust	Combined Grading	"X" Value Proposed Limits	"X" Value Operating Range
% used	0		33		21		44		2			
Size	% pass	% used	% pass	% used	% pass	% used	% pass	% used				
3/4"	0	0	100	33	100	21	100	44	2	**100**		**100**
1/2"	0	0	96	32	100	21	100	44	2	**99**		**95-100**
3/8"	0	0	58	19	100	21	100	44	2	**86**		**80-95**
#4	0	0	3	1	62	13	100	44	2	**60**	**59-66**	**59±5**
#8	0	0	2	1	6	1	93	41	2	**45**	**43-49**	**44±5**
#16	0	0.0	0	0.0	3	0.6	69	30	2	**33**		
#30	0	0.0	0	0.0	2	0.4	44	19	2	**22**	**22-27**	**22±5**
#50	0	0.0	0	0.0	1	0.2	21	9	2	**11**		
#100	0	0.0	0	0.0	1	0.2	10	4	2	**7**		
#200	0	0.0	0	0.0	1	0.2	6	2.6	2	**4.9**	**3-8**	**3-8**

PROPERTIES

	TESTS		CTM #	Value		Section 39-2.02 TYPE A	TYPE B
Aggregate	Percentage crushed particles		205	**100**		90/70 min.	25/20
	Los Angeles Rattler	100 rev	211	**10**		12 max.	
		500 rev		**38**		45 max.	50
	Sand Equivalent		217	**80**		47 min.	42
	Coarse agg Sp. Gr		206	**2.76**			
	Fine agg Sp. Gr		208	**2.83**			
	Combined SP. Gr			**2.80**			
	Durability Index		229	**64**		50 min	
Asphalt				**PG 64-10**			
HMA	Design Air voids			**4.0%**			
	Optimum AC content		367	**5.6%**			
	Stability		366	**48**		37 min.	35
	LTMD		308	**2.44**	**(152.3 lbs/cu ft)**		

Mix Design: 1/2" Medium Type "A" (Type "A" meets and exceeds Type "B" aggregate quality requirements)
Aggregate Sources: A. R. Wilson Quarry, Aromas Ca

This document certifies that the asphaltic concrete product identified herein (including the ingredients used in its manufacture) is designed to meet or exceed the applicable specifications listed in sections 39 and 92 of the Caltrans Standard Specifications

Submitted By: Kevin McNeil
Kevin McNeil
Research/Technical Services

Graniterock
MATERIAL SUPPLIER / ENGINEERING CONTRACTOR • LICENSE #22

Phone # (650) 482 - 3800
Fax # (650) 482 - 3801

Redwood City Drum Plant Asphaltic Concrete Mix Certification

Date: October 6, 2016
Contractor: Granite Construction
Project: Hunters Point Parcel D-1
Job#:

Product Code: 103

agg. sized	Cold Feed 3/4 x 1/2		Cold Feed 1/2 x # 4		Cold Feed 1/4 x # 8		Cold Feed Sand		Dust	Target Combined Grading	"X" Value Proposed Limits	"X" Value Operating Range
% used	0		30		25		45		0			
Size	% pass	% used	% pass	% used	% pass	% used	% pass	% used				
3/4"	0	0	100	30	100	25	100	45	0	**100**		**100**
1/2"	0	0	93	28	100	25	100	45	0	**98**		**95-100**
3/8"	0	0	56	17	100	25	100	45	0	**87**		**80-95**
#4	0	0	5	2	61	15	100	45	0	**62**	**59-66**	**59±5**
#8	0	0	4	1	4	1	88	40	0	**42**	**43-49**	**43±5**
#16	0	0.0	3	0.9	3	0.8	63	28	0	**30**		
#30	0	0.0	3	0.8	2	0.5	45	20	0	**22**	**22-27**	**22±5**
#50	0	0.0	2	0.7	2	0.6	21	9	0	**11**		
#100	0	0.0	2	0.5	2	0.5	9	4	0	**5**		
#200	0	0.0	1	0.4	1	0.3	5.1	2.3	0	**3.0**	**3-8**	**3-8**

PROPERTIES — **Section 39-2.02**

	TESTS		CTM #	Value		TYPE A	TYPE B
Aggregate	Percentage crushed particles		205	**100**		90/70 min.	25/20
	Los Angeles Rattler	100 rev	211	**9**		12 max.	
		500 rev		**32**		45 max.	50
	Sand Equivalent		217	**84**		47 min.	42
	Coarse agg Sp. Gr		206	**2.76**			
	Fine agg Sp. Gr		208	**2.82**			
	Combined SP. Gr			**2.80**			
	Durability Index		229	**64**		50 min.	
Asphalt				**PG 64-10**			
HMA	Design Air voids			**4.0%**			
	Optimum AC content		367	**5.6%**			
	Stability		366	**44**		37 min.	35
	LTMD		308	**2.43**	**(151.5 lbs/cu ft)**		

Mix Design: 1/2" Medium Type "A" (Type "A" meets and exceeds Type "B" aggregate quality requirements)
Aggregate Sources: A. R. Wilson Quarry, Aromas Ca

This document certifies that the asphaltic concrete product identified herein (including the ingredients used in its manufacture) is designed to meet or exceed the applicable specifications listed in sections 39 and 92 of the Caltrans Standard Specifications

Submitted By: Kevin McNeil
Kevin McNeil
Research/Technical Services

Graniterock
MATERIAL SUPPLIER / ENGINEERING CONTRACTOR • LICENSE #22

Phone # (650) 482 - 3800
Fax # (650) 482 - 3801

Redwood City Drum Plant HMA Design Certification

Date: October 6, 2016
Contractor: Granite Construction
Project: Hunters Point Parcel D-1
Contract#:

Product Code: 784

agg. sized	Cold Feed 1/2 x # 4		Cold Feed 1/4 x # 8		Cold Feed Sand		RAP 5/8" minus		Target Combined Grading	"X" Value Proposed Limits	"X" Value Operating Range
% used	30		16		39		15				
Size	% pass	% used	% pass	% used	% pass	% used	% pass	% used			
3/4"	100	30	100	16	100	39	100	15	**100**		**100**
1/2"	93	28	100	16	100	39	98	14.7	**98**		**95-100**
3/8"	58	17	100	16	100	39	92	14	**86**		**80-95**
#4	5	2	59	9	100	39	73	11	**61**	**59-66**	**61±5**
#8	3	1	11	2	85	33	58	9	**45**	**43-49**	**45±5**
#16	3	0.9	5	0.8	58	23	43	6	**31**		
#30	3	0.9	4	0.6	40	16	32	5	**22**	**22-27**	**22±5**
#50	3	0.9	3	0.4	21	8	23	3	**13**		
#100	3	0.8	2	0.3	9	4	14	2	**7**		
#200	1.9	0.6	1.7	0.3	4.6	1.8	9.5	1.4	**4.1**		**3-8**

PROPERTIES

Section 39-2.02

	TESTS		CTM #	Value	Blend %	TYPE A	TYPE B
Aggregate	Percentage crushed particles		205	**100**		90/70 min.	25/20
	Los Angeles Rattler	100 rev	211	**9**		12 max.	
		500 rev		**34**		45 max.	50
	Sand Equivalent		217	**72**		47 min.	42
	Coarse agg Sp. Gr		206	**2.76**	32.4		
	Fine agg Sp. Gr		207	**2.63**	57.6		
	RAP Sp. Gr.			**2.75**	10		
	Gsb			**2.68**			
	Max Theoretical Density		309	**2.68**	Gse = 2.75		
	Durability Index		229	**61**		50 min.	
Asphalt				**PG 64-10**			
HMA	Design Air voids			**4.0%**		3.0-5.0	
	Optimum AC content		367	**5.6%**	(4.8% virgin + 0.8% recovered)		
	Stability		366	**46**		37 min.	35
	LTMD		308	**2.46**	**(153.5 lbs/cu ft)**		
	Rice Specific Gravity		309	**2.555**			

Mix Design: 1/2" Medium w/15% RAP Type "A" (Type "A" meets and exceeds Type "B" aggregate quality requirements)
Aggregate Sources: A.R Wilson Quarry + Recycled Asphalt Pavement

This document certifies that the asphaltic concrete product identified herein (including the ingredients used in its manufacture) is designed to meet or exceed the applicable specifications listed in sections 39 and 92 of the Caltrans Standard Specifications

Submitted By: Kevin McNeil

Kevin McNeil
Research/Technical Services

Graniterock
MATERIAL SUPPLIER / ENGINEERING CONTRACTOR • LICENSE #22

Phone # 650-482-3800 (sales)
Fax # 650-482-3801

Construction Materials Certification for Redwood City Road Oils and Emulsions
365 Blomquist Street, Redwood City, 94063

Date: October 6, 2016
Contractor: Granite Construction
Project: Hunters Point Parcel D-1
Contract #:

Product: SS1-H Emulsion

Certificate of Compliance:
The Emulsion is manufactured by Graniterock Company in Redwood City, California.
This letter is to certify that the Asphalt Emulsion will meet or exceed State of California Standard Specifications, Section 94

The following results represent typical values from testing performed by Graniterock Company's laboratory located at the production faciltiy.

Technical Data:

Testing on Emulsion

Properties		ASTM	Section 94	
			Specs	Result
Sabolt Viscosity @25c, secs		D244	20-100	26
Settlement, 5 days, %		D244	5.0 max	1.0
Storage Stability, 1 day, %		D244	1.0 max	0.01
Cement Mixing, %		D244	2.0 max	0.01
Sieve test, %		D244	0.1 max	0.001
Residue by Distillation, %		D244	57.0 min	58

Test on Residue by Distillation

Properties		ASTM	Section 94	
			Specs	Result
Penetration @ 25c, 100g, 5s		D5	40-90	45
Ductility @ 25c, 50mm/min, mm		D113	400 min	400+
Solubility in Trichlorethelene, %		D2042	97.5 min	99.2

Submitted By: Long Tran

Long Tran
Northern Road Materials Division,
Road Oils and Emulsions Engineer

Graniterock

MATERIAL SUPPLIER / ENGINEERING CONTRACTOR • LICENSE #22

Construction Materials Submittal Package

Date: October 6, 2016
Contractor: Granite Construction
Project: Hunters Point Parcel D-1
Job#:

From:	Kevin McNeil	kmcneil@graniterock.com	
	Thanh Ngo	Tngo@graniterock.com	x
	Shane Tack	stack@graniterock.com	
	Angie Solorio	Asolorio@graniterock.com	
	Greg Wilkinson	Gwilkinson@graniterock.com	

Branch Locations

Peninsula Road Materials
365 Blomquist Street
Redwood City, CA 94063
650-482-3800

SSF Road Materials
1321 Lowrie Ave.
South San Francisco, CA 94080
650-869-3300

San Jose Road Materials
11711 Berryessa Road
San Jose, CA 95133
408-487-3100

Redwood City Recycle
195 Blomquist Street
Redwood City, CA 94063
650-482-3840

San Jose Recycle
100 Graniterock Way
San Jose, CA 95136
408-574-3000

Note: **Unless the customer or project owner provides notice to Graniterock Company that one or more of the mixes described in this submittal does not meet the projects specifications, Graniterock Company may, at it's discretion, supply to the project any of the mixes described in this submittal.**

Please return copies of approved submttals upon recipet from the owner.

Graniterock
MATERIAL SUPPLIER / ENGINEERING CONTRACTOR - LICENSE #22

Phone # (650) 869 - 3300
Fax # (650) 869 - 3801

South San Francisco Batch Plant Asphaltic Concrete Mix Certification

Date: October 6, 2016
Contractor: Granite Construction
Project: Hunters Point Parcel D-1
Job #:

1/2" mix design

Product Code: 103

agg. sized	Hot Bin #4 3/4 x 1/2		Hot Bin #3 1/2 x # 4		Hot Bin #2 1/4 x # 8		Hot Bin #1 Sand		Dust	Combined Grading	Medium Specification Limits	"X" Values
% used	0		29		26		43.5		1.5			
Size	% pass	% used	% pass	% used	% pass		% pass	% used				
25mm -- 1"	100	0	100	29	100	26	100	43.5	1.5	100		
19mm -- 3/4"	0	0	100	29	100	26	100	43.5	1.5	100	100	
12.5mm -- 1/2"	0	0	96	28	100	26	100	43.5	1.5	99	95-100	
9.5mm -- 3/8"	0	0	59	17	100	26	100	43.5	1.5	88	80-95	
4.75mm -- #4	0	0	3	1	57	15	100	43.5	1.5	61	56-66	61 +/- 5
2.36mm -- #8	0	0	2	1	4	1	93	40	1.5	44	39-49	44 +/- 5
1.18mm -- #16	0	0.0	0	0.0	2	0.5	69	30	1.5	32		
600um -- #30	0	0.0	0	0.0	2	0.5	45	20	1.5	22	17-27	22 +/- 5
300um -- #50	0	0.0	0	0.0	1	0.3	21	9	1.5	11		
150um -- #100	0	0.0	0	0.0	1	0.3	10	4	1.5	6		
75um -- #200	0	0.0	0	0.0	1	0.3	6	2.6	1.5	4.4	3-8	
			274.8		246.2		411.9		14.2	53	947	

PROPERTIES

	TESTS		CTM #	Value	Section 39 Requirements TYPE A	TYPE B
Aggregate	Percentage crushed particles		205	**100**	90/70 min	25/20 min
	Los Angeles Rattler	100 rev	211	**10**	10 max	
		500 rev		**40**	45 max	50 max
	Sand Equivalent		217	**77**	47 min	42 min
	Coarse agg Sp. Gr		206	**2.74**		
	Fine agg Sp. Gr		208	**2.82**		
	Combined SP. Gr			2.79		
	KC/KF Factor		303	**1.1/1.2**	1.7	1.7
	Durability Index		229	**63**	50 min	
Asphalt	Source			Valero Benicia Refinery		
	PG Grade			PG 64-10		
HMA	Design Air voids			**4.0%**		
	Optimum AC content		367	**5.6%**		
	Swell		305	**0.025**	0.76 max	0.76 max
	Moisture Vapor Succeptability		307	**39**	30 min	25 min
	Stability		366	**41**	37 min	35 min

Mix Design: (1/2") 12.5mm maximum medium
Asphalt Concrete Type: Type "A" quality aggregates, which meet and exceed Type "B" aggregate quality requirements (Sect. 39-2.02).
Aggregate Sources: Wilson Quarry
LTMD (Bulk unit weight) = ~ 152.2 lbs/cu ft (2.44)

Certificate of Compliance: This document certifies that the asphaltic concrete product identified herein (including the ingredients used in its manufacture) is designed to meet or exceed the applicable specifications listed in sections 39 and 92 of the Caltrans Standard Specifications

Submitted By: Thanh Ngo

Thanh Ngo
Northern Road Materials Division,
Research/Technical Services

Graniterock
MATERIAL SUPPLIER / ENGINEERING CONTRACTOR - LICENSE #22

Phone # (650) 869 - 3300
Fax # (650) 869 - 3801

South San Francisco Batch Plant Asphaltic Concrete Mix Certification

Date: October 6, 2016
Contractor: Granite Construction
Project: Hunters Point Parcel D-1

1/2" mix design
Product Code: 784

agg. sized	Hot Bin #5 RAP		Hot Bin #3 1/2 x # 4		Hot Bin #2 1/4 x # 8		Hot Bin #1 Sand		Dust	Combined Grading	Specification Limits	"X" Values
% used	15		26		23		34.5		1.5			
Size	% pass	% used	% pass	% used	% pass	% used	% pass	% used				
25mm -- 1"	100	15	100	26	100	23	100	34.5	1.5	100		
19mm -- 3/4"	100	15	100	26	100	23	100	34.5	1.5	100	100	
12.5mm -- 1/2"	98.3	15	94	24	100	23	100	34.5	1.5	98	95-100	
9.5mm -- 3/8"	93.3	14	55	14	100	23	100	34.5	1.5	87	80-95	
4.75mm -- #4	73.3	11	3	1	57	13	100	34.5	1.5	61	56-66	61 +/- 5
2.36mm -- #8	57	9	2	1	4	1	92	32	1.5	43	39-49	44 +/- 5
1.18mm -- #16	43	6.5	0	0.0	3	0.7	67	23	1.5	32		
600um -- #30	32.7	4.9	0	0.0	2	0.5	43	15	1.5	22	17-27	22 +/- 5
300um -- #50	23.3	3.5	0	0.0	1	0.2	21	7	1.5	12		
150um -- #100	15	2.3	0	0.0	1	0.2	10	3	1.5	7		
75um -- #200	9.8	1.5	0	0.0	1	0.2	5	1.7	1.5	4.9	3-8	
	150.3		246.3		218.7		325.5		14.3	45	855	1000.0

PROPERTIES

	TESTS		CTM #	Value		Section 39 Requirements TYPE A	TYPE B
Aggregate	Percentage crushed particles		205	**100**		90/70 min	25/20 min
	Los Angeles Rattler	100 rev	211	**9**		10 max	
		500 rev		**32**		45 max	50 max
	Sand Equivalent		217	**78**		47 min	42 min
	Coarse agg Sp. Gr		206	**2.76**	35		
	Fine agg Sp. Gr		208	**2.70**	50		
	RAP Sp. Gr.			**2.75**	15		
	Combined SP. Gr			2.73			
	KC/KF Factor		303	**1.1/1.2**		1.7	1.7
	Durability Index		229	**65**		50 min	
Asphalt	Source			Valero Benicia Refinery			
	PG Grade			PG 64-10			
HMA	Design Air voids			**4.1%**			
	Optimum AC content		367	**5.6%**			
	Swell		305	**0.025**		0.76 max	0.76 max
	Moisture Vapor Succeptability		307	**39**		30 min	25 min
	Stability		366	**45**		37 min	35 min
	Rice		309	**2.542**			

Mix Design: (1/2") 12.5mm maximum medium
Asphalt Concrete Type: Type "A" quality aggregates, which meet and exceed Type "B" aggregate quality requirements (Sect. 39-2.02).
Aggregate Sources: Wilson Quarry + 15% Recycled Asphalt Pavement
LTMD (Bulk unit weight) = ~ 152.2 lbs/cu ft (2.44)

Certificate of Compliance: This document certifies that the asphaltic concrete product identified herein (including the ingredients used in its manufacture) is designed to meet or exceed the applicable specifications listed in sections 39 and 92 of the Caltrans Standard Specifications

Submitted By: Thanh Ngo

Thanh Ngo
Northern Road Materials Division,
Research/Technical Services

Graniterock
MATERIAL SUPPLIER / ENGINEERING CONTRACTOR • LICENSE #22

Phone # 650-482-3800 (sales)
Fax # 650-482-3801

Construction Materials Certification for Redwood City Road Oils and Emulsions
365 Blomquist Street, Redwood City, 94063

Date: October 6, 2016
Contractor: Granite Construction
Project: Hunters Point Parcel D-1
Job #:

Product: SS1-H Emulsion

Certificate of Compliance:
The Emulsion is manufactured by Graniterock Company in Redwood City, California.
This letter is to certify that the Asphalt Emulsion will meet or exceed State of California Standard Specifications, Section 94

The following results represent typical values from testing performed by Graniterock Company's laboratory located at the production faciltiy.

Technical Data:

Testing on Emulsion

Properties		ASTM	Section 94 Specs	Result
Sabolt Viscosity @25c, secs		D244	20-100	26
Settlement, 5 days, %		D244	5.0 max	1.0
Storage Stability, 1 day, %		D244	1.0 max	0.01
Cement Mixing, %		D244	2.0 max	0.01
Sieve test, %		D244	0.1 max	0.001
Residue by Distillation, %		D244	57.0 min	58

Test on Residue by Distillation

Properties		ASTM	Section 94	
			Specs	Result
Penetration @ 25c, 100g, 5s		D5	40-90	45
Ductility @ 25c, 50mm/min, mm		D113	400 min	400+
Solubility in Trichlorethelene, %		D2042	97.5 min	99.2

Submitted By: Long Tran

Long Tran
Northern Road Materials Division,
Road Oils and Emulsions Engineer

Bercik, Lisa M.

From: Howard, Leslie A CTR NAVFAC HQ, BRAC PMO <leslie.howard@navy.mil>
Sent: Monday, October 31, 2016 9:36 AM
To: Bercik, Lisa M.
Cc: Ng, Shirley S CIV NAVFAC SW; Hanif, Chris; Ayala, Mike; Hopstone, Sam; Brooks, George P CIV; Delong, Douglas E CTR NAVFACHQ, BRAC PMO
Subject: RE: Parcel D-1 - Field Work Variance 006 - Asphalt Density Testing
Attachments: FWV 006 - CTO 0003 Asphalt Density Testing.pdf

Lisa

After evaluation from the ROICC and researching what methods the Parcel C Durable cover project used for asphalt testing, the following has been determined:

- The Nuclear Gage method could produce errors due to variation in layer thickness and variations in density in the underlying layers. We agree it is quick and non-intrusive, but might be the least accurate method to test the density.

- Parcel C Durable cover project followed the appropriate RD specs collecting 3 cores for every 200 tons.

Please continue follow the project specifications by collecting 3 cores for every 200 tons. Nuclear testing is not necessary.
Let me know if you have any questions.

Thank you
Leslie

Leslie A. Howard, CHMM
Environmental Engineering Support II
Navy BRAC PMO West
33000 Nixie Way
Bldg 50, 2nd Floor
San Diego CA 92147
Desk Phone: 619-524-5903
Main Office Phone: 619-524-5096

-----Original Message-----
From: Bercik, Lisa M. [mailto:Lisa.Bercik@CBIFederalServices.com]
Sent: Wednesday, October 26, 2016 8:02 AM
To: Howard, Leslie A CTR NAVFAC HQ, BRAC PMO
Cc: Ng, Shirley S CIV NAVFAC SW; Hanif, Chris; Ayala, Mike; Hopstone, Sam
Subject: [Non-DoD Source] Parcel D-1 - Field Work Variance 006 - Asphalt Density Testing

Hi Leslie,

Field Work Variance (FWV) 006 is attached for your records. The FWV addresses asphalt density testing as discussed during our QC meeting on October 25.

Thanks,

Lisa

Lisa Bercik, PE, QSD, QSP
Project Manager

Federal Services
619.446.4508 direct
619.213.3389 cell
lisa.bercik@cbifederalservices.com <mailto:lisa.bercik@cbifederalservices.com>

CB&I Federal Services

1230 Columbia Street, Suite 1200
San Diego, California 92101

United States of America

www.cbi.com <http://www.cbi.com/>

FIELD WORK VARIANCE

Project Name: Remedial Action in Parcel D-1 **DCN:** CBI-2005-0003-0026

Project Number: 149831 **Project Manager:** Lisa Bercik **WV #:** 006

Contract Number: N62473-12-D-2005 **SWDIV RPM:** Leslie Howard **Date:** 10/25/2016

CTO Number: 0003 **SWDIV CS:** Cynthia Mafara

Item: Asphalt Density Testing **Primary WBS:**

Description *(Include recommended action to resolve changed condition and action taken to date)*

Design Basis Report (DBR), Project Specification 32 10 00, "Bituminous Concrete Pavement," Part 3.3.2.2, "Testing of Wear Course for SD-06," states:
"a. Density: Determine density of pavement by testing cores obtained from the binder and wearing course in accordance with AASHTO T 230. Take three cores at location designated by Contracting Officer for each 200 tons, or fraction thereof, of asphalt placed. Deliver cores undisturbed and undamaged to laboratory and provide test results within 48 hours of each day placement of paving materials.

b. Thickness: Determine thickness of the binder and wearing course from cores taken for density test."

This Field Work Variance revises the density and thickness testing requirements to include in-place testing by nuclear testing methods in addition to core sampling. Density will be tested using nuclear testing methods in accordance with ASTM D 2950, Standard Method for Density of Bituminous Concrete in Place by Nuclear Methods.

CB&I will collect a minimum of three (3) nuclear gauge tests for every 200 tons of asphalt placed per ASTM D 2950. Core sampling (AASHTO T 230) will be performed to confirm the nuclear gauge results for quality assurance; however, the testing frequency for core sampling will be reduced to 1 test per every 10 nuclear gauge tests.

Reason for Change

Core testing is an intrusive test and nuclear gauge testing is a non-intrusive test. Determining the asphalt density exclusively through testing cores at the frequency described in the DBR would result in an estimated 359 cores cut through the finished wear course across Parcel D-1. To minimize the amount of repair work required across the finished asphalt surface as well as greatly expediting the turn aroundtime on testing results, density testing using nuclear methods in accordance with ASTM D 2950 is proposed as an engineer approved equivalent testing method.

Technical Justification

Determining the density of pavement by in-place testing using nuclear methods in accordance with ASTM D 2950 is considered an engineered approved equivalent and is commonly used within the industry. The thickness of the finished pavement section may be determined using the following equation:

$t = W/0.75d$

Where t = pavement thickness, in inches
W = average weight per square yard of mixture actually used in work
d = compacted density as measured by nuclear density device

Estimated Cost Impact	Estimated Schedule Impact	WBS Information
None	None	☐ WBS Code Opened to Capture Cost **Task Title:** **WBS Code:**

Applicable Document(s)

Final Revision 1, Final Remedial Action Work Plan, Remedial Action in Parcel D-1, Hunters Point Naval Shipyard, San Francisco, California, May 2016, DCN: CBI-2005-0003-0006.R1/F

FIELD WORK VARIANCE

PMO Disposition of Work Variance

Type of Change: _____

- [ ] Monitor; No notice to Navy
  Review by _____ (Date)
- [X] E-Mail Notification to Navy
- [ ] Notice of Potential Impact (NOPI)
- [ ] Request for Additional Funds (RAF)
- [ ] Other (Please Comment)

Additional Comments

WV prepared by - Sam Hopstone, Field Engineer on 10/21/2016
WV reviewed by - Mike Ayala, Project Engineer 10/24/2016

Approvals

Project Manager _____ **Date:** 10/25/2016

PMO Contracts Manager N/A **Date:** _____

This form documents a newly discovered or developing situation. Submitting a Work Variance (WV) to the PMO allows a PM to direct a variation in work that may pu the company at financial risk **for up to one business day**. During that ime, the PM gathers additional information, assesses the situation and coordinates with the CB&I Contracts Administra ion Manager (and others, as appropriate) to determine fur her actions.

Close coordination with the Client is expected throughout the process.

However, a WV form does not require Client review or approval; it depends solely on the good judgment of the PM to act in the best interest of the Client and the company. By itself, a **WV does not seek anything** (though it may provide the documentation to support a request for additional funding or guidance).

Bercik, Lisa M.

From: Janda, Danielle L CIV <danielle.janda@navy.mil>
Sent: Friday, December 09, 2016 3:16 PM
To: Bercik, Lisa M.
Cc: Hanif, Chris; Howard, Leslie A CTR NAVFAC HQ, BRAC PMO
Subject: RE: D2005 CTO003; signs submittal subittal #011
Signed By: danielle.janda@navy.mil

Hi Lisa,

The number is correct. Signs are approved.

V/r,
Danielle Janda
(619)524-6041

-----Original Message-----
From: Bercik, Lisa M. [mailto:Lisa.Bercik@CBIFederalServices.com]
Sent: Wednesday, December 07, 2016 9:36 AM
To: Janda, Danielle L CIV
Cc: Hanif, Chris
Subject: [Non-DoD Source] FW: D2005 CTO003; signs submittal subittal #011

Hi Danielle,

We submitted the shop drawings for the Parcel D-1 signs yesterday to Leslie. I know she's out of this office today for a week and she may not have seen this or had a chance forwarded this to you - it was sent close to the end of the day. Sending to you so it doesn't get missed.

The entrance and warning signs were prepared per the project documents. We updated the phone number to match the phone number on signs currently posted at HPNS. Can the Navy please verify the phone number and approve the signs?

Thanks,

Lisa

Lisa Bercik, PE, QSD, QSP
Project Manager

Federal Services

619.446.4508 direct
619.213.3389 cell
lisa.bercik@cbifederalservices.com

CB&I Federal Services

1230 Columbia Street, Suite 1200
San Diego, California 92101

United States of America

www.cbi.com <http://www.cbi.com/>

From: Hanif, Chris
Sent: Tuesday, December 06, 2016 1:59 PM
To: Howard, Leslie A CTR NAVFAC HQ, BRAC PMO <leslie.howard@navy.mil> (leslie.howard@navy.mil)
Cc: Bercik, Lisa M.; Hopstone, Sam; Orman, Sean
Subject: D2005 CTO003; signs submittal subittal #011

Ms. Howard:

Please find attached submittal #011, per project spec 10 14 01, CB&I respectfully submits shop drawings of the warning and entrance signage for Parcel D-1.

Chris Hanif,CISEC

Project Quality Control Manager

Federal Services

415.840.6134 Cell

chris.hanif@cbifederalservices.com

CB&I Federal Services

200 Fisher Ave.

San Francisco, CA 94124

United States

SUBMITTAL TRANSMITTAL

ACTIVITY ID	DATE
	Dec 5, 2016

CONTRACT NO	CONTRACT TITLE	SUBMI NO
N62473-12-D-2005, CTO 003	Remedial Action in Parcel D-1 (Durable Cover)	011

SUBM ITEM DESCRIPTION			
Signs	SUBMITTAL PRIORITY?	○ HIGH	◉ NORMAL
	PREPARED BY CQC MGR?	◉ YES	○ NO
	SCHEDULE REFERENCED?	○ YES	◉ NO
	CRITICAL PATH?	○ YES	◉ NO

SPEC SECTION	SPEC PARAGRAPH	SPEC PAGE NO
10 14 01	1.3.1	

CB&I is submitting the attached shop drawings of the warning signs and entrance signs, in accordance with the submittal procedures, for Navy approval(CTO).

chris.hanif@cbifederalservices.com Digitally signed by chris.hanif@cbifederalservices.com DN: cn=chris.hanif@cbifederalservices.com Date: 2016.12.06 13:50:10 -08'00' Dec 6, 2016

CONTRACTOR/QUALITY CONTROL MANAGER — DATE

COMMENTS FOR DETAILED REVIEWER:

DETAILED REVIEWER 1 COMMENTS:

DETAILED REVIEWER 1 NAME/SIGNATURE	TITLE	RESPONSE DATE

DETAILED REVIEWER 2 COMMENTS:

DETAILED REVIEWER 2 NAME/SIGNATURE	TITLE	RESPONSE DATE

APPROVER'S COMMENTS:

SUBM STATUS

GOVERNMENT CONSTRUCTION MANAGER — DATE

AREA CLOSED

NO EARTHMOVING OR DUMPING
RESTRICTED ACCESS
AUTHORIZED PERSONNEL ONLY

SITIO CERRADO

NO MOVER TIERRA NI TIRAR BASURA
ACCESO PERMIDITO
PERSONAL AUTORIZADO SOLAMENTE

FOR MORE INFORMATION
CONTACT DEPT OF NAVY,
BRAC PMO WEST
PHONE - (619) 524-6026

CAUTION

NO GROUND DISTURBANCE ALLOWED WITHOUT APPROVAL

CONTACT DEPT OF NAVY, BRAC PMO WEST - (619) 524-6026

AVISO

MOVER TIERRA NO PERMITIDO SIN APROBACIÓN

CONTACTE - (619) 524-6026

Bercik, Lisa M.

From: Hanif, Chris
Sent: Monday, December 19, 2016 1:12 PM
To: Howard, Leslie A CTR NAVFAC HQ, BRAC PMO <leslie.howard@navy.mil> (leslie.howard@navy.mil)
Cc: Bercik, Lisa M. (Lisa.Bercik@CBIFederalServices.com); Ayala, Mike; Orman, Sean; Hopstone, Sam (Sam.Hopstone@Cbifederalservices.com)
Subject: D2005 CTO003; submittal #012
Attachments: CBI Hunters Point_rev3.pdf; Transmittal #012 CTO03 Parcel D-1 signed.pdf

Ms. Howard:

CB&I respectfully submits the manufacturer's catalog data for fencing components, accessories and fence fabric. CB&I has reviewed and approved the attached information. The fence materials meet the specifications included in Section 32 31 26, Security, and Design Drawing C10, with the exception of the fence height. Drawing C10, Fence Detail 2 specifies a fence height of 7'-6" minimum. The attached submittal includes a 7-foot high fence, which matches the adjacent Parcel G fence. The 7-foot fence height was approved by the Navy via email on December 16. The project specifications (Section 32 31 26, Security, Part 1.4.1) do not require government approval of the product data; this submittal is provided for information and review only.

Chris Hanif,CISEC
Project Quality Control Manager
Federal Services
415.840.6134 Cell
chris.hanif@cbifederalservices.com

CB&I Federal Services
200 Fisher Ave.
San Francisco, CA 94124
United States

SUBMITTAL TRANSMITTAL

ACTIVITY ID	DATE
	Dec 19, 2016

CONTRACT NO	CONTRACT TITLE	SUBMI NO
N62473-12-D-2005, CTO 003	Remedial Action in Parcel D-1 (Durable Cover)	012

SUBM ITEM DESCRIPTION
Fencing catalog data (fencing specifications)

SUBMITTAL PRIORITY?	○ HIGH	◉ NORMAL
PREPARED BY CQC MGR?	○ YES	◉ NO
SCHEDULE REFERENCED?	○ YES	◉ NO
CRITICAL PATH?	○ YES	◉ NO

SPEC SECTION	SPEC PARAGRAPH	SPEC PAGE NO
32 31 26		32 31 26 (pages 1-4)

Fencing specifications for review

chris.hanif@cbifederalservices.com Digitally signed by chris.hanif@cbifederalservices.com DN: cn=chris.hanif@cbifederalservices.com Date: 2016.12.19 13:11:26 -08'00' Dec 19, 2016

CONTRACTOR/QUALITY CONTROL MANAGER DATE

COMMENTS FOR DETAILED REVIEWER:

DETAILED REVIEWER 1 COMMENTS:

DETAILED REVIEWER 1 NAME/SIGNATURE	TITLE	RESPONSE DATE

DETAILED REVIEWER 2 COMMENTS:

DETAILED REVIEWER 2 NAME/SIGNATURE	TITLE	RESPONSE DATE

APPROVER'S COMMENTS:

SUBM STATUS

GOVERNMENT CONSTRUCTION MANAGER DATE

North American Fence & Railing, Inc.

NORTH AMERICAN FENCE & RAILING INC.
515 23rd Ave
OAKLAND, CA 94606
(510) 436-0755

CHAINLINK FENCE SPECIFICATION

FABRIC:	84" 11 GA GBW (2" Mesh) KT CHAIN-LINK FABRIC.
TOP RAIL:	None
LINE POST:	2 7/8 ~~2"~~ O.D. LG-40 PIPE CUT POST, 4.64 lbs. per foot. Line posts set 10' on center maximum spacing. Concrete footing: 10" diameter, 36" depth.
TERMINAL POST:	3 1/2 '' ~~2"~~ O.D. LG-40 PIPE CUT POST, 4.64 lbs. per foot. Concrete footing: 10" diameter, 36" depth.
BRACING:	Terminal posts braced and trussed to the nearest line post with 1 5/8" O.D. LG-40 PIPE and 3/8" DOM PS THREADED TRUSS ROD & DOM PS TRUSS ROD TIGHTENER.
GATES:	Framework of 1 5/8" LG-40 PIPE, 1.83 lbs. per foot. Gates braced and trussed as necessary. Same fabric as fence.
GATE POST:	6 5/8" O.D. SCH 40 PIPE CUT POST, 18.97 lbs. per foot. Concrete footing: 18" diameter, 36" depth.
TENSION WIRE:	7 GA. CL4 TENSION WIRE attached to top and bottom of fence fabric with 12 GA. PS 1 1/4" (10 Lb.) HOG RING spaced 24" on center.
FITTINGS:	PS PLAIN BRACE BAND & CARRIAGE BOLT W/NUT, PS COMBO RAIL END, PS LOOP CAP, PS DOME CAP, 3/4" PS TENSION BAR, PS PLAIN TENSION BAND & CARRIAGE BOLT W/NUT.
TIE WIRE:	9 1/2" STEEL CUT/HOOK 9 GA. TIE WIRE & 6 1/2" STEEL CUT/HOOK 11 GA. TIE WIRE spaced 15" on center for line posts & 24" on center for rails.
POST FOOTING:	TRUCK POURED CONCRETE.

Merchants Metals Spec Tech

Lusterguard™ LG-40

ASTM F1043 Group I-C, Federal specification RR-F-191 Class 1 Grade B, AASHTO M-181 Grade 2

Table 1 – LG-40 Pipe – Nominal Dimensions and Weights

Designator			Outside Diameter		Wall Thickness		Weight	
Fence Industry	NPS	Metric	Inch	Mm	inch	mm	lb/ft	kg/m
1-3/8	1	25	1.315	33.4	0.104	2.64	1.35	2.0
1-5/8	1-1/4	32	1.660	42.2	0.111	2.82	1.84	2.7
2	1-1/2	40	1.900	48.3	0.120	3.05	2.28	3.4
2-1/2	2	50	2.375	60.3	0.130	3.30	3.12	4.6
3	2-1/2	65	2.875	73.0	0.160	4.06	4.64	6.9
3-1/2	3	80	3.500	88.9	0.160	4.06	5.71	8.5
4	3-1/2	90	4.000	101.6	0.160	4.06	6.56	9.8

Table 2 – LG-40 Pipe – Strength Characteristics – Inch/pound units
Based on minimum yield strength of 50,000 psi

NPS	Outside Diameter o.d. inches	Wall Thickness inch	Inside Diameter i.d. inches	Section Modulus inch^2	Maximum Bending Moment lb-inch	Calculated Load (lbs)		
						10 ft * Free Supported	Cantilever Load **	
							4 ft	6 ft
1	1.315	0.104	1.107	0.111	5,555	185	116	77
1¼	1.660	0.111	1.438	0.196	9,810	327	204	136
1½	1.900	0.120	1.660	0.281	14,050	Sizes above 1.660" o.d. are not normally used for top rail	293	195
2	2.375	0.130	2.115	0.488	24,405		508	339
2½	2.875	0.160	2.555	0.878	43,890		914	610
3	3.500	0.160	3.180	1.341	67,040		1,397	931
3½	4.000	0.160	3.680	1.782	89,100		1,856	1,237

* 10 ft Free Supported Calculated Load is representative of top rail for a typical chain link fence installation.
** 4 ft and 6 ft Cantilever Loads represent maximum calculated load applied at the top of the post with the bottom fixed.

Table 3 Post Selection Guide – based on fabric height

Fabric Height	O. D.		Wall Thickness		Weight	
Terminal Posts: End, Corner and Pull	in.	mm	in.	mm	lb/ft	kg/m
Fabric 6 ft (1,830 mm) and under	2.375	60.3	0.130	3.30	3.12	4.6
Fabric over 6 ft (1,830 mm) to 12 ft (3,660 mm)	2.875	73.0	0.160	4.06	4.64	6.9
Line Posts						
Fabric 6 ft (1,830 mm and under)	1.900	48.3	0.120	3.05	2.28	3.4
Fabric over 6 ft (1,830 mm) to 8 ft (2,440 mm)	2.375	60.3	0.130	3.30	3.12	4.6
Fabric over 8 ft (2,440 mm) to 12 ft (3,660 mm)	2.875	73.0	0.160	4.06	4.64	6.9
Rails (Top, bottom, intermediate and brace)						
All Heights	1.660	42.2	0.111	2.82	1.84	2.7

Technical Sales Department:
Telephone: (888) 260-1600
Facsimile: (888) 261-3600

MERCHANTS METALS
The First Name In Fence

Issued May, 2002

MASTER HALCO
A Tradition of Fencing Solutions
Phone: 1-888-289-3362
FAX: 1-800-542-8488
MasterHalco.com

TOP RAIL DQ40 Commercial Grade ASTM F 1043 Group IC

DESCRIPTION	PART NO.
1-5/8" x 21 Plain End	033005

*Sold by the foot in 21' Lengths Also available in other grades and lengths

LINE POSTS 1-7/8" DQ40 Commercial Grade ASTM F 1043

DESCRIPTION	PART NO.
1-7/8" x 6'	033043
1-7/8" x 7'	033044
1-7/8" x 8'	033046
1-7/8" x 9'	033048

*Also available in other sizes and grades.

TERMINAL POSTS ~~2-3/8~~ 3 1/2" DQ40 Commercial Grade ASTM F 669

DESCRIPTION	PART NO.
2-3/8" x 6'	033052
2-3/8" x 7'	033054
2-3/8" x 8'	033056
2-3/8" x 8'8"	033057
2-3/8" x 9'	033058
~~2-3/8"~~ x 10' x 3 1/2"	033059
2-3/8" x 10'6"	033063
2-3/8" x 11'	033061
2-3/8" x 12'	033060

line ~~TERMINAL~~ POSTS 2-7/8" DQ40 Commercial Grade ASTM F 669

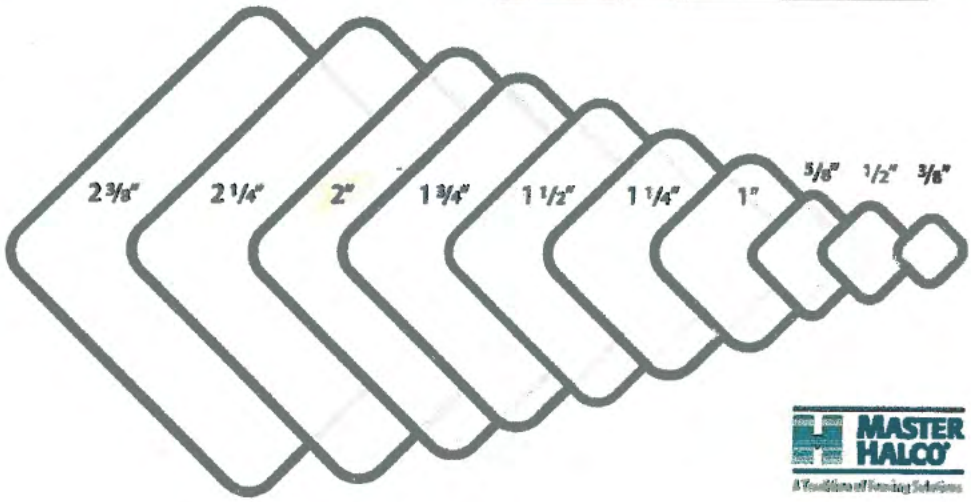
DESCRIPTION	PART NO.
2-7/8" x 8'	033076
2-7/8" x 9'	033078
2-7/8" x 10' and line posts	033079
2-7/8" x 11'	033080
2-7/8" x 12'	033081
2-7/8" x 13'	033082
2-7/8" x 15'	033084

*Also available in other sizes and grades

Framework and Fittings

Master Halco offers the highest quality matching framework, fittings and accessories for galvanized fencing systems, stocking the largest assortment of domestic and imported pipe, tube and fittings to satisfy any job specification.

Available Mesh Sizes



Available Wire Gauges

The gauges available are:

MASTER HALCO

GALVANIZED FITTINGS

MASTER HALCO
A Tradition of Fencing Solutions
Phone: 1-888-289-3362
FAX: 1-800-542-8488
MasterHalco.com

TENSION BANDS

DESCRIPTION	PART NO.
1-3/8"	010101
1-5/8"	010102
1-7/8"	010103
2-3/8"	010104
2-7/8" 3 1/2" & 6 5/8	010105

EYE TOPS

DESCRIPTION	PART NO.
1-5/8" x 1-3/8" Die Cast Aluminum	011901
1-7/8" x 1-3/8" Die Cast Aluminum	011902
1-5/8" x 1-5/8" Pressed Steel Heavy Duty	012252
1-7/8" x 1-5/8" Pressed Steel Heavy Duty	012253
2-3/8" x 1-5/8" Pressed Steel Heavy Duty	012254
2-7/8" x 1-5/8" Pressed Steel Heavy Duty	012255

BRACE BANDS

DESCRIPTION	PART NO.
1-5/8"	010302
1-7/8"	010303
2-3/8"	010304
2-7/8" & 3 1/2" & 6 5/8"	010305

RAIL END

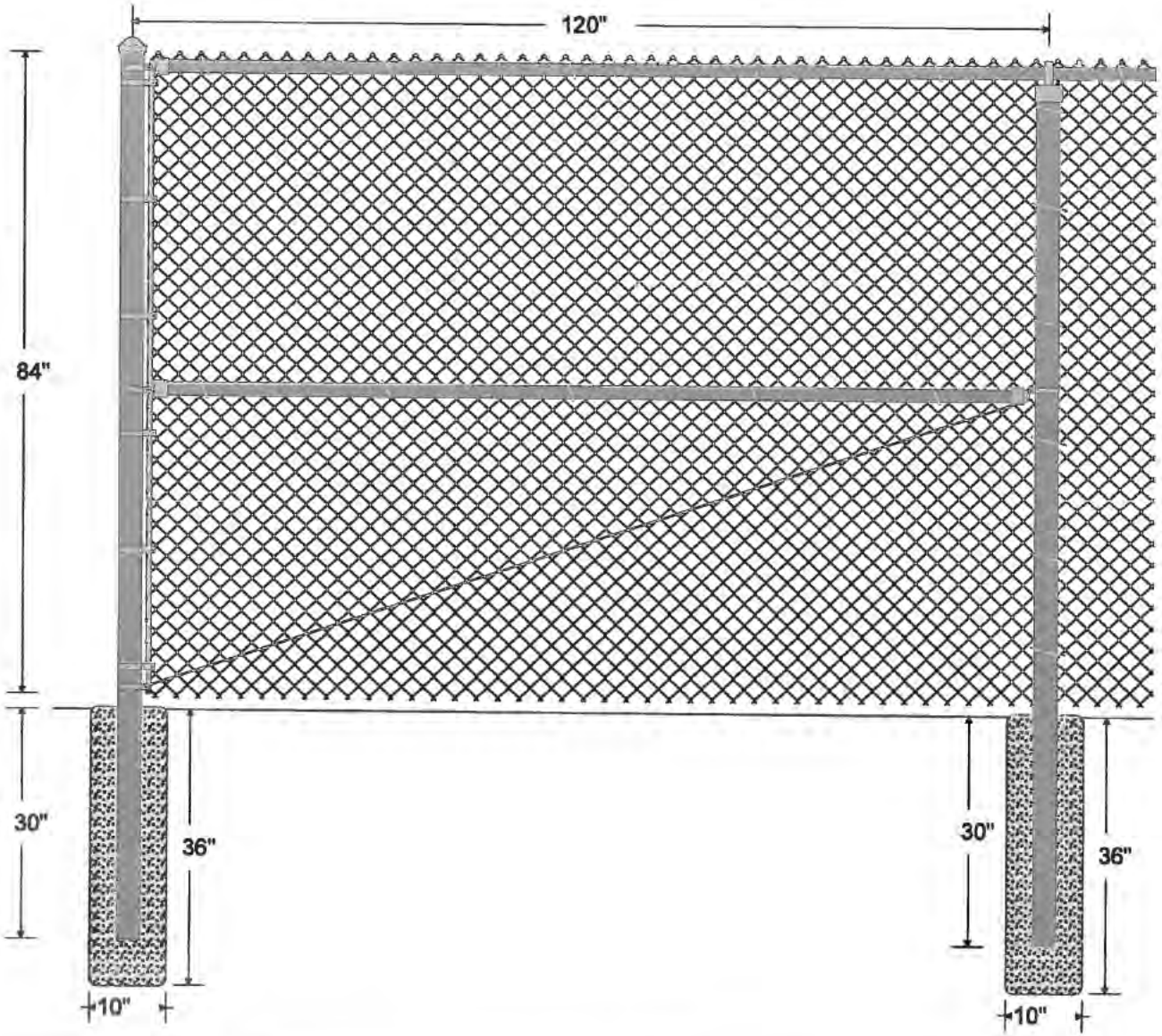
DESCRIPTION	PART NO.
1-3/8" Die Cast Aluminum	012301
1-5/8" Die Cast Aluminum	012302
1-5/8" Steel Heavy Duty	012506
1-5/8" Steel Combo	012511

POST CAPS

DESCRIPTION	PART NO.
1-5/8 Aluminum	011302
1-7/8" Aluminum	011303
2-3/8 Aluminum	011304
1-5/8" Steel	011602
1-7/8" Steel	011603
2-3/8" Steel	011604
2-7/8" Steel 3 1/2" & 6 5/8	011605

TENSION BARS

DESCRIPTION	PART NO.
3/16" x 5/8" x 34"	013601
3/16" x 5/8" x 40"	013602
3/6" x 5/8" x 46"	013603
3/16" x 5/8" x 58"	013604
3/16" x 5/8" x 70"	013605
3/16" x 3/4" x 70"	013705
3/16" x 3/4" x 82"	013706
3/16" x 3/4" x 94"	013707
3/16" x 3/4" x 118"	013709
3/16" x 3/4" x 142"	013710



84" tall Chainlink Fabric with Knuckle / Barb Selvage and 2" Mesh Size.

3 1/2" OD

114" tall, 3" diameter Terminal Post with 10" post footing diameter and 36" post footing depth.

2 7/8" OD

114" tall, 3" diameter Line Post with 10" post footing diameter and 36" post footing depth.

Top of Fence has 1 5/8" diameter Top Rail.

Bottom of Fence has Fabric Only.

Fence is braced with 1 5/8" diameter Middle Brace & Truss.

Line Post Spacing: 120"

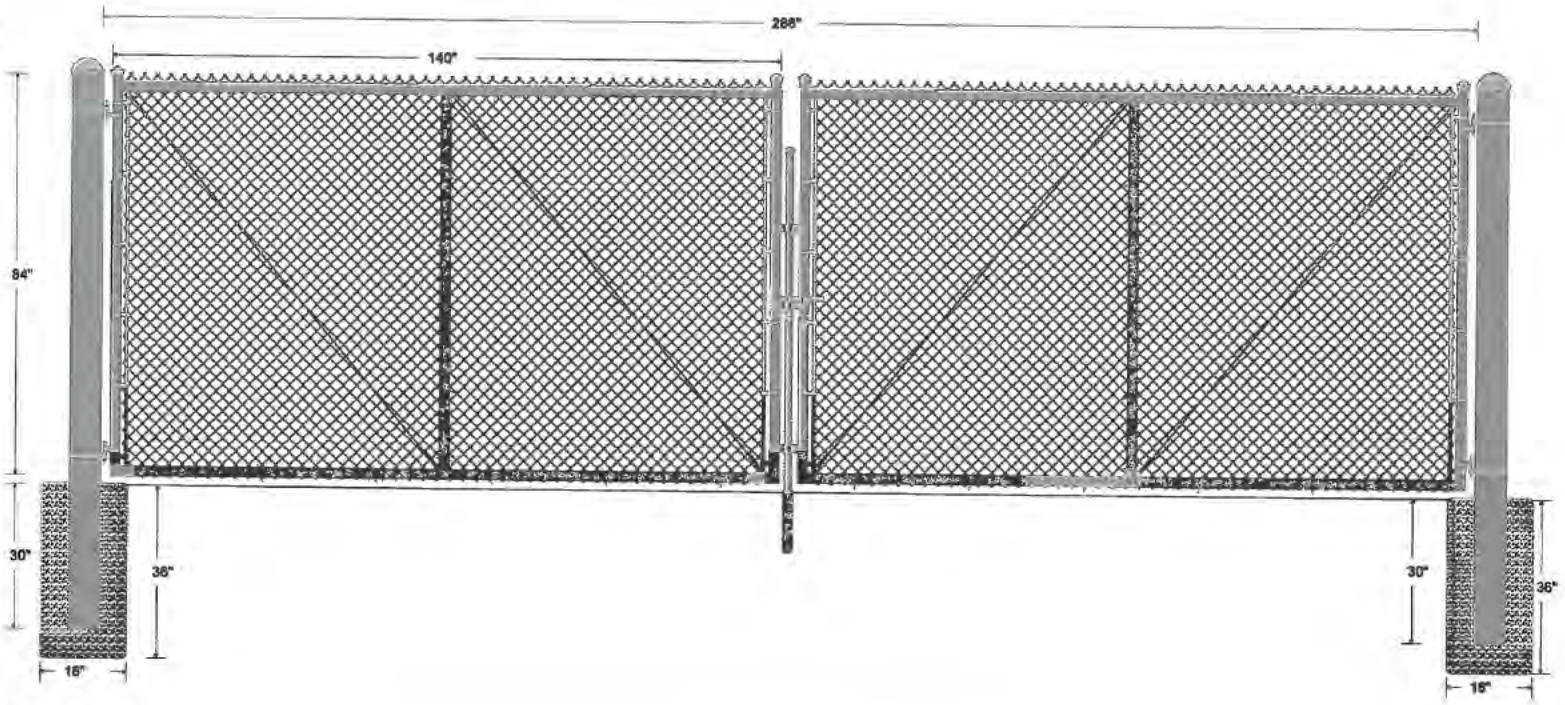
Tie Wire Spacing is every 24" on Rails & Bracing.

North American Fence & Railing, Inc.

NORTH AMERICAN FENCE & RAILING INC.
515 23rd Ave
OAKLAND, CA 94606
(510) 436-0755

84" Chainlink Line of Fence

Drawn: 12/14/2016
File:



64" tall Chainlink Fabric with Barb / Knuckle Selvage and 2" Mesh Size.

114" tall, 6 5/8" diameter Gate Posts with 16" post footing diameter and 36" post footing depth.

The opening width of the Double Gate is 24'.

The gate frame is constructed with 2" pipe.

Gate is braced with 2" diameter Vertical Brace.

Gate is trussed with Truss Rod.. Trusses are braced per bay.

Gate is hung with 180° Hinges. Gate is secured with a Commercial Drop Rod Assembly.

Tie Wire Spacing is every 24" on Rails.

North American Fence & Railing, Inc.

NORTH AMERICAN FENCE & RAILING INC.
515 23rd Ave
OAKLAND, CA 94606
(510) 436-0755

84" X 24' Chainlink Double Drive Gate

Drawn: 12/14/2016
File:

Bercik, Lisa M.

From: Hanif, Chris
Sent: Monday, December 19, 2016 1:42 PM
To: Howard, Leslie A CTR NAVFAC HQ, BRAC PMO <leslie.howard@navy.mil> (leslie.howard@navy.mil)
Cc: Bercik, Lisa M.; Ayala, Mike; Orman, Sean; Hopstone, Sam
Subject: D2005 CTO003; transmittal #013
Attachments: Transmittal #013 CTO03 Parcel D-1 signed.pdf; PVC Piping.pdf; Monitoring Well Manhole.pdf; Fast Setting Concrete Mix 1004-50.pdf

Ms. Howard:

CB&I respectfully submits product data for extension of existing wells at Parcel D-1. CB&I has reviewed and approved that attached information. The product data meet the project specifications and are provided to the Navy for information and review only. The project specifications (Section 33 24 13, Monitoring Wells, Part 1.2.1) do not require government approval of the product data.

Chris Hanif,CISEC
Project Quality Control Manager
Federal Services
415.840.6134 Cell
chris.hanif@cbifederalservices.com

CB&I Federal Services
200 Fisher Ave.
San Francisco, CA 94124
United States

SUBMITTAL TRANSMITTAL

ACTIVITY ID	DATE
	Dec 19, 2016

CONTRACT NO	CONTRACT TITLE	SUBMI NO
N62473-12-D-2005, CTO 003	Remedial Action in Parcel D-1 (Durable Cover)	013

SUBM ITEM DESCRIPTION
product data for extension of existing wells at Parcel D-1

SUBMITTAL PRIORITY?	○ HIGH	◉ NORMAL
PREPARED BY CQC MGR?	◉ YES	○ NO
SCHEDULE REFERENCED?	○ YES	◉ ND
CRITICAL PATH?	○ YES	◉ NO

SPEC SECTION	SPEC PARAGRAPH	SPEC PAGE NO
33 24 13	1.2.1	

CB&I is submitting the attached product data, in accordance with the submittal procedures, for Navy review.

chris.hanif@cbifederalservices.com Digitally signed by chris.hanif@cbifederalservices.com DN: cn=chris.hanif@cbifederalservices.com Date: 2016.12.19 13:26:51 -06'00' Dec 19, 2016

CONTRACTOR/QUALITY CONTROL MANAGER — DATE

COMMENTS FOR DETAILED REVIEWER:

DETAILED REVIEWER 1 COMMENTS:

DETAILED REVIEWER 1 NAME/SIGNATURE	TITLE	RESPONSE DATE

DETAILED REVIEWER 2 COMMENTS:

DETAILED REVIEWER 2 NAME/SIGNATURE	TITLE	RESPONSE DATE

APPROVER'S COMMENTS:

SUBM STATUS

GOVERNMENT CONSTRUCTION MANAGER — DATE

ECONOMY LOCKING PLUGS CLASS (08)

Monoflex heavy duty locking plugs are constructed of high impact ABS plastic. These units fit the inside diameter of PVC or steel wells. An expanding urethane gasket seals the well. Each locking plug will accommodate a padlock for vandal resistant security.

Part Number	Fits Pipe Size	Qty Box	Ounce Ea.
LPLG0050-40/80	1/2" Schedule 40/80	20	1.7
LPLG0075-40/80	3/4" Schedule 40/80	20	1.9
LPLG0100-40/80	1" Schedule 40/80	20	1.7
LPLG0125-40/80	1.25" Schedule 40/80	20	1.9
LPLG0150-40/80	1.50" Schedule 40/80	20	2.1
LPLG0200-40	2" Schedule 40	20	3.4
LPLG0200-80	2" Schedule 80	20	3.3
LPLG0250-40/80	2.50" Schedule 40/80	20	4.6
LPLG0300-40/80	3" Schedule 40/80	20	6.4
LPLG0400-40	4" Schedule 40	20	9.9
LPLG0400-80	4" Schedule 80	20	9.2
LPLG0500-40/80	5" Schedule 40/80	10	14.7

LOCKING PLUGS - MONOFLEX CLASS (08)

Monoflex economy locking plugs are constructed of high impact ABS plastic. These units fit the inside diameter of Schedule 40 PVC or steel wells. An expanding urethane gasket seals the well. Each locking plug will accommodate a padlock for vandal resistant security.

8" Plug

Part Number	Size	Qty Box	Lbs. Ea.
LPLG8	8"	1	3.00

LOCKING PLUGS - MORRISON BROS. CLASS (08)

Designed to provide a watertight, tamper-proof seal at the top of a monitoring or observation well. Simply slip the plug into the open end of the well pipe. Then, as you turn the lockable brass wing bolt, the Buna-N seal expands against the inside of the pipe, holding the plug securely in place. To complete the installation and lock the well, slip a standard padlock through the matching holes in the stainless steel lock lever and brass wing bolt. All three sizes fit Schedule 40 PVC or steel, and Schedule 5 or Schedule 10 stainless steel pipe. An optional adapter ring is needed to fit 4" stainless steel wells. These units do not fit Schedule 80 pipes. The "Blaze Orange" glass-filled nylon top is easy to spot, sheds water, and features molded-in "TEST WELL-NO FILL" warning. 6" locking plugs are available with or without a bailer ring attached.

Part Number	Size	Qty Box	Bailer Ring	Lbs. Ea.
MM678XA2	2"	20	No	.50
MM678XA4	4"	20	No	.75
MM678XA6	6"	12	No	2.00
MM678XA6R	6"	12	Yes	2.00
MM678XA4SS	4" Buna-N adapter seal for Stainless Casing			
LOCK	Brass Padlock (Keyed Alike)			

MM678XA2

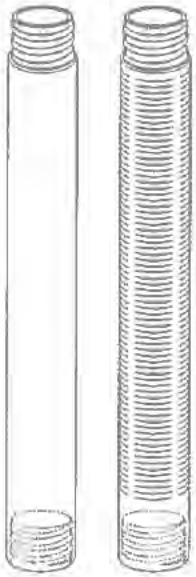
MM678XA6

MM678XA4

Monoflex is a Registered Trademark of Campbell Mfg., Inc.

◆ 4 INCH - PVC - SCHEDULE 40 ◆ CLASS (02)

4" Schedule 40 Buna-N O-rings are included with screen and casing orders at no additional charge. Replacement Buna-N O-rings may be purchased separately.



Part Number	Flush Thread Casing	Pieces Per Box
A2CT4040025	4" x 2.5' Casing	***
A2CT4040005	4" x 5' Casing	***
A2CT4040010	4" x 10' Casing	***
A2CT4040020	4" x 20' Casing	N/A

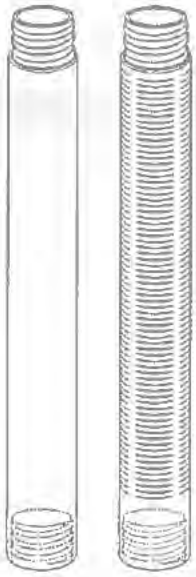
Part Number	Flush Thread Screen	Pieces Per Box
A2ST4040025_*	4" x 2.5' Screen	***
A2ST4040005_*	4" x 5' Screen	***
A2ST4040010_*	4" x 10' Screen	***
A2ST4040020_*	4" x 20' Screen	N/A

** Specify Slot Size*

Part Number	Description	Pieces Per Box
ORING151	4" Buna-N O-ring	N/A
MLDCAPA2F40400	4" Flush Thread Cap - Molded	20
MLDPLGA2M40400	4" Flush Thread Plug - Molded	20
PNTA2_†_40400	4" Flush Thread Point	20
MLDPNTA2_†_40400	4" Flush Thread Point - Molded	20
PLGA2M40400HS	4" Hoist Plug - Male - Solid	N/A

◆ 5 INCH - PVC - SCHEDULE 40 ◆ CLASS (02)

5" Schedule 40 Buna-N O-rings are included with screen and casing orders at no additional charge. Replacement Buna-N O-rings may be purchased separately.



Part Number	Flush Thread Casing	Pieces Per Box
A2CT4050025	5" x 2.5' Casing	1
A2CT4050005	5" x 5' Casing	1
A2CT4050010	5" x 10' Casing	1
A2CT4050020	5" x 20' Casing	N/A

Part Number	Flush Thread Screen	Pieces Per Box
A2ST4050025_*	5" x 2.5' Screen	1
A2ST4050005_*	5" x 5' Screen	1
A2ST4050010_*	5" x 10' Screen	1
A2ST4050020_*	5" x 20' Screen	N/A

** Specify Slot Size*

Part Number	Description
ORING156	5" Buna-N O-ring
CAPA2F40500	5" Flush Thread Cap
PLGA2M40500	5" Flush Thread Plug
PLGA2M40500HS	5" Hoist Plug - Male - Solid

† Specify M or E

**** For these items, see page 5 for Box Quantity Information*

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ENGINEERING SPECIFICATIONS

PVC FLUSH THREAD MONITOR WELL SCREENS AND CASINGS

1. All PVC well screens and casings used on this project shall be manufactured by Monoflex and conform to ASTM F-480: "Standard Specification for Thermoplastic Well Casing Pipe and Couplings Made in Standard Dimension Ratios (SDR), SCH 40 and SCH 80."
2. PVC materials used to produce the raw PVC pipe shall meet ASTM Standard D-1784: "Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds for PVC Normal Impact, Type I Grade I (1120), cell classification 12454-B."
3. The finished schedules 40, 80, and 120 raw pipe shall meet the requirements of ASTM Standard D-1785: "Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120." In addition, both the raw material and the finished raw pipe shall be approved by the National Sanitation Foundation (NSF) for use in potable water applications.
4. The PVC pipe used to produce the well screens and casings shall be made from virgin plastic produced by the original compounder.
5. The pipe shall be homogeneous throughout and essentially uniform in color, opacity and density. The inside and outside surfaces shall be glossy in appearance and free of chalking, sticky or tacky material and visually free of oils, grease, dust and marks imparted as a result of the manufacturing process. In addition the pipe walls shall be free of ink, cracks, holes, blisters, voids, foreign inclusions, or other defects that are visible to the naked eye and that may affect the wall integrity. Machined slots or holes deliberately placed in the pipe are acceptable.
6. The outside diameters, wall thicknesses and out of roundness tolerances shall fall within the guidelines of Tables 1 & 2 of the ASTM F-480 Standard Specification when measured in accordance with Test Method D-2122.
7. All flush thread materials must be slotted and threaded without the use of any type of liquid coolant. Air is the only acceptable coolant.
8. Well screens 1/2" through 5" are to be slotted on 1/8" spacing. Well screens 6" and larger are to be slotted on 1/4" spacing unless otherwise specified. ALL well screens .040 slot and larger will be slotted on 1/4" spacing unless otherwise specified.
9. All screens and casings shall be nominal length except for 2" and 4" sch. 40 and 6" sch. 80 which shall be laying length. The term "laying length" refers to the overall length less the length required to complete the assembly.
10. The threads per inch for the various diameters and schedules of flush thread materials shall be the same as that produced by Monoflex, Bechtelsville, Pennsylvania or approved equal.
11. All flush thread screens & casings shall be supplied in individual polyethylene bags hermetically sealed at BOTH ends. Said products shall be shipped in cardboard boxes with properly secured ends. Each box shall display a color coded label containing a full description of the product inside. Said label must indicate the number of pieces per box, the threads per inch, the date of packaging, the signatures of the packer and QC inspector and show a drawing of the product.

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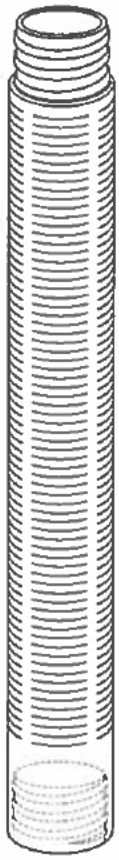
FLUSH THREAD PVC SCREEN AND CASING

- ✓ Monoflex CNC computer lathed flush threads follow ASTM F-480 recommendations for reliable, consistent results on the job site.
- ✓ Our close tolerances provide a strong connection while retaining ease of assembly.
- ✓ Manufactured from quality PVC pipe, Monoflex flush thread screens and casings are available in diameters of 1/2" through 16" with 2, 4, or 8 threads per inch in Sch. 40 & Sch. 80. Other schedules and SDR's are available in PVC and high density polyethylene.
- ✓ Lengths are measured as "laying length", (not including male thread length), in 2" and 4" diameters, Sch. 40 and Sch. 80 and 6" Sch. 80. All other diameters and schedules are measured end to end. Custom lengths are available in all diameters.
- ✓ All standard Monoflex PVC threads are compatible with other materials threaded to ASTM F-480 recommendations, with the same TPI. **Note**: Threads on 14" and 16" Monoflex screens and casings are not ASTM F-480 as the flush thread guideline does not specify pipe diameters larger than 12".
- ✓ All standard screens provide maximum net open area. A wide variety of slot sizes and spacings are available to adapt to various site conditions and applications.
- ✓ 1/2" through 6" Sch. 40 and Sch. 80 screens and casings are provided with Buna-N O-rings. O-rings may be installed or packaged separately depending on size. O-rings for all other sizes and schedules are sold separately. Please specify if O-rings are required when placing order.
- ✓ All flush thread screens and casings are Envirowrapped and hermetically sealed at both ends as a standard practice.

The following pages list flush thread PVC screens and casings along with the appropriate Buna-N O-rings, and flush thread caps, plugs, and points. Custom lengths, threads and adapters are available.

Please specify part number when ordering.

Flush Thread Casing

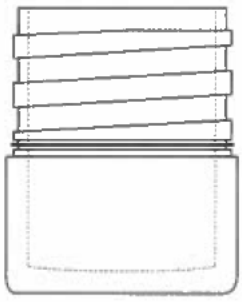


Flush Thread Screen

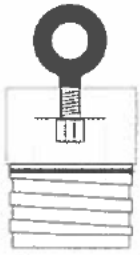
Female Cap (solid)

Male Plug (solid)

Female Point (solid)



Male Plug (molded)



Hoist Plug (solid)

PVC PIPE SPECIFICATIONS

PVC Schedule 40

Nominal Pipe Size (in.)	O.D.	Average I.D.	Min. Wall	Nominal Wt./ft.	Max W.P. PSI*
1/8	.405	.261	.068	.045	810
1/4	.540	.354	.088	.081	780
3/8	.675	.483	.091	.109	620
1/2	.840	.608	.109	.161	600
3/4	1.050	.810	.113	.214	480
1	1.315	1.033	.133	.315	450
1-1/4	1.660	1.364	.140	.426	370
1-1/2	1.900	1.592	.145	.509	330
2	2.375	2.049	.154	.682	280
2-1/2	2.875	2.445	.203	1.076	300
3	3.500	3.042	.216	1.409	260
3-1/2	4.000	3.520	.226	1.697	240
4	4.500	3.998	.237	2.006	220
5	5.563	5.017	.258	2.726	190
6	6.625	6.031	.280	3.535	180
8	8.625	7.943	.322	5.305	160
10	10.750	9.976	.365	7.532	140
12	12.750	11.890	.406	9.949	130
14	14.000	13.072	.437	11.810	130
16	16.000	14.940	.500	15.416	130
18	18.000	16.809	.562	20.112	130
20	20.000	18.743	.593	23.624	120
24	24.000	22.544	.687	32.873	120

PVC Schedule 80

Nominal Pipe Size (in.)	O.D.	Average I.D.	Min. Wall	Nominal Wt./ft.	Max. W.P. PSI*
1/8	.405	.203	.095	.058	1230
1/4	.540	.288	.119	.100	1130
3/8	.675	.407	.126	.138	920
1/2	.840	.528	.147	.202	850
3/4	1.050	.724	.154	.273	690
1	1.315	.935	.179	.402	630
1-1/4	1.660	1.256	.191	.554	520
1-1/2	1.900	1.476	.200	.673	470
2	2.375	1.913	.218	.932	400
2-1/2	2.875	2.289	.276	1.419	420
3	3.500	2.864	.300	1.903	370
3-1/2	4.000	3.326	.318	2.322	350
4	4.500	3.786	.337	2.782	320
5	5.563	4.767	.375	3.867	290
6	6.625	5.709	.432	5.313	280
8	8.625	7.565	.500	8.058	250
10	10.750	9.492	.593	11.956	230
12	12.750	11.294	.687	16.437	230
14	14.000	12.410	.750	19.790	220
16	16.000	14.214	.843	25.430	220
18	18.000	16.014	.937	31.830	220
20	20.000	17.814	1.031	40.091	220
24	24.000	21.418	1.218	56.882	210

PVC Schedule 120

Nominal Pipe Size (in.)	O.D.	Average I.D.	Min. Wall	Nominal Wt./ft.	Max W.P. PSI*
1/2	.84	.480	.170	.223	1910
3/4	1.050	.690	.170	.295	770
1	1.315	.891	.200	.440	720
1-1/4	1.660	1.204	.215	.614	600
1-1/2	1.900	1.423	.225	.734	540
2	2.375	1.845	.250	1.052	470
2-1/2	2.875	2.239	.300	1.529	470
3	3.500	2.758	.350	2.184	440
4	4.500	3.572	.437	3.516	430
6	6.625	5.434	.562	6.759	370

SDR 21 - W.P. 200 PSI (Water @ 73.4°F)

Nominal Pipe Size (in.)	O.D.	Average I.D.	Min. Wall	Nominal Wt./ft.
3/4	1.050	.910	.060	.129
1	1.315	1.169	.063	.170
1-1/4	1.660	1.482	.079	.263
1-1/2	1.900	1.700	.090	.339
2	2.375	2.129	.113	.521
2-1/2	2.875	2.581	.137	.754
3	3.500	3.146	.167	1.106
3-1/2	4.000	3.596	.190	1.443
4	4.500	4.046	.214	1.825
5	5.563	5.001	.265	2.792
6	6.625	5.955	.316	3.964
8	8.625	7.755	.410	6.679

SDR 26 - W.P. 160 PSI (Water @ 73.4°F)

Nominal Pipe Size (in.)	O.D.	Average I.D.	Min. Wall	Nominal Wt./ft.
1	1.315	1.175	.060	.164
1-1/4	1.660	1.512	.064	.221
1-1/2	1.900	1.734	.073	.284
2	2.375	2.173	.091	.432
2-1/2	2.875	2.635	.110	.622
3	3.500	3.210	.135	.915
3-1/2	4.000	3.672	.154	1.183
4	4.500	4.134	.173	1.494
5	5.563	5.109	.214	2.288
6	6.625	6.085	.255	3.228
8	8.625	7.921	.332	5.468
10	10.750	9.874	.413	8.492
12	12.750	11.710	.490	11.956
14	14.000	12.860	.538	14.430
16	16.000	14.696	.615	18.810
18	18.000	16.534	.692	23.860
20	20.000	18.370	.769	29.470
24	24.000	22.043	.923	42.520

CLEAR PVC Schedule 40

Nominal Pipe Size (in.)	O.D.	Average I.D.	Min. Wall	Nominal Wt./ft.	Max W.P. PSI*
1/4	.540	.354	.088	.081	390
3/8	.675	.483	.091	.109	310
1/2	.840	.608	.109	.161	300
3/4	1.050	.810	.113	.214	240
1	1.315	1.033	.133	.315	220
1-1/4	1.660	1.364	.140	.429	180
1-1/2	1.900	1.592	.145	.509	170
2	2.375	2.049	.154	.682	140
2-1/2	2.875	2.445	.203	1.076	150
3	3.500	3.042	.216	1.409	130
3-1/2	4.000	3.520	.226	1.697	120
4	4.500	3.998	.237	2.006	110
6	6.625	6.031	.280	3.535	90
6 x 4	6.625	6.355	.125	1.647	45
8	8.625	7.943	.322	5.305	80

Note: Clear PVC ***Schedule 80*** is available in 1/4" through 4" pipe diameters.

Bell and Gasket PVC Pipe is available in Schedules 40, 80, 120 and SDR's 21, 26, 35, 41 and C-900.
Compounds used in the manufacture of PVC and CPVC Pipe meet ASTM Standard D-1784.
Schedules 40, 80 and 120 PVC Pipe meet ASTM Standard D-1785.
Pressure Rated (SDR Series) PVC Pipe meets ASTM Standard D-2241.
ASTM Standard D-1784 classification equivalents:
PVC Normal Impact = Type I Grade I = PVC 1120 = Cell Classification 12454-B
For more complete information, request "Condensed Catalog HPB-103-A&B"

* **Note:** All pressure ratings are for water at 73.4° F with solvent cemented joints.

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STANDARD LENGTH AND BOX QUANTITY FLUSH THREAD PVC SCREEN AND CASING

The following specifications represent the Monoflex standard for flush thread PVC screen and casing regarding "laying length" and "overall length". The term "laying length" refers to the usable pipe length that is exposed once the pipe is assembled to another pipe. Laying length plus the length of the exposed male thread (pin) = overall length. 2" and 4" diameters, Sch. 40 and Sch. 80 and 6" Sch. 80 are provided as laying length in 2 1/2', 5', 10' and 20' lengths.

Laying length may be obtained in any pipe size depending on the quantity and time frame allowed.

Pipe Dia.	Schedule	Thread Length	Bell Length	Box Quantity
1/2"	40	1.050	1.250	25
1/2"	80	.825	1.250	25
3/4"	40	1.050	1.500	25
3/4"	80	1.125	1.500	25
1"	40	1.125	1.750	20
1"	80	1.000	1.750	20
1-1/4"	40	1.250	1.870	12
1-1/4"	80	1.500	1.870	12
1-1/2"	40	1.125	2.000	10
1-1/2"	80	1.500	2.000	10
2"	40	1.500	2.250	6/9X
2"	80	2.000	2.250	6/9X
2-1/2"	40	2.375	2.500	5
2-1/2"	80	2.375	2.500	5
3"	40	2.375	3.250	4
3"	80	2.375	3.250	4
4"	40	2.500	4.000	2/4X
4"	80	2.500	4.000	2/4X
5"	40	2.750	4.000	1
5"	80	2.750	4.000	1
6"	40	3.000	6.000	1
6"	80	3.000	6.000	1
8"	40	4.000	6.000	1
8"	80	4.000	6.000	1
10"	40	4.375	8.000	--
10"	80	4.375	8.000	--
12"	40	4.500	8.500	--
12"	80	4.500	8.500	--
14"	40	5.000	9.000	--
14"	80	5.000	9.000	--
16"	40	5.000	10.000	--
16"	80	5.000	10.000	--

*Box quantity not available for 20' lengths.
2" and 4" X Boxes from Florida and Pennsylvania plants only.
Box quantities include open end screens and U-packs.

Monitoring Well Manholes

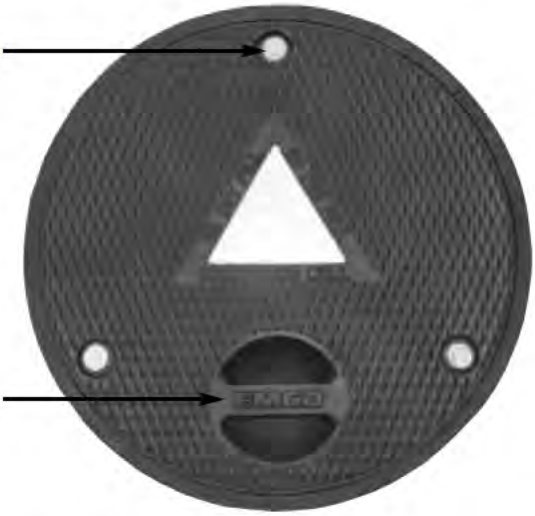
A0721 Monitoring Well Manholes

All Emco Wheaton Monitoring Well Manholes incorporate cast-in identification triangles in accordance with API recommendations and meet AASHTO H20 wheel loading.

- Painted ductile iron lid and rim
- Optional steel or polyethylene skirt
- Bolt-down units have water-tight lids
- Custom lids available

Stainless steel bolts - no more rusted bolts

Built-in side handle on 18" models - one hand opening and positioning



Heavy-duty skirts available. 100% welded skirt and seam.

ID tag available on all models; large enough for all new regulatory requirements

Large notch on 8" lay-in eliminates broken screwdrivers

Monitoring Well Manholes

A0721 Monitoring Well Manholes

Size	Model No.	Description	Style	Skirt Type	Overall Height	Clearhole I.D.	Weight
6"	A0721-106	Monitoring Well Manhole 6"	Bolt-down	Steel	7.5"	4.8"	6.2 lbs.
	A0721-106A	Monitoring Well Manhole 6"	Bolt-down	Steel	10.0"	4.8"	6.7 lbs.
8"	A0721-188L	Monitoring Well Manhole 8"	Lay-in	Steel	8.0"	7.8"	11.9 lbs.
	A0721-008	Monitoring Well Manhole 8"	Bolt-down	Poly	12.0"	6.0"	10.7 lbs.
	A0721-108	Monitoring Well Manhole 8"	Bolt-down	Steel	12.0"	6.0"	13.2 lbs.
	A0721-188	Monitoring Well Manhole 8"	Bolt-down	Steel	8.0"	6.0"	12.1 lbs.
	A0721-208	Monitoring Well Manhole 8"	Bolt-down	HDSteel	12.0"	6.0"	12.7 lbs.
12"	A0721-001	Monitoring Well Manhole 12"	Bolt-down	Poly	12.0"	9.4"	23.0 lbs.
	A0721-001L	Monitoring Well Manhole 12"	Lay-in	Poly	12.0"	9.4"	22.8 lbs.
	A0721-101	Monitoring Well Manhole 12"	Bolt-down	Steel	12.0"	9.4"	27.0 lbs.
	A0721-101L	Monitoring Well Manhole 12"	Lay-in	Steel	12.0"	9.4"	26.8 lbs.
	A0721-119	Monitoring Well Manhole 12"	Bolt-down	Steel	19.5"	9.4"	31.6 lbs.
	A0721-128	Monitoring Well Manhole 12"	Bolt-down	Poly	8.0"	9.4"	21.5 lbs.
	A0721-128L	Monitoring Well Manhole 12"	Lay-in	Poly	8.0"	9.4"	21.3 lbs.
	A0721-128A	Monitoring Well Manhole 12"	Bolt-down	Steel	8.0"	9.4"	25.5 lbs.
	A0722-001*	Monitoring Well Manhole 12"	Bolt-down	Poly	12.0"	9.4"	23.8 lbs.
18"	A0721-018	Monitoring Well Manhole 18"	Bolt-down	Steel	12.0"	13.8"	48.0 lbs.
	A0721-118	Monitoring Well Manhole 18"	Bolt-down	Steel	18.0"	13.8"	59.0 lbs.

*Includes locking cap & collar

Replacement Parts

494261	Bolt 8" with O-ring
494262	Bolt 12" with O-ring
494375	Bolt 18" with O-ring
563593	Gasket 12"
563980	Lid Ductile 12"
567146	Gasket 8"
567712	Lid Ductile 18"
567995	Gasket 18"
568662	Bolt 6"
568692	Lid Ductile 6"
568820	Gasket 6"
569106	Lid Ductile 8"
569285	Lid Ductile 8" Lay-in
569723	Lid Ductile 12" Lay-in

Options

ID Tags - Add ID to the 8-digit part number

Heavy Duty, Welded Skirts - Replace the first digit of the variant number with a 2

MANHOLES

A0720 Locking Cap & Collar

The Emco Wheaton A0720 locking cap and collar is used to limit access and seal monitoring wells and can be threaded or solvent welded onto a 4" PVC monitoring well pipe. It displays the monitoring well designation and includes a padlock. The cap and collar are both made of durable ABS plastic.

Model No.	Description	Pipe Size	Weight
A0720-001	Locking Cap and Collar	4"	1.4 lbs.

Replacement Parts

564029 Lock/Key Set A0720

QUIKRETE®

CEMENT & CONCRETE PRODUCTS™

FAST SETTING CONCRETE MIX

PRODUCT NO. 1004-50

DIVISION 3

Structural Concrete
03 31 00

PRODUCT DESCRIPTION

QUIKRETE® Fast Setting Concrete Mix is used for setting posts, sleeves and anchors, for pouring slabs 2" (51 mm) or thicker, and for other applications where a fast-setting general purpose concrete is desirable.

PRODUCT USE

QUIKRETE® Fast Setting Concrete Mix is a general purpose concrete designed to achieve final set in 20-40 minutes. Fast Setting Concrete Mix is suitable for setting posts and pouring slabs when a rapid return to service is desired.

SIZES

• QUIKRETE® Fast Setting Concrete Mix - 50 lb (22.7 kg) bags

YIELD

• Each 50 lb (22.7 kg) bag of QUIKRETE® Fast Setting Concrete Mix will yield approximately 0.375 cu ft (11 L) of mixed concrete.
• Two 50 lb (22.7 kg) bags of QUIKRETE® Fast Setting Concrete Mix will set a 4" (102 mm) diameter post in a 10" (254 mm) diameter hole 2' (0.6 m) deep.

TECHNICAL DATA

APPLICABLE STANDARDS

ASTM International
• ASTM C39 Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
• ASTM C191 Standard Test Method for Time of Setting of Hydraulic Cement by Vicat Needle
• ASTM C387 Standard Specification for Packaged, Dry, Combined Materials for Mortar and Concrete

PHYSICAL/CHEMICAL PROPERTIES

Fast-Setting Concrete meets or exceeds the compressive strength requirements of ASTM C387. When mixed to a 2" - 3" (51 - 75 mm) slump, QUIKRETE® Fast-Setting Concrete will achieve the typical physical properties shown in Table 1.

TABLE 1 TYPICAL PHYSICAL PROPERTIES

Property & test	Results
Setting time, ASTM C191	20 - 40 min.
Compressive strength, ASTM C39	2 hrs 400 psi (2.8 MPa) 24 hrs 1000 psi (6.9 MPa) 7 days 2500 psi (17.2 MPa) 28 days 4000 psi (27.6 MPa)

INSTALLATION

FOR SETTING POSTS

1. Place post into hole and temporarily stand straight. The hole diameter should be 3 times the post diameter. The depth of the post hole should be one-half of the above ground post height.
2. Pour dry mix into the hole until it is approximately 3" - 4" (76 - 102 mm) from the top.
3. Pour water into the dry mix until the powder is saturated with water. Depending on soil conditions, this will require about 1 gallon (3.8 L) of water per 50 lb (22.7 kg) bag. For holes deeper than 2' 6" (0.8 m), place the material in lifts of 2' 6" (0.8 m) or less to allow water to soak all the way through.
4. Fill the remainder of the hole with soil dug from the hole. This product sets in 20 - 40 minutes. Wait 4 hours before placing heavy objects.

FOR POURING SLABS

MACHINE MIXING INSTRUCTIONS

QUIKRETE® Fast-Setting Concrete can be mixed in a barrel-type concrete mixer or a mortar mixer.
• Allow at least 3/4 cu ft (20 L) of mixer capacity for each 50 lb (22.7 kg) bag to be mixed at one time
• Add approximately 4 pt (1.9 L) of fresh water to the mixer for each bag to be mixed
• Turn on the mixer and begin adding concrete. If the material becomes too difficult to mix, add small amounts of water at a time and continue to work the mix until a workable consistency is obtained. Do not add more than 5 pt (2.4 L) of water per 50 lb bag

HAND MIXING INSTRUCTIONS
• Empty bags into a suitable mixing container
• Add approximately 4 pt (1.9 L) of clean water for each 50 lb (22.7 kg) bag
• Work the mix with a shovel, rake or hoe; add water as needed until a plastic-like consistency is achieved
• Do not add more than 5 pt (2.4 L) of water per 50 lb (22.7 kg) bag
• Be sure all material is uniformly mixed
• Do not leave standing puddles

APPLICATION

• Shovel or place concrete into form. Fill to the full depth of the form. Start in a corner and do not drag or flow the concrete unnecessarily
• After the concrete has been spread to completely fill the forms, strike off and float immediately
• To strike off, simply use a straight board, moving the edge back and forth with a saw-like motion to smooth the surface. Then use a darby or bull float to float the surface. This helps level any ridges and fills voids left by the straight edge
• Allow the concrete to stiffen slightly, waiting until all water has evaporated from the surface before troweling or applying a broom finish

Note - For best results, do not overwork the material. QUIKRETE® Fast-Setting Concrete can be walked on in 2 hours. Wait at least 4 hours before placing heavy objects on the slab.

CURING

GENERAL

Curing is one of the most important steps in concrete construction. Proper curing increases the strength and durability of concrete. Proper water content and temperature are essential for good curing. In near freezing temperatures, the hydration process slows considerably. When weather is too hot, dry or windy, water is lost by evaporation from the concrete and hydration stops, resulting in finishing difficulties and cracks. The ideal circumstances for curing are ample moisture and moderate temperature and wind conditions.

SPECIFIC METHODS

Because QUIKRETE® Fast-Setting Concrete is often used a few hours after placement, initial curing is very important. The most convenient curing method is to cover the concrete with plastic.

PRECAUTIONS

• Mix only as much material as can be placed in 20 minutes.
• Because of the rapid setting time, special precautions must be taken, as set times will fluctuate in extremely hot or cold weather. Use cold water or water mixed with ice cubes in severely hot weather. Use hot water when mixing in severely cold weather.

WARRANTY

The QUIKRETE® Companies warrant this product to be of merchantable quality when used or applied in accordance with the instructions herein. The product is not warranted as suitable for any purpose or use other than the general purpose for which it is intended. Liability under this warranty is limited to the replacement of its product (as purchased) found to be defective, or at the shipping companies' option, to refund the purchase price. In the event of a claim under this warranty, notice must be given to The QUIKRETE® Companies in writing. This limited warranty is issued and accepted in lieu of all other express warranties and expressly excludes liability for consequential damages.

The QUIKRETE® Companies
One Securities Centre
3490 Piedmont Rd., NE, Suite 1300, Atlanta, GA 30305
(404) 634-9100 • Fax: (404) 842-1425

** Refer to www.quikrete.com for the most current technical data, MSDS, and guide specifications*

SUBMITTAL TRANSMITTAL

ACTIVITY ID	DATE
	Jan 4, 2017

CONTRACT NO	CONTRACT TITLE	SUBMI NO
N62473-12-D-2005, CTO 003	Remedial Action in Parcel D-1 (Durable Cover)	014

SUBM ITEM DESCRIPTION
RFI: Asphalt Testing Core Restoration

SUBMITTAL PRIORITY?	○ HIGH	◉ NORMAL
PREPARED BY CQC MGR?	○ YES	◉ NO
SCHEDULE REFERENCED?	○ YES	◉ NO
CRITICAL PATH?	○ YES	◉ NO

SPEC SECTION	SPEC PARAGRAPH	SPEC PAGE NO
32 10 00	3.3.2.2.a	10

CB&I is submitting the attached RFI regarding Asphalt Core Restoration in accordance with the submittal procedures, for Navy review and response.

chris.hanif@cbifederalservices.com Digitally signed by chris.hanif@cbifederalservices.com DN: cn=chris.hanif@cbifederalservices.com Date: 2017.01.04 14:46:13 -08'00' Jan 4, 2017

CONTRACTOR/QUALITY CONTROL MANAGER — DATE

COMMENTS FOR DETAILED REVIEWER:

DETAILED REVIEWER 1 COMMENTS:

DETAILED REVIEWER 1 NAME/SIGNATURE	TITLE	RESPONSE DATE
BROOKS.GEORGE.PATRICK.1255211966 Digitally signed by BROOKS.GEORGE.PATRICK.1255211966 DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USN, cn=BROOKS.GEORGE.PATRICK.1255211966 Date: 2017.01.09 09:15:06 -08'00'	Business Line Team Leader	9 January 2017

DETAILED REVIEWER 2 COMMENTS:

DETAILED REVIEWER 2 NAME/SIGNATURE	TITLE	RESPONSE DATE

APPROVER'S COMMENTS:

SUBM STATUS

BROOKS.GEORGE.PATRICK.1255211966 Digitally signed by BROOKS.GEORGE.PATRICK.1255211966 DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USN, cn=BROOKS.GEORGE.PATRICK.1255211966 Date: 2017.01.09 09:15:56 -08'00'

GOVERNMENT CONSTRUCTION MANAGER — DATE

REQUEST FOR INFORMATION

ACTIVITY ID	DATE
	January 4, 2017

CONTRACT NO	CONTRACT TITLE	RFI NO
N62473-12-D-2005 CTO 0003	Remedial Actoin in Parcel D-1	002

RFI SUBJECT	SPEC SECTION	DWG NO
Asphalt Testing Core Restoration	32 10 00	

			SPEC PARAGRAPH	DWG DETAIL
RFI PRIORITY?	○ HIGH	◉ NORMAL	3.3.2.2.a	
POTENTIAL TIME/COST?	○ YES	◉ NO		
SCHEDULE REFERENCED?	○ YES	◉ NO	SPEC PAGE NO	DWG SHEET NO
CRITICAL PATH?	○ YES	◉ NO	10	

Per the Testing Plan and Log (Attachment 7 to Appendix C of the Final Remedial Action Work Plan), CB&I has used core sampling to determine the density and thickness of the asphalt wear course of the Parcel D-1 durable cover. The Design Basis Report (DBR; ChaduxTt, 2011) does not specify the means for restoring the durable cover at each testing core location. As discussed in QC meeting on December 27, 2016, CB&I has evaluated products to fill the testing core locations with a durable material and restore the final cover integrity.

CONTRACTOR PROPOSED SOLUTION:

CB&I proposes to fill testing core holes using the same concrete mix specified in the monitoring well specification package submitted on December 19, 2016. This fast setting concrete mix has a compressive strength of 4,000 psi, thus meeting the construction specification 03 30 00 CONCRETE. Restoring testing core holes in this manner will provide a seal equivalent to cover penetrations found elsewhere over Parcel D-1 (e.g., monitoring wells, fence posts, etc.).

lisa.bercik@cbifederalservices.com

CONTRACTOR/PROJECT MANAGER DATE

RFI ACTION

COMMENTS FOR DETAILED REVIEWER:

DETAILED REVIEWER 1 RECOMMENDED RFI SOLUTION:

DETAILED REVIEWER 1 NAME/SIGNATURE	TITLE	RESPONSE DATE
Mike Ayala	Project Engineer; Technical Lead	Jan 4, 2017

DETAILED REVIEWER 2 RECOMMENDED RFI SOLUTION:

DETAILED REVIEWER 2 NAME/SIGNATURE	TITLE	RESPONSE DATE

RFI RESPONSE:

GOVERNMENT CONSTRUCTION MANAGER DATE

QUIKRETE®

CEMENT & CONCRETE PRODUCTS™

FAST SETTING CONCRETE MIX

PRODUCT NO. 1004-50

DIVISION 3

Structural Concrete
03 31 00

PRODUCT DESCRIPTION

QUIKRETE® Fast Setting Concrete Mix is used for setting posts, sleeves and anchors, for pouring slabs 2" (51 mm) or thicker, and for other applications where a fast-setting general purpose concrete is desirable.

PRODUCT USE

QUIKRETE® Fast Setting Concrete Mix is a general purpose concrete designed to achieve final set in 20-40 minutes. Fast Setting Concrete Mix is suitable for setting posts and pouring slabs when a rapid return to service is desired.

SIZES

• QUIKRETE® Fast Setting Concrete Mix - 50 lb (22.7 kg) bags

YIELD

• Each 50 lb (22.7 kg) bag of QUIKRETE® Fast Setting Concrete Mix will yield approximately 0.375 cu ft (11 L) of mixed concrete.
• Two 50 lb (22.7 kg) bags of QUIKRETE® Fast Setting Concrete Mix will set a 4" (102 mm) diameter post in a 10" (254 mm) diameter hole 2' (0.6 m) deep.

TECHNICAL DATA

APPLICABLE STANDARDS

ASTM International
• ASTM C39 Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
• ASTM C191 Standard Test Method for Time of Setting of Hydraulic Cement by Vicat Needle
• ASTM C387 Standard Specification for Packaged, Dry, Combined Materials for Mortar and Concrete

PHYSICAL/CHEMICAL PROPERTIES

Fast-Setting Concrete meets or exceeds the compressive strength requirements of ASTM C387. When mixed to a 2" - 3" (51 - 75 mm) slump, QUIKRETE® Fast-Setting Concrete will achieve the typical physical properties shown in Table 1.

TABLE 1 TYPICAL PHYSICAL PROPERTIES

Property & test	Results
Setting time, ASTM C191	20 - 40 min.
Compressive strength, ASTM C39	2 hrs 400 psi (2.8 MPa) 24 hrs 1000 psi (6.9 MPa) 7 days 2500 psi (17.2 MPa) 28 days 4000 psi (27.6 MPa)

INSTALLATION

FOR SETTING POSTS

1. Place post into hole and temporarily stand straight. The hole diameter should be 3 times the post diameter. The depth of the post hole should be one-half of the above ground post height.
2. Pour dry mix into the hole until it is approximately 3" - 4" (76 - 102 mm) from the top.
3. Pour water into the dry mix until the powder is saturated with water. Depending on soil conditions, this will require about 1 gallon (3.8 L) of water per 50 lb (22.7 kg) bag. For holes deeper than 2' 6" (0.8 m), place the material in lifts of 2' 6" (0.8 m) or less to allow water to soak all the way through.
4. Fill the remainder of the hole with soil dug from the hole. This product sets in 20 - 40 minutes. Wait 4 hours before placing heavy objects.

FOR POURING SLABS

MACHINE MIXING INSTRUCTIONS

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• Empty bags into a suitable mixing container
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• Shovel or place concrete into form. Fill to the full depth of the form. Start in a corner and do not drag or flow the concrete unnecessarily
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• Allow the concrete to stiffen slightly, waiting until all water has evaporated from the surface before troweling or applying a broom finish

Note - For best results, do not overwork the material. QUIKRETE® Fast-Setting Concrete can be walked on in 2 hours. Wait at least 4 hours before placing heavy objects on the slab.

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Curing is one of the most important steps in concrete construction. Proper curing increases the strength and durability of concrete. Proper water content and temperature are essential for good curing. In near freezing temperatures, the hydration process slows considerably. When weather is too hot, dry or windy, water is lost by evaporation from the concrete and hydration stops, resulting in finishing difficulties and cracks. The ideal circumstances for curing are ample moisture and moderate temperature and wind conditions.

SPECIFIC METHODS

Because QUIKRETE® Fast-Setting Concrete is often used a few hours after placement, initial curing is very important. The most convenient curing method is to cover the concrete with plastic.

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** Refer to www.quikrete.com for the most current technical data, MSDS, and guide specifications*

Appendix B
Pre-Construction and Mutual Understanding Meeting Minutes
(provided on electronic copy only)

CB&I
4005 Port Chicago Highway, Suite 200
Concord, CA 94520
Tel: +1 925 288 9898
Fax: +1 925 288 0888
www.CBI.com

June 1, 2016

Leslie Howard
Base Realignment and Closure,
Program Management Office West Naval Facilities Engineering Command
33000 Nixie Way, Building 50
San Diego, California 92147

Subject: Revised Pre-Construction and Mutual Understanding Meeting Minutes, CTO 0003, Remedial Action in Parcel D-1, Hunters Point Naval Shipyard, San Francisco, California; DCN: CBI-2005-0003-0010.R1

Dear Ms. Howard:

CB&I Federal Services, LLC, is pleased to submit the revised Pre-Construction and Mutual Understanding Meeting Minutes for the meeting held on May 19, 2016 for Contract Task Order 0003, Remedial Action in Parcel D-1, Hunters Point Naval Shipyard, San Francisco, California.

If you have any questions with this matter, please contact me at 619.446.4508.

Sincerely,

Lisa Bercik, PE
Project Manager
CB&I Federal Services

Enclosures:

1. Meeting Minutes
2. Meeting Agenda
3. Construction Site Layout Map
4. Project Organization Chart
5. Project Schedule
6. Sign In Sheets

PRE-CONSTRUCTION AND MUTUAL UNDERSTANDING MEETING
REMEDIAL ACTION IN PARCEL D-1
HUNTERS POINT NAVAL SHIPYARD, SAN FRANCISCO, CALIFORNIA
N62473-12-D-2005, CTO 0003

Thursday, May 19, 2016 at 1300 - 1345

Location: CB&I HPNS Site Office, San Francisco, California and teleconference

Attendees:	**Navy**	**CB&I**
	Leslie Howard, Project Manager	Mike Ayala, Project Engineer
	Doug DeLong, CSO	Lisa Bercik, Project Manager
	Patricia McFadden, CSO	Jim Click, SF Bay Construction Manager
	Shirley Ng, ROICC	Mark Egan, SSHO
		Sam Hopstone, Field Engineer
		Eddie Kalombo, Project Chemist
		Alex Parker, HPNS Construction Manager
		Mark Vennemeyer, QC Manager

Meeting Agenda:

I. Introductions, Sign-in Sheet, and Safety Message

1. Meeting attendees introduced themselves and their roles.
2. Mr. Mark Egan reviewed engineering controls in place to ensure worker safety, and administrative controls used to reduce workplace hazards present on site.
3. Ms. Lisa Bercik reviewed the contract information.

II. Roles and Responsibilities

1. Ms. Bercik reviewed the Navy staff, roles and responsibilities.
2. Ms. Bercik introduced the CB&I staff involved with the project, their roles, and the responsibility of each.

III. Communications

1. Lisa Bercik reviewed the communications required at project benchmarks.

IV. Safety and Environmental

1. Ms. Bercik reviewed that the APP/SSHP was finalized and in compliance with the 2008 USACE EM 381-1-1.

2. Ms. Shirley Ng requested clarification on the APP regulations to be followed for the project. Ms. Ng asked that the APP be updated to be in compliance with the 2014 EM 385-1-1.
3. Ms. Bercik stated that for another project at Treasure Island, the ROICC required the APP be updated because the RFP for new work was issued after the 2014 EM 385-1-1 was issued. Because the Parcel D-1 work was bid before the 2014 EM 385-1-1 was issued and the final documents are already in place, the APP would not be updated at this time. CB&I will of course comply with the latest standards.
4. Ms. Ng agreed and confirmed that the 2008 regulations were specified in the Work Plan, and CB&I will proceed with the current Final APP (unless stated differently in the contract). Once work begins, changes to the accepted APP shall be made with the knowledge and concurrence of the Contracting Officer, Project Superintendent, SSHO and Project QC Manager.
5. Ms. Bercik asked in the AHAs would need to be submitted to the ROICC for review. Ms. Ng stated no unless the SSHO deemed there will be changes (requiring new AHAs for ROICC acceptance). As always, refere to the EM 385 AHA procedurel specifically 01.A.13 (d). The AHA shall be reviewed and modified as necessary to address changing site conditions, operations, or change of Competent/Qualified Person(s). The AHAs were already finalized.
6. Ms. Bercik confirmed that CB&I will email the ROICC provides at least 2-days notice (but as early as possibly) before cranes, man-lifts, or other such equipment are used on site, to permit sufficient time for inspection.
7. Ms. Patricia McFadden requested to be added to the Recipient List in the event of an emergency on site.
    i. Action Item: Ms. Bercik will add CSO to Emergency Notification Recipient List

V. Project Scope

1. Ms. Bercik reviewed the Project Scope.
2. The group agreed on a time for weekly CQC meetings: Tuesday at 0930 in the CB&I trailer.
3. Ms. Leslie Howard reported that RASO has mentioned the status of the north section of Phase 1will be radiologically cleared soon.
    i. Action Item: Ms. Howard will notify CB&I staff when RASO provides an estimated release date.
4. Ms. Bercik brought up the discrepancy between Gilbane's 4-day workweeks, and CB&I's 5-day workweeks.
    i. Action Item: Ms. Howard will communicate with Gilbane and resolve the discrepancy.

VI. Project Execution

1. Ms. Bercik reviewed the Project Execution.
2. Ms. Ng stated to verify the CSO about no-noise work until after 0700.
3. Ms. Bercik confirmed that any RFIs will be sent to Ms. Howard and Ms. Ng. Ms. Howard will the RFI and if necessary, forward to the Navy's subject matter expert.
4. Ms. Ng stated changes to construction drawings will be on the progress as-built drawings. Please refer to the basic award contract document for submittal/approval process.

VII. Schedule

1. Ms. Bercik reviewed the project schedule.
2. Ms. Ng stated that review of follow-on, add-on plans and submittals for government acceptance/approval will require schedule change and update.

VIII. Open Forum

1. Ms. Ng asked for clarification on what was included in Modification 6.
2. Ms. Howard clarified that Modification 6 added a mobilization and included changed conditions.
3. Ms. Ng added that once work begins, changes to the accepted APP shall be made with the knowledge and concurrence of the Contracting Officer, Project Superintendent, SSHO, and Project Quality Control Manager.
4. Ms. Bercik adds that changes to the APP (if any) will be documented as an amendment.
5. Ms. Ng reported that her contact information in the organizational chart is outdated.
    i. Action Item: Lisa Bercik will update Shirley Ng's information in the RAWP.
6. Ms. Ng stated alternative staffing requests should be emailed to the ROICC. Please email the ROICC in advance if the alternate personnel, such as the Alt SSHO or Alt PQCM, will be on duty versus the primary SSHO/PQCM. If the SSHO is offsite for a period longer than 24-hours, a qualified replacement SSHO shall be provided and shall fulfill the same roles and responsibilities as the primary/initial SSHO.
7. The group confirmed the placement of CB&I administrative trailers on site.

IX. Adjourn

1. Meeting adjourned at 1345.

PRE-CONSTRUCTION CONFERENCE AGENDA

CONTRACT INFORMATION				
Contract/Task-Delivery Order Number: **N62473-12-D-2005** **CTO 0003**	Project Title: **REMEDIAL ACTION IN PARCEL D-1, HUNTERS POINT NAVAL SHIPYARD, SAN FRANCISCO, CALIFORNIA** Pre-Construction Meeting scheduled for May 19, 2016 at the CB&I trailer at HPNS at 1300, or via conference call: Call-in Number: 866.692.4541 Participant Code: 1290238#			
Award Date: 4 June 2013	Award Amount: Original: $5,959,128.00 Mod 06: $2,469,607.00	Contract Duration: 48 months	Completion Date: 2 June 2017	Liquidated Damages: N/A
Contractor: CB&I Federal Services LLC		A-E: N/A		

I. Introductions

II. Roles and Responsibilities

Client: NAVFAC SW

Title	Area of Responsibility	Name	Phone No./Email
Remedial Project Manager (RPM)	Overall responsibility Technical/Engineering/ Financial aspect of project	Leslie Howard	(619) 524-5903 leslie.howard.ctr@navy.mil
Lead RPM	Overall responsibility Technical/Engineering/ Financial aspect of HPNS	Danielle Janda	(619) 524-5096 danielle.janda@navy.mil
Contracting Officer	Contract modifications/invoicing/ payrolls	Cynthia Mafara	(619) 524-0659
CSO	Coordination with HPNS/UCSF/Access/ Scheduling	Patricia McFadden	(415) 743-4720 (office) (415) 559-9961 (mobile) patricia.mcfadden@navy.mil
		Doug Delong	(415) 743-4713 (office) (510) 220-1894 (mobile)

Title	Area of Responsibility	Name	Phone No./Email
			douglas.delong.ctr@navy.mil
Resident-Officer-In-Charge-Of-Construction (ROICC)	Overall responsibility for ROICC SF Bay	LT Camilo Colorado	(510) 333-2621 (mobile)
Supervisory General Engineer (SGE)	Authorized to serve in the absence of the ROICC	Tony Encarnacion	(510) 501-1170
ROICC Engineering Technician (ET)	Quality assurance (QA)/Safety/Conduct labor interviews/Issues deficiency notices	TBD/ or Jeff Griffin	TBD
ROICC Construction Manager	Field Safety/Navy Technical Representative/Field Administration	Shirley Ng	(510) 521-8713 (office) (510) 502-5051 (mobile) shirley.ng@navy.mil

Contractor: CB&I Federal Services, LLC

Title	Name	Phone No. / Email
Program Manager	Ulrika Messer	(619) 446-4529 (office) (619) 241-9451 (mobile) ulrika.messer@cbifederalservices.com
Project Manager	Lisa Bercik	(619) 446-4508 (office) (619) 213-3389 (mobile) lisa.bercik@cbifederalservices.com
Project Engineer	Mike Ayala	(925) 288-2158 (office) mike.ayala@cbifederalservices.com
Bay Area Construction Manager	Jim Click	(303) 345-8998 (mobile) james.click@cbifederalservices.com
HPNS Construction Manager	Alex Parker	(435) 671-2256 alex.parker@cbifederalservices.com
Safety Health and Safety Officer (SSHO)	Mark Egan	(925) 231-6169 (mobile) mark.egan@cbifederalservices.com

Title	Name	Phone No. / Email
Alternative SSHO	Mark Vennemeyer	(925) 383-6502 (mobile) mark.vennemeyer@cbifederalservices.com
Project Quality Control Manager (PQCM)	Mark Vennemeyer	(925) 383-6502 (mobile) mark.vennemeyer@cbifederalservices.com
Alternative PQCM	Lee Laws Barbara Matz	(925) 759-1787 (mobile) lee.laws@cbifederalservices.com (415) 713-8482 (mobile) barbara.matz@cbifederalservices.com
Field Engineer	Sam Hopstone	(415) 260-0738 (mobile) sam.hopstone@cbifederalservices.com
Project Chemist	Eddie Kalombo	(415) 987-0760 (mobile) eddie.kalombo@cbifederalservices.com

III. Communications

1. RPM, ROICC, and the CSO will be notified at least 48 hours prior to all field activities.
2. A daily CQC and CPR report will be submitted to the ROICC, CSO and RPM for each day of field activities.
3. The ROICC will be notified of all field safety and QC issues. Actions requiring a Contracting Officer, such as adding, changes or modifications to the contract will only be executed by the Contracting Officer.
4. The consultant name (CB&I) and Navy contract number will be included on all reports and project documents.
5. Correspondence to ROICC will be by email. The RPM and CSO will be copied on all correspondence to the ROICC.
   i. Holiday or outside normal work hours work requests to ROICC via email.
   ii. Notify ROICC via email to coordinate mobilization for crane/load handling equipment/man-lift.

IV. Safety and Environmental

1. Accident Prevention Plan (APP)/Site Safety and Health Plan (SSHP) has been finalized. APP/SSHP complies with September 2008 USACE EM-385-1-1 Manual (to incorporate all changes applicable and relevant changes up to Change No. 7, Effective 20 July 2012).

i. Activity Hazard Analyses (AHAs) were prepared for each phase of work, the AHAs will be reviewed by all site personnel and will be discussed at safety briefings by SSHO prior to start of field activities.

ii. All field work will be conducted in Level D or modified Level D PPE as specified in the AHAs. Level D PPE includes steel-toed boots/shoes, hard hats, disposable coverall, reflective vests, eye protection, gloves, hearing protection if necessary, long sleeved shirt and pants. Modified Level D PPE includes Level D PPE plus Tyvek-type coveralls. Personal flotation devices (Types III or V) will be required when on small boats and when working adjacent to the water (within 6 feet of the edge of piers/berths) (Types I, II, or III).

iii. Smoking will not be permitted at job site or in site vehicles, only in designated areas.

iv. Equipment brought on site will be inspected and must meet EM-385-1-1 requirements. Daily equipment inspections will be conducted by qualified personnel in the field. Checklist will be completed daily for each day of activity using the form in the APP/SSHP. Notify ROICC via email to coordinate mobilization for crane/load handling equipment/man-lift.

2. Emergency Notifications – As described in APP/SSHP

i. All incidents will be reported to the CB&I PM immediately.

ii. Severe accidents/fatalities will be reported to OSHA within 8 hours of incident.

iii. ROICC/RPM will be notified of reportable accidents/incidents within 4 hours.

iv. CB&I will complete Incident Report within 24 hours of the event; submit to Navy within 72 hours.

3. Permits

i. CB&I maintains annual excavation permit from OSHA

ii. Dig Alert – notified

V. Project Scope

1. Project Schedule: A draft schedule for implementation of the project is listed below.
2. Meetings

a. A weekly CQC meeting will be conducted at the project site during field activities

b. A pre-final meeting will be conducted after completion of construction and site restoration activities to identify punch list items that need to be addressed.

c. A final meeting will be conducted after completion of punch list items.

3. Plans/Design Documents: The Final Work Plan with all applicable appendices was finalized in January 2014. Revision 1 was finalized May 2016.
4. Field Work: Activities will include the following:

a. Mobilization of equipment, material and workers

b. Site preparation (pre-construction topo survey, project signs, install BMPs [including turbidity curtain], air monitoring, utility survey)

c. Import material

d. Stabilize seawalls

e. Protect and extend existing monitoring wells

f. Construct durable cover

1. Inspect and repair existing buildings and building foundations
2. Prepare subgrade (includes spoil management site grading, compaction, and compaction testing)
3. Install durable cover (includes asphalt repair, new asphalt, swales)
4. Install two permanent survey monuments

g. Install permanent fencing

h. Final topo survey

i. Site cleanup and demobilization

j. O&M

5. Reports:

a. Remedial Action Completion Report (4 versions),

b. Post-construction RA Fact Sheet (3 versions),

c. Post-Construction O&M Manual (4 versions)

d. Four (4) Quarterly O&M Inspection Reports (3 versions)

6. Data Management: All analytical data generated during the remedial action will be reviewed by the Project Chemist and submitted to the Navy Installation Restoration Information Solution (NIRIS).

VI. Project Execution

1. Work hours – All work is expected to be completed between 0600 and 1630, five (5) hours day. Evening and weekend hours are not anticipated. CB&I to notify ROICC and CSO if extended hours are required. (Work not affected by tides.)
2. Site Security – CB&I will be responsible for maintaining job site security during work hours.
3. Competent Person – CB&I will provide a competent superintendent to oversee field activities.
4. Subcontractors:

a. CBL – Land Survey

b. Subtronic – Utility Locator

c. Curtis & Tompkins – Chemical Laboratory Analysis

d. Eurofins – Air Monitoring Laboratory Analysis
e. S&S Trucking – Import Fill Material
f. Smith-Emery – Geotechnical Analysis
g. Bradley Tanks – Waste T&D
h. Armada – Site Security
i. Granite – Paving
j. Laboratory Data Consultants – Data Validation

5. Photographs – CB&I will document progress of the remedial activities by taking photographs before, during, and after field work occurs. A photo log and CD disk of digital images will be submitted to the RPM. Alternatively, the base can arrange for an individual to capture the different phases of the RA implementation.
6. Notifications – The RPM will be notified by email or phone when each field work task is about to commence. The RPM will also be verbally briefed once a week on the progress of the project.
7. Method of Documenting Changes to Construction Drawings and Specifications. CB&I will submit RFIs on the ROICC-provided RFI form. Is there an Engineer of Record (from the design engineer ChaduxTt) that will review the RFIs? Review submittal and approval process.

VII. Schedule

See project schedule. A summary of Phase 1 major tasks is provided below.

Task Name (Phase 1)	Duration	Start	Finish
Pre-Construction Topo Survey	2 days	5/12/2016	5/16/2016
Mobilization	10 days	5/31/2016	6/13/2016
Site Preparation	58 days	6/3/2016	8/24/2016
Site Maintenance/Security	88 days	5/31/2016	10/3/2016
Air Monitoring	78 days	6/14/2016	10/3/2016
Install Durable Cover	40 days	7/18/2016	9/12/2016
Seawall Stabilization	24 days	6/16/2016	7/15/2016
Final Topo Survey	2 days	9/30/2016	10/3/2016
Site Cleanup and Demobilization	12 days	9/16/2016	10/3/2016
Phase 2 – Dependent on Rad Release of Phase 2 Area		**TBD**	**TBD**

VIII. General Discussion

PRIMARY SITE ACCESS POINT

TRACK OUT PREVENTION CONTROL POINT

PARCEL C

SUPPORT TRAILER AND STORAGE AREA

EMPLOYEE PARKING

"E" ST.

MORRELL ST.

COCHRANE ST.

MANSEAU ST.

HUSSEY ST.

MAHAN ST.

"H" ST.

PARCEL G

PARCEL E

PARCEL D-1

BERTH 10

BERTH 11

South Pier

BERTH 13

BERTH 12

BERTH 14

SOUTH SLIP

BACKFILL BEHIND SEAWALL

BERTH 15

BERTH 16

BERTH 17

BERTH 18

BERTH 19

BERTH 20

BERTH 21

BERTH 22

BERTH 23

BERTH 24

BERTH 27

BERTH 28

BERTH 29

IMPORT MATERIAL STOCKPILE

AGGREGATE BASE/RIPRAP STOCKPILE

Gun Mole Pier

AREA FOR RIPRAP STABILIZATION

Phase 2

San Francisco Bay

0 250 500 Feet

NOTES:

1. Locations and sizes of stockpile processing and laydown areas, decontamination pad, and other temporary work facilities are subject to change.
2. See text for information about Best Management Practices (BMPs).
3. Actual locations, durations, and quantities of BMP implementation will be determined in accordance with the text and actual field conditions and schedule.
4. The Phase 1 and Phase 2 boundaries are subject to change.

Legend

- Existing Monitoring Well
- Approximate Location of Turbidity Curtain
- Install Survey Monument
- Windsock
- 6-ft. High Fence
- Stabilized Construction Entrance/Exit
- Stockpile
- Existing Surface with No Asphalt (Durable Cover to be Constructed)
- Existing Asphalt Pavement Requiring New Asphalt or Asphalt Repair
- Phase 1
- Building (Existing)
- Parcel Boundary

U.S. Department of the Navy
BRAC PMO West
San Diego, California

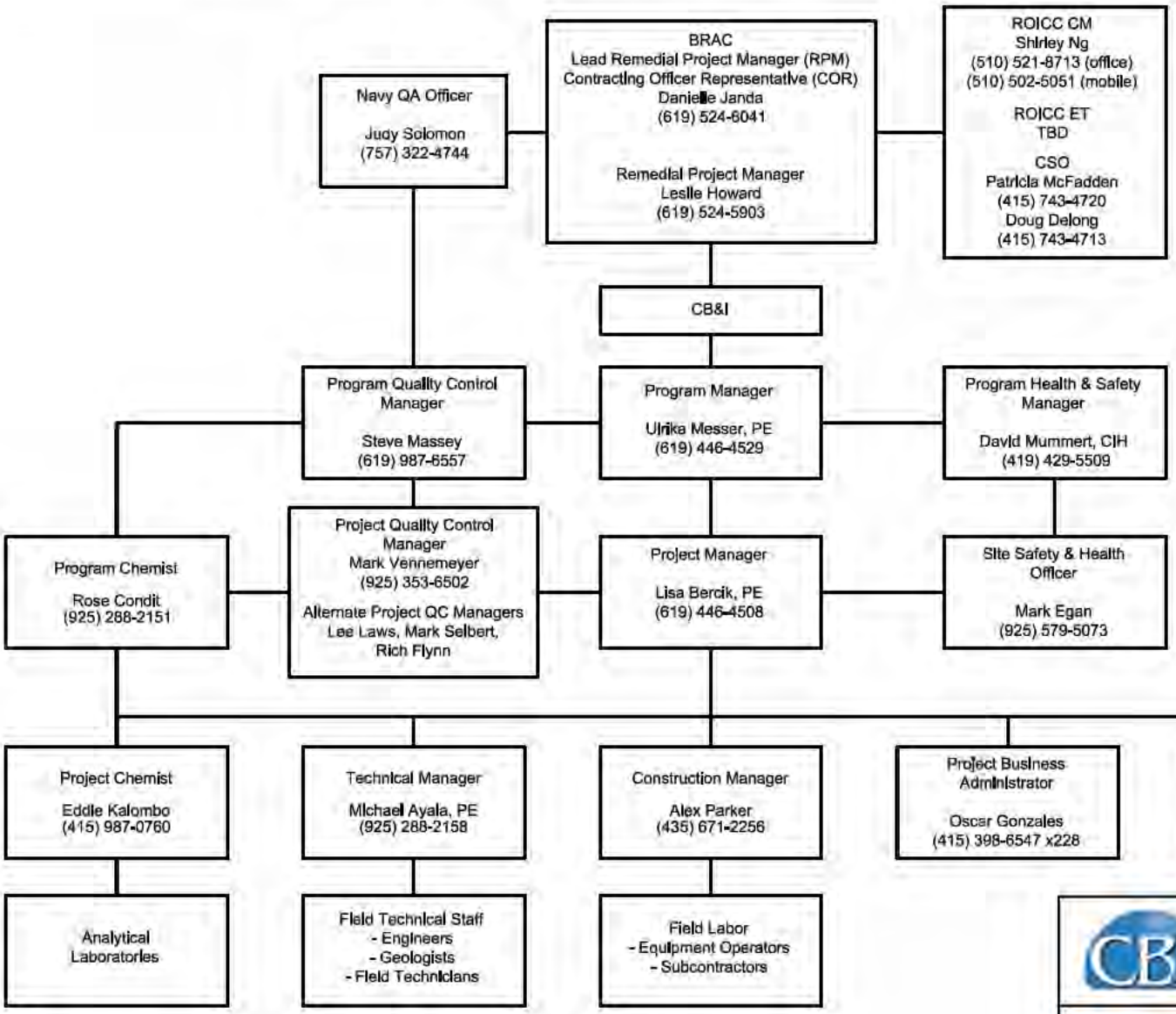
FIGURE 2

CONSTRUCTION SITE LAYOUT

REMEDIAL ACTION AT PARCEL D-1
HUNTERS POINT NAVAL SHIPYARD, SAN FRANCISCO, CA

C:\GIS\HUNTERS_PT\GIS_Documents\Project_Maps\D1_CTO3\HP_D1_003_Layout_WP.mxd 4/11/2016

IMAGE	X-REF	OFFICE	DRAWN BY		CHECKED BY		APPROVED BY		DRAWING NUMBER	149831-A2
---	---	Concord	BLACK	6/1/16						



U.S. DEPARTMENT OF THE NAVY
BRAC PMO WEST
SAN DIEGO, CALIFORNIA

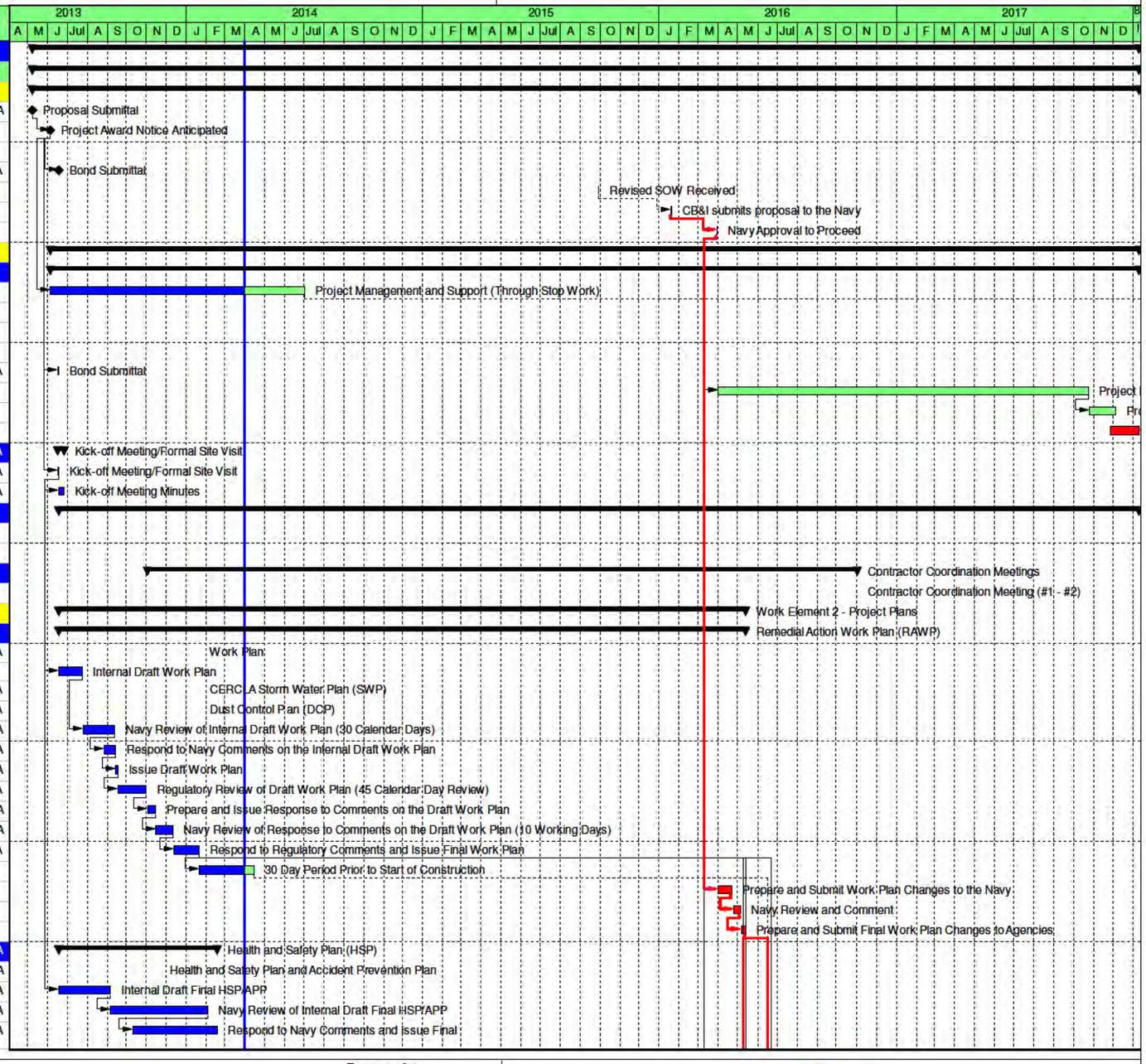
ATTACHMENT 1
ORGANIZATION CHART
EMAC III CTO 0003

REMEDIAL ACTION IN PARCEL D-1
HUNTERS POINT NAVAL SHIPYARD
SAN FRANCISCO, CALIFORNIA

CTO 03 Phase I II Remedial Action at P

10-May-16 15:29

Activity Name	At npletion	Start	Finish
CTO 03 Remedial Action in Parcel D-1, Hunters Point Naval Shipyard, San Francisco,	1185	08-May-13 A	10-Jan-18
CTO 03 Remedial Action in Parcel D-1, Hunters Point Naval Shipyard, San Francisco, CA	1185	08-May-13 A	10-Jan-18
Project Milestones	1185	08-May-13 A	10-Jan-18
Proposal Submittal	0		08-May-13 A
Project Award Notice Anticipated	0	04-Jun-13 A	
Project Execution	1167	04-Jun-13 A	10-Jan-18
Bond Submittal	0		17-Jun-13 A
Revised SOW Received	1	29-Sep-15*	29-Sep-15
CB&I submits proposal to the Navy	1	19-Jan-16*	19-Jan-16
Navy Approval to Proceed	1	30-Mar-16	30-Mar-16
Work Element 1- Meetings, Project Management, and Admin. Support	1167	04-Jun-13 A	10-Jan-18
Project Mgmt - Project Management & Administrative Support	1167	04-Jun-13 A	10-Jan-18
Project Management and Support (Through Stop Work)	275	04-Jun-13 A	02-Jul-14
Procurement	1167	04-Jun-13 A	10-Jan-18
SF Business Tax	1167	04-Jun-13 A	10-Jan-18
Contingency	1167	04-Jun-13 A	10-Jan-18
Bond Submittal	1	17-Jun-13 A	17-Jun-13 A
Project Management and Support (Orig Scope - Post Stop Work)	399	31-Mar-16*	24-Oct-17
Project Management - Extended Scope	28	25-Oct-17	05-Dec-17
Project Closeout	30	28-Nov-17	10-Jan-18
Kick-off Meeting/Formal Site Visit	7	17-Jun-13 A	25-Jun-13 A
Kick-off Meeting/Formal Site Visit	1	17-Jun-13 A	17-Jun-13 A
Kick-off Meeting Minutes	6	18-Jun-13 A	25-Jun-13 A
Project Team Meetings	1157	18-Jun-13 A	10-Jan-18
BRAC Closure Team (BRAC)/Project Team Meetings (#1 - #9)	1157	18-Jun-13 A	10-Jan-18
Community Meetings (#1 - #2)	1157	18-Jun-13 A	10-Jan-18
Contractor Coordination Meetings	761	01-Nov-13 A	01-Nov-16
Contractor Coordination Meeting (#1 - #2)	761	01-Nov-13 A	01-Nov-16
Work Element 2 - Project Plans	737	18-Jun-13 A	12-May-16
Remedial Action Work Plan (RAWP)	737	18-Jun-13 A	12-May-16
Work Plan	149	18-Jun-13 A	20-Jan-14 A
Internal Draft Work Plan	26	18-Jun-13 A	24-Jul-13 A
CERCLA Storm Water Plan (SWP)	149	18-Jun-13 A	20-Jan-14 A
Dust Control Plan (DCP)	149	18-Jun-13 A	20-Jan-14 A
Navy Review of Internal Draft Work Plan (30 Calendar Days)	34	25-Jul-13 A	11-Sep-13 A
Respond to Navy Comments on the Internal Draft Work Plan	13	27-Aug-13 A	13-Sep-13 A
Issue Draft Work Plan	2	13-Sep-13 A	16-Sep-13 A
Regulatory Review of Draft Work Plan (45 Calendar Day Review)	33	17-Sep-13 A	31-Oct-13 A
Prepare and Issue Response to Comments on the Draft Work Plan	10	01-Nov-13 A	14-Nov-13 A
Navy Review of Response to Comments on the Draft Work Plan (10 Working Days)	17	15-Nov-13 A	11-Dec-13 A
Respond to Regulatory Comments and Issue Final Work Plan	26	12-Dec-13 A	20-Jan-14 A
30 Day Period Prior to Start of Construction	61	21-Jan-14 A	15-Apr-14
Prepare and Submit Work Plan Changes to the Navy	17	31-Mar-16	22-Apr-16
Navy Review and Comment	9	25-Apr-16	05-May-16
Prepare and Submit Final Work Plan Changes to Agencies	5	06-May-16	12-May-16
Health and Safety Plan (HSP)	169	18-Jun-13 A	18-Feb-14 A
Health and Safety Plan and Accident Prevention Plan	109	18-Jun-13 A	19-Nov-13 A
Internal Draft Final HSP/APP	56	18-Jun-13 A	05-Sep-13 A
Navy Review of Internal Draft Final HSP/APP	103	05-Sep-13 A	03-Feb-14 A
Respond to Navy Comments and Issue Final	89	10-Oct-13 A	18-Feb-14 A

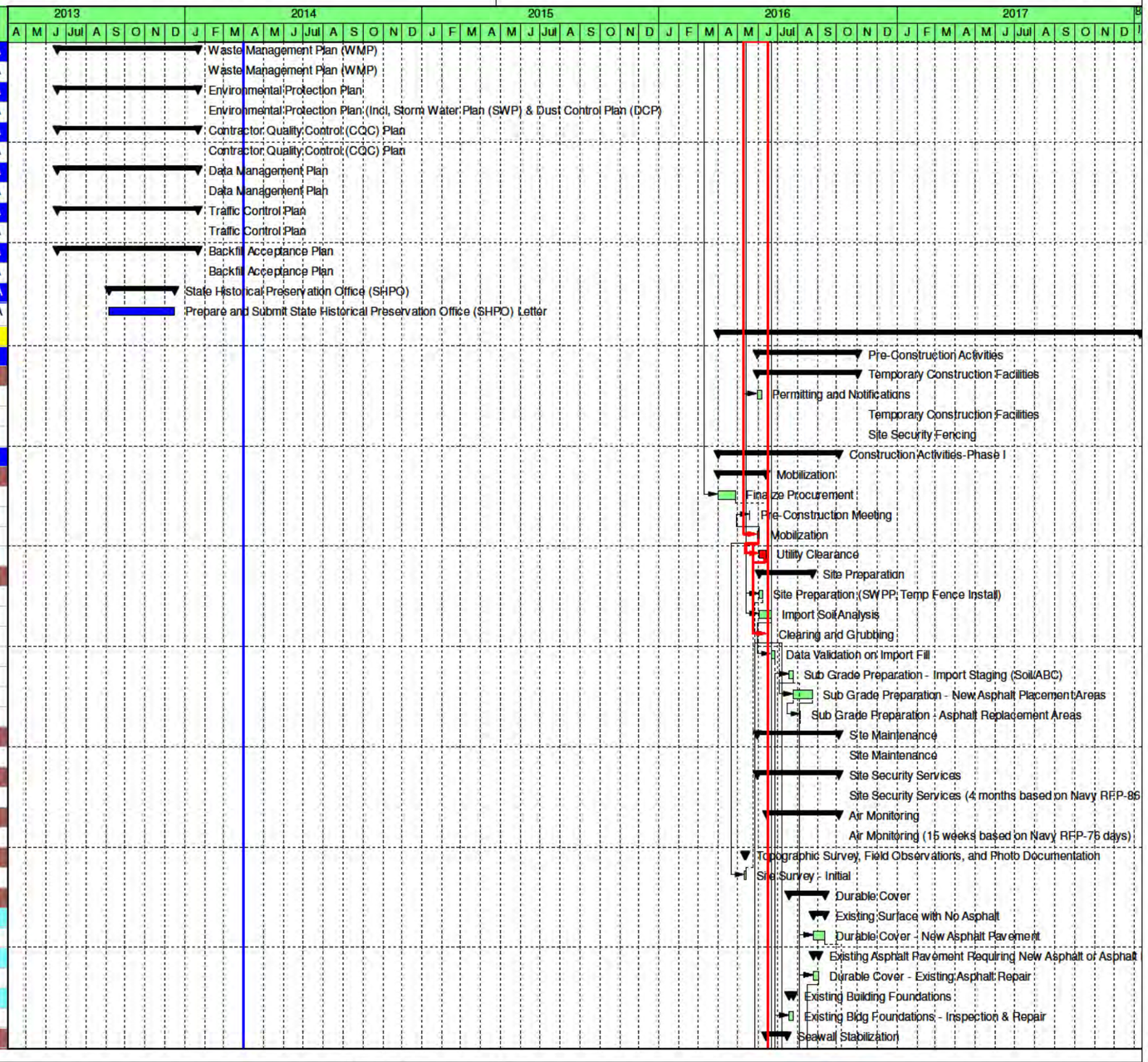


Actual Work
Remaining Work
Critical Remaining Work
Milestone
Summary

Figure 3 Project Schedule / CTO 03 N62473-10-D-0807, Remedial Action in Parcel D-1,

Hunters Point Naval Shipyard, San Francisco, CA

Activity Name	At npletion	Start	Finish
Waste Management Plan (WMP)	149	18-Jun-13 A	20-Jan-14 A
Waste Management Plan (WMP)	149	18-Jun-13 A	20-Jan-14 A
Environmental Protection Plan	149	18-Jun-13 A	20-Jan-14 A
Environmental Protection Plan (Incl, Storm Water Plan (SWP) & Dust Control Plan (DCP)	149	18-Jun-13 A	20-Jan-14 A
Contractor Quality Control (CQC) Plan	149	18-Jun-13 A	20-Jan-14 A
Contractor Quality Control (CQC) Plan	149	18-Jun-13 A	20-Jan-14 A
Data Management Plan	149	18-Jun-13 A	20-Jan-14 A
Data Management Plan	149	18-Jun-13 A	20-Jan-14 A
Traffic Control Plan	149	18-Jun-13 A	20-Jan-14 A
Traffic Control Plan	149	18-Jun-13 A	20-Jan-14 A
Backfill Acceptance Plan	149	18-Jun-13 A	20-Jan-14 A
Backfill Acceptance Plan	149	18-Jun-13 A	20-Jan-14 A
State Historical Preservation Office (SHPO)	71	05-Sep-13 A	16-Dec-13 A
Prepare and Submit State Historical Preservation Office (SHPO) Letter	71	05-Sep-13 A	16-Dec-13 A
Work Element 3 - Field Work	451	31-Mar-16	10-Jan-18
Pre-Construction Activities	109	31-May-16	01-Nov-16
Temporary Construction Facilities	109	31-May-16	01-Nov-16
Permitting and Notifications	5	31-May-16	06-Jun-16
Temporary Construction Facilities	109	31-May-16	01-Nov-16
Site Security Fencing	109	31-May-16	01-Nov-16
Construction Activities-Phase I	130	31-Mar-16	03-Oct-16
Mobilization	52	31-Mar-16	13-Jun-16
Finalize Procurement	20	31-Mar-16	27-Apr-16
Pre-Construction Meeting	1	19-May-16	19-May-16
Mobilization	3	31-May-16	02-Jun-16
Utility Clearance	7	03-Jun-16	13-Jun-16
Site Preparation	58	03-Jun-16	24-Aug-16
Site Preparation (SWPP, Temp Fence Install)	3	03-Jun-16	07-Jun-16
Import Soil Analysis	12	03-Jun-16	20-Jun-16
Clearing and Grubbing	3	14-Jun-16	16-Jun-16
Data Validation on Import Fill	5	21-Jun-16	27-Jun-16
Sub Grade Preparation - Import Staging (Soil/ABC)	6	18-Jul-16	25-Jul-16
Sub Grade Preparation - New Asphalt Placement Areas	22	26-Jul-16	24-Aug-16
Sub Grade Preparation - Asphalt Replacement Areas	1	05-Aug-16	05-Aug-16
Site Maintenance	88	31-May-16	03-Oct-16
Site Maintenance	88	31-May-16	03-Oct-16
Site Security Services	88	31-May-16	03-Oct-16
Site Security Services (4 months based on Navy RFP-86 days)	88	31-May-16	03-Oct-16
Air Monitoring	78	14-Jun-16	03-Oct-16
Air Monitoring (15 weeks based on Navy RFP-76 days)	78	14-Jun-16	03-Oct-16
Topographic Survey, Field Observations, and Photo Documentation	2	11-May-16	12-May-16
Site Survey - Initial	2	11-May-16	12-May-16
Durable Cover	40	18-Jul-16	12-Sep-16
Existing Surface with No Asphalt	12	25-Aug-16	12-Sep-16
Durable Cover - New Asphalt Pavement	12	25-Aug-16	12-Sep-16
Existing Asphalt Pavement Requiring New Asphalt or Asphalt Repair	7	25-Aug-16	02-Sep-16
Durable Cover - Existing Asphalt Repair	7	25-Aug-16	02-Sep-16
Existing Building Foundations	6	18-Jul-16	25-Jul-16
Existing Bldg Foundations - Inspection & Repair	6	18-Jul-16	25-Jul-16
Seawall Stabilization	24	13-Jun-16	15-Jul-16

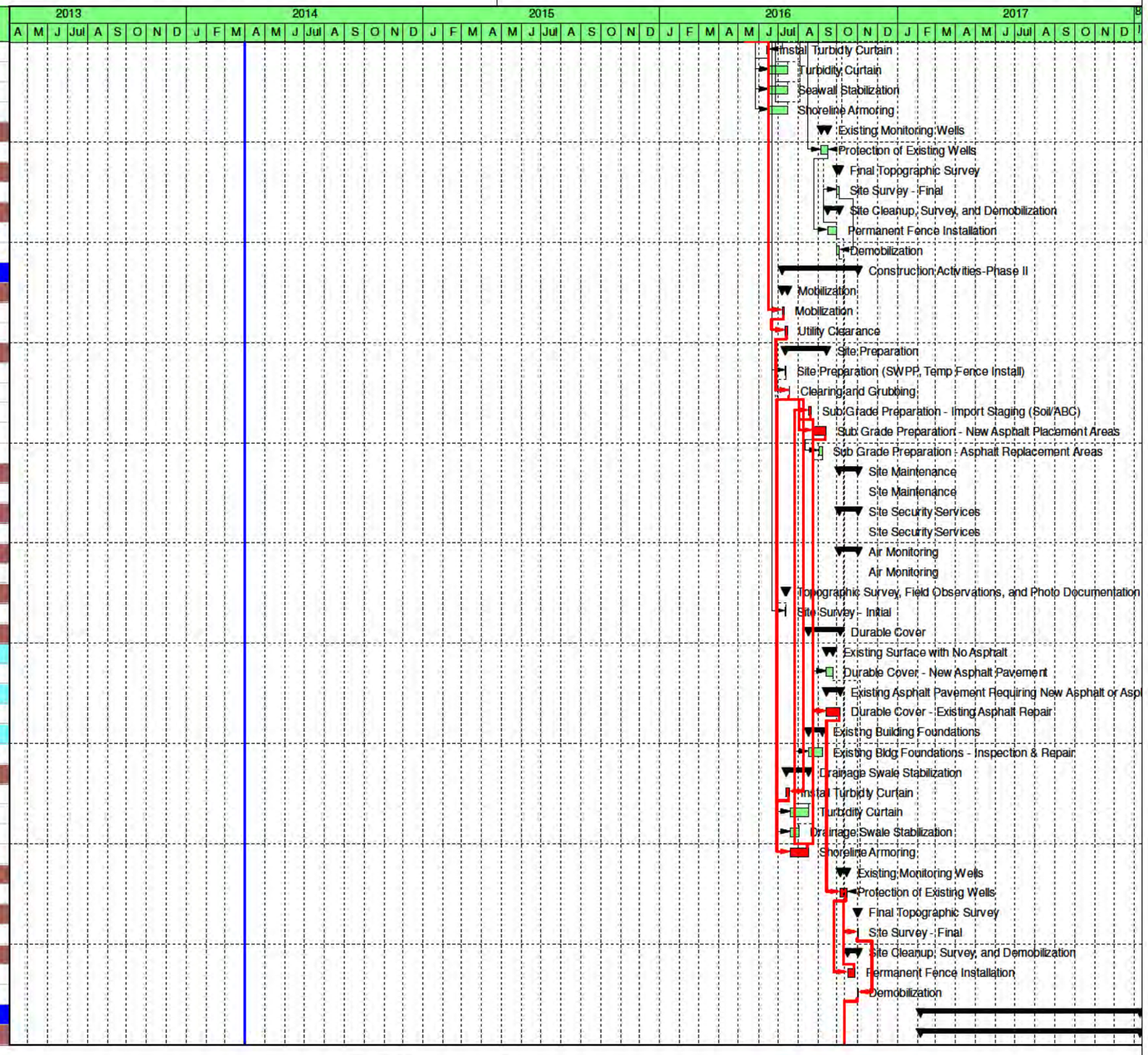


Actual Work
Remaining Work
Critical Remaining Work
Milestone
Summary

Figure 3 Project Schedule / CTO 03 N62473-10-D-0807, Remedial Action in Parcel D-1,

Hunters Point Naval Shipyard, San Francisco, CA

Activity Name	Actual Completion	Start	Finish
Install Turbidity Curtain	4	13-Jun-16	16-Jun-16
Turbidity Curtain	20	17-Jun-16	15-Jul-16
Seawall Stabilization	20	17-Jun-16	15-Jul-16
Shoreline Armoring	20	17-Jun-16	15-Jul-16
Existing Monitoring Wells	8	06-Sep-16	15-Sep-16
Protection of Existing Wells	8	06-Sep-16	15-Sep-16
Final Topographic Survey	2	30-Sep-16	03-Oct-16
Site Survey - Final	2	30-Sep-16	03-Oct-16
Site Cleanup, Survey, and Demobilization	12	16-Sep-16	03-Oct-16
Permanent Fence Installation	10	16-Sep-16	29-Sep-16
Demobilization	2	30-Sep-16	03-Oct-16
Construction Activities-Phase II	83	07-Jul-16	01-Nov-16
Mobilization	7	07-Jul-16	15-Jul-16
Mobilization	3	07-Jul-16	11-Jul-16
Utility Clearance	4	12-Jul-16	15-Jul-16
Site Preparation	45	12-Jul-16	13-Sep-16
Site Preparation (SWPP, Temp Fence Install)	2	12-Jul-16	13-Jul-16
Clearing and Grubbing	2	18-Jul-16	19-Jul-16
Sub Grade Preparation - Import Staging (Soil/ABC)	4	17-Aug-16	22-Aug-16
Sub Grade Preparation - New Asphalt Placement Areas	15	23-Aug-16	13-Sep-16
Sub Grade Preparation - Asphalt Replacement Areas	3	02-Sep-16	07-Sep-16
Site Maintenance	21	04-Oct-16	01-Nov-16
Site Maintenance	21	04-Oct-16	01-Nov-16
Site Security Services	21	04-Oct-16	01-Nov-16
Site Security Services	21	04-Oct-16	01-Nov-16
Air Monitoring	21	04-Oct-16	01-Nov-16
Air Monitoring	21	04-Oct-16	01-Nov-16
Topographic Survey, Field Observations, and Photo Documentation	2	12-Jul-16	13-Jul-16
Site Survey - Initial	2	12-Jul-16	13-Jul-16
Durable Cover	34	17-Aug-16	04-Oct-16
Existing Surface with No Asphalt	8	14-Sep-16	23-Sep-16
Durable Cover - New Asphalt Pavement	8	14-Sep-16	23-Sep-16
Existing Asphalt Pavement Requiring New Asphalt or Asphalt Repair	15	14-Sep-16	04-Oct-16
Durable Cover - Existing Asphalt Repair	15	14-Sep-16	04-Oct-16
Existing Building Foundations	15	17-Aug-16	07-Sep-16
Existing Bldg Foundations - Inspection & Repair	15	17-Aug-16	07-Sep-16
Drainage Swale Stabilization	24	14-Jul-16	16-Aug-16
Install Turbidity Curtain	4	14-Jul-16	19-Jul-16
Turbidity Curtain	20	20-Jul-16	16-Aug-16
Drainage Swale Stabilization	10	20-Jul-16	02-Aug-16
Shoreline Armoring	20	20-Jul-16	16-Aug-16
Existing Monitoring Wells	8	05-Oct-16	14-Oct-16
Protection of Existing Wells	8	05-Oct-16	14-Oct-16
Final Topographic Survey	2	31-Oct-16	01-Nov-16
Site Survey - Final	2	31-Oct-16	01-Nov-16
Site Cleanup, Survey, and Demobilization	12	17-Oct-16	01-Nov-16
Permanent Fence Installation	10	17-Oct-16	28-Oct-16
Demobilization	2	31-Oct-16	01-Nov-16
Post Construction Activities (Work Element 5 - Operation and Maintenance)	236	06-Feb-17	10-Jan-18
Operation and Maintenance	236	06-Feb-17	10-Jan-18

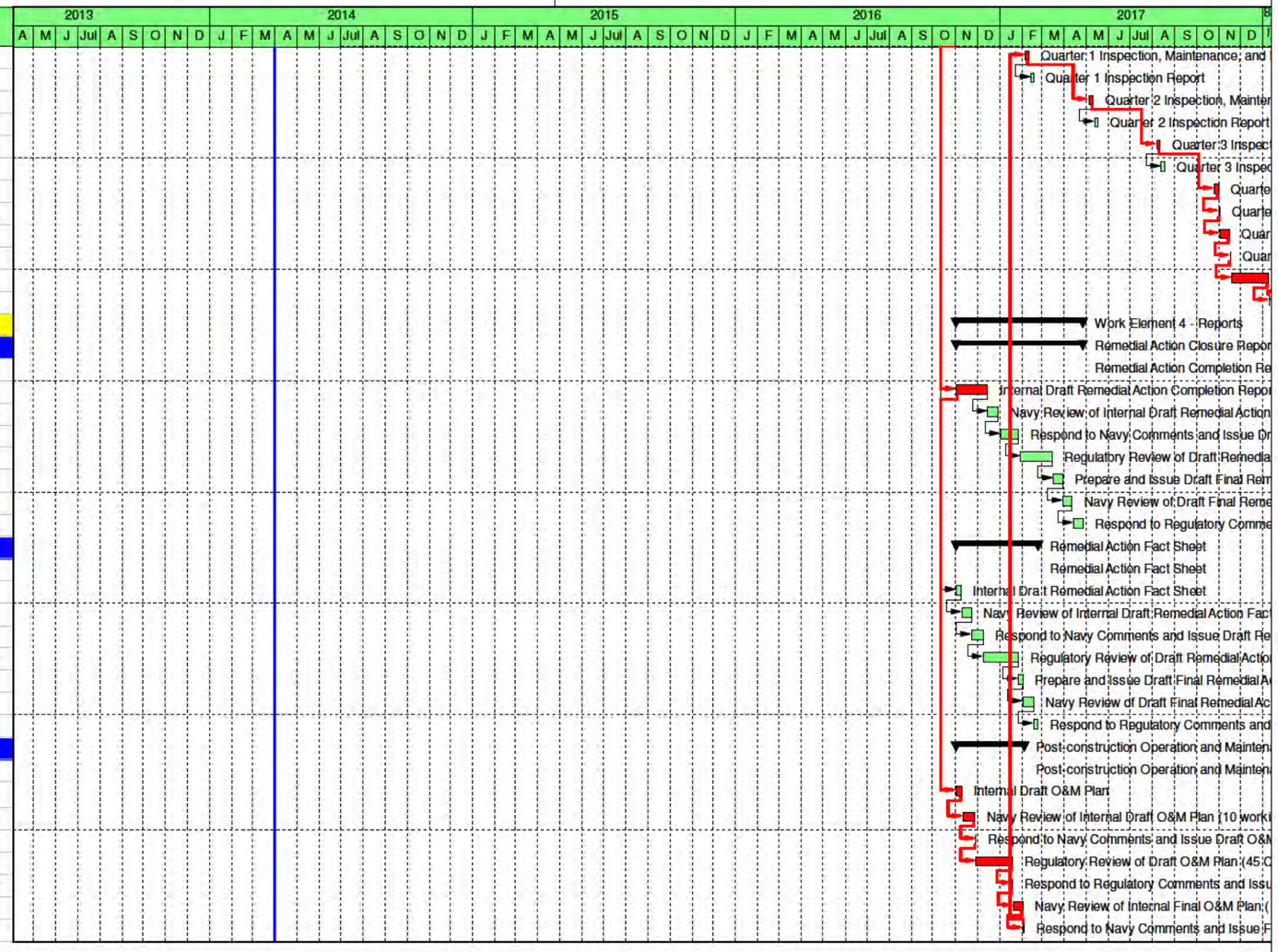


Actual Work
Remaining Work
Critical Remaining Work
Milestone
Summary

Figure 3 Project Schedule / CTO 03 N62473-10-D-0807, Remedial Action in Parcel D-1,

Hunters Point Naval Shipyard, San Francisco, CA

Activity Name	At npletion	Start	Finish
Quarter 1 Inspection, Maintenance, and Repair	5	06-Feb-17	10-Feb-17
Quarter 1 Inspection Report	5	13-Feb-17	17-Feb-17
Quarter 2 Inspection, Maintenance, and Repair	5	05-May-17	11-May-17
Quarter 2 Inspection Report	5	12-May-17	18-May-17
Quarter 3 Inspection, Maintenance, and Repair	5	07-Aug-17	11-Aug-17
Quarter 3 Inspection Report	5	14-Aug-17	18-Aug-17
Quarter 4 Inspection, Maintenance, and Repair	5	26-Oct-17	01-Nov-17
Quarter 4 Inspection Report - Annual Report Prepare Internal Draft	1	02-Nov-17	02-Nov-17
Quarter 4 Inspection Report - Annual Report Navy Review Internal Draft (10 days)	10	03-Nov-17	16-Nov-17
Quarter 4 Inspection Report - Annual Report Respond to Navy Comments and Issue Draft	1	17-Nov-17	17-Nov-17
Quarter 4 Inspection Report - Annual Report Navy/Agencies Review of Draft (45 calendar days)	33	20-Nov-17	09-Jan-18
Quarter 4 Inspection Report - Annual Report Respond to Comments and Issue Final	1	10-Jan-18	10-Jan-18
Work Element 4 - Reports	122	02-Nov-16	26-Apr-17
Remedial Action Closure Report	122	02-Nov-16	26-Apr-17
Remedial Action Completion Report	122	02-Nov-16	26-Apr-17
Internal Draft Remedial Action Completion Report	30	02-Nov-16	15-Dec-16
Navy Review of Internal Draft Remedial Action Completion Report (10 Working Days)	10	16-Dec-16	30-Dec-16
Respond to Navy Comments and Issue Draft Remedial Action Completion Report	19	03-Jan-17	27-Jan-17
Regulatory Review of Draft Remedial Action Completion Report (45 Calendar Day Review)	33	30-Jan-17	15-Mar-17
Prepare and Issue Draft Final Remedial Action Completion Report	10	16-Mar-17	29-Mar-17
Navy Review of Draft Final Remedial Action Completion Report	10	30-Mar-17	12-Apr-17
Respond to Regulatory Comments and Issue Final Remedial Action Completion Report	10	13-Apr-17	26-Apr-17
Remedial Action Fact Sheet	78	02-Nov-16	23-Feb-17
Remedial Action Fact Sheet	78	02-Nov-16	23-Feb-17
Internal Draft Remedial Action Fact Sheet	5	02-Nov-16	08-Nov-16
Navy Review of Internal Draft Remedial Action Fact Sheet (10 working days)	10	09-Nov-16	22-Nov-16
Respond to Navy Comments and Issue Draft Remedial Action Fact Sheet	10	23-Nov-16	08-Dec-16
Regulatory Review of Draft Remedial Action Fact Sheet (45 Calendar Day Review)	33	09-Dec-16	26-Jan-17
Prepare and Issue Draft Final Remedial Action Fact Sheet	5	27-Jan-17	02-Feb-17
Navy Review of Draft Final Remedial Action Fact Sheet (10 working days)	10	03-Feb-17	16-Feb-17
Respond to Regulatory Comments and Issue Final Remedial Action Fact Sheet	5	17-Feb-17	23-Feb-17
Post-construction Operation and Maintenance Plan (O&M)	64	02-Nov-16	03-Feb-17
Post-construction Operation and Maintenance Plan (O&M)	64	02-Nov-16	03-Feb-17
Internal Draft O&M Plan	7	02-Nov-16	10-Nov-16
Navy Review of Internal Draft O&M Plan (10 working days)	10	11-Nov-16	28-Nov-16
Respond to Navy Comments and Issue Draft O&M Plan	1	29-Nov-16	29-Nov-16
Regulatory Review of Draft O&M Plan (45 Calendar Day Review)	34	30-Nov-16	18-Jan-17
Respond to Regulatory Comments and Issue Internal Final O&M Plan	1	19-Jan-17	19-Jan-17
Navy Review of Internal Final O&M Plan (10 working days)	10	20-Jan-17	02-Feb-17
Respond to Navy Comments and Issue Final O&M Plan	1	03-Feb-17	03-Feb-17



Actual Work
Remaining Work
Critical Remaining Work
Milestone
Summary

Figure 3 Project Schedule / CTO 03 N62473-10-D-0807, Remedial Action in Parcel D-1,

Hunters Point Naval Shipyard, San Francisco, CA

PRE-CONSTRUCTION AND MUTUAL UNDERSTANDING MEETING
REMEDIAL ACTION IN PARCEL D-1
HUNTERS POINT NAVAL SHIPYARD, SAN FRANCISCO, CALIFORNIA
N62473-12-D-2005, CTO 0003

Thursday, May 19, 2016 at 1300 – 1345pm

SIGN IN SHEET

Name	Organization, Title	Signature
Lisa Bercik	CB&I, Project Manager	Lisa Bercik
Sam Hopstone	CB&I, Field Engineer	Sam Hopstone
Mike Ayala	CB&I, Project Eng.	MA
by phone.		
Leslie Howard (via phone)	Navy RPM	Call in
Shirley Ng (via phone)	Navy RDICC	Call in
Doug Delong (via phone)	Navy CSO	Call in
Eddie Kalombo	CB&I, Project Chemist	
Patricia McFadden (via phone)	Navy CSO	Call in

PRE-CONSTRUCTION AND MUTUAL UNDERSTANDING MEETING
REMEDIAL ACTION IN PARCEL D-1
HUNTERS POINT NAVAL SHIPYARD, SAN FRANCISCO, CALIFORNIA
N62473-12-D-2005, CTO 0003

Thursday, May 19, 2016 at 1300

SIGN IN SHEET

Name	Organization, Title	Signature
MARK EGAN	CB&I SSHO	Mark R Egan
Alex Parker	CB&I CM	[illegible]
Jim Click	CB&I CM	[illegible]
Mark Vennemeyer	~~[illegible]~~ CB&I QC/SSHO	[illegible]

Appendix C
Stormwater Management Paperwork
(provided on electronic copy only)

*GMP : Sandbags in weepholes?

* weepholes on South Pier

GENERAL INFORMATION			
Project Name	Parcel D-1 Remedial Action, Hunters Point Shipyard, San Francisco, California		
Project No.	Contract No. N62473-12-D-2005, CTO-0003		
Construction Stage	☐ Excavation and Earthmoving ☑ Inactive Construction	Work Area No.	149831 D-1
Inspector's Name	Sam Hopstone	Date	6/15/16
Signature	Sam Hopstone	Weather	partly cloudy
Inspection Type (Check Applicable)	☐ Prior to forecast rain ☑ Weekly ☐ 24-hr intervals during extended rain	☐ After a rain event ☐ Quarterly non-stormwater ☐ Other _____	
Season (Check Applicable)	☐ Rainy	☑ Non-Rainy	
Storm Data (www.wrh.noaa.gov)	Storm Start Date & Time: —	Storm Duration (hrs): —	
	Time elapsed since last storm (Circle Applicable Units) — Min. Hr. Days	Approximate Rainfall Amount (inches) —	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Preservation of Existing Vegetation				
Is temporary fencing provided to preserve vegetation in areas where no construction activity is planned?			✓	
Erosion Control				
Does the applied temporary erosion control provide 100% coverage for the affected areas?	✓			
Are there any non-vegetated areas that may require temporary erosion control?		✓		
Is the area where erosion controls are used required free from visible erosion?	✓			
Temporary Linear Sediment Barriers (Silt Fence, Fiber Rolls, Sandbag Barriers, etc.)				
Are temporary linear sediment barriers properly installed, functional and maintained?	✓			
Are temporary linear sediment barriers free of accumulated litter?	✓			
Is the built-up sediment less than 1/3 the height of the barrier?	✓			
Stockpiles				
Are all locations of temporary stockpiles (include soil, haz waste, and construction materials) in approved areas?	✓			
Are stockpiles protected from run-on, run-off from adjacent areas and from winds?	✓			
Are stockpiles located at least 15 m (50 ft) from concentrated flows, downstream drainage courses and storm drain inlets?	✓			
Are required covers and/or perimeter controls in place?	✓			

* Morrell gate is waddled off

Est dust control gravel bed & trackout prevention

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Concentrated Flows				
Are concentrated flow paths free of visible erosion?	✓			
Tracking Control				
Is the entrance stabilized to prevent tracking		✗	✓	need to wash
Is the stabilized entrance inspected daily to ensure that it is working properly		✓	✓	
Are points of ingress/egress to public/private roads inspected and swept and vacuumed as needed?	✓			
Are all paved areas free of visible sediment tracking or other particulate matter?		✓		need to wash Pavement
Wind Erosion Control				
Is dust control implemented?	✓			
Vehicle & Equipment Fueling, Cleaning, and Maintenance				
Are vehicle and equipment fueling, cleaning and maintenance areas reasonably clean and free of spills, leaks, or any other deleterious material?	✓			
Are vehicle and equipment fueling, cleaning and maintenance activities performed on an impermeable surface in dedicated areas?	✓			
If no, are drip pans used?			✓	
Are dedicated fueling, cleaning, and maintenance areas located at least 15 m (50 ft) away from downstream drainage facilities and watercourses and protected from run-on and runoff?	✓			
Is wash water contained for infiltration/ evaporation and disposed of appropriately?			✓	
Is on-site cleaning limited to washing with water (no soap, soaps substitutes, solvents, or steam)?	✓			
On each day of use, are vehicles and equipment inspected for leaks and if necessary, repaired?	✓			
Waste Management & Materials Pollution Control				
Are material storage areas and washout areas protected from run-on and runoff, and located at least 15 m from concentrated flows and downstream drainage facilities?	✓			
Are all material handling and storage areas clean; organized; free of spills, leaks, or any other deleterious material; and stocked with appropriate clean-up supplies?	✓			
Are liquid materials, hazardous materials, and hazardous wastes stored in temporary containment facilities?			✓	
Are bagged and boxed materials stored on pallets?	✓			
Are hazardous materials and wastes stored in appropriate, labeled containers?			✓	
Are proper storage, clean-up, and spill-reporting procedures for hazardous materials and wastes posted in open, conspicuous and accessible locations adjacent to storage areas?			✓	
Are temporary containment facilities free of spills and rainwater?	✓			
Are temporary containment facilities and bagged/boxed materials covered?			✓	
Are spills from mobile equipment fueling and maintenance properly contained and cleaned up?			✓	no spills

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Is the site free of litter?	✓			
Are trash receptacles provided in the yard, field trailer areas, and at locations where workers congregate for lunch and break periods?	✓			
Is litter from work areas collected and placed in watertight dumpsters?	✓			
Are waste management receptacles free of leaks?	✓			
Are the contents of waste management receptacles properly protected from contact with storm water or from being dislodged by winds?	✓			
Are waste management receptacles filled at or beyond capacity?		✓		
Illicit Connection/ Discharge				
Is there any evidence of illicit discharges or illegal dumping on the project site?		✓		
If yes, has the Owner/Operator been notified?			✓	
SWPPP Update				
Do the SWPPP and Project Schedule adequately reflect the current site conditions and contractor operations?	✓			
Are all BMPs installed in the proper location(s) and according to the details in the SWPPP?	✓			
General				
Are there any other potential concerns at the site?		✓		
Storm Water Monitoring				
Does storm water discharge directly to a water body listed in the General Permit as impaired for sediment/sedimentation or turbidity?		✓		
If yes, were samples for sediment/sedimentation or turbidity collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
Did the sampling results indicate that the discharges are causing or contributing to further impairment?			–	
If yes, were the erosion/sediment control BMPs improved or maintained to reduce the discharge of sediment to the water body?			✓	
Were there any BMPs not properly implemented or breaches, malfunctions, leakages or spills observed which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan during rain events?			✓	
If sampling indicated pollution of the storm water, were the leaks, breaches, spills, etc. cleaned up and the contaminated soil properly disposed of?			✓	
Were the BMPs maintained or replaced?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Were soil amendments (e.g., gypsum, lime) used on the project?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
If sampling indicated pollution of the storm water by the use of the soil amendments, is there a contingency plan for retention onsite of the polluted storm water?			✓	
Did storm water contact stored materials or waste and run off the construction site? (Materials not in watertight containers, etc.)		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?		✓		

Notes: Morrell St fence opening is waddled off. we will no longer use that entry way.

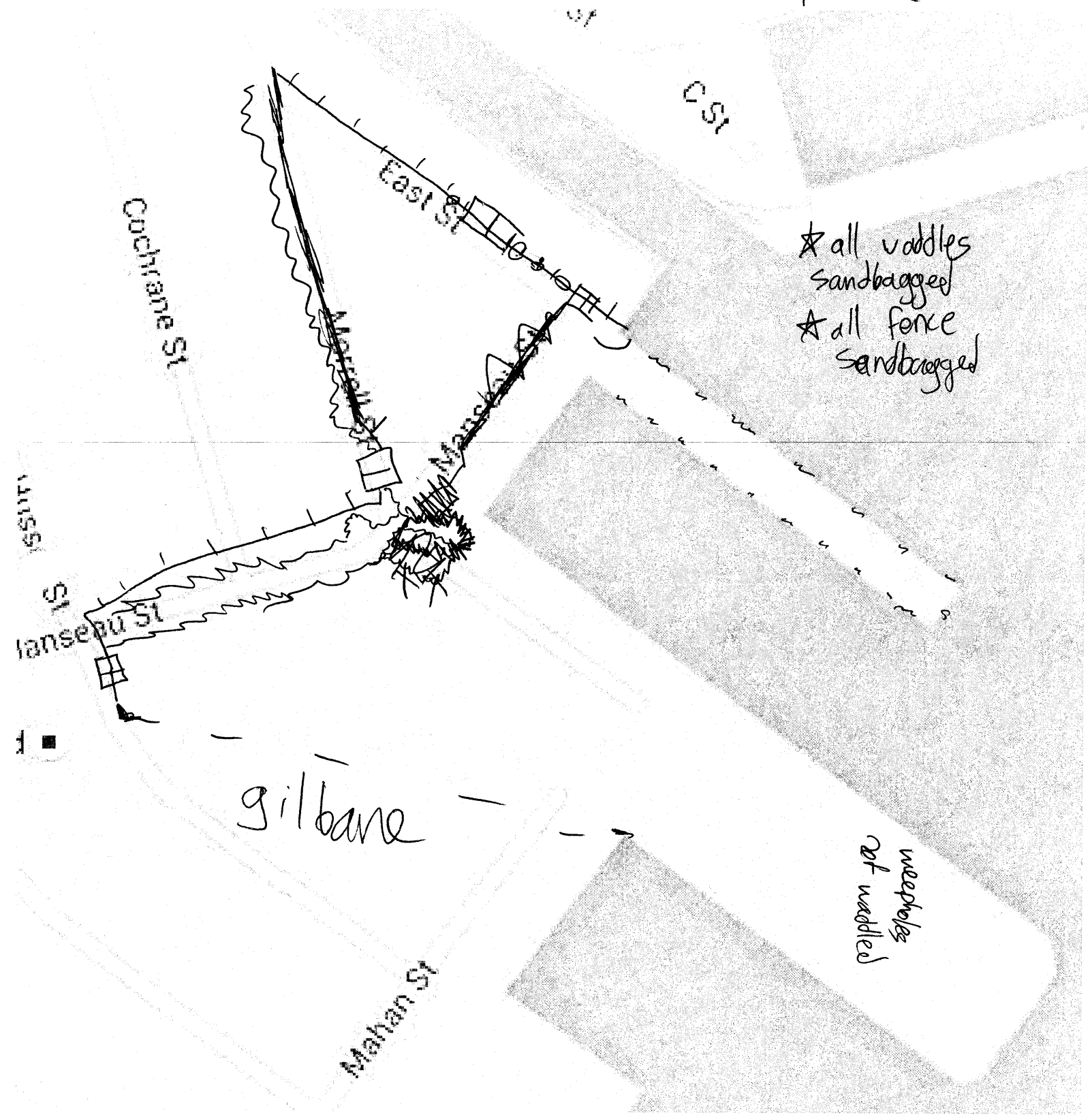
: weep holes on South Pier, Gun Mole Pier have been blocked

: we need to wash E Street asphalt ★ tracked dirt

★ asphalt will be washed when sufficient sediment warrants it. SH 7/7/16

BMPs 2016-06-13

— fence
〰 waddle
▯ gate
▯▯ double gate
◎ sign
┼ stanchion
● Permanent fence



☆ all waddles sandbagged
☆ all fence sandbagged

1230 on site

GENERAL INFORMATION

Project Name	Parcel D-1 Remedial Action, Hunters Point Shipyard, San Francisco, California		
Project No.	Contract No. N62473-12-D-2005, CTO-0003		
Construction Stage	☐ Excavation and Earthmoving ☑ Inactive Construction	Work Area No.	149831 D-1
Inspector's Name	Sam Hopstone	Date	6/24/16
Signature	Sam Hopstone	Weather	Sunny
Inspection Type (Check Applicable)	☐ Prior to forecast rain ☑ Weekly ☐ 24-hr intervals during extended rain	☐ After a rain event ☐ Quarterly non-stormwater ☐ Other _____	
Season (Check Applicable)	☐ Rainy	☑ Non-Rainy	
Storm Data (www.wrh.noaa.gov)	Storm Start Date & Time: —	Storm Duration (hrs): —	
	Time elapsed since last storm (Circle Applicable Units) Min. Hr. Days	Approximate Rainfall Amount (inches) —	

INSPECTION OF BMPs

BMP	Yes	No	N/A	Corrective Action/Comments
Preservation of Existing Vegetation				
Is temporary fencing provided to preserve vegetation in areas where no construction activity is planned?			✓	
Erosion Control				
Does the applied temporary erosion control provide 100% coverage for the affected areas?	✓			
Are there any non-vegetated areas that may require temporary erosion control?		✓		
Is the area where erosion controls are used required free from visible erosion?	✓			
Temporary Linear Sediment Barriers (Silt Fence, Fiber Rolls, Sandbag Barriers, etc.)				
Are temporary linear sediment barriers properly installed, functional and maintained?	✓			
Are temporary linear sediment barriers free of accumulated litter?	✓			
Is the built-up sediment less than 1/3 the height of the barrier?	✓			
Stockpiles				
Are all locations of temporary stockpiles (include soil, haz waste, and construction materials) in approved areas?	✓			
Are stockpiles protected from run-on, run-off from adjacent areas and from winds?	✓			
Are stockpiles located at least 15 m (50 ft) from concentrated flows, downstream drainage courses and storm drain inlets?	✓			
Are required covers and/or perimeter controls in place?	✓			

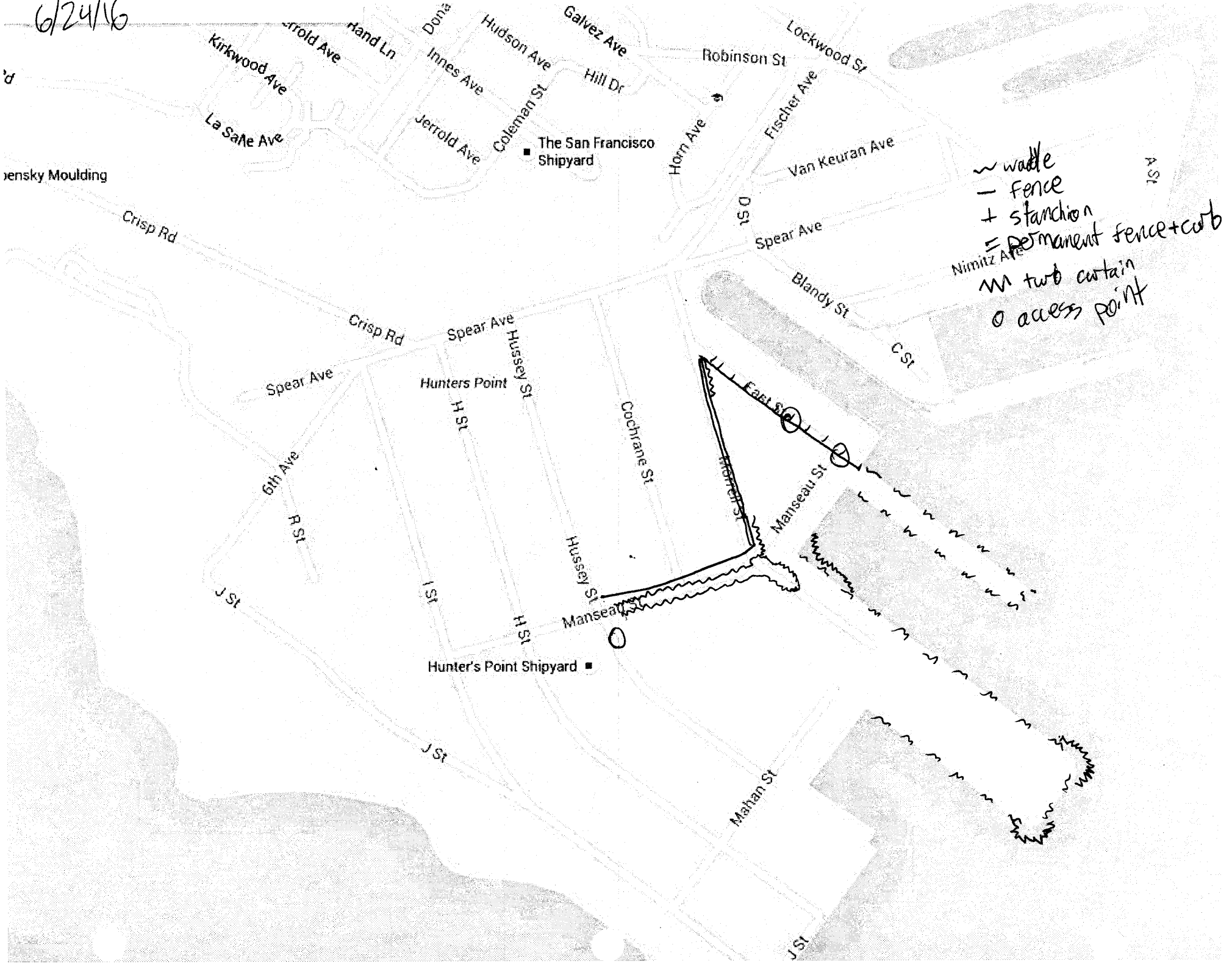
*some stanchion down or Mansea

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Concentrated Flows				
Are concentrated flow paths free of visible erosion?	✓			
Tracking Control				
Is the entrance stabilized to prevent tracking		X	✓	need to wash asphalt
Is the stabilized entrance inspected daily to ensure that it is working properly			✓	
Are points of ingress/egress to public/private roads inspected and swept and vacuumed as needed?		✓		
Are all paved areas free of visible sediment tracking or other particulate matter?		✓		need to wash asphalt
Wind Erosion Control				
Is dust control implemented?	✓			
Vehicle & Equipment Fueling, Cleaning, and Maintenance				
Are vehicle and equipment fueling, cleaning and maintenance areas reasonably clean and free of spills, leaks, or any other deleterious material?	✓			
Are vehicle and equipment fueling, cleaning and maintenance activities performed on an impermeable surface in dedicated areas?	✓			
If no, are drip pans used?			✓	
Are dedicated fueling, cleaning, and maintenance areas located at least 15 m (50 ft) away from downstream drainage facilities and watercourses and protected from run-on and runoff?	✓			
Is wash water contained for infiltration/ evaporation and disposed of appropriately?			✓	
Is on-site cleaning limited to washing with water (no soap, soaps substitutes, solvents, or steam)?	✓			
On each day of use, are vehicles and equipment inspected for leaks and if necessary, repaired?	✓			
Waste Management & Materials Pollution Control				
Are material storage areas and washout areas protected from run-on and runoff, and located at least 15 m from concentrated flows and downstream drainage facilities?	✓			
Are all material handling and storage areas clean; organized; free of spills, leaks, or any other deleterious material; and stocked with appropriate clean-up supplies?	✓			
Are liquid materials, hazardous materials, and hazardous wastes stored in temporary containment facilities?			✓	
Are bagged and boxed materials stored on pallets?	✓			
Are hazardous materials and wastes stored in appropriate, labeled containers?			✓	
Are proper storage, clean-up, and spill-reporting procedures for hazardous materials and wastes posted in open, conspicuous and accessible locations adjacent to storage areas?			✓	
Are temporary containment facilities free of spills and rainwater?	✓			
Are temporary containment facilities and bagged/boxed materials covered?			✓	
Are spills from mobile equipment fueling and maintenance properly contained and cleaned up?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Is the site free of litter?	✓			
Are trash receptacles provided in the yard, field trailer areas, and at locations where workers congregate for lunch and break periods?	✓			
Is litter from work areas collected and placed in watertight dumpsters?	✓			
Are waste management receptacles free of leaks?	✓			
Are the contents of waste management receptacles properly protected from contact with storm water or from being dislodged by winds?	✓			
Are waste management receptacles filled at or beyond capacity?		✓		
Illicit Connection/ Discharge				
Is there any evidence of illicit discharges or illegal dumping on the project site?		✓		
If yes, has the Owner/Operator been notified?			✓	
SWPPP Update				
Do the SWPPP and Project Schedule adequately reflect the current site conditions and contractor operations?	✓			
Are all BMPs installed in the proper location(s) and according to the details in the SWPPP?	✓			
General				
Are there any other potential concerns at the site?		✓		
Storm Water Monitoring				
Does storm water discharge directly to a water body listed in the General Permit as impaired for sediment/sedimentation or turbidity?		✓		
If yes, were samples for sediment/sedimentation or turbidity collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
Did the sampling results indicate that the discharges are causing or contributing to further impairment?			✓	
If yes, were the erosion/sediment control BMPs improved or maintained to reduce the discharge of sediment to the water body?			✓	
Were there any BMPs not properly implemented or breaches, malfunctions, leakages or spills observed which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan during rain events?			✓	
If sampling indicated pollution of the storm water, were the leaks, breaches, spills, etc. cleaned up and the contaminated soil properly disposed of?			✓	
Were the BMPs maintained or replaced?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Were soil amendments (e.g., gypsum, lime) used on the project?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
If sampling indicated pollution of the storm water by the use of the soil amendments, is there a contingency plan for retention onsite of the polluted storm water?			✓	
Did storm water contact stored materials or waste and run off the construction site? (Materials not in watertight containers, etc.)		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?		✓		

Notes: some stanchions down along Manseau


6/24/16
Kirkwood Ave
La Salle Ave
Innes Ave
Jerrold Ave
Coleman St
Hudson Ave
Galvez Ave
Hill Dr
Robinson St
Lockwood St
Fischer Ave
Horn Ave
Van Keuran Ave
The San Francisco Shipyard
Crisp Rd
Spear Ave
Nimitz Ave
Blandy St
C St
Hunters Point
Hussey St
H St
Cochrane St
6th Ave
R St
I St
J St
Manseau St
Hunter's Point Shipyard
Mahan St
waddle
fence
stanchion
permanent fence+curb
two curtain
access point

GENERAL INFORMATION					
Project Name	Parcel D-1 Remedial Action, Hunters Point Shipyard, San Francisco, California				
Project No.	Contract No. N62473-12-D-2005, CTO-0003				
Construction Stage	☑ Excavation and Earthmoving ☐ Inactive Construction		Work Area No.	149931	
Inspector's Name	Sam Hopstone		Date	6/30/16	
Signature	Sam Hopstone		Weather	sunny	
Inspection Type (Check Applicable)	☐ Prior to forecast rain ☑ Weekly ☐ 24-hr intervals during extended rain		☐ After a rain event ☐ Quarterly non-stormwater ☐ Other _____		
Season (Check Applicable)	☐ Rainy		☑ Non-Rainy		
Storm Data (www.wrh.noaa.gov)	Storm Start Date & Time:	—	Storm Duration (hrs):	—	
	Time elapsed since last storm (Circle Applicable Units)	— Min. Hr. Days	Approximate Rainfall Amount (inches)	—	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Preservation of Existing Vegetation				
Is temporary fencing provided to preserve vegetation in areas where no construction activity is planned?			✓	
Erosion Control				
Does the applied temporary erosion control provide 100% coverage for the affected areas?	✓			
Are there any non-vegetated areas that may require temporary erosion control?		✓		
Is the area where erosion controls are used required free from visible erosion?	✓			
Temporary Linear Sediment Barriers (Silt Fence, Fiber Rolls, Sandbag Barriers, etc.)				
Are temporary linear sediment barriers properly installed, functional and maintained?	✓			
Are temporary linear sediment barriers free of accumulated litter?	✓			
Is the built-up sediment less than 1/3 the height of the barrier?	✓			
Stockpiles				
Are all locations of temporary stockpiles (include soil, haz waste, and construction materials) in approved areas?	✓			
Are stockpiles protected from run-on, run-off from adjacent areas and from winds?	✓			
Are stockpiles located at least 15 m (50 ft) from concentrated flows, downstream drainage courses and storm drain inlets?	✓			
Are required covers and/or perimeter controls in place?	✓			

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Concentrated Flows				
Are concentrated flow paths free of visible erosion?	✓			
Tracking Control				
Is the entrance stabilized to prevent tracking	✓			
Is the stabilized entrance inspected daily to ensure that it is working properly	✓			
Are points of ingress/egress to public/private roads inspected and swept and vacuumed as needed?	✓			
Are all paved areas free of visible sediment tracking or other particulate matter?	✓			
Wind Erosion Control				
Is dust control implemented?	✓			water
Vehicle & Equipment Fueling, Cleaning, and Maintenance				
Are vehicle and equipment fueling, cleaning and maintenance areas reasonably clean and free of spills, leaks, or any other deleterious material?	✓			
Are vehicle and equipment fueling, cleaning and maintenance activities performed on an impermeable surface in dedicated areas?	✓			
If no, are drip pans used?			✓	
Are dedicated fueling, cleaning, and maintenance areas located at least 15 m (50 ft) away from downstream drainage facilities and watercourses and protected from run-on and runoff?	✓		✓	SH 6/30/16
Is wash water contained for infiltration/ evaporation and disposed of appropriately?			✓	
Is on-site cleaning limited to washing with water (no soap, soaps substitutes, solvents, or steam)?	✓			
On each day of use, are vehicles and equipment inspected for leaks and if necessary, repaired?	✓			
Waste Management & Materials Pollution Control				
Are material storage areas and washout areas protected from run-on and runoff, and located at least 15 m from concentrated flows and downstream drainage facilities?	✓			
Are all material handling and storage areas clean; organized; free of spills, leaks, or any other deleterious material; and stocked with appropriate clean-up supplies?	✓			
Are liquid materials, hazardous materials, and hazardous wastes stored in temporary containment facilities?			✓	
Are bagged and boxed materials stored on pallets?	✓			
Are hazardous materials and wastes stored in appropriate, labeled containers?			✓	
Are proper storage, clean-up, and spill-reporting procedures for hazardous materials and wastes posted in open, conspicuous and accessible locations adjacent to storage areas?			✓	
Are temporary containment facilities free of spills and rainwater?	✓			
Are temporary containment facilities and bagged/boxed materials covered?			✓	
Are spills from mobile equipment fueling and maintenance properly contained and cleaned up?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Is the site free of litter?	✓			
Are trash receptacles provided in the yard, field trailer areas, and at locations where workers congregate for lunch and break periods?	✓			
Is litter from work areas collected and placed in watertight dumpsters?	✓			
Are waste management receptacles free of leaks?	✓			
Are the contents of waste management receptacles properly protected from contact with storm water or from being dislodged by winds?	✓			
Are waste management receptacles filled at or beyond capacity?		✓		
Illicit Connection/ Discharge				
Is there any evidence of illicit discharges or illegal dumping on the project site?		✓		
If yes, has the Owner/Operator been notified?			✓	
SWPPP Update				
Do the SWPPP and Project Schedule adequately reflect the current site conditions and contractor operations?	✓			
Are all BMPs installed in the proper location(s) and according to the details in the SWPPP?	✓			
General				
Are there any other potential concerns at the site?		✓		
Storm Water Monitoring				
Does storm water discharge directly to a water body listed in the General Permit as impaired for sediment/sedimentation or turbidity?		✓		
If yes, were samples for sediment/sedimentation or turbidity collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
Did the sampling results indicate that the discharges are causing or contributing to further impairment?			✓	
If yes, were the erosion/sediment control BMPs improved or maintained to reduce the discharge of sediment to the water body?			✓	
Were there any BMPs not properly implemented or breaches, malfunctions, leakages or spills observed which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan during rain events?			✓	
If sampling indicated pollution of the storm water, were the leaks, breaches, spills, etc. cleaned up and the contaminated soil properly disposed of?			✓	
Were the BMPs maintained or replaced?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Were soil amendments (e.g., gypsum, lime) used on the project?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
If sampling indicated pollution of the storm water by the use of the soil amendments, is there a contingency plan for retention onsite of the polluted storm water?			✓	
Did storm water contact stored materials or waste and run off the construction site? (Materials not in watertight containers, etc.)		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	

Notes: is SWPPP required @381

: south tip GMP turbcurtain is too close to pilings ★

: rumble strips & gravel installed @ Hussey / Monsoon

★ turbidity curtain has been confirmed as a safe distance from pilings SH 7/7/16

6/30/16

A St
Nimitz Ave
C St
Lockwood St
Fischer Ave
Van Keuran Ave
Spear Ave
Blandy St
Robinson St
D St
Horn Ave
Manseau St
Morrell St
Mahan St
Cochrane St
Hussey St
Manseau St
The San Francisco Shipyard
Hill Dr
Coleman St
Innes Ave
Jerrold Ave
Spear Ave
Hussey St
Hunters Point
H St
I St
Hunter's Point Shipyard
J St
Crisp Rd
Spear Ave
Illinois Ave
R St
J St
Kirkwood Ave
La Salle Ave
Crisp Rd
wattle, sandbo
fence
stanchion
permanent fence
turbidity curtain
access point
tire cleaning station

GENERAL INFORMATION					
Project Name	Parcel D-1 Remedial Action, Hunters Point Shipyard, San Francisco, California				
Project No.	Contract No. N62473-12-D-2005, CTO-0003				
Construction Stage	☑ Excavation and Earthmoving ☐ Inactive Construction		Work Area No.	149831	
Inspector's Name	Sam Hopstone		Date	7/8/16	
Signature	Sam Hopstone		Weather	partly cloudy	
Inspection Type (Check Applicable)	☐ Prior to forecast rain ☑ Weekly ☐ 24-hr intervals during extended rain		☐ After a rain event ☐ Quarterly non-stormwater ☐ Other _____		
Season (Check Applicable)	☐ Rainy		☑ Non-Rainy		
Storm Data (www.wrh.noaa.gov)	Storm Start Date & Time:	—	Storm Duration (hrs):	—	
	Time elapsed since last storm (Circle Applicable Units)	— Min. Hr. Days	Approximate Rainfall Amount (inches)	—	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Preservation of Existing Vegetation				
Is temporary fencing provided to preserve vegetation in areas where no construction activity is planned?			✓	
Erosion Control				
Does the applied temporary erosion control provide 100% coverage for the affected areas?	✓			
Are there any non-vegetated areas that may require temporary erosion control?		✓		
Is the area where erosion controls are used required free from visible erosion?	✓			
Temporary Linear Sediment Barriers (Silt Fence, Fiber Rolls, Sandbag Barriers, etc.)				
Are temporary linear sediment barriers properly installed, functional and maintained?	✓			
Are temporary linear sediment barriers free of accumulated litter?	✓			
Is the built-up sediment less than 1/3 the height of the barrier?	✓			
Stockpiles				
Are all locations of temporary stockpiles (include soil, haz waste, and construction materials) in approved areas?	✓			
Are stockpiles protected from run-on, run-off from adjacent areas and from winds?	✓			
Are stockpiles located at least 15 m (50 ft) from concentrated flows, downstream drainage courses and storm drain inlets?	✓			
Are required covers and/or perimeter controls in place?	✓			

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Concentrated Flows				
Are concentrated flow paths free of visible erosion?	✓			
Tracking Control				
Is the entrance stabilized to prevent tracking	✓			
Is the stabilized entrance inspected daily to ensure that it is working properly	✓			
Are points of ingress/egress to public/private roads inspected and swept and vacuumed as needed?	✓			
Are all paved areas free of visible sediment tracking or other particulate matter?	✓			
Wind Erosion Control				
Is dust control implemented?	✓			
Vehicle & Equipment Fueling, Cleaning, and Maintenance				
Are vehicle and equipment fueling, cleaning and maintenance areas reasonably clean and free of spills, leaks, or any other deleterious material?	✓			
Are vehicle and equipment fueling, cleaning and maintenance activities performed on an impermeable surface in dedicated areas?	✓			
If no, are drip pans used?			✓	
Are dedicated fueling, cleaning, and maintenance areas located at least 15 m (50 ft) away from downstream drainage facilities and watercourses and protected from run-on and runoff?	✓			
Is wash water contained for infiltration/ evaporation and disposed of appropriately?			✓	
Is on-site cleaning limited to washing with water (no soap, soaps substitutes, solvents, or steam)?	✓			
On each day of use, are vehicles and equipment inspected for leaks and if necessary, repaired?	✓			
Waste Management & Materials Pollution Control				
Are material storage areas and washout areas protected from run-on and runoff, and located at least 15 m from concentrated flows and downstream drainage facilities?	✓			
Are all material handling and storage areas clean; organized; free of spills, leaks, or any other deleterious material; and stocked with appropriate clean-up supplies?	✓			
Are liquid materials, hazardous materials, and hazardous wastes stored in temporary containment facilities?			✓	
Are bagged and boxed materials stored on pallets?	✓			
Are hazardous materials and wastes stored in appropriate, labeled containers?			✓	
Are proper storage, clean-up, and spill-reporting procedures for hazardous materials and wastes posted in open, conspicuous and accessible locations adjacent to storage areas?			✓	
Are temporary containment facilities free of spills and rainwater?	✓			
Are temporary containment facilities and bagged/boxed materials covered?			✓	
Are spills from mobile equipment fueling and maintenance properly contained and cleaned up?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Is the site free of litter?	✓			
Are trash receptacles provided in the yard, field trailer areas, and at locations where workers congregate for lunch and break periods?	✓			
Is litter from work areas collected and placed in watertight dumpsters?	✓			
Are waste management receptacles free of leaks?	✓			
Are the contents of waste management receptacles properly protected from contact with storm water or from being dislodged by winds?	✓			
Are waste management receptacles filled at or beyond capacity?		✓		
Illicit Connection/ Discharge				
Is there any evidence of illicit discharges or illegal dumping on the project site?		✓		
If yes, has the Owner/Operator been notified?			✓	
SWPPP Update				
Do the SWPPP and Project Schedule adequately reflect the current site conditions and contractor operations?	✓			
Are all BMPs installed in the proper location(s) and according to the details in the SWPPP?	✓			
General				
Are there any other potential concerns at the site?		✓		
Storm Water Monitoring				
Does storm water discharge directly to a water body listed in the General Permit as impaired for sediment/sedimentation or turbidity?		✓		
If yes, were samples for sediment/sedimentation or turbidity collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
Did the sampling results indicate that the discharges are causing or contributing to further impairment?			✓	
If yes, were the erosion/sediment control BMPs improved or maintained to reduce the discharge of sediment to the water body?			✓	
Were there any BMPs not properly implemented or breaches, malfunctions, leakages or spills observed which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan during rain events?			✓	
If sampling indicated pollution of the storm water, were the leaks, breaches, spills, etc. cleaned up and the contaminated soil properly disposed of?			✓	
Were the BMPs maintained or replaced?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Were soil amendments (e.g., gypsum, lime) used on the project?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
If sampling indicated pollution of the storm water by the use of the soil amendments, is there a contingency plan for retention onsite of the polluted storm water?			✓	
Did storm water contact stored materials or waste and run off the construction site? (Materials not in watertight containers, etc.)		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	

Notes: BMP Map from 6/30/16 still valid

GENERAL INFORMATION				
Project Name	Parcel D-1 Remedial Action, Hunters Point Shipyard, San Francisco, California			
Project No.	Contract No. N62473-12-D-2005, CTO-0003			
Construction Stage	☑ Excavation and Earthmoving ☐ Inactive Construction		Work Area No.	149831
Inspector's Name	Sam Hopestone		Date	7/15/16
Signature	Sam Hopestone		Weather	partly cloudy
Inspection Type (Check Applicable)	☐ Prior to forecast rain ☑ Weekly ☐ 24-hr intervals during extended rain		☐ After a rain event ☐ Quarterly non-stormwater ☐ Other _____	
Season (Check Applicable)	☐ Rainy		☑ Non-Rainy	
Storm Data (www.wrh.noaa.gov)	Storm Start Date & Time:	—	Storm Duration (hrs):	—
	Time elapsed since last storm (Circle Applicable Units)	Min. Hr. Days	Approximate Rainfall Amount (inches)	—

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Preservation of Existing Vegetation				
Is temporary fencing provided to preserve vegetation in areas where no construction activity is planned?			✓	
Erosion Control				
Does the applied temporary erosion control provide 100% coverage for the affected areas?	✓			
Are there any non-vegetated areas that may require temporary erosion control?		✓		
Is the area where erosion controls are used required free from visible erosion?	✓			
Temporary Linear Sediment Barriers (Silt Fence, Fiber Rolls, Sandbag Barriers, etc.)				
Are temporary linear sediment barriers properly installed, functional and maintained?	✓			
Are temporary linear sediment barriers free of accumulated litter?	✓			
Is the built-up sediment less than 1/3 the height of the barrier?	✓			
Stockpiles				
Are all locations of temporary stockpiles (include soil, haz waste, and construction materials) in approved areas?	✓			
Are stockpiles protected from run-on, run-off from adjacent areas and from winds?	✓			
Are stockpiles located at least 15 m (50 ft) from concentrated flows, downstream drainage courses and storm drain inlets?	✓			
Are required covers and/or perimeter controls in place?	✓			

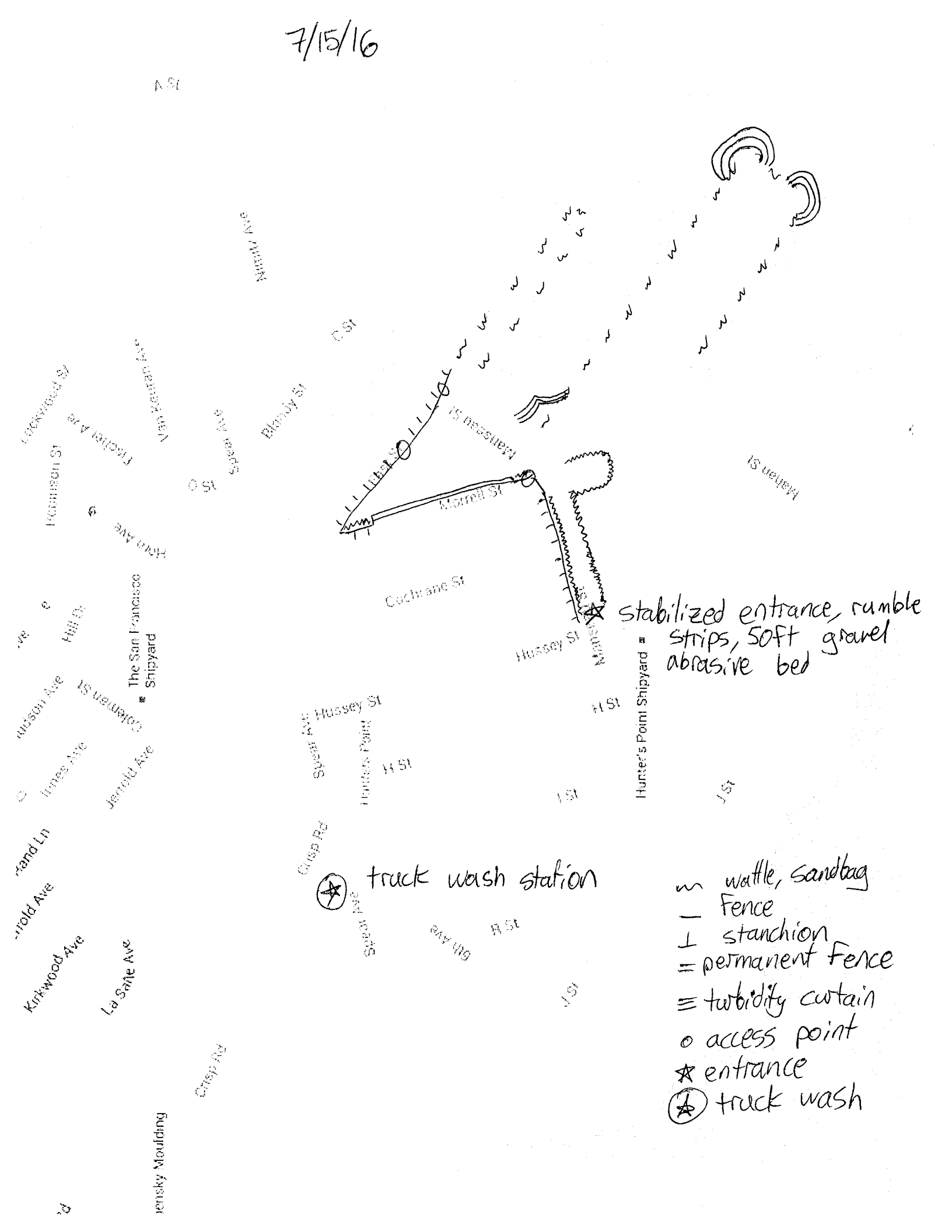
INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Concentrated Flows				
Are concentrated flow paths free of visible erosion?	✓			
Tracking Control				
Is the entrance stabilized to prevent tracking	✓			
Is the stabilized entrance inspected daily to ensure that it is working properly	✓			
Are points of ingress/egress to public/private roads inspected and swept and vacuumed as needed?	✓			
Are all paved areas free of visible sediment tracking or other particulate matter?	✓			
Wind Erosion Control				
Is dust control implemented?	✓			
Vehicle & Equipment Fueling, Cleaning, and Maintenance				
Are vehicle and equipment fueling, cleaning and maintenance areas reasonably clean and free of spills, leaks, or any other deleterious material?	✓			
Are vehicle and equipment fueling, cleaning and maintenance activities performed on an impermeable surface in dedicated areas?	✓			
If no, are drip pans used?			✓	
Are dedicated fueling, cleaning, and maintenance areas located at least 15 m (50 ft) away from downstream drainage facilities and watercourses and protected from run-on and runoff?	✓			
Is wash water contained for infiltration/ evaporation and disposed of appropriately?			✓	
Is on-site cleaning limited to washing with water (no soap, soaps substitutes, solvents, or steam)?	✓			
On each day of use, are vehicles and equipment inspected for leaks and if necessary, repaired?	✓			
Waste Management & Materials Pollution Control				
Are material storage areas and washout areas protected from run-on and runoff, and located at least 15 m from concentrated flows and downstream drainage facilities?	✓			
Are all material handling and storage areas clean; organized; free of spills, leaks, or any other deleterious material; and stocked with appropriate clean-up supplies?	✓			
Are liquid materials, hazardous materials, and hazardous wastes stored in temporary containment facilities?			✓	
Are bagged and boxed materials stored on pallets?	✓			
Are hazardous materials and wastes stored in appropriate, labeled containers?			✓	
Are proper storage, clean-up, and spill-reporting procedures for hazardous materials and wastes posted in open, conspicuous and accessible locations adjacent to storage areas?			✓	
Are temporary containment facilities free of spills and rainwater?	✓			
Are temporary containment facilities and bagged/boxed materials covered?			✓	
Are spills from mobile equipment fueling and maintenance properly contained and cleaned up?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Is the site free of litter?	✓			
Are trash receptacles provided in the yard, field trailer areas, and at locations where workers congregate for lunch and break periods?	✓			
Is litter from work areas collected and placed in watertight dumpsters?	✓			
Are waste management receptacles free of leaks?	✓			
Are the contents of waste management receptacles properly protected from contact with storm water or from being dislodged by winds?	✓			
Are waste management receptacles filled at or beyond capacity?		✓		
Illicit Connection/ Discharge				
Is there any evidence of illicit discharges or illegal dumping on the project site?		✓		
If yes, has the Owner/Operator been notified?			✓	
SWPPP Update				
Do the SWPPP and Project Schedule adequately reflect the current site conditions and contractor operations?	✓			
Are all BMPs installed in the proper location(s) and according to the details in the SWPPP?	✓			
General				
Are there any other potential concerns at the site?		✓		
Storm Water Monitoring				
Does storm water discharge directly to a water body listed in the General Permit as impaired for sediment/sedimentation or turbidity?		✓		
If yes, were samples for sediment/sedimentation or turbidity collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
Did the sampling results indicate that the discharges are causing or contributing to further impairment?			✓	
If yes, were the erosion/sediment control BMPs improved or maintained to reduce the discharge of sediment to the water body?			✓	
Were there any BMPs not properly implemented or breaches, malfunctions, leakages or spills observed which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan during rain events?			✓	
If sampling indicated pollution of the storm water, were the leaks, breaches, spills, etc. cleaned up and the contaminated soil properly disposed of?			✓	
Were the BMPs maintained or replaced?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Were soil amendments (e.g., gypsum, lime) used on the project?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
If sampling indicated pollution of the storm water by the use of the soil amendments, is there a contingency plan for retention onsite of the polluted storm water?			✓	
Did storm water contact stored materials or waste and run off the construction site? (Materials not in watertight containers, etc.)		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	

Notes: truck wash installed

7/15/16



A St
Nimitz Ave
C St
Blandy St
Van Keuran Ave
Fischer Ave
Lockwood St
Spear Ave
O St
Morrell St
Mansion St
Mahan St
Cochrane St
Hussey St
Hill St
The San Francisco Shipyard
Coleman St
Jerrold Ave
Hunter's Point Shipyard
H St
I St
J St
Crisp Rd
Kirkwood Ave
La Salle Ave
6th Ave
R St
stabilized entrance, rumble strips, 50ft gravel abrasive bed
truck wash station
wattle, sandbag
Fence
stanchion
permanent Fence
turbidity curtain
access point
entrance
truck wash

GENERAL INFORMATION					
Project Name	Parcel D-1 Remedial Action, Hunters Point Shipyard, San Francisco, California				
Project No.	Contract No. N62473-12-D-2005, CTO-0003				
Construction Stage	☑ Excavation and Earthmoving ☐ Inactive Construction		Work Area No.	149831	
Inspector's Name	Sam Hopstone		Date	7/22/16	
Signature	Sam Hopstone		Weather	partly cloudy	
Inspection Type (Check Applicable)	☐ Prior to forecast rain ☑ Weekly ☐ 24-hr intervals during extended rain		☐ After a rain event ☐ Quarterly non-stormwater ☐ Other _____		
Season (Check Applicable)	☐ Rainy		☑ Non-Rainy		
Storm Data (www.wrh.noaa.gov)	Storm Start Date & Time:	—	Storm Duration (hrs):	—	
	Time elapsed since last storm (Circle Applicable Units)	— Min. Hr. Days	Approximate Rainfall Amount (inches)	—	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Preservation of Existing Vegetation				
Is temporary fencing provided to preserve vegetation in areas where no construction activity is planned?			✓	
Erosion Control				
Does the applied temporary erosion control provide 100% coverage for the affected areas?	✓			
Are there any non-vegetated areas that may require temporary erosion control?		✓		
Is the area where erosion controls are used required free from visible erosion?	✓			
Temporary Linear Sediment Barriers (Silt Fence, Fiber Rolls, Sandbag Barriers, etc.)				
Are temporary linear sediment barriers properly installed, functional and maintained?	✓			
Are temporary linear sediment barriers free of accumulated litter?	✓			
Is the built-up sediment less than 1/3 the height of the barrier?	✓			
Stockpiles				
Are all locations of temporary stockpiles (include soil, haz waste, and construction materials) in approved areas?	✓			
Are stockpiles protected from run-on, run-off from adjacent areas and from winds?	✓			
Are stockpiles located at least 15 m (50 ft) from concentrated flows, downstream drainage courses and storm drain inlets?	✓			
Are required covers and/or perimeter controls in place?	✓			

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Concentrated Flows				
Are concentrated flow paths free of visible erosion?	✓			
Tracking Control				
Is the entrance stabilized to prevent tracking	✓			
Is the stabilized entrance inspected daily to ensure that it is working properly	✓			
Are points of ingress/egress to public/private roads inspected and swept and vacuumed as needed?	✓			
Are all paved areas free of visible sediment tracking or other particulate matter?	✓			
Wind Erosion Control				
Is dust control implemented?	✓			
Vehicle & Equipment Fueling, Cleaning, and Maintenance				
Are vehicle and equipment fueling, cleaning and maintenance areas reasonably clean and free of spills, leaks, or any other deleterious material?	✓			
Are vehicle and equipment fueling, cleaning and maintenance activities performed on an impermeable surface in dedicated areas?	✓			
If no, are drip pans used?			✓	
Are dedicated fueling, cleaning, and maintenance areas located at least 15 m (50 ft) away from downstream drainage facilities and watercourses and protected from run-on and runoff?	✓			
Is wash water contained for infiltration/ evaporation and disposed of appropriately?			✓	
Is on-site cleaning limited to washing with water (no soap, soaps substitutes, solvents, or steam)?	✓			
On each day of use, are vehicles and equipment inspected for leaks and if necessary, repaired?	✓			
Waste Management & Materials Pollution Control				
Are material storage areas and washout areas protected from run-on and runoff, and located at least 15 m from concentrated flows and downstream drainage facilities?	✓			
Are all material handling and storage areas clean; organized; free of spills, leaks, or any other deleterious material; and stocked with appropriate clean-up supplies?	✓			
Are liquid materials, hazardous materials, and hazardous wastes stored in temporary containment facilities?			✓	
Are bagged and boxed materials stored on pallets?	✓			
Are hazardous materials and wastes stored in appropriate, labeled containers?			✓	
Are proper storage, clean-up, and spill-reporting procedures for hazardous materials and wastes posted in open, conspicuous and accessible locations adjacent to storage areas?			✓	
Are temporary containment facilities free of spills and rainwater?	✓			
Are temporary containment facilities and bagged/boxed materials covered?			✓	
Are spills from mobile equipment fueling and maintenance properly contained and cleaned up?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Is the site free of litter?	✓			
Are trash receptacles provided in the yard, field trailer areas, and at locations where workers congregate for lunch and break periods?	✓			
Is litter from work areas collected and placed in watertight dumpsters?	✓			
Are waste management receptacles free of leaks?	✓			
Are the contents of waste management receptacles properly protected from contact with storm water or from being dislodged by winds?	✓			
Are waste management receptacles filled at or beyond capacity?		✓		
Illicit Connection/ Discharge				
Is there any evidence of illicit discharges or illegal dumping on the project site?		✓		
If yes, has the Owner/Operator been notified?			✓	
SWPPP Update				
Do the SWPPP and Project Schedule adequately reflect the current site conditions and contractor operations?	✓			
Are all BMPs installed in the proper location(s) and according to the details in the SWPPP?	✓			
General				
Are there any other potential concerns at the site?		✓		
Storm Water Monitoring				
Does storm water discharge directly to a water body listed in the General Permit as impaired for sediment/sedimentation or turbidity?		✓		
If yes, were samples for sediment/sedimentation or turbidity collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
Did the sampling results indicate that the discharges are causing or contributing to further impairment?			✓	
If yes, were the erosion/sediment control BMPs improved or maintained to reduce the discharge of sediment to the water body?			✓	
Were there any BMPs not properly implemented or breaches, malfunctions, leakages or spills observed which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan during rain events?			✓	
If sampling indicated pollution of the storm water, were the leaks, breaches, spills, etc. cleaned up and the contaminated soil properly disposed of?			✓	
Were the BMPs maintained or replaced?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Were soil amendments (e.g., gypsum, lime) used on the project?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
If sampling indicated pollution of the storm water by the use of the soil amendments, is there a contingency plan for retention onsite of the polluted storm water?			✓	
Did storm water contact stored materials or waste and run off the construction site? (Materials not in watertight containers, etc.)		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	

Notes: worked on repairing the turbidity curtain at berth 19, crew will replace the damaged sections with new curtain on Monday.

GENERAL INFORMATION					
Project Name	Parcel D-1 Remedial Action, Hunters Point Shipyard, San Francisco, California				
Project No.	Contract No. N62473-12-D-2005, CTO-0003				
Construction Stage	☑ Excavation and Earthmoving ☐ Inactive Construction		Work Area No.	149831	
Inspector's Name	Sam Hopstock		Date	7/29/16	
Signature	Sam Hopstock		Weather	Sunny	
Inspection Type (Check Applicable)	☐ Prior to forecast rain ☑ Weekly ☐ 24-hr intervals during extended rain		☐ After a rain event ☐ Quarterly non-stormwater ☐ Other _____		
Season (Check Applicable)	☐ Rainy		☑ Non-Rainy		
Storm Data (www.wrh.noaa.gov)	Storm Start Date & Time:	—	Storm Duration (hrs):	—	
	Time elapsed since last storm (Circle Applicable Units)	— Min. Hr. Days	Approximate Rainfall Amount (inches)	—	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Preservation of Existing Vegetation				
Is temporary fencing provided to preserve vegetation in areas where no construction activity is planned?			✓	
Erosion Control				
Does the applied temporary erosion control provide 100% coverage for the affected areas?	✓			
Are there any non-vegetated areas that may require temporary erosion control?		✓		
Is the area where erosion controls are used required free from visible erosion?	✓			
Temporary Linear Sediment Barriers (Silt Fence, Fiber Rolls, Sandbag Barriers, etc.)				
Are temporary linear sediment barriers properly installed, functional and maintained?	✓			
Are temporary linear sediment barriers free of accumulated litter?	✓			
Is the built-up sediment less than 1/3 the height of the barrier?	✓			
Stockpiles				
Are all locations of temporary stockpiles (include soil, haz waste, and construction materials) in approved areas?	✓			
Are stockpiles protected from run-on, run-off from adjacent areas and from winds?	✓			
Are stockpiles located at least 15 m (50 ft) from concentrated flows, downstream drainage courses and storm drain inlets?	✓			
Are required covers and/or perimeter controls in place?	✓			

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Concentrated Flows				
Are concentrated flow paths free of visible erosion?	✓			
Tracking Control				
Is the entrance stabilized to prevent tracking	✓			
Is the stabilized entrance inspected daily to ensure that it is working properly	✓			
Are points of ingress/egress to public/private roads inspected and swept and vacuumed as needed?	✓			
Are all paved areas free of visible sediment tracking or other particulate matter?	✓			
Wind Erosion Control				
Is dust control implemented?	✓			
Vehicle & Equipment Fueling, Cleaning, and Maintenance				
Are vehicle and equipment fueling, cleaning and maintenance areas reasonably clean and free of spills, leaks, or any other deleterious material?	✓			
Are vehicle and equipment fueling, cleaning and maintenance activities performed on an impermeable surface in dedicated areas?	✓			
If no, are drip pans used?			✓	
Are dedicated fueling, cleaning, and maintenance areas located at least 15 m (50 ft) away from downstream drainage facilities and watercourses and protected from run-on and runoff?	✓			
Is wash water contained for infiltration/ evaporation and disposed of appropriately?			✓	
Is on-site cleaning limited to washing with water (no soap, soaps substitutes, solvents, or steam)?	✓			
On each day of use, are vehicles and equipment inspected for leaks and if necessary, repaired?	✓			
Waste Management & Materials Pollution Control				
Are material storage areas and washout areas protected from run-on and runoff, and located at least 15 m from concentrated flows and downstream drainage facilities?	✓			
Are all material handling and storage areas clean; organized; free of spills, leaks, or any other deleterious material; and stocked with appropriate clean-up supplies?	✓			
Are liquid materials, hazardous materials, and hazardous wastes stored in temporary containment facilities?			✓	
Are bagged and boxed materials stored on pallets?	✓			
Are hazardous materials and wastes stored in appropriate, labeled containers?			✓	
Are proper storage, clean-up, and spill-reporting procedures for hazardous materials and wastes posted in open, conspicuous and accessible locations adjacent to storage areas?			✓	
Are temporary containment facilities free of spills and rainwater?	✓			
Are temporary containment facilities and bagged/boxed materials covered?			✓	
Are spills from mobile equipment fueling and maintenance properly contained and cleaned up?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Is the site free of litter?	✓			
Are trash receptacles provided in the yard, field trailer areas, and at locations where workers congregate for lunch and break periods?	✓			
Is litter from work areas collected and placed in watertight dumpsters?	✓			
Are waste management receptacles free of leaks?	✓			
Are the contents of waste management receptacles properly protected from contact with storm water or from being dislodged by winds?	✓			
Are waste management receptacles filled at or beyond capacity?		✓		
Illicit Connection/ Discharge				
Is there any evidence of illicit discharges or illegal dumping on the project site?		✓		
If yes, has the Owner/Operator been notified?			✓	
SWPPP Update				
Do the SWPPP and Project Schedule adequately reflect the current site conditions and contractor operations?	✓			
Are all BMPs installed in the proper location(s) and according to the details in the SWPPP?	✓			
General				
Are there any other potential concerns at the site?		✓		
Storm Water Monitoring				
Does storm water discharge directly to a water body listed in the General Permit as impaired for sediment/sedimentation or turbidity?		✓		
If yes, were samples for sediment/sedimentation or turbidity collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
Did the sampling results indicate that the discharges are causing or contributing to further impairment?			✓	
If yes, were the erosion/sediment control BMPs improved or maintained to reduce the discharge of sediment to the water body?			✓	
Were there any BMPs not properly implemented or breaches, malfunctions, leakages or spills observed which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan during rain events?			✓	
If sampling indicated pollution of the storm water, were the leaks, breaches, spills, etc. cleaned up and the contaminated soil properly disposed of?			✓	
Were the BMPs maintained or replaced?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Were soil amendments (e.g., gypsum, lime) used on the project?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
If sampling indicated pollution of the storm water by the use of the soil amendments, is there a contingency plan for retention onsite of the polluted storm water?			✓	
Did storm water contact stored materials or waste and run off the construction site? (Materials not in watertight containers, etc.)		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	

Notes: work at berth 19 in tidally affected areas is complete, so turbidity curtain is no longer needed. The turbidity curtain at berth 19 has been removed.

GENERAL INFORMATION					
Project Name	Parcel D-1 Remedial Action, Hunters Point Shipyard, San Francisco, California				
Project No.	Contract No. N62473-12-D-2005, CTO-0003				
Construction Stage	☑ Excavation and Earthmoving ☐ Inactive Construction		Work Area No.	149831	
Inspector's Name	Sam Hopstone		Date	8/11/16	
Signature	Sam Hopstone		Weather	Partly cloudy	
Inspection Type (Check Applicable)	☐ Prior to forecast rain ☑ Weekly ☐ 24-hr intervals during extended rain		☐ After a rain event ☐ Quarterly non-stormwater ☐ Other _____		
Season (Check Applicable)	☐ Rainy		☑ Non-Rainy		
Storm Data (www.wrh.noaa.gov)	Storm Start Date & Time:	—	Storm Duration (hrs):	—	
	Time elapsed since last storm (Circle Applicable Units) Min. Hr. Days	—	Approximate Rainfall Amount (inches)	—	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Preservation of Existing Vegetation				
Is temporary fencing provided to preserve vegetation in areas where no construction activity is planned?			✓	
Erosion Control				
Does the applied temporary erosion control provide 100% coverage for the affected areas?	✓			
Are there any non-vegetated areas that may require temporary erosion control?		✓		
Is the area where erosion controls are used required free from visible erosion?	✓			
Temporary Linear Sediment Barriers (Silt Fence, Fiber Rolls, Sandbag Barriers, etc.)				
Are temporary linear sediment barriers properly installed, functional and maintained?	✓			
Are temporary linear sediment barriers free of accumulated litter?	✓			
Is the built-up sediment less than 1/3 the height of the barrier?	✓			
Stockpiles				
Are all locations of temporary stockpiles (include soil, haz waste, and construction materials) in approved areas?	✓			
Are stockpiles protected from run-on, run-off from adjacent areas and from winds?	✓			
Are stockpiles located at least 15 m (50 ft) from concentrated flows, downstream drainage courses and storm drain inlets?	✓			
Are required covers and/or perimeter controls in place?	✓			

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Concentrated Flows				
Are concentrated flow paths free of visible erosion?	✓			
Tracking Control				
Is the entrance stabilized to prevent tracking	✓			
Is the stabilized entrance inspected daily to ensure that it is working properly	✓			
Are points of ingress/egress to public/private roads inspected and swept and vacuumed as needed?	✓			
Are all paved areas free of visible sediment tracking or other particulate matter?	✓			
Wind Erosion Control				
Is dust control implemented?	✓			
Vehicle & Equipment Fueling, Cleaning, and Maintenance				
Are vehicle and equipment fueling, cleaning and maintenance areas reasonably clean and free of spills, leaks, or any other deleterious material?	✓			
Are vehicle and equipment fueling, cleaning and maintenance activities performed on an impermeable surface in dedicated areas?	✓			
If no, are drip pans used?			✓	
Are dedicated fueling, cleaning, and maintenance areas located at least 15 m (50 ft) away from downstream drainage facilities and watercourses and protected from run-on and runoff?	✓			
Is wash water contained for infiltration/ evaporation and disposed of appropriately?			✓	
Is on-site cleaning limited to washing with water (no soap, soaps substitutes, solvents, or steam)?	✓			
On each day of use, are vehicles and equipment inspected for leaks and if necessary, repaired?	✓			
Waste Management & Materials Pollution Control				
Are material storage areas and washout areas protected from run-on and runoff, and located at least 15 m from concentrated flows and downstream drainage facilities?	✓			
Are all material handling and storage areas clean; organized; free of spills, leaks, or any other deleterious material; and stocked with appropriate clean-up supplies?	✓			
Are liquid materials, hazardous materials, and hazardous wastes stored in temporary containment facilities?			✓	
Are bagged and boxed materials stored on pallets?	✓			
Are hazardous materials and wastes stored in appropriate, labeled containers?			✓	
Are proper storage, clean-up, and spill-reporting procedures for hazardous materials and wastes posted in open, conspicuous and accessible locations adjacent to storage areas?			✓	
Are temporary containment facilities free of spills and rainwater?	✓			
Are temporary containment facilities and bagged/boxed materials covered?			✓	
Are spills from mobile equipment fueling and maintenance properly contained and cleaned up?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Is the site free of litter?	✓			
Are trash receptacles provided in the yard, field trailer areas, and at locations where workers congregate for lunch and break periods?	✓			
Is litter from work areas collected and placed in watertight dumpsters?	✓			
Are waste management receptacles free of leaks?	✓			
Are the contents of waste management receptacles properly protected from contact with storm water or from being dislodged by winds?	✓			
Are waste management receptacles filled at or beyond capacity?		✓		
Illicit Connection/ Discharge				
Is there any evidence of illicit discharges or illegal dumping on the project site?		✓		
If yes, has the Owner/Operator been notified?			✓	
SWPPP Update				
Do the SWPPP and Project Schedule adequately reflect the current site conditions and contractor operations?	✓			
Are all BMPs installed in the proper location(s) and according to the details in the SWPPP?	✓			
General				
Are there any other potential concerns at the site?		✓		
Storm Water Monitoring				
Does storm water discharge directly to a water body listed in the General Permit as impaired for sediment/sedimentation or turbidity?		✓		
If yes, were samples for sediment/sedimentation or turbidity collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
Did the sampling results indicate that the discharges are causing or contributing to further impairment?			✓	
If yes, were the erosion/sediment control BMPs improved or maintained to reduce the discharge of sediment to the water body?			✓	
Were there any BMPs not properly implemented or breaches, malfunctions, leakages or spills observed which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan during rain events?			✓	
If sampling indicated pollution of the storm water, were the leaks, breaches, spills, etc. cleaned up and the contaminated soil properly disposed of?			✓	
Were the BMPs maintained or replaced?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Were soil amendments (e.g., gypsum, lime) used on the project?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
If sampling indicated pollution of the storm water by the use of the soil amendments, is there a contingency plan for retention onsite of the polluted storm water?			✓	
Did storm water contact stored materials or waste and run off the construction site? (Materials not in watertight containers, etc.)		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	

Note: Mauseau swale prepped for gunite
: work along berth 20 in tidally affected area, so a turbidity curtain is in place
: site inspection by temporary field engineer the week of 8/1/16 - 8/5/16, noted BMPs along haul route need maintenance. Maintenance performed on 8/17/16

8/1/16 SWPPP inspection

GENERAL INFORMATION			
Project Name	Parcel D-1 Remedial Action, Hunters Point Shipyard, San Francisco, California		
Project No.	Contract No. N62473-12-D-2005, CTO-0003		
Construction Stage	☑ Excavation and Earthmoving ☐ Inactive Construction	Work Area No.	149831
Inspector's Name	Sean Hopstone	Date	8/20/16
Signature	Sean Hopstone	Weather	partly cloudy
Inspection Type (Check Applicable)	☐ Prior to forecast rain ☑ Weekly ☐ 24-hr intervals during extended rain	☐ After a rain event ☐ Quarterly non-stormwater ☐ Other _____	
Season (Check Applicable)	☐ Rainy	☑ Non-Rainy	
Storm Data (www.wrh.noaa.gov)	Storm Start Date & Time: —	Storm Duration (hrs): —	
	Time elapsed since last storm (Circle Applicable Units) Min. Hr. Days	Approximate Rainfall Amount (inches) —	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Preservation of Existing Vegetation				
Is temporary fencing provided to preserve vegetation in areas where no construction activity is planned?			✓	
Erosion Control				
Does the applied temporary erosion control provide 100% coverage for the affected areas?	✓			
Are there any non-vegetated areas that may require temporary erosion control?		✓		
Is the area where erosion controls are used required free from visible erosion?	✓			
Temporary Linear Sediment Barriers (Silt Fence, Fiber Rolls, Sandbag Barriers, etc.)				
Are temporary linear sediment barriers properly installed, functional and maintained?	✓			
Are temporary linear sediment barriers free of accumulated litter?	✓			
Is the built-up sediment less than 1/3 the height of the barrier?	✓			
Stockpiles				
Are all locations of temporary stockpiles (include soil, haz waste, and construction materials) in approved areas?	✓			
Are stockpiles protected from run-on, run-off from adjacent areas and from winds?	✓			
Are stockpiles located at least 15 m (50 ft) from concentrated flows, downstream drainage courses and storm drain inlets?	✓			
Are required covers and/or perimeter controls in place?	✓			

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Concentrated Flows				
Are concentrated flow paths free of visible erosion?	✓			
Tracking Control				
Is the entrance stabilized to prevent tracking	✓			
Is the stabilized entrance inspected daily to ensure that it is working properly	✓			
Are points of ingress/egress to public/private roads inspected and swept and vacuumed as needed?	✓			
Are all paved areas free of visible sediment tracking or other particulate matter?	✓			
Wind Erosion Control				
Is dust control implemented?	✓			
Vehicle & Equipment Fueling, Cleaning, and Maintenance				
Are vehicle and equipment fueling, cleaning and maintenance areas reasonably clean and free of spills, leaks, or any other deleterious material?	✓			
Are vehicle and equipment fueling, cleaning and maintenance activities performed on an impermeable surface in dedicated areas?	✓			
If no, are drip pans used?			✓	
Are dedicated fueling, cleaning, and maintenance areas located at least 15 m (50 ft) away from downstream drainage facilities and watercourses and protected from run-on and runoff?	✓			
Is wash water contained for infiltration/ evaporation and disposed of appropriately?			✓	
Is on-site cleaning limited to washing with water (no soap, soaps substitutes, solvents, or steam)?	✓			
On each day of use, are vehicles and equipment inspected for leaks and if necessary, repaired?	✓			
Waste Management & Materials Pollution Control				
Are material storage areas and washout areas protected from run-on and runoff, and located at least 15 m from concentrated flows and downstream drainage facilities?	✓			
Are all material handling and storage areas clean; organized; free of spills, leaks, or any other deleterious material; and stocked with appropriate clean-up supplies?	✓			
Are liquid materials, hazardous materials, and hazardous wastes stored in temporary containment facilities?			✓	
Are bagged and boxed materials stored on pallets?	✓			
Are hazardous materials and wastes stored in appropriate, labeled containers?			✓	
Are proper storage, clean-up, and spill-reporting procedures for hazardous materials and wastes posted in open, conspicuous and accessible locations adjacent to storage areas?			✓	
Are temporary containment facilities free of spills and rainwater?	✓			
Are temporary containment facilities and bagged/boxed materials covered?			✓	
Are spills from mobile equipment fueling and maintenance properly contained and cleaned up?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Is the site free of litter?	✓			
Are trash receptacles provided in the yard, field trailer areas, and at locations where workers congregate for lunch and break periods?	✓			
Is litter from work areas collected and placed in watertight dumpsters?	✓			
Are waste management receptacles free of leaks?	✓			
Are the contents of waste management receptacles properly protected from contact with storm water or from being dislodged by winds?	✓			
Are waste management receptacles filled at or beyond capacity?		✓		
Illicit Connection/ Discharge				
Is there any evidence of illicit discharges or illegal dumping on the project site?		✓		
If yes, has the Owner/Operator been notified?			✓	
SWPPP Update				
Do the SWPPP and Project Schedule adequately reflect the current site conditions and contractor operations?	✓			
Are all BMPs installed in the proper location(s) and according to the details in the SWPPP?	✓			
General				
Are there any other potential concerns at the site?		✓		
Storm Water Monitoring				
Does storm water discharge directly to a water body listed in the General Permit as impaired for sediment/sedimentation or turbidity?		✓		
If yes, were samples for sediment/sedimentation or turbidity collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
Did the sampling results indicate that the discharges are causing or contributing to further impairment?			✓	
If yes, were the erosion/sediment control BMPs improved or maintained to reduce the discharge of sediment to the water body?			✓	
Were there any BMPs not properly implemented or breaches, malfunctions, leakages or spills observed which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan during rain events?			✓	
If sampling indicated pollution of the storm water, were the leaks, breaches, spills, etc. cleaned up and the contaminated soil properly disposed of?			✓	
Were the BMPs maintained or replaced?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Were soil amendments (e.g., gypsum, lime) used on the project?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
If sampling indicated pollution of the storm water by the use of the soil amendments, is there a contingency plan for retention onsite of the polluted storm water?			✓	
Did storm water contact stored materials or waste and run off the construction site? (Materials not in watertight containers, etc.)		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	

GENERAL INFORMATION			
Project Name	Parcel D-1 Remedial Action, Hunters Point Shipyard, San Francisco, California		
Project No.	Contract No. N62473-12-D-2005, CTO-0003		
Construction Stage	☑ Excavation and Earthmoving ☐ Inactive Construction	Work Area No.	149831
Inspector's Name	Sam Hopstone	Date	8/26/2016
Signature	Sam Hopstone	Weather	partly cloudy
Inspection Type (Check Applicable)	☐ Prior to forecast rain ☑ Weekly ☐ 24-hr intervals during extended rain	☐ After a rain event ☐ Quarterly non-stormwater ☐ Other _____	
Season (Check Applicable)	☐ Rainy	☑ Non-Rainy	
Storm Data (www.wrh.noaa.gov)	Storm Start Date & Time: —	Storm Duration (hrs): —	
	Time elapsed since last storm (Circle Applicable Units) Min. Hr. Days —	Approximate Rainfall Amount (inches) —	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Preservation of Existing Vegetation				
Is temporary fencing provided to preserve vegetation in areas where no construction activity is planned?			✓	
Erosion Control				
Does the applied temporary erosion control provide 100% coverage for the affected areas?	✓			
Are there any non-vegetated areas that may require temporary erosion control?		✓		
Is the area where erosion controls are used required free from visible erosion?	✓			
Temporary Linear Sediment Barriers (Silt Fence, Fiber Rolls, Sandbag Barriers, etc.)				
Are temporary linear sediment barriers properly installed, functional and maintained?	✓			
Are temporary linear sediment barriers free of accumulated litter?	✓			
Is the built-up sediment less than 1/3 the height of the barrier?	✓			
Stockpiles				
Are all locations of temporary stockpiles (include soil, haz waste, and construction materials) in approved areas?	✓			
Are stockpiles protected from run-on, run-off from adjacent areas and from winds?	✓			
Are stockpiles located at least 15 m (50 ft) from concentrated flows, downstream drainage courses and storm drain inlets?	✓			
Are required covers and/or perimeter controls in place?	✓			

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Concentrated Flows				
Are concentrated flow paths free of visible erosion?	✓			
Tracking Control				
Is the entrance stabilized to prevent tracking	✓			
Is the stabilized entrance inspected daily to ensure that it is working properly	✓			
Are points of ingress/egress to public/private roads inspected and swept and vacuumed as needed?	✓			
Are all paved areas free of visible sediment tracking or other particulate matter?	✓			
Wind Erosion Control				
Is dust control implemented?	✓			
Vehicle & Equipment Fueling, Cleaning, and Maintenance				
Are vehicle and equipment fueling, cleaning and maintenance areas reasonably clean and free of spills, leaks, or any other deleterious material?	✓			
Are vehicle and equipment fueling, cleaning and maintenance activities performed on an impermeable surface in dedicated areas?	✓			
If no, are drip pans used?			✓	
Are dedicated fueling, cleaning, and maintenance areas located at least 15 m (50 ft) away from downstream drainage facilities and watercourses and protected from run-on and runoff?	✓			
Is wash water contained for infiltration/ evaporation and disposed of appropriately?			✓	
Is on-site cleaning limited to washing with water (no soap, soaps substitutes, solvents, or steam)?	✓			
On each day of use, are vehicles and equipment inspected for leaks and if necessary, repaired?	✓			
Waste Management & Materials Pollution Control				
Are material storage areas and washout areas protected from run-on and runoff, and located at least 15 m from concentrated flows and downstream drainage facilities?	✓			
Are all material handling and storage areas clean; organized; free of spills, leaks, or any other deleterious material; and stocked with appropriate clean-up supplies?	✓			
Are liquid materials, hazardous materials, and hazardous wastes stored in temporary containment facilities?			✓	
Are bagged and boxed materials stored on pallets?	✓			
Are hazardous materials and wastes stored in appropriate, labeled containers?			✓	
Are proper storage, clean-up, and spill-reporting procedures for hazardous materials and wastes posted in open, conspicuous and accessible locations adjacent to storage areas?			✓	
Are temporary containment facilities free of spills and rainwater?	✓			
Are temporary containment facilities and bagged/boxed materials covered?			✓	
Are spills from mobile equipment fueling and maintenance properly contained and cleaned up?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Is the site free of litter?	✓			
Are trash receptacles provided in the yard, field trailer areas, and at locations where workers congregate for lunch and break periods?	✓			
Is litter from work areas collected and placed in watertight dumpsters?	✓			
Are waste management receptacles free of leaks?	✓			
Are the contents of waste management receptacles properly protected from contact with storm water or from being dislodged by winds?	✓			
Are waste management receptacles filled at or beyond capacity?		✓		
Illicit Connection/ Discharge				
Is there any evidence of illicit discharges or illegal dumping on the project site?		✓		
If yes, has the Owner/Operator been notified?			✓	
SWPPP Update				
Do the SWPPP and Project Schedule adequately reflect the current site conditions and contractor operations?	✓			
Are all BMPs installed in the proper location(s) and according to the details in the SWPPP?	✓			
General				
Are there any other potential concerns at the site?		✓		
Storm Water Monitoring				
Does storm water discharge directly to a water body listed in the General Permit as impaired for sediment/sedimentation or turbidity?		✓		
If yes, were samples for sediment/sedimentation or turbidity collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
Did the sampling results indicate that the discharges are causing or contributing to further impairment?			✓	
If yes, were the erosion/sediment control BMPs improved or maintained to reduce the discharge of sediment to the water body?			✓	
Were there any BMPs not properly implemented or breaches, malfunctions, leakages or spills observed which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan during rain events?			✓	
If sampling indicated pollution of the storm water, were the leaks, breaches, spills, etc. cleaned up and the contaminated soil properly disposed of?			✓	
Were the BMPs maintained or replaced?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Were soil amendments (e.g., gypsum, lime) used on the project?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
If sampling indicated pollution of the storm water by the use of the soil amendments, is there a contingency plan for retention onsite of the polluted storm water?			✓	
Did storm water contact stored materials or waste and run off the construction site? (Materials not in watertight containers, etc.)		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	

Note: wattles have been adjusted to make room for grading

: BMPs along haul route replaced with new stock 8/25/16

GENERAL INFORMATION					
Project Name	Parcel D-1 Remedial Action, Hunters Point Shipyard, San Francisco, California				
Project No.	Contract No. N62473-12-D-2005, CTO-0003				
Construction Stage	☑ Excavation and Earthmoving ☐ Inactive Construction		Work Area No.	149831	
Inspector's Name	Sam Hopstone		Date	9/2/2016	
Signature	Sam Hopstone		Weather	Sunny	
Inspection Type (Check Applicable)	☐ Prior to forecast rain ☑ Weekly ☐ 24-hr intervals during extended rain		☐ After a rain event ☐ Quarterly non-stormwater ☐ Other _____		
Season (Check Applicable)	☐ Rainy		☑ Non-Rainy		
Storm Data (www.wrh.noaa.gov)	Storm Start Date & Time:	—	Storm Duration (hrs):	—	
	Time elapsed since last storm (Circle Applicable Units)	— Min. Hr. Days	Approximate Rainfall Amount (inches)	—	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Preservation of Existing Vegetation				
Is temporary fencing provided to preserve vegetation in areas where no construction activity is planned?			✓	
Erosion Control				
Does the applied temporary erosion control provide 100% coverage for the affected areas?	✓			
Are there any non-vegetated areas that may require temporary erosion control?		✓		
Is the area where erosion controls are used required free from visible erosion?	✓			
Temporary Linear Sediment Barriers (Silt Fence, Fiber Rolls, Sandbag Barriers, etc.)				
Are temporary linear sediment barriers properly installed, functional and maintained?	✓			
Are temporary linear sediment barriers free of accumulated litter?	✓			
Is the built-up sediment less than 1/3 the height of the barrier?	✓			
Stockpiles				
Are all locations of temporary stockpiles (include soil, haz waste, and construction materials) in approved areas?	✓			
Are stockpiles protected from run-on, run-off from adjacent areas and from winds?	✓			
Are stockpiles located at least 15 m (50 ft) from concentrated flows, downstream drainage courses and storm drain inlets?	✓			
Are required covers and/or perimeter controls in place?	✓			

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Concentrated Flows				
Are concentrated flow paths free of visible erosion?	✓			
Tracking Control				
Is the entrance stabilized to prevent tracking	✓			
Is the stabilized entrance inspected daily to ensure that it is working properly	✓			
Are points of ingress/egress to public/private roads inspected and swept and vacuumed as needed?	✓			
Are all paved areas free of visible sediment tracking or other particulate matter?	✓			
Wind Erosion Control				
Is dust control implemented?	✓			
Vehicle & Equipment Fueling, Cleaning, and Maintenance				
Are vehicle and equipment fueling, cleaning and maintenance areas reasonably clean and free of spills, leaks, or any other deleterious material?	✓			
Are vehicle and equipment fueling, cleaning and maintenance activities performed on an impermeable surface in dedicated areas?	✓			
If no, are drip pans used?			✓	
Are dedicated fueling, cleaning, and maintenance areas located at least 15 m (50 ft) away from downstream drainage facilities and watercourses and protected from run-on and runoff?	✓			
Is wash water contained for infiltration/ evaporation and disposed of appropriately?			✓	
Is on-site cleaning limited to washing with water (no soap, soaps substitutes, solvents, or steam)?	✓			
On each day of use, are vehicles and equipment inspected for leaks and if necessary, repaired?	✓			
Waste Management & Materials Pollution Control				
Are material storage areas and washout areas protected from run-on and runoff, and located at least 15 m from concentrated flows and downstream drainage facilities?	✓			
Are all material handling and storage areas clean; organized; free of spills, leaks, or any other deleterious material; and stocked with appropriate clean-up supplies?	✓			
Are liquid materials, hazardous materials, and hazardous wastes stored in temporary containment facilities?			✓	
Are bagged and boxed materials stored on pallets?	✓			
Are hazardous materials and wastes stored in appropriate, labeled containers?			✓	
Are proper storage, clean-up, and spill-reporting procedures for hazardous materials and wastes posted in open, conspicuous and accessible locations adjacent to storage areas?			✓	
Are temporary containment facilities free of spills and rainwater?	✓			
Are temporary containment facilities and bagged/boxed materials covered?			✓	
Are spills from mobile equipment fueling and maintenance properly contained and cleaned up?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Is the site free of litter?	✓			
Are trash receptacles provided in the yard, field trailer areas, and at locations where workers congregate for lunch and break periods?	✓			
Is litter from work areas collected and placed in watertight dumpsters?	✓			
Are waste management receptacles free of leaks?	✓			
Are the contents of waste management receptacles properly protected from contact with storm water or from being dislodged by winds?	✓			
Are waste management receptacles filled at or beyond capacity?		✓		
Illicit Connection/ Discharge				
Is there any evidence of illicit discharges or illegal dumping on the project site?		✓		
If yes, has the Owner/Operator been notified?			✓	
SWPPP Update				
Do the SWPPP and Project Schedule adequately reflect the current site conditions and contractor operations?	✓			
Are all BMPs installed in the proper location(s) and according to the details in the SWPPP?	✓			
General				
Are there any other potential concerns at the site?		✓		
Storm Water Monitoring				
Does storm water discharge directly to a water body listed in the General Permit as impaired for sediment/sedimentation or turbidity?		✓		
If yes, were samples for sediment/sedimentation or turbidity collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
Did the sampling results indicate that the discharges are causing or contributing to further impairment?			✓	
If yes, were the erosion/sediment control BMPs improved or maintained to reduce the discharge of sediment to the water body?			✓	
Were there any BMPs not properly implemented or breaches, malfunctions, leakages or spills observed which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan during rain events?			✓	
If sampling indicated pollution of the storm water, were the leaks, breaches, spills, etc. cleaned up and the contaminated soil properly disposed of?			✓	
Were the BMPs maintained or replaced?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Were soil amendments (e.g., gypsum, lime) used on the project?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
If sampling indicated pollution of the storm water by the use of the soil amendments, is there a contingency plan for retention onsite of the polluted storm water?			✓	
Did storm water contact stored materials or waste and run off the construction site? (Materials not in watertight containers, etc.)		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	

Notes: wattles and sandbags maintained along Manseau, Morrell swales

GENERAL INFORMATION			
Project Name	Parcel D-1 Remedial Action, Hunters Point Shipyard, San Francisco, California		
Project No.	Contract No. N62473-12-D-2005, CTO-0003		
Construction Stage	☑ Excavation and Earthmoving ☐ Inactive Construction	Work Area No.	149631
Inspector's Name	Sam Hopstone	Date	9/9/2016
Signature	Sam Hopstone	Weather	cloudy
Inspection Type (Check Applicable)	☐ Prior to forecast rain ☑ Weekly ☐ 24-hr intervals during extended rain	☐ After a rain event ☐ Quarterly non-stormwater ☐ Other _____	
Season (Check Applicable)	☐ Rainy	☑ Non-Rainy	
Storm Data (www.wrh.noaa.gov)	Storm Start Date & Time: —	Storm Duration (hrs): —	
	Time elapsed since last storm (Circle Applicable Units) Min. Hr. Days —	Approximate Rainfall Amount (inches) —	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Preservation of Existing Vegetation				
Is temporary fencing provided to preserve vegetation in areas where no construction activity is planned?			✓	
Erosion Control				
Does the applied temporary erosion control provide 100% coverage for the affected areas?	✓			
Are there any non-vegetated areas that may require temporary erosion control?		✓		
Is the area where erosion controls are used required free from visible erosion?	✓			
Temporary Linear Sediment Barriers (Silt Fence, Fiber Rolls, Sandbag Barriers, etc.)				
Are temporary linear sediment barriers properly installed, functional and maintained?	✓			
Are temporary linear sediment barriers free of accumulated litter?	✓			
Is the built-up sediment less than 1/3 the height of the barrier?	✓			
Stockpiles				
Are all locations of temporary stockpiles (include soil, haz waste, and construction materials) in approved areas?	✓			
Are stockpiles protected from run-on, run-off from adjacent areas and from winds?	✓			
Are stockpiles located at least 15 m (50 ft) from concentrated flows, downstream drainage courses and storm drain inlets?	✓			
Are required covers and/or perimeter controls in place?	✓			

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Concentrated Flows				
Are concentrated flow paths free of visible erosion?	✓			
Tracking Control				
Is the entrance stabilized to prevent tracking	✓			
Is the stabilized entrance inspected daily to ensure that it is working properly	✓			
Are points of ingress/egress to public/private roads inspected and swept and vacuumed as needed?	✓			
Are all paved areas free of visible sediment tracking or other particulate matter?	✓			
Wind Erosion Control				
Is dust control implemented?	✓			
Vehicle & Equipment Fueling, Cleaning, and Maintenance				
Are vehicle and equipment fueling, cleaning and maintenance areas reasonably clean and free of spills, leaks, or any other deleterious material?	✓			
Are vehicle and equipment fueling, cleaning and maintenance activities performed on an impermeable surface in dedicated areas?	✓			
If no, are drip pans used?			✓	
Are dedicated fueling, cleaning, and maintenance areas located at least 15 m (50 ft) away from downstream drainage facilities and watercourses and protected from run-on and runoff?	✓			
Is wash water contained for infiltration/ evaporation and disposed of appropriately?			✓	
Is on-site cleaning limited to washing with water (no soap, soaps substitutes, solvents, or steam)?	✓			
On each day of use, are vehicles and equipment inspected for leaks and if necessary, repaired?	✓			
Waste Management & Materials Pollution Control				
Are material storage areas and washout areas protected from run-on and runoff, and located at least 15 m from concentrated flows and downstream drainage facilities?	✓			
Are all material handling and storage areas clean; organized; free of spills, leaks, or any other deleterious material; and stocked with appropriate clean-up supplies?	✓			
Are liquid materials, hazardous materials, and hazardous wastes stored in temporary containment facilities?			✓	
Are bagged and boxed materials stored on pallets?	✓			
Are hazardous materials and wastes stored in appropriate, labeled containers?			✓	
Are proper storage, clean-up, and spill-reporting procedures for hazardous materials and wastes posted in open, conspicuous and accessible locations adjacent to storage areas?			✓	
Are temporary containment facilities free of spills and rainwater?	✓			
Are temporary containment facilities and bagged/boxed materials covered?			✓	
Are spills from mobile equipment fueling and maintenance properly contained and cleaned up?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Is the site free of litter?	✓			
Are trash receptacles provided in the yard, field trailer areas, and at locations where workers congregate for lunch and break periods?	✓			
Is litter from work areas collected and placed in watertight dumpsters?	✓			
Are waste management receptacles free of leaks?	✓			
Are the contents of waste management receptacles properly protected from contact with storm water or from being dislodged by winds?	✓			
Are waste management receptacles filled at or beyond capacity?		✓		
Illicit Connection/ Discharge				
Is there any evidence of illicit discharges or illegal dumping on the project site?		✓		
If yes, has the Owner/Operator been notified?			✓	
SWPPP Update				
Do the SWPPP and Project Schedule adequately reflect the current site conditions and contractor operations?	✓			
Are all BMPs installed in the proper location(s) and according to the details in the SWPPP?	✓			
General				
Are there any other potential concerns at the site?		✓		
Storm Water Monitoring				
Does storm water discharge directly to a water body listed in the General Permit as impaired for sediment/sedimentation or turbidity?		✓		
If yes, were samples for sediment/sedimentation or turbidity collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
Did the sampling results indicate that the discharges are causing or contributing to further impairment?			✓	
If yes, were the erosion/sediment control BMPs improved or maintained to reduce the discharge of sediment to the water body?			✓	
Were there any BMPs not properly implemented or breaches, malfunctions, leakages or spills observed which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan during rain events?			✓	
If sampling indicated pollution of the storm water, were the leaks, breaches, spills, etc. cleaned up and the contaminated soil properly disposed of?			✓	
Were the BMPs maintained or replaced?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Were soil amendments (e.g., gypsum, lime) used on the project?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
If sampling indicated pollution of the storm water by the use of the soil amendments, is there a contingency plan for retention onsite of the polluted storm water?			✓	
Did storm water contact stored materials or waste and run off the construction site? (Materials not in watertight containers, etc.)		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	

Notes: wattles maintained on Manseau, Morrell

GENERAL INFORMATION			
Project Name	Parcel D-1 Remedial Action, Hunters Point Shipyard, San Francisco, California		
Project No.	Contract No. N62473-12-D-2005, CTO-0003		
Construction Stage	☑ Excavation and Earthmoving ☐ Inactive Construction	Work Area No.	149631
Inspector's Name	Sam Hepstone	Date	9/14/2016
Signature		Weather	Sunny
Inspection Type (Check Applicable)	☐ Prior to forecast rain ☑ Weekly ☐ 24-hr intervals during extended rain	☐ After a rain event ☐ Quarterly non-stormwater ☐ Other _____	
Season (Check Applicable)	☐ Rainy	☑ Non-Rainy	
Storm Data (www.wrh.noaa.gov)	Storm Start Date & Time: —	Storm Duration (hrs): —	
	Time elapsed since last storm (Circle Applicable Units) Min. Hr. Days	Approximate Rainfall Amount (inches) —	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Preservation of Existing Vegetation				
Is temporary fencing provided to preserve vegetation in areas where no construction activity is planned?			✓	
Erosion Control				
Does the applied temporary erosion control provide 100% coverage for the affected areas?	✓			
Are there any non-vegetated areas that may require temporary erosion control?		✓		
Is the area where erosion controls are used required free from visible erosion?	✓			
Temporary Linear Sediment Barriers (Silt Fence, Fiber Rolls, Sandbag Barriers, etc.)				
Are temporary linear sediment barriers properly installed, functional and maintained?	✓			
Are temporary linear sediment barriers free of accumulated litter?	✓			
Is the built-up sediment less than 1/3 the height of the barrier?	✓			
Stockpiles				
Are all locations of temporary stockpiles (include soil, haz waste, and construction materials) in approved areas?	✓			
Are stockpiles protected from run-on, run-off from adjacent areas and from winds?	✓			
Are stockpiles located at least 15 m (50 ft) from concentrated flows, downstream drainage courses and storm drain inlets?	✓			
Are required covers and/or perimeter controls in place?	✓			

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Concentrated Flows				
Are concentrated flow paths free of visible erosion?	✓			
Tracking Control				
Is the entrance stabilized to prevent tracking	✓			
Is the stabilized entrance inspected daily to ensure that it is working properly	✓			
Are points of ingress/egress to public/private roads inspected and swept and vacuumed as needed?	✓			
Are all paved areas free of visible sediment tracking or other particulate matter?	✓			
Wind Erosion Control				
Is dust control implemented?	✓			
Vehicle & Equipment Fueling, Cleaning, and Maintenance				
Are vehicle and equipment fueling, cleaning and maintenance areas reasonably clean and free of spills, leaks, or any other deleterious material?	✓			
Are vehicle and equipment fueling, cleaning and maintenance activities performed on an impermeable surface in dedicated areas?	✓			
If no, are drip pans used?			✓	
Are dedicated fueling, cleaning, and maintenance areas located at least 15 m (50 ft) away from downstream drainage facilities and watercourses and protected from run-on and runoff?	✓			
Is wash water contained for infiltration/ evaporation and disposed of appropriately?			✓	
Is on-site cleaning limited to washing with water (no soap, soaps substitutes, solvents, or steam)?	✓			
On each day of use, are vehicles and equipment inspected for leaks and if necessary, repaired?	✓			
Waste Management & Materials Pollution Control				
Are material storage areas and washout areas protected from run-on and runoff, and located at least 15 m from concentrated flows and downstream drainage facilities?	✓			
Are all material handling and storage areas clean; organized; free of spills, leaks, or any other deleterious material; and stocked with appropriate clean-up supplies?	✓			
Are liquid materials, hazardous materials, and hazardous wastes stored in temporary containment facilities?			✓	
Are bagged and boxed materials stored on pallets?	✓			
Are hazardous materials and wastes stored in appropriate, labeled containers?			✓	
Are proper storage, clean-up, and spill-reporting procedures for hazardous materials and wastes posted in open, conspicuous and accessible locations adjacent to storage areas?			✓	
Are temporary containment facilities free of spills and rainwater?	✓			
Are temporary containment facilities and bagged/boxed materials covered?			✓	
Are spills from mobile equipment fueling and maintenance properly contained and cleaned up?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Is the site free of litter?	✓			
Are trash receptacles provided in the yard, field trailer areas, and at locations where workers congregate for lunch and break periods?	✓			
Is litter from work areas collected and placed in watertight dumpsters?	✓			
Are waste management receptacles free of leaks?	✓			
Are the contents of waste management receptacles properly protected from contact with storm water or from being dislodged by winds?	✓			
Are waste management receptacles filled at or beyond capacity?		✓		
Illicit Connection/ Discharge				
Is there any evidence of illicit discharges or illegal dumping on the project site?		✓		
If yes, has the Owner/Operator been notified?			✓	
SWPPP Update				
Do the SWPPP and Project Schedule adequately reflect the current site conditions and contractor operations?	✓			
Are all BMPs installed in the proper location(s) and according to the details in the SWPPP?	✓			
General				
Are there any other potential concerns at the site?		✓		
Storm Water Monitoring				
Does storm water discharge directly to a water body listed in the General Permit as impaired for sediment/sedimentation or turbidity?		✓		
If yes, were samples for sediment/sedimentation or turbidity collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
Did the sampling results indicate that the discharges are causing or contributing to further impairment?			✓	
If yes, were the erosion/sediment control BMPs improved or maintained to reduce the discharge of sediment to the water body?			✓	
Were there any BMPs not properly implemented or breaches, malfunctions, leakages or spills observed which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan during rain events?			✓	
If sampling indicated pollution of the storm water, were the leaks, breaches, spills, etc. cleaned up and the contaminated soil properly disposed of?			✓	
Were the BMPs maintained or replaced?	✓			wattles maintained

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Were soil amendments (e.g., gypsum, lime) used on the project?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
If sampling indicated pollution of the storm water by the use of the soil amendments, is there a contingency plan for retention onsite of the polluted storm water?			✓	
Did storm water contact stored materials or waste and run off the construction site? (Materials not in watertight containers, etc.)		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	

Notes: new turbidity curtain installed at berth 19

- wattles installed around riprap placement at berths 17, 19
- wattles maintained along Manseau, Gun Mole Pier seawall, and South Pier seawall

GENERAL INFORMATION					
Project Name	Parcel D-1 Remedial Action, Hunters Point Shipyard, San Francisco, California				
Project No.	Contract No. N62473-12-D-2005, CTO-0003				
Construction Stage	☑ Excavation and Earthmoving ☐ Inactive Construction		Work Area No.	149831	
Inspector's Name	Sam Hopstone		Date	9/22/2016	
Signature	Sam Hopstone		Weather	Sunny	
Inspection Type (Check Applicable)	☐ Prior to forecast rain ☑ Weekly ☐ 24-hr intervals during extended rain		☐ After a rain event ☐ Quarterly non-stormwater ☐ Other _____		
Season (Check Applicable)	☐ Rainy		☑ Non-Rainy		
Storm Data (www.wrh.noaa.gov)	Storm Start Date & Time:	—	Storm Duration (hrs):	—	
	Time elapsed since last storm (Circle Applicable Units)	Min. Hr. Days	Approximate Rainfall Amount (inches)	—	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Preservation of Existing Vegetation				
Is temporary fencing provided to preserve vegetation in areas where no construction activity is planned?			✓	
Erosion Control				
Does the applied temporary erosion control provide 100% coverage for the affected areas?	✓			
Are there any non-vegetated areas that may require temporary erosion control?		✓		
Is the area where erosion controls are used required free from visible erosion?	✓			
Temporary Linear Sediment Barriers (Silt Fence, Fiber Rolls, Sandbag Barriers, etc.)				
Are temporary linear sediment barriers properly installed, functional and maintained?	✓			
Are temporary linear sediment barriers free of accumulated litter?	✓			
Is the built-up sediment less than 1/3 the height of the barrier?	✓			
Stockpiles				
Are all locations of temporary stockpiles (include soil, haz waste, and construction materials) in approved areas?	✓			
Are stockpiles protected from run-on, run-off from adjacent areas and from winds?	✓			
Are stockpiles located at least 15 m (50 ft) from concentrated flows, downstream drainage courses and storm drain inlets?	✓			
Are required covers and/or perimeter controls in place?	✓			

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Concentrated Flows				
Are concentrated flow paths free of visible erosion?	✓			
Tracking Control				
Is the entrance stabilized to prevent tracking	✓			
Is the stabilized entrance inspected daily to ensure that it is working properly	✓			
Are points of ingress/egress to public/private roads inspected and swept and vacuumed as needed?	✓			
Are all paved areas free of visible sediment tracking or other particulate matter?	✓			
Wind Erosion Control				
Is dust control implemented?	✓			
Vehicle & Equipment Fueling, Cleaning, and Maintenance				
Are vehicle and equipment fueling, cleaning and maintenance areas reasonably clean and free of spills, leaks, or any other deleterious material?	✓			
Are vehicle and equipment fueling, cleaning and maintenance activities performed on an impermeable surface in dedicated areas?	✓			
If no, are drip pans used?			✓	
Are dedicated fueling, cleaning, and maintenance areas located at least 15 m (50 ft) away from downstream drainage facilities and watercourses and protected from run-on and runoff?	✓			
Is wash water contained for infiltration/ evaporation and disposed of appropriately?			✓	
Is on-site cleaning limited to washing with water (no soap, soaps substitutes, solvents, or steam)?	✓			
On each day of use, are vehicles and equipment inspected for leaks and if necessary, repaired?	✓			
Waste Management & Materials Pollution Control				
Are material storage areas and washout areas protected from run-on and runoff, and located at least 15 m from concentrated flows and downstream drainage facilities?	✓			
Are all material handling and storage areas clean; organized; free of spills, leaks, or any other deleterious material; and stocked with appropriate clean-up supplies?	✓			
Are liquid materials, hazardous materials, and hazardous wastes stored in temporary containment facilities?			✓	
Are bagged and boxed materials stored on pallets?	✓			
Are hazardous materials and wastes stored in appropriate, labeled containers?			✓	
Are proper storage, clean-up, and spill-reporting procedures for hazardous materials and wastes posted in open, conspicuous and accessible locations adjacent to storage areas?			✓	
Are temporary containment facilities free of spills and rainwater?	✓			
Are temporary containment facilities and bagged/boxed materials covered?			✓	
Are spills from mobile equipment fueling and maintenance properly contained and cleaned up?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Is the site free of litter?	✓			
Are trash receptacles provided in the yard, field trailer areas, and at locations where workers congregate for lunch and break periods?	✓			
Is litter from work areas collected and placed in watertight dumpsters?	✓			
Are waste management receptacles free of leaks?	✓			
Are the contents of waste management receptacles properly protected from contact with storm water or from being dislodged by winds?	✓			
Are waste management receptacles filled at or beyond capacity?		✓		
Illicit Connection/ Discharge				
Is there any evidence of illicit discharges or illegal dumping on the project site?		✓		
If yes, has the Owner/Operator been notified?			✓	
SWPPP Update				
Do the SWPPP and Project Schedule adequately reflect the current site conditions and contractor operations?	✓			
Are all BMPs installed in the proper location(s) and according to the details in the SWPPP?	✓			
General				
Are there any other potential concerns at the site?		✓		
Storm Water Monitoring				
Does storm water discharge directly to a water body listed in the General Permit as impaired for sediment/sedimentation or turbidity?		✓		
If yes, were samples for sediment/sedimentation or turbidity collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
Did the sampling results indicate that the discharges are causing or contributing to further impairment?			✓	
If yes, were the erosion/sediment control BMPs improved or maintained to reduce the discharge of sediment to the water body?			✓	
Were there any BMPs not properly implemented or breaches, malfunctions, leakages or spills observed which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan during rain events?			✓	
If sampling indicated pollution of the storm water, were the leaks, breaches, spills, etc. cleaned up and the contaminated soil properly disposed of?			✓	
Were the BMPs maintained or replaced?	✓			wattles maintained

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Were soil amendments (e.g., gypsum, lime) used on the project?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
If sampling indicated pollution of the storm water by the use of the soil amendments, is there a contingency plan for retention onsite of the polluted storm water?			✓	
Did storm water contact stored materials or waste and run off the construction site? (Materials not in watertight containers, etc.)		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	

Notes: wattles maintained on Manseau

GENERAL INFORMATION			
Project Name	Parcel D-1 Remedial Action, Hunters Point Shipyard, San Francisco, California		
Project No.	Contract No. N62473-12-D-2005, CTO-0003		
Construction Stage	☑ Excavation and Earthmoving ☐ Inactive Construction	Work Area No.	149831
Inspector's Name	Sam Hopstone	Date	9/29/2016
Signature		Weather	Foggy
Inspection Type (Check Applicable)	☐ Prior to forecast rain ☑ Weekly ☐ 24-hr intervals during extended rain	☐ After a rain event ☐ Quarterly non-stormwater ☐ Other _____	
Season (Check Applicable)	☐ Rainy	☑ Non-Rainy	
Storm Data (www.wrh.noaa.gov)	Storm Start Date & Time: —	Storm Duration (hrs): —	
	Time elapsed since last storm (Circle Applicable Units) Min. Hr. Days —	Approximate Rainfall Amount (inches) —	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Preservation of Existing Vegetation				
Is temporary fencing provided to preserve vegetation in areas where no construction activity is planned?			✓	
Erosion Control				
Does the applied temporary erosion control provide 100% coverage for the affected areas?	✓			
Are there any non-vegetated areas that may require temporary erosion control?		✓		
Is the area where erosion controls are used required free from visible erosion?	✓			
Temporary Linear Sediment Barriers (Silt Fence, Fiber Rolls, Sandbag Barriers, etc.)				
Are temporary linear sediment barriers properly installed, functional and maintained?	✓			
Are temporary linear sediment barriers free of accumulated litter?	✓			
Is the built-up sediment less than 1/3 the height of the barrier?	✓			
Stockpiles				
Are all locations of temporary stockpiles (include soil, haz waste, and construction materials) in approved areas?	✓			
Are stockpiles protected from run-on, run-off from adjacent areas and from winds?	✓			
Are stockpiles located at least 15 m (50 ft) from concentrated flows, downstream drainage courses and storm drain inlets?	✓			
Are required covers and/or perimeter controls in place?	✓			

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Concentrated Flows				
Are concentrated flow paths free of visible erosion?	✓			
Tracking Control				
Is the entrance stabilized to prevent tracking	✓			
Is the stabilized entrance inspected daily to ensure that it is working properly	✓			
Are points of ingress/egress to public/private roads inspected and swept and vacuumed as needed?	✓			
Are all paved areas free of visible sediment tracking or other particulate matter?	✓			
Wind Erosion Control				
Is dust control implemented?	✓			
Vehicle & Equipment Fueling, Cleaning, and Maintenance				
Are vehicle and equipment fueling, cleaning and maintenance areas reasonably clean and free of spills, leaks, or any other deleterious material?	✓			
Are vehicle and equipment fueling, cleaning and maintenance activities performed on an impermeable surface in dedicated areas?	✓			
If no, are drip pans used?			✓	
Are dedicated fueling, cleaning, and maintenance areas located at least 15 m (50 ft) away from downstream drainage facilities and watercourses and protected from run-on and runoff?	✓			
Is wash water contained for infiltration/ evaporation and disposed of appropriately?			✓	
Is on-site cleaning limited to washing with water (no soap, soaps substitutes, solvents, or steam)?	✓			
On each day of use, are vehicles and equipment inspected for leaks and if necessary, repaired?	✓			
Waste Management & Materials Pollution Control				
Are material storage areas and washout areas protected from run-on and runoff, and located at least 15 m from concentrated flows and downstream drainage facilities?	✓			
Are all material handling and storage areas clean; organized; free of spills, leaks, or any other deleterious material; and stocked with appropriate clean-up supplies?	✓			
Are liquid materials, hazardous materials, and hazardous wastes stored in temporary containment facilities?			✓	
Are bagged and boxed materials stored on pallets?	✓			
Are hazardous materials and wastes stored in appropriate, labeled containers?			✓	
Are proper storage, clean-up, and spill-reporting procedures for hazardous materials and wastes posted in open, conspicuous and accessible locations adjacent to storage areas?			✓	
Are temporary containment facilities free of spills and rainwater?	✓			
Are temporary containment facilities and bagged/boxed materials covered?			✓	
Are spills from mobile equipment fueling and maintenance properly contained and cleaned up?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Is the site free of litter?	✓			
Are trash receptacles provided in the yard, field trailer areas, and at locations where workers congregate for lunch and break periods?	✓			
Is litter from work areas collected and placed in watertight dumpsters?	✓			
Are waste management receptacles free of leaks?	✓			
Are the contents of waste management receptacles properly protected from contact with storm water or from being dislodged by winds?	✓			
Are waste management receptacles filled at or beyond capacity?		✓		
Illicit Connection/ Discharge				
Is there any evidence of illicit discharges or illegal dumping on the project site?		✓		
If yes, has the Owner/Operator been notified?			✓	
SWPPP Update				
Do the SWPPP and Project Schedule adequately reflect the current site conditions and contractor operations?	✓			
Are all BMPs installed in the proper location(s) and according to the details in the SWPPP?	✓			
General				
Are there any other potential concerns at the site?		✓		
Storm Water Monitoring				
Does storm water discharge directly to a water body listed in the General Permit as impaired for sediment/sedimentation or turbidity?		✓		
If yes, were samples for sediment/sedimentation or turbidity collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
Did the sampling results indicate that the discharges are causing or contributing to further impairment?			✓	
If yes, were the erosion/sediment control BMPs improved or maintained to reduce the discharge of sediment to the water body?			✓	
Were there any BMPs not properly implemented or breaches, malfunctions, leakages or spills observed which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan during rain events?			✓	
If sampling indicated pollution of the storm water, were the leaks, breaches, spills, etc. cleaned up and the contaminated soil properly disposed of?			✓	
Were the BMPs maintained or replaced?	✓			wattles maintained

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Were soil amendments (e.g., gypsum, lime) used on the project?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
If sampling indicated pollution of the storm water by the use of the soil amendments, is there a contingency plan for retention onsite of the polluted storm water?			✓	
Did storm water contact stored materials or waste and run off the construction site? (Materials not in watertight containers, etc.)		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	

Note: wattles maintained along South Pier, Berth 14

GENERAL INFORMATION			
Project Name	Parcel D-1 Remedial Action, Hunters Point Shipyard, San Francisco, California		
Project No.	Contract No. N62473-12-D-2005, CTO-0003		
Construction Stage	☑ Excavation and Earthmoving ☐ Inactive Construction	Work Area No.	149831
Inspector's Name	Sam Hopstone	Date	10/06/2016
Signature	Sam Hopstone	Weather	Sunny
Inspection Type (Check Applicable)	☐ Prior to forecast rain ☑ Weekly ☐ 24-hr intervals during extended rain	☐ After a rain event ☐ Quarterly non-stormwater ☐ Other _____	
Season (Check Applicable)	☑ Rainy	☐ Non-Rainy	
Storm Data (www.wrh.noaa.gov)	Storm Start Date & Time: —	Storm Duration (hrs): —	
	Time elapsed since last storm (Circle Applicable Units) Min. Hr. Days —	Approximate Rainfall Amount (inches) —	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Preservation of Existing Vegetation				
Is temporary fencing provided to preserve vegetation in areas where no construction activity is planned?			✓	
Erosion Control				
Does the applied temporary erosion control provide 100% coverage for the affected areas?	✓			
Are there any non-vegetated areas that may require temporary erosion control?		✓		
Is the area where erosion controls are used required free from visible erosion?	✓			
Temporary Linear Sediment Barriers (Silt Fence, Fiber Rolls, Sandbag Barriers, etc.)				
Are temporary linear sediment barriers properly installed, functional and maintained?	✓			
Are temporary linear sediment barriers free of accumulated litter?	✓			
Is the built-up sediment less than 1/3 the height of the barrier?	✓			
Stockpiles				
Are all locations of temporary stockpiles (include soil, haz waste, and construction materials) in approved areas?	✓			
Are stockpiles protected from run-on, run-off from adjacent areas and from winds?	✓			
Are stockpiles located at least 15 m (50 ft) from concentrated flows, downstream drainage courses and storm drain inlets?	✓			
Are required covers and/or perimeter controls in place?	✓			

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Concentrated Flows				
Are concentrated flow paths free of visible erosion?	✓			
Tracking Control				
Is the entrance stabilized to prevent tracking	✓			
Is the stabilized entrance inspected daily to ensure that it is working properly	✓			
Are points of ingress/egress to public/private roads inspected and swept and vacuumed as needed?	✓			
Are all paved areas free of visible sediment tracking or other particulate matter?	✓			
Wind Erosion Control				
Is dust control implemented?	✓			
Vehicle & Equipment Fueling, Cleaning, and Maintenance				
Are vehicle and equipment fueling, cleaning and maintenance areas reasonably clean and free of spills, leaks, or any other deleterious material?	✓			
Are vehicle and equipment fueling, cleaning and maintenance activities performed on an impermeable surface in dedicated areas?	✓			
If no, are drip pans used?			✓	
Are dedicated fueling, cleaning, and maintenance areas located at least 15 m (50 ft) away from downstream drainage facilities and watercourses and protected from run-on and runoff?	✓			
Is wash water contained for infiltration/ evaporation and disposed of appropriately?			✓	
Is on-site cleaning limited to washing with water (no soap, soaps substitutes, solvents, or steam)?	✓			
On each day of use, are vehicles and equipment inspected for leaks and if necessary, repaired?	✓			
Waste Management & Materials Pollution Control				
Are material storage areas and washout areas protected from run-on and runoff, and located at least 15 m from concentrated flows and downstream drainage facilities?	✓			
Are all material handling and storage areas clean; organized; free of spills, leaks, or any other deleterious material; and stocked with appropriate clean-up supplies?	✓			
Are liquid materials, hazardous materials, and hazardous wastes stored in temporary containment facilities?			✓	
Are bagged and boxed materials stored on pallets?	✓			
Are hazardous materials and wastes stored in appropriate, labeled containers?			✓	
Are proper storage, clean-up, and spill-reporting procedures for hazardous materials and wastes posted in open, conspicuous and accessible locations adjacent to storage areas?			✓	
Are temporary containment facilities free of spills and rainwater?	✓			
Are temporary containment facilities and bagged/boxed materials covered?			✓	
Are spills from mobile equipment fueling and maintenance properly contained and cleaned up?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Is the site free of litter?	✓			
Are trash receptacles provided in the yard, field trailer areas, and at locations where workers congregate for lunch and break periods?	✓			
Is litter from work areas collected and placed in watertight dumpsters?	✓			
Are waste management receptacles free of leaks?	✓			
Are the contents of waste management receptacles properly protected from contact with storm water or from being dislodged by winds?	✓			
Are waste management receptacles filled at or beyond capacity?		✓		
Illicit Connection/ Discharge				
Is there any evidence of illicit discharges or illegal dumping on the project site?		✓		
If yes, has the Owner/Operator been notified?			✓	
SWPPP Update				
Do the SWPPP and Project Schedule adequately reflect the current site conditions and contractor operations?	✓			
Are all BMPs installed in the proper location(s) and according to the details in the SWPPP?	✓			
General				
Are there any other potential concerns at the site?		✓		
Storm Water Monitoring				
Does storm water discharge directly to a water body listed in the General Permit as impaired for sediment/sedimentation or turbidity?		✓		
If yes, were samples for sediment/sedimentation or turbidity collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
Did the sampling results indicate that the discharges are causing or contributing to further impairment?			✓	
If yes, were the erosion/sediment control BMPs improved or maintained to reduce the discharge of sediment to the water body?			✓	
Were there any BMPs not properly implemented or breaches, malfunctions, leakages or spills observed which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan during rain events?			✓	
If sampling indicated pollution of the storm water, were the leaks, breaches, spills, etc. cleaned up and the contaminated soil properly disposed of?			✓	
Were the BMPs maintained or replaced?	✓			wattles maintained

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Were soil amendments (e.g., gypsum, lime) used on the project?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
If sampling indicated pollution of the storm water by the use of the soil amendments, is there a contingency plan for retention onsite of the polluted storm water?			✓	
Did storm water contact stored materials or waste and run off the construction site? (Materials not in watertight containers, etc.)		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	

Note : wattles maintained and sediment buildup from wind was removed along berths 17, 18, 19

GENERAL INFORMATION			
Project Name	Parcel D-1 Remedial Action, Hunters Point Shipyard, San Francisco, California		
Project No.	Contract No. N62473-12-D-2005, CTO-0003		
Construction Stage	☑ Excavation and Earthmoving ☐ Inactive Construction	Work Area No.	149631
Inspector's Name	Sam Hopstone	Date	10/12/16
Signature		Weather	cloudy
Inspection Type (Check Applicable)	☑ Prior to forecast rain ☑ Weekly ☐ 24-hr intervals during extended rain	☐ After a rain event ☐ Quarterly non-stormwater ☐ Other _____	
Season (Check Applicable)	☑ Rainy	☐ Non-Rainy	
Storm Data (www.wrh.noaa.gov)	Storm Start Date & Time:	Storm Duration (hrs):	
	Time elapsed since last storm (Circle Applicable Units) Min. Hr. Days	Approximate Rainfall Amount (inches)	

INSPECTION OF BMPs				
BMP	Yes	No	N/A	Corrective Action/Comments
Preservation of Existing Vegetation				
Is temporary fencing provided to preserve vegetation in areas where no construction activity is planned?	✓			
Erosion Control				
Does the applied temporary erosion control provide 100% coverage for the affected areas?	✓			
Are there any non-vegetated areas that may require temporary erosion control?	✓			
Is the area where erosion controls are used required free from visible erosion?	✓			
Temporary Linear Sediment Barriers (Silt Fence, Fiber Rolls, Sandbag Barriers, etc.)				
Are temporary linear sediment barriers properly installed, functional and maintained?	✓			
Are temporary linear sediment barriers free of accumulated litter?	✓			
Is the built-up sediment less than 1/3 the height of the barrier?	✓			
Stockpiles				
Are all locations of temporary stockpiles (include soil, haz waste, and construction materials) in approved areas?	✓			
Are stockpiles protected from run-on, run-off from adjacent areas and from winds?	✓			
Are stockpiles located at least 15 m (50 ft) from concentrated flows, downstream drainage courses and storm drain inlets?	✓			
Are required covers and/or perimeter controls in place?	✓			

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Concentrated Flows				
Are concentrated flow paths free of visible erosion?	✓			
Tracking Control				
Is the entrance stabilized to prevent tracking	✓			
Is the stabilized entrance inspected daily to ensure that it is working properly	✓			
Are points of ingress/egress to public/private roads inspected and swept and vacuumed as needed?	✓			
Are all paved areas free of visible sediment tracking or other particulate matter?	✓			
Wind Erosion Control				
Is dust control implemented?	✓			
Vehicle & Equipment Fueling, Cleaning, and Maintenance				
Are vehicle and equipment fueling, cleaning and maintenance areas reasonably clean and free of spills, leaks, or any other deleterious material?	✓			
Are vehicle and equipment fueling, cleaning and maintenance activities performed on an impermeable surface in dedicated areas?	✓			
If no, are drip pans used?			✓	
Are dedicated fueling, cleaning, and maintenance areas located at least 15 m (50 ft) away from downstream drainage facilities and watercourses and protected from run-on and runoff?	✓			
Is wash water contained for infiltration/ evaporation and disposed of appropriately?			✓	
Is on-site cleaning limited to washing with water (no soap, soaps substitutes, solvents, or steam)?	✓			
On each day of use, are vehicles and equipment inspected for leaks and if necessary, repaired?	✓			
Waste Management & Materials Pollution Control				
Are material storage areas and washout areas protected from run-on and runoff, and located at least 15 m from concentrated flows and downstream drainage facilities?	✓			
Are all material handling and storage areas clean; organized; free of spills, leaks, or any other deleterious material; and stocked with appropriate clean-up supplies?	✓			
Are liquid materials, hazardous materials, and hazardous wastes stored in temporary containment facilities?			✓	
Are bagged and boxed materials stored on pallets?	✓			
Are hazardous materials and wastes stored in appropriate, labeled containers?			✓	
Are proper storage, clean-up, and spill-reporting procedures for hazardous materials and wastes posted in open, conspicuous and accessible locations adjacent to storage areas?			✓	
Are temporary containment facilities free of spills and rainwater?	✓			
Are temporary containment facilities and bagged/boxed materials covered?			✓	
Are spills from mobile equipment fueling and maintenance properly contained and cleaned up?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Is the site free of litter?	✓			
Are trash receptacles provided in the yard, field trailer areas, and at locations where workers congregate for lunch and break periods?	✓			
Is litter from work areas collected and placed in watertight dumpsters?	✓			
Are waste management receptacles free of leaks?	✓			
Are the contents of waste management receptacles properly protected from contact with storm water or from being dislodged by winds?	✓			
Are waste management receptacles filled at or beyond capacity?		✓		
Illicit Connection/ Discharge				
Is there any evidence of illicit discharges or illegal dumping on the project site?		✓		
If yes, has the Owner/Operator been notified?			✓	
SWPPP Update				
Do the SWPPP and Project Schedule adequately reflect the current site conditions and contractor operations?	✓			
Are all BMPs installed in the proper location(s) and according to the details in the SWPPP?	✓			
General				
Are there any other potential concerns at the site?		✓		
Storm Water Monitoring				
Does storm water discharge directly to a water body listed in the General Permit as impaired for sediment/sedimentation or turbidity?		✓		
If yes, were samples for sediment/sedimentation or turbidity collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
Did the sampling results indicate that the discharges are causing or contributing to further impairment?			✓	
If yes, were the erosion/sediment control BMPs improved or maintained to reduce the discharge of sediment to the water body?			✓	
Were there any BMPs not properly implemented or breaches, malfunctions, leakages or spills observed which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan during rain events?			✓	
If sampling indicated pollution of the storm water, were the leaks, breaches, spills, etc. cleaned up and the contaminated soil properly disposed of?			✓	
Were the BMPs maintained or replaced?	✓			waffles maintained

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Were soil amendments (e.g., gypsum, lime) used on the project?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
If sampling indicated pollution of the storm water by the use of the soil amendments, is there a contingency plan for retention onsite of the polluted storm water?			✓	
Did storm water contact stored materials or waste and run off the construction site? (Materials not in watertight containers, etc.)		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	

Notes: wattles maintained along South Pier

GENERAL INFORMATION					
Project Name	Parcel D-1 Remedial Action, Hunters Point Shipyard, San Francisco, California				
Project No.	Contract No. N62473-12-D-2005, CTO-0003				
Construction Stage	☑ Excavation and Earthmoving ☐ Inactive Construction		Work Area No.	149831	
Inspector's Name	Sean Hopstone		Date	10/17/2016	
Signature	Sean Hopstone		Weather	Sunny	
Inspection Type (Check Applicable)	☐ Prior to forecast rain ☑ Weekly ☐ 24-hr intervals during extended rain		☑ After a rain event ☐ Quarterly non-stormwater ☐ Other _____		
Season (Check Applicable)	☑ Rainy		☐ Non-Rainy		
Storm Data (www.wrh.noaa.gov)	Storm Start Date & Time:	10/14/2016	Storm Duration (hrs):	72	
	Time elapsed since last storm (Circle Applicable Units)	Min. Hr. (Days)	Approximate Rainfall Amount (inches)	1.6	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Preservation of Existing Vegetation				
Is temporary fencing provided to preserve vegetation in areas where no construction activity is planned?	✓			
Erosion Control				
Does the applied temporary erosion control provide 100% coverage for the affected areas?	✓			
Are there any non-vegetated areas that may require temporary erosion control?	✓			
Is the area where erosion controls are used required free from visible erosion?	✓			
Temporary Linear Sediment Barriers (Silt Fence, Fiber Rolls, Sandbag Barriers, etc.)				
Are temporary linear sediment barriers properly installed, functional and maintained?	✓			
Are temporary linear sediment barriers free of accumulated litter?	✓			
Is the built-up sediment less than 1/3 the height of the barrier?	✓			
Stockpiles				
Are all locations of temporary stockpiles (include soil, haz waste, and construction materials) in approved areas?	✓			
Are stockpiles protected from run-on, run-off from adjacent areas and from winds?	✓			
Are stockpiles located at least 15 m (50 ft) from concentrated flows, downstream drainage courses and storm drain inlets?	✓			
Are required covers and/or perimeter controls in place?	✓			

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Concentrated Flows				
Are concentrated flow paths free of visible erosion?	✓			
Tracking Control				
Is the entrance stabilized to prevent tracking	✓			
Is the stabilized entrance inspected daily to ensure that it is working properly	✓			
Are points of ingress/egress to public/private roads inspected and swept and vacuumed as needed?	✓			
Are all paved areas free of visible sediment tracking or other particulate matter?	✓			
Wind Erosion Control				
Is dust control implemented?	✓			
Vehicle & Equipment Fueling, Cleaning, and Maintenance				
Are vehicle and equipment fueling, cleaning and maintenance areas reasonably clean and free of spills, leaks, or any other deleterious material?	✓			
Are vehicle and equipment fueling, cleaning and maintenance activities performed on an impermeable surface in dedicated areas?	✓			
If no, are drip pans used?			✓	
Are dedicated fueling, cleaning, and maintenance areas located at least 15 m (50 ft) away from downstream drainage facilities and watercourses and protected from run-on and runoff?	✓			
Is wash water contained for infiltration/ evaporation and disposed of appropriately?			✓	
Is on-site cleaning limited to washing with water (no soap, soaps substitutes, solvents, or steam)?	✓			
On each day of use, are vehicles and equipment inspected for leaks and if necessary, repaired?	✓			
Waste Management & Materials Pollution Control				
Are material storage areas and washout areas protected from run-on and runoff, and located at least 15 m from concentrated flows and downstream drainage facilities?	✓			
Are all material handling and storage areas clean; organized; free of spills, leaks, or any other deleterious material; and stocked with appropriate clean-up supplies?	✓			
Are liquid materials, hazardous materials, and hazardous wastes stored in temporary containment facilities?			✓	
Are bagged and boxed materials stored on pallets?	✓			
Are hazardous materials and wastes stored in appropriate, labeled containers?			✓	
Are proper storage, clean-up, and spill-reporting procedures for hazardous materials and wastes posted in open, conspicuous and accessible locations adjacent to storage areas?			✓	
Are temporary containment facilities free of spills and rainwater?	✓			
Are temporary containment facilities and bagged/boxed materials covered?			✓	
Are spills from mobile equipment fueling and maintenance properly contained and cleaned up?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Is the site free of litter?	✓			
Are trash receptacles provided in the yard, field trailer areas, and at locations where workers congregate for lunch and break periods?	✓			
Is litter from work areas collected and placed in watertight dumpsters?	✓			
Are waste management receptacles free of leaks?	✓			
Are the contents of waste management receptacles properly protected from contact with storm water or from being dislodged by winds?	✓			
Are waste management receptacles filled at or beyond capacity?		✓		
Illicit Connection/ Discharge				
Is there any evidence of illicit discharges or illegal dumping on the project site?		✓		
If yes, has the Owner/Operator been notified?			✓	
SWPPP Update				
Do the SWPPP and Project Schedule adequately reflect the current site conditions and contractor operations?	✓			
Are all BMPs installed in the proper location(s) and according to the details in the SWPPP?	✓			
General				
Are there any other potential concerns at the site?		✓		
Storm Water Monitoring				
Does storm water discharge directly to a water body listed in the General Permit as impaired for sediment/sedimentation or turbidity?		✓		
If yes, were samples for sediment/sedimentation or turbidity collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
Did the sampling results indicate that the discharges are causing or contributing to further impairment?			✓	
If yes, were the erosion/sediment control BMPs improved or maintained to reduce the discharge of sediment to the water body?			✓	
Were there any BMPs not properly implemented or breaches, malfunctions, leakages or spills observed which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan during rain events?			✓	
If sampling indicated pollution of the storm water, were the leaks, breaches, spills, etc. cleaned up and the contaminated soil properly disposed of?			✓	
Were the BMPs maintained or replaced?		✓		

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Were soil amendments (e.g., gypsum, lime) used on the project?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
If sampling indicated pollution of the storm water by the use of the soil amendments, is there a contingency plan for retention onsite of the polluted storm water?			✓	
Did storm water contact stored materials or waste and run off the construction site? (Materials not in watertight containers, etc.)		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	

Notes: too muddy to access South Pier, Gun Mole Pier.

: all perimeter SWPPP measures remained intact

GENERAL INFORMATION			
Project Name	Parcel D-1 Remedial Action, Hunters Point Shipyard, San Francisco, California		
Project No.	Contract No. N62473-12-D-2005, CTO-0003		
Construction Stage	☑ Excavation and Earthmoving ☐ Inactive Construction	Work Area No.	149831
Inspector's Name	Sam Hopstone	Date	10/24/2016
Signature	Sam Hopstone	Weather	Foggy
Inspection Type (Check Applicable)	☑ Prior to forecast rain ☑ Weekly ☐ 24-hr intervals during extended rain	☐ After a rain event ☐ Quarterly non-stormwater ☐ Other _____	
Season (Check Applicable)	☑ Rainy	☐ Non-Rainy	
Storm Data (www.wrh.noaa.gov)	Storm Start Date & Time:	Storm Duration (hrs):	
	Time elapsed since last storm (Circle Applicable Units) Min. Hr. Days	Approximate Rainfall Amount (inches)	

INSPECTION OF BMPs				
BMP	Yes	No	N/A	Corrective Action/Comments
Preservation of Existing Vegetation				
Is temporary fencing provided to preserve vegetation in areas where no construction activity is planned?	✓			
Erosion Control				
Does the applied temporary erosion control provide 100% coverage for the affected areas?	✓			
Are there any non-vegetated areas that may require temporary erosion control?	✓			
Is the area where erosion controls are used required free from visible erosion?	✓			
Temporary Linear Sediment Barriers (Silt Fence, Fiber Rolls, Sandbag Barriers, etc.)				
Are temporary linear sediment barriers properly installed, functional and maintained?	✓			
Are temporary linear sediment barriers free of accumulated litter?	✓			
Is the built-up sediment less than 1/3 the height of the barrier?	✓			
Stockpiles				
Are all locations of temporary stockpiles (include soil, haz waste, and construction materials) in approved areas?	✓			
Are stockpiles protected from run-on, run-off from adjacent areas and from winds?	✓			
Are stockpiles located at least 15 m (50 ft) from concentrated flows, downstream drainage courses and storm drain inlets?	✓			
Are required covers and/or perimeter controls in place?	✓			

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Concentrated Flows				
Are concentrated flow paths free of visible erosion?	✓			
Tracking Control				
Is the entrance stabilized to prevent tracking	✓			
Is the stabilized entrance inspected daily to ensure that it is working properly	✓			
Are points of ingress/egress to public/private roads inspected and swept and vacuumed as needed?	✓			
Are all paved areas free of visible sediment tracking or other particulate matter?	✓			
Wind Erosion Control				
Is dust control implemented?	✓			
Vehicle & Equipment Fueling, Cleaning, and Maintenance				
Are vehicle and equipment fueling, cleaning and maintenance areas reasonably clean and free of spills, leaks, or any other deleterious material?	✓			
Are vehicle and equipment fueling, cleaning and maintenance activities performed on an impermeable surface in dedicated areas?	✓			
If no, are drip pans used?			✓	
Are dedicated fueling, cleaning, and maintenance areas located at least 15 m (50 ft) away from downstream drainage facilities and watercourses and protected from run-on and runoff?	✓			
Is wash water contained for infiltration/ evaporation and disposed of appropriately?			✓	
Is on-site cleaning limited to washing with water (no soap, soaps substitutes, solvents, or steam)?	✓			
On each day of use, are vehicles and equipment inspected for leaks and if necessary, repaired?	✓			
Waste Management & Materials Pollution Control				
Are material storage areas and washout areas protected from run-on and runoff, and located at least 15 m from concentrated flows and downstream drainage facilities?	✓			
Are all material handling and storage areas clean; organized; free of spills, leaks, or any other deleterious material; and stocked with appropriate clean-up supplies?	✓			
Are liquid materials, hazardous materials, and hazardous wastes stored in temporary containment facilities?			✓	
Are bagged and boxed materials stored on pallets?	✓			
Are hazardous materials and wastes stored in appropriate, labeled containers?			✓	
Are proper storage, clean-up, and spill-reporting procedures for hazardous materials and wastes posted in open, conspicuous and accessible locations adjacent to storage areas?			✓	
Are temporary containment facilities free of spills and rainwater?	✓			
Are temporary containment facilities and bagged/boxed materials covered?			✓	
Are spills from mobile equipment fueling and maintenance properly contained and cleaned up?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Is the site free of litter?	✓			
Are trash receptacles provided in the yard, field trailer areas, and at locations where workers congregate for lunch and break periods?	✓			
Is litter from work areas collected and placed in watertight dumpsters?	✓			
Are waste management receptacles free of leaks?	✓			
Are the contents of waste management receptacles properly protected from contact with storm water or from being dislodged by winds?	✓			
Are waste management receptacles filled at or beyond capacity?		✓		
Illicit Connection/ Discharge				
Is there any evidence of illicit discharges or illegal dumping on the project site?		✓		
If yes, has the Owner/Operator been notified?			✓	
SWPPP Update				
Do the SWPPP and Project Schedule adequately reflect the current site conditions and contractor operations?	✓			
Are all BMPs installed in the proper location(s) and according to the details in the SWPPP?	✓			
General				
Are there any other potential concerns at the site?		✓		
Storm Water Monitoring				
Does storm water discharge directly to a water body listed in the General Permit as impaired for sediment/sedimentation or turbidity?		✓		
If yes, were samples for sediment/sedimentation or turbidity collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
Did the sampling results indicate that the discharges are causing or contributing to further impairment?			✓	
If yes, were the erosion/sediment control BMPs improved or maintained to reduce the discharge of sediment to the water body?			✓	
Were there any BMPs not properly implemented or breaches, malfunctions, leakages or spills observed which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan during rain events?			✓	
If sampling indicated pollution of the storm water, were the leaks, breaches, spills, etc. cleaned up and the contaminated soil properly disposed of?			✓	
Were the BMPs maintained or replaced?		✓		

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Were soil amendments (e.g., gypsum, lime) used on the project?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
If sampling indicated pollution of the storm water by the use of the soil amendments, is there a contingency plan for retention onsite of the polluted storm water?			✓	
Did storm water contact stored materials or waste and run off the construction site? (Materials not in watertight containers, etc.)		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	

Notes: waffles maintained on berths 14, 17, 19

GENERAL INFORMATION			
Project Name	Parcel D-1 Remedial Action, Hunters Point Shipyard, San Francisco, California		
Project No.	Contract No. N62473-12-D-2005, CTO-0003		
Construction Stage	☑ Excavation and Earthmoving ☐ Inactive Construction	Work Area No.	149831
Inspector's Name	Sam Hopstone	Date	10/26/2016
Signature	Sam Hopstone	Weather	foggy
Inspection Type (Check Applicable)	☑ Prior to forecast rain ☐ Weekly ☐ 24-hr intervals during extended rain	☐ After a rain event ☐ Quarterly non-stormwater ☐ Other _____	
Season (Check Applicable)	☑ Rainy	☐ Non-Rainy	
Storm Data (www.wrh.noaa.gov)	Storm Start Date & Time:	Storm Duration (hrs):	
	Time elapsed since last storm (Circle Applicable Units) Min. Hr. Days	Approximate Rainfall Amount (inches)	

INSPECTION OF BMPs				
BMP	Yes	No	N/A	Corrective Action/Comments
Preservation of Existing Vegetation				
Is temporary fencing provided to preserve vegetation in areas where no construction activity is planned?	✓			
Erosion Control				
Does the applied temporary erosion control provide 100% coverage for the affected areas?	✓			
Are there any non-vegetated areas that may require temporary erosion control?	✓			
Is the area where erosion controls are used required free from visible erosion?	✓			
Temporary Linear Sediment Barriers (Silt Fence, Fiber Rolls, Sandbag Barriers, etc.)				
Are temporary linear sediment barriers properly installed, functional and maintained?	✓			
Are temporary linear sediment barriers free of accumulated litter?	✓			
Is the built-up sediment less than 1/3 the height of the barrier?	✓			
Stockpiles				
Are all locations of temporary stockpiles (include soil, haz waste, and construction materials) in approved areas?	✓			
Are stockpiles protected from run-on, run-off from adjacent areas and from winds?	✓			
Are stockpiles located at least 15 m (50 ft) from concentrated flows, downstream drainage courses and storm drain inlets?	✓			
Are required covers and/or perimeter controls in place?	✓			

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Concentrated Flows				
Are concentrated flow paths free of visible erosion?	✓			
Tracking Control				
Is the entrance stabilized to prevent tracking	✓			
Is the stabilized entrance inspected daily to ensure that it is working properly	✓			
Are points of ingress/egress to public/private roads inspected and swept and vacuumed as needed?	✓			
Are all paved areas free of visible sediment tracking or other particulate matter?	✓			
Wind Erosion Control				
Is dust control implemented?	✓			
Vehicle & Equipment Fueling, Cleaning, and Maintenance				
Are vehicle and equipment fueling, cleaning and maintenance areas reasonably clean and free of spills, leaks, or any other deleterious material?	✓			
Are vehicle and equipment fueling, cleaning and maintenance activities performed on an impermeable surface in dedicated areas?	✓			
If no, are drip pans used?			✓	
Are dedicated fueling, cleaning, and maintenance areas located at least 15 m (50 ft) away from downstream drainage facilities and watercourses and protected from run-on and runoff?	✓			
Is wash water contained for infiltration/ evaporation and disposed of appropriately?			✓	
Is on-site cleaning limited to washing with water (no soap, soaps substitutes, solvents, or steam)?	✓			
On each day of use, are vehicles and equipment inspected for leaks and if necessary, repaired?	✓			
Waste Management & Materials Pollution Control				
Are material storage areas and washout areas protected from run-on and runoff, and located at least 15 m from concentrated flows and downstream drainage facilities?	✓			
Are all material handling and storage areas clean; organized; free of spills, leaks, or any other deleterious material; and stocked with appropriate clean-up supplies?	✓			
Are liquid materials, hazardous materials, and hazardous wastes stored in temporary containment facilities?			✓	
Are bagged and boxed materials stored on pallets?	✓			
Are hazardous materials and wastes stored in appropriate, labeled containers?			✓	
Are proper storage, clean-up, and spill-reporting procedures for hazardous materials and wastes posted in open, conspicuous and accessible locations adjacent to storage areas?			✓	
Are temporary containment facilities free of spills and rainwater?	✓			
Are temporary containment facilities and bagged/boxed materials covered?			✓	
Are spills from mobile equipment fueling and maintenance properly contained and cleaned up?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Is the site free of litter?	✓			
Are trash receptacles provided in the yard, field trailer areas, and at locations where workers congregate for lunch and break periods?	✓			
Is litter from work areas collected and placed in watertight dumpsters?	✓			
Are waste management receptacles free of leaks?	✓			
Are the contents of waste management receptacles properly protected from contact with storm water or from being dislodged by winds?	✓			
Are waste management receptacles filled at or beyond capacity?		✓		
Illicit Connection/ Discharge				
Is there any evidence of illicit discharges or illegal dumping on the project site?		✓		
If yes, has the Owner/Operator been notified?			✓	
SWPPP Update				
Do the SWPPP and Project Schedule adequately reflect the current site conditions and contractor operations?	✓			
Are all BMPs installed in the proper location(s) and according to the details in the SWPPP?	✓			
General				
Are there any other potential concerns at the site?		✓		
Storm Water Monitoring				
Does storm water discharge directly to a water body listed in the General Permit as impaired for sediment/sedimentation or turbidity?		✓		
If yes, were samples for sediment/sedimentation or turbidity collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
Did the sampling results indicate that the discharges are causing or contributing to further impairment?			✓	
If yes, were the erosion/sediment control BMPs improved or maintained to reduce the discharge of sediment to the water body?			✓	
Were there any BMPs not properly implemented or breaches, malfunctions, leakages or spills observed which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan during rain events?			✓	
If sampling indicated pollution of the storm water, were the leaks, breaches, spills, etc. cleaned up and the contaminated soil properly disposed of?			✓	
Were the BMPs maintained or replaced?		✓		

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Were soil amendments (e.g., gypsum, lime) used on the project?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
If sampling indicated pollution of the storm water by the use of the soil amendments, is there a contingency plan for retention onsite of the polluted storm water?			✓	
Did storm water contact stored materials or waste and run off the construction site? (Materials not in watertight containers, etc.)		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	

All measures are in good condition

GENERAL INFORMATION					
Project Name	Parcel D-1 Remedial Action, Hunters Point Shipyard, San Francisco, California				
Project No.	Contract No. N62473-12-D-2005, CTO-0003				
Construction Stage	☑ Excavation and Earthmoving ☐ Inactive Construction		Work Area No.	149431	
Inspector's Name	Sam Hopstone		Date	10/27/2016	
Signature			Weather	foggy	
Inspection Type (Check Applicable)	☐ Prior to forecast rain ☐ Weekly ☑ 24-hr intervals during extended rain		☐ After a rain event ☐ Quarterly non-stormwater ☐ Other _____		
Season (Check Applicable)	☑ Rainy		☐ Non-Rainy		
Storm Data (www.wrh.noaa.gov)	Storm Start Date & Time:	10/27/16 0200	Storm Duration (hrs):	12	
	Time elapsed since last storm (Circle Applicable Units)	- 12 - Min. Hr. Days	Approximate Rainfall Amount (inches)	0.02	

INSPECTION OF BMPs				
BMP	Yes	No	N/A	Corrective Action/Comments
Preservation of Existing Vegetation				
Is temporary fencing provided to preserve vegetation in areas where no construction activity is planned?	✓			
Erosion Control				
Does the applied temporary erosion control provide 100% coverage for the affected areas?	✓			
Are there any non-vegetated areas that may require temporary erosion control?	✓			
Is the area where erosion controls are used required free from visible erosion?	✓			
Temporary Linear Sediment Barriers (Silt Fence, Fiber Rolls, Sandbag Barriers, etc.)				
Are temporary linear sediment barriers properly installed, functional and maintained?	✓			
Are temporary linear sediment barriers free of accumulated litter?	✓			
Is the built-up sediment less than 1/3 the height of the barrier?	✓			
Stockpiles				
Are all locations of temporary stockpiles (include soil, haz waste, and construction materials) in approved areas?	✓			
Are stockpiles protected from run-on, run-off from adjacent areas and from winds?	✓			
Are stockpiles located at least 15 m (50 ft) from concentrated flows, downstream drainage courses and storm drain inlets?	✓			
Are required covers and/or perimeter controls in place?	✓			

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Concentrated Flows				
Are concentrated flow paths free of visible erosion?	✓			
Tracking Control				
Is the entrance stabilized to prevent tracking	✓			
Is the stabilized entrance inspected daily to ensure that it is working properly	✓			
Are points of ingress/egress to public/private roads inspected and swept and vacuumed as needed?	✓			
Are all paved areas free of visible sediment tracking or other particulate matter?	✓			
Wind Erosion Control				
Is dust control implemented?	✓			
Vehicle & Equipment Fueling, Cleaning, and Maintenance				
Are vehicle and equipment fueling, cleaning and maintenance areas reasonably clean and free of spills, leaks, or any other deleterious material?	✓			
Are vehicle and equipment fueling, cleaning and maintenance activities performed on an impermeable surface in dedicated areas?	✓			
If no, are drip pans used?			✓	
Are dedicated fueling, cleaning, and maintenance areas located at least 15 m (50 ft) away from downstream drainage facilities and watercourses and protected from run-on and runoff?	✓			
Is wash water contained for infiltration/ evaporation and disposed of appropriately?			✓	
Is on-site cleaning limited to washing with water (no soap, soaps substitutes, solvents, or steam)?	✓			
On each day of use, are vehicles and equipment inspected for leaks and if necessary, repaired?	✓			
Waste Management & Materials Pollution Control				
Are material storage areas and washout areas protected from run-on and runoff, and located at least 15 m from concentrated flows and downstream drainage facilities?	✓			
Are all material handling and storage areas clean; organized; free of spills, leaks, or any other deleterious material; and stocked with appropriate clean-up supplies?	✓			
Are liquid materials, hazardous materials, and hazardous wastes stored in temporary containment facilities?			✓	
Are bagged and boxed materials stored on pallets?	✓			
Are hazardous materials and wastes stored in appropriate, labeled containers?			✓	
Are proper storage, clean-up, and spill-reporting procedures for hazardous materials and wastes posted in open, conspicuous and accessible locations adjacent to storage areas?			✓	
Are temporary containment facilities free of spills and rainwater?	✓			
Are temporary containment facilities and bagged/boxed materials covered?			✓	
Are spills from mobile equipment fueling and maintenance properly contained and cleaned up?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Is the site free of litter?	✓			
Are trash receptacles provided in the yard, field trailer areas, and at locations where workers congregate for lunch and break periods?	✓			
Is litter from work areas collected and placed in watertight dumpsters?	✓			
Are waste management receptacles free of leaks?	✓			
Are the contents of waste management receptacles properly protected from contact with storm water or from being dislodged by winds?	✓			
Are waste management receptacles filled at or beyond capacity?		✓		
Illicit Connection/ Discharge				
Is there any evidence of illicit discharges or illegal dumping on the project site?		✓		
If yes, has the Owner/Operator been notified?			✓	
SWPPP Update				
Do the SWPPP and Project Schedule adequately reflect the current site conditions and contractor operations?	✓			
Are all BMPs installed in the proper location(s) and according to the details in the SWPPP?	✓			
General				
Are there any other potential concerns at the site?		✓		
Storm Water Monitoring				
Does storm water discharge directly to a water body listed in the General Permit as impaired for sediment/sedimentation or turbidity?		✓		
If yes, were samples for sediment/sedimentation or turbidity collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
Did the sampling results indicate that the discharges are causing or contributing to further impairment?			✓	
If yes, were the erosion/sediment control BMPs improved or maintained to reduce the discharge of sediment to the water body?			✓	
Were there any BMPs not properly implemented or breaches, malfunctions, leakages or spills observed which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water?		✓	✓	
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan during rain events?			✓	
If sampling indicated pollution of the storm water, were the leaks, breaches, spills, etc. cleaned up and the contaminated soil properly disposed of?			✓	
Were the BMPs maintained or replaced?		✓		

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Were soil amendments (e.g., gypsum, lime) used on the project?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
If sampling indicated pollution of the storm water by the use of the soil amendments, is there a contingency plan for retention onsite of the polluted storm water?			✓	
Did storm water contact stored materials or waste and run off the construction site? (Materials not in watertight containers, etc.)		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	

Note: work along Gun Mole Pier edges is complete. Crew removed longest turbidity curtain at berth 15.

GENERAL INFORMATION			
Project Name	Parcel D-1 Remedial Action, Hunters Point Shipyard, San Francisco, California		
Project No.	Contract No. N62473-12-D-2005, CTO-0003		
Construction Stage	☑ Excavation and Earthmoving ☐ Inactive Construction	Work Area No.	149831
Inspector's Name	Sam Hopstone	Date	10/28/2016
Signature	Sam Hopstone	Weather	Foggy
Inspection Type (Check Applicable)	☐ Prior to forecast rain ☐ Weekly ☑ 24-hr intervals during extended rain	☐ After a rain event ☐ Quarterly non-stormwater ☐ Other _____	
Season (Check Applicable)	☑ Rainy	☐ Non-Rainy	
Storm Data (www.wrh.noaa.gov)	Storm Start Date & Time: 10/27/16 0000	Storm Duration (hrs): 36	
	Time elapsed since last storm (Circle Applicable Units) ~ 12 / 1 (Min. Hr. Days)	Approximate Rainfall Amount (inches) ~.95	

INSPECTION OF BMPs				
BMP	Yes	No	N/A	Corrective Action/Comments
Preservation of Existing Vegetation				
Is temporary fencing provided to preserve vegetation in areas where no construction activity is planned?	✓			
Erosion Control				
Does the applied temporary erosion control provide 100% coverage for the affected areas?	✓			
Are there any non-vegetated areas that may require temporary erosion control?	✓			
Is the area where erosion controls are used required free from visible erosion?	✓			
Temporary Linear Sediment Barriers (Silt Fence, Fiber Rolls, Sandbag Barriers, etc.)				
Are temporary linear sediment barriers properly installed, functional and maintained?	✓			
Are temporary linear sediment barriers free of accumulated litter?	✓			
Is the built-up sediment less than 1/3 the height of the barrier?	✓			
Stockpiles				
Are all locations of temporary stockpiles (include soil, haz waste, and construction materials) in approved areas?	✓			
Are stockpiles protected from run-on, run-off from adjacent areas and from winds?	✓			
Are stockpiles located at least 15 m (50 ft) from concentrated flows, downstream drainage courses and storm drain inlets?	✓			
Are required covers and/or perimeter controls in place?	✓			

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Concentrated Flows				
Are concentrated flow paths free of visible erosion?	✓			
Tracking Control				
Is the entrance stabilized to prevent tracking	✓			
Is the stabilized entrance inspected daily to ensure that it is working properly	✓			
Are points of ingress/egress to public/private roads inspected and swept and vacuumed as needed?	✓			
Are all paved areas free of visible sediment tracking or other particulate matter?	✓			
Wind Erosion Control				
Is dust control implemented?	✓			
Vehicle & Equipment Fueling, Cleaning, and Maintenance				
Are vehicle and equipment fueling, cleaning and maintenance areas reasonably clean and free of spills, leaks, or any other deleterious material?	✓			
Are vehicle and equipment fueling, cleaning and maintenance activities performed on an impermeable surface in dedicated areas?	✓			
If no, are drip pans used?			✓	
Are dedicated fueling, cleaning, and maintenance areas located at least 15 m (50 ft) away from downstream drainage facilities and watercourses and protected from run-on and runoff?	✓			
Is wash water contained for infiltration/ evaporation and disposed of appropriately?			✓	
Is on-site cleaning limited to washing with water (no soap, soaps substitutes, solvents, or steam)?	✓			
On each day of use, are vehicles and equipment inspected for leaks and if necessary, repaired?	✓			
Waste Management & Materials Pollution Control				
Are material storage areas and washout areas protected from run-on and runoff, and located at least 15 m from concentrated flows and downstream drainage facilities?	✓			
Are all material handling and storage areas clean; organized; free of spills, leaks, or any other deleterious material; and stocked with appropriate clean-up supplies?	✓			
Are liquid materials, hazardous materials, and hazardous wastes stored in temporary containment facilities?			✓	
Are bagged and boxed materials stored on pallets?	✓			
Are hazardous materials and wastes stored in appropriate, labeled containers?			✓	
Are proper storage, clean-up, and spill-reporting procedures for hazardous materials and wastes posted in open, conspicuous and accessible locations adjacent to storage areas?			✓	
Are temporary containment facilities free of spills and rainwater?	✓			
Are temporary containment facilities and bagged/boxed materials covered?			✓	
Are spills from mobile equipment fueling and maintenance properly contained and cleaned up?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Is the site free of litter?	✓			
Are trash receptacles provided in the yard, field trailer areas, and at locations where workers congregate for lunch and break periods?	✓			
Is litter from work areas collected and placed in watertight dumpsters?	✓			
Are waste management receptacles free of leaks?	✓			
Are the contents of waste management receptacles properly protected from contact with storm water or from being dislodged by winds?	✓			
Are waste management receptacles filled at or beyond capacity?		✓		
Illicit Connection/ Discharge				
Is there any evidence of illicit discharges or illegal dumping on the project site?		✓		
If yes, has the Owner/Operator been notified?			✓	
SWPPP Update				
Do the SWPPP and Project Schedule adequately reflect the current site conditions and contractor operations?	✓			
Are all BMPs installed in the proper location(s) and according to the details in the SWPPP?	✓			
General				
Are there any other potential concerns at the site?		✓		
Storm Water Monitoring				
Does storm water discharge directly to a water body listed in the General Permit as impaired for sediment/sedimentation or turbidity?		✓		
If yes, were samples for sediment/sedimentation or turbidity collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
Did the sampling results indicate that the discharges are causing or contributing to further impairment?			✓	
If yes, were the erosion/sediment control BMPs improved or maintained to reduce the discharge of sediment to the water body?			✓	
Were there any BMPs not properly implemented or breaches, malfunctions, leakages or spills observed which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan during rain events?			✓	
If sampling indicated pollution of the storm water, were the leaks, breaches, spills, etc. cleaned up and the contaminated soil properly disposed of?			✓	
Were the BMPs maintained or replaced?		✓		

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Were soil amendments (e.g., gypsum, lime) used on the project?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
If sampling indicated pollution of the storm water by the use of the soil amendments, is there a contingency plan for retention onsite of the polluted storm water?			✓	
Did storm water contact stored materials or waste and run off the construction site? (Materials not in watertight containers, etc.)		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	

Notes : drainage looks good
: wattles slow water flow through weepholes
: Manseau swale drain filter is holding up.

GENERAL INFORMATION					
Project Name	Parcel D-1 Remedial Action, Hunters Point Shipyard, San Francisco, California				
Project No.	Contract No. N62473-12-D-2005, CTO-0003				
Construction Stage	☑ Excavation and Earthmoving ☐ Inactive Construction		Work Area No.	149831	
Inspector's Name	Sam Hopstone		Date	10/31/2016	
Signature	Sam Hopstone		Weather	Foggy	
Inspection Type (Check Applicable)	☐ Prior to forecast rain ☑ Weekly ☐ 24-hr intervals during extended rain		☑ After a rain event ☐ Quarterly non-stormwater ☐ Other _____		
Season (Check Applicable)	☑ Rainy		☐ Non-Rainy		
Storm Data (www.wrh.noaa.gov)	Storm Start Date & Time:	10/27/16 0200	Storm Duration (hrs):	80	
	Time elapsed since last storm (Circle Applicable Units)	- 10 3 Min. Hr. Days	Approximate Rainfall Amount (inches)	1.38	

INSPECTION OF BMPs				
BMP	Yes	No	N/A	Corrective Action/Comments
Preservation of Existing Vegetation				
Is temporary fencing provided to preserve vegetation in areas where no construction activity is planned?	✓			
Erosion Control				
Does the applied temporary erosion control provide 100% coverage for the affected areas?	✓			
Are there any non-vegetated areas that may require temporary erosion control?	✓			
Is the area where erosion controls are used required free from visible erosion?	✓			
Temporary Linear Sediment Barriers (Silt Fence, Fiber Rolls, Sandbag Barriers, etc.)				
Are temporary linear sediment barriers properly installed, functional and maintained?	✓			
Are temporary linear sediment barriers free of accumulated litter?	✓			
Is the built-up sediment less than 1/3 the height of the barrier?	✓			
Stockpiles				
Are all locations of temporary stockpiles (include soil, haz waste, and construction materials) in approved areas?	✓			
Are stockpiles protected from run-on, run-off from adjacent areas and from winds?	✓			
Are stockpiles located at least 15 m (50 ft) from concentrated flows, downstream drainage courses and storm drain inlets?	✓			
Are required covers and/or perimeter controls in place?	✓			

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Concentrated Flows				
Are concentrated flow paths free of visible erosion?	✓			
Tracking Control				
Is the entrance stabilized to prevent tracking	✓			
Is the stabilized entrance inspected daily to ensure that it is working properly	✓			
Are points of ingress/egress to public/private roads inspected and swept and vacuumed as needed?	✓			
Are all paved areas free of visible sediment tracking or other particulate matter?	✓			
Wind Erosion Control				
Is dust control implemented?	✓			
Vehicle & Equipment Fueling, Cleaning, and Maintenance				
Are vehicle and equipment fueling, cleaning and maintenance areas reasonably clean and free of spills, leaks, or any other deleterious material?	✓			
Are vehicle and equipment fueling, cleaning and maintenance activities performed on an impermeable surface in dedicated areas?	✓			
If no, are drip pans used?			✓	
Are dedicated fueling, cleaning, and maintenance areas located at least 15 m (50 ft) away from downstream drainage facilities and watercourses and protected from run-on and runoff?	✓			
Is wash water contained for infiltration/ evaporation and disposed of appropriately?			✓	
Is on-site cleaning limited to washing with water (no soap, soaps substitutes, solvents, or steam)?	✓			
On each day of use, are vehicles and equipment inspected for leaks and if necessary, repaired?	✓			
Waste Management & Materials Pollution Control				
Are material storage areas and washout areas protected from run-on and runoff, and located at least 15 m from concentrated flows and downstream drainage facilities?	✓			
Are all material handling and storage areas clean; organized; free of spills, leaks, or any other deleterious material; and stocked with appropriate clean-up supplies?	✓			
Are liquid materials, hazardous materials, and hazardous wastes stored in temporary containment facilities?			✓	
Are bagged and boxed materials stored on pallets?	✓			
Are hazardous materials and wastes stored in appropriate, labeled containers?			✓	
Are proper storage, clean-up, and spill-reporting procedures for hazardous materials and wastes posted in open, conspicuous and accessible locations adjacent to storage areas?	✓		✓	
Are temporary containment facilities free of spills and rainwater?	✓			
Are temporary containment facilities and bagged/boxed materials covered?			✓	
Are spills from mobile equipment fueling and maintenance properly contained and cleaned up?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Is the site free of litter?	✓			
Are trash receptacles provided in the yard, field trailer areas, and at locations where workers congregate for lunch and break periods?	✓			
Is litter from work areas collected and placed in watertight dumpsters?	✓			
Are waste management receptacles free of leaks?	✓			
Are the contents of waste management receptacles properly protected from contact with storm water or from being dislodged by winds?	✓		✓	
Are waste management receptacles filled at or beyond capacity?		✓		
Illicit Connection/ Discharge				
Is there any evidence of illicit discharges or illegal dumping on the project site?		✓		
If yes, has the Owner/Operator been notified?			✓	
SWPPP Update				
Do the SWPPP and Project Schedule adequately reflect the current site conditions and contractor operations?	✓			
Are all BMPs installed in the proper location(s) and according to the details in the SWPPP?	✓			
General				
Are there any other potential concerns at the site?		✓		
Storm Water Monitoring				
Does storm water discharge directly to a water body listed in the General Permit as impaired for sediment/sedimentation or turbidity?		✓		
If yes, were samples for sediment/sedimentation or turbidity collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
Did the sampling results indicate that the discharges are causing or contributing to further impairment?			✓	
If yes, were the erosion/sediment control BMPs improved or maintained to reduce the discharge of sediment to the water body?			✓	
Were there any BMPs not properly implemented or breaches, malfunctions, leakages or spills observed which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan during rain events?			✓	
If sampling indicated pollution of the storm water, were the leaks, breaches, spills, etc. cleaned up and the contaminated soil properly disposed of?			✓	
Were the BMPs maintained or replaced?		✓		

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Were soil amendments (e.g., gypsum, lime) used on the project?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
If sampling indicated pollution of the storm water by the use of the soil amendments, is there a contingency plan for retention onsite of the polluted storm water?			✓	
Did storm water contact stored materials or waste and run off the construction site? (Materials not in watertight containers, etc.)		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	

Notes: wattles slow water flow through weepholes
: Hussey silt socks on drain inlet held up

GENERAL INFORMATION			
Project Name	Parcel D-1 Remedial Action, Hunters Point Shipyard, San Francisco, California		
Project No.	Contract No. N62473-12-D-2005, CTO-0003		
Construction Stage	☑ Excavation and Earthmoving ☐ Inactive Construction	Work Area No.	149831
Inspector's Name	Sam Hopstone	Date	11/9/16
Signature		Weather	cloudy
Inspection Type (Check Applicable)	☐ Prior to forecast rain ☑ Weekly ☐ 24-hr intervals during extended rain	☐ After a rain event ☐ Quarterly non-stormwater ☐ Other _____	
Season (Check Applicable)	☑ Rainy	☐ Non-Rainy	
Storm Data (www.wrh.noaa.gov)	Storm Start Date & Time:	—	Storm Duration (hrs): —
	Time elapsed since last storm (Circle Applicable Units)	Min. Hr. Days	Approximate Rainfall Amount (inches)

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Preservation of Existing Vegetation				
Is temporary fencing provided to preserve vegetation in areas where no construction activity is planned?	✓			
Erosion Control				
Does the applied temporary erosion control provide 100% coverage for the affected areas?	✓			
Are there any non-vegetated areas that may require temporary erosion control?	✓			
Is the area where erosion controls are used required free from visible erosion?	✓			
Temporary Linear Sediment Barriers (Silt Fence, Fiber Rolls, Sandbag Barriers, etc.)				
Are temporary linear sediment barriers properly installed, functional and maintained?	✓			
Are temporary linear sediment barriers free of accumulated litter?	✓			
Is the built-up sediment less than 1/3 the height of the barrier?	✓			
Stockpiles				
Are all locations of temporary stockpiles (include soil, haz waste, and construction materials) in approved areas?	✓			
Are stockpiles protected from run-on, run-off from adjacent areas and from winds?	✓			
Are stockpiles located at least 15 m (50 ft) from concentrated flows, downstream drainage courses and storm drain inlets?	✓			
Are required covers and/or perimeter controls in place?	✓			

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Concentrated Flows				
Are concentrated flow paths free of visible erosion?	✓			
Tracking Control				
Is the entrance stabilized to prevent tracking	✓			
Is the stabilized entrance inspected daily to ensure that it is working properly	✓			
Are points of ingress/egress to public/private roads inspected and swept and vacuumed as needed?	✓			
Are all paved areas free of visible sediment tracking or other particulate matter?	✓			
Wind Erosion Control				
Is dust control implemented?	✓			
Vehicle & Equipment Fueling, Cleaning, and Maintenance				
Are vehicle and equipment fueling, cleaning and maintenance areas reasonably clean and free of spills, leaks, or any other deleterious material?	✓			
Are vehicle and equipment fueling, cleaning and maintenance activities performed on an impermeable surface in dedicated areas?	✓			
If no, are drip pans used?			✓	
Are dedicated fueling, cleaning, and maintenance areas located at least 15 m (50 ft) away from downstream drainage facilities and watercourses and protected from run-on and runoff?	✓			
Is wash water contained for infiltration/ evaporation and disposed of appropriately?			✓	
Is on-site cleaning limited to washing with water (no soap, soaps substitutes, solvents, or steam)?	✓			
On each day of use, are vehicles and equipment inspected for leaks and if necessary, repaired?	✓			
Waste Management & Materials Pollution Control				
Are material storage areas and washout areas protected from run-on and runoff, and located at least 15 m from concentrated flows and downstream drainage facilities?	✓			
Are all material handling and storage areas clean; organized; free of spills, leaks, or any other deleterious material; and stocked with appropriate clean-up supplies?	✓			
Are liquid materials, hazardous materials, and hazardous wastes stored in temporary containment facilities?			✓	
Are bagged and boxed materials stored on pallets?	✓			
Are hazardous materials and wastes stored in appropriate, labeled containers?			✓	
Are proper storage, clean-up, and spill-reporting procedures for hazardous materials and wastes posted in open, conspicuous and accessible locations adjacent to storage areas?			✓	
Are temporary containment facilities free of spills and rainwater?	✓			
Are temporary containment facilities and bagged/boxed materials covered?			✓	
Are spills from mobile equipment fueling and maintenance properly contained and cleaned up?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Is the site free of litter?	✓			
Are trash receptacles provided in the yard, field trailer areas, and at locations where workers congregate for lunch and break periods?	✓			
Is litter from work areas collected and placed in watertight dumpsters?	✓			
Are waste management receptacles free of leaks?	✓			
Are the contents of waste management receptacles properly protected from contact with storm water or from being dislodged by winds?	✓			
Are waste management receptacles filled at or beyond capacity?		✓		
Illicit Connection/ Discharge				
Is there any evidence of illicit discharges or illegal dumping on the project site?		✓		
If yes, has the Owner/Operator been notified?			✓	
SWPPP Update				
Do the SWPPP and Project Schedule adequately reflect the current site conditions and contractor operations?	✓			
Are all BMPs installed in the proper location(s) and according to the details in the SWPPP?	✓			
General				
Are there any other potential concerns at the site?		✓		
Storm Water Monitoring				
Does storm water discharge directly to a water body listed in the General Permit as impaired for sediment/sedimentation or turbidity?		✓		
If yes, were samples for sediment/sedimentation or turbidity collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
Did the sampling results indicate that the discharges are causing or contributing to further impairment?			✓	
If yes, were the erosion/sediment control BMPs improved or maintained to reduce the discharge of sediment to the water body?			✓	
Were there any BMPs not properly implemented or breaches, malfunctions, leakages or spills observed which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan during rain events?			✓	
If sampling indicated pollution of the storm water, were the leaks, breaches, spills, etc. cleaned up and the contaminated soil properly disposed of?			✓	
Were the BMPs maintained or replaced?		✓		

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Were soil amendments (e.g., gypsum, lime) used on the project?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
If sampling indicated pollution of the storm water by the use of the soil amendments, is there a contingency plan for retention onsite of the polluted storm water?			✓	
Did storm water contact stored materials or waste and run off the construction site? (Materials not in watertight containers, etc.)		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	

Note: gravel bag dams installed in Manseau swale upstream of cross street inlets (Morrell, Cochrane, Hussey)

Note: Manseau swale drain ocotlet fabric filter replaced

Note: turbidity curtain removed at berth 17, and berth 17-18 corner

GENERAL INFORMATION			
Project Name	Parcel D-1 Remedial Action, Hunters Point Shipyard, San Francisco, California		
Project No.	Contract No. N62473-12-D-2005, CTO-0003		
Construction Stage	☑ Excavation and Earthmoving ☐ Inactive Construction	Work Area No.	149831
Inspector's Name	Sam Hopstone	Date	11/18/16
Signature	Sam Hopstone	Weather	Sunny
Inspection Type (Check Applicable)	☑ Prior to forecast rain ☑ Weekly ☐ 24-hr intervals during extended rain	☐ After a rain event ☐ Quarterly non-stormwater ☐ Other _____	
Season (Check Applicable)	☑ Rainy	☐ Non-Rainy	
Storm Data (www.wrh.noaa.gov)	Storm Start Date & Time: —	Storm Duration (hrs): —	
	Time elapsed since last storm (Circle Applicable Units) Min. ~~Hr.~~ Days	Approximate Rainfall Amount (inches) —	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Preservation of Existing Vegetation				
Is temporary fencing provided to preserve vegetation in areas where no construction activity is planned?	✓			
Erosion Control				
Does the applied temporary erosion control provide 100% coverage for the affected areas?	✓			
Are there any non-vegetated areas that may require temporary erosion control?	✓			
Is the area where erosion controls are used required free from visible erosion?	✓			
Temporary Linear Sediment Barriers (Silt Fence, Fiber Rolls, Sandbag Barriers, etc.)				
Are temporary linear sediment barriers properly installed, functional and maintained?	✓			
Are temporary linear sediment barriers free of accumulated litter?	✓			
Is the built-up sediment less than 1/3 the height of the barrier?	✓			
Stockpiles				
Are all locations of temporary stockpiles (include soil, haz waste, and construction materials) in approved areas?	✓			
Are stockpiles protected from run-on, run-off from adjacent areas and from winds?	✓			
Are stockpiles located at least 15 m (50 ft) from concentrated flows, downstream drainage courses and storm drain inlets?	✓			
Are required covers and/or perimeter controls in place?	✓			

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Concentrated Flows				
Are concentrated flow paths free of visible erosion?	✓			
Tracking Control				
Is the entrance stabilized to prevent tracking	✓			
Is the stabilized entrance inspected daily to ensure that it is working properly	✓			
Are points of ingress/egress to public/private roads inspected and swept and vacuumed as needed?	✓			
Are all paved areas free of visible sediment tracking or other particulate matter?	✓			
Wind Erosion Control				
Is dust control implemented?	✓			
Vehicle & Equipment Fueling, Cleaning, and Maintenance				
Are vehicle and equipment fueling, cleaning and maintenance areas reasonably clean and free of spills, leaks, or any other deleterious material?	✓			
Are vehicle and equipment fueling, cleaning and maintenance activities performed on an impermeable surface in dedicated areas?	✓			
If no, are drip pans used?			✓	
Are dedicated fueling, cleaning, and maintenance areas located at least 15 m (50 ft) away from downstream drainage facilities and watercourses and protected from run-on and runoff?	✓			
Is wash water contained for infiltration/ evaporation and disposed of appropriately?			✓	
Is on-site cleaning limited to washing with water (no soap, soaps substitutes, solvents, or steam)?	✓			
On each day of use, are vehicles and equipment inspected for leaks and if necessary, repaired?	✓			
Waste Management & Materials Pollution Control				
Are material storage areas and washout areas protected from run-on and runoff, and located at least 15 m from concentrated flows and downstream drainage facilities?	✓			
Are all material handling and storage areas clean; organized; free of spills, leaks, or any other deleterious material; and stocked with appropriate clean-up supplies?	✓			
Are liquid materials, hazardous materials, and hazardous wastes stored in temporary containment facilities?			✓	
Are bagged and boxed materials stored on pallets?	✓			
Are hazardous materials and wastes stored in appropriate, labeled containers?			✓	
Are proper storage, clean-up, and spill-reporting procedures for hazardous materials and wastes posted in open, conspicuous and accessible locations adjacent to storage areas?			✓	
Are temporary containment facilities free of spills and rainwater?	✓			
Are temporary containment facilities and bagged/boxed materials covered?			✓	
Are spills from mobile equipment fueling and maintenance properly contained and cleaned up?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Is the site free of litter?	✓			
Are trash receptacles provided in the yard, field trailer areas, and at locations where workers congregate for lunch and break periods?	✓			
Is litter from work areas collected and placed in watertight dumpsters?	✓			
Are waste management receptacles free of leaks?	✓			
Are the contents of waste management receptacles properly protected from contact with storm water or from being dislodged by winds?	✓			
Are waste management receptacles filled at or beyond capacity?		✓		
Illicit Connection/ Discharge				
Is there any evidence of illicit discharges or illegal dumping on the project site?		✓		
If yes, has the Owner/Operator been notified?			✓	
SWPPP Update				
Do the SWPPP and Project Schedule adequately reflect the current site conditions and contractor operations?	✓			
Are all BMPs installed in the proper location(s) and according to the details in the SWPPP?	✓			
General				
Are there any other potential concerns at the site?		✓		
Storm Water Monitoring				
Does storm water discharge directly to a water body listed in the General Permit as impaired for sediment/sedimentation or turbidity?		✓		
If yes, were samples for sediment/sedimentation or turbidity collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
Did the sampling results indicate that the discharges are causing or contributing to further impairment?			✓	
If yes, were the erosion/sediment control BMPs improved or maintained to reduce the discharge of sediment to the water body?			✓	
Were there any BMPs not properly implemented or breaches, malfunctions, leakages or spills observed which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan during rain events?			✓	
If sampling indicated pollution of the storm water, were the leaks, breaches, spills, etc. cleaned up and the contaminated soil properly disposed of?			✓	
Were the BMPs maintained or replaced?		✓		

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Were soil amendments (e.g., gypsum, lime) used on the project?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
If sampling indicated pollution of the storm water by the use of the soil amendments, is there a contingency plan for retention onsite of the polluted storm water?			✓	
Did storm water contact stored materials or waste and run off the construction site? (Materials not in watertight containers, etc.)		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	

Notes: wattles all in good condition
: small gravel dams all in good condition
: all turbidity curtains have been removed

GENERAL INFORMATION					
Project Name	Parcel D-1 Remedial Action, Hunters Point Shipyard, San Francisco, California				
Project No.	Contract No. N62473-12-D-2005, CTO-0003				
Construction Stage	☑ Excavation and Earthmoving ☐ Inactive Construction		Work Area No.	149831	
Inspector's Name	Sam Hopstone		Date	11/21/2016	
Signature	Sam Hopstone		Weather	cloudy	
Inspection Type (Check Applicable)	☑ Prior to forecast rain ☑ Weekly ☐ 24-hr intervals during extended rain		☑ After a rain event ☐ Quarterly non-stormwater ☐ Other _____		
Season (Check Applicable)	☑ Rainy		☐ Non-Rainy		
Storm Data (www.wrh.noaa.gov)	Storm Start Date & Time:	-	Storm Duration (hrs):	-	
	Time elapsed since last storm (Circle Applicable Units)	Min. Hr. Days	Approximate Rainfall Amount (inches)	-	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Preservation of Existing Vegetation				
Is temporary fencing provided to preserve vegetation in areas where no construction activity is planned?	✓			
Erosion Control				
Does the applied temporary erosion control provide 100% coverage for the affected areas?	✓			
Are there any non-vegetated areas that may require temporary erosion control?	✓			
Is the area where erosion controls are used required free from visible erosion?	✓			
Temporary Linear Sediment Barriers (Silt Fence, Fiber Rolls, Sandbag Barriers, etc.)				
Are temporary linear sediment barriers properly installed, functional and maintained?	✓			
Are temporary linear sediment barriers free of accumulated litter?	✓			
Is the built-up sediment less than 1/3 the height of the barrier?	✓			
Stockpiles				
Are all locations of temporary stockpiles (include soil, haz waste, and construction materials) in approved areas?	✓			
Are stockpiles protected from run-on, run-off from adjacent areas and from winds?	✓			
Are stockpiles located at least 15 m (50 ft) from concentrated flows, downstream drainage courses and storm drain inlets?	✓			
Are required covers and/or perimeter controls in place?	✓			

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Concentrated Flows				
Are concentrated flow paths free of visible erosion?	✓			
Tracking Control				
Is the entrance stabilized to prevent tracking	✓			
Is the stabilized entrance inspected daily to ensure that it is working properly	✓			
Are points of ingress/egress to public/private roads inspected and swept and vacuumed as needed?	✓			
Are all paved areas free of visible sediment tracking or other particulate matter?	✓			
Wind Erosion Control				
Is dust control implemented?	✓			
Vehicle & Equipment Fueling, Cleaning, and Maintenance				
Are vehicle and equipment fueling, cleaning and maintenance areas reasonably clean and free of spills, leaks, or any other deleterious material?	✓			
Are vehicle and equipment fueling, cleaning and maintenance activities performed on an impermeable surface in dedicated areas?	✓			
If no, are drip pans used?			✓	
Are dedicated fueling, cleaning, and maintenance areas located at least 15 m (50 ft) away from downstream drainage facilities and watercourses and protected from run-on and runoff?	✓			
Is wash water contained for infiltration/ evaporation and disposed of appropriately?			✓	
Is on-site cleaning limited to washing with water (no soap, soaps substitutes, solvents, or steam)?	✓			
On each day of use, are vehicles and equipment inspected for leaks and if necessary, repaired?	✓			
Waste Management & Materials Pollution Control				
Are material storage areas and washout areas protected from run-on and runoff, and located at least 15 m from concentrated flows and downstream drainage facilities?	✓			
Are all material handling and storage areas clean; organized; free of spills, leaks, or any other deleterious material; and stocked with appropriate clean-up supplies?	✓			
Are liquid materials, hazardous materials, and hazardous wastes stored in temporary containment facilities?	✓		✓	
Are bagged and boxed materials stored on pallets?	✓			
Are hazardous materials and wastes stored in appropriate, labeled containers?			✓	
Are proper storage, clean-up, and spill-reporting procedures for hazardous materials and wastes posted in open, conspicuous and accessible locations adjacent to storage areas?			✓	
Are temporary containment facilities free of spills and rainwater?	✓			
Are temporary containment facilities and bagged/boxed materials covered?			✓	
Are spills from mobile equipment fueling and maintenance properly contained and cleaned up?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Is the site free of litter?	✓			
Are trash receptacles provided in the yard, field trailer areas, and at locations where workers congregate for lunch and break periods?	✓			
Is litter from work areas collected and placed in watertight dumpsters?	✓			
Are waste management receptacles free of leaks?	✓			
Are the contents of waste management receptacles properly protected from contact with storm water or from being dislodged by winds?	✓			
Are waste management receptacles filled at or beyond capacity?		✓		
Illicit Connection/ Discharge				
Is there any evidence of illicit discharges or illegal dumping on the project site?		✓		
If yes, has the Owner/Operator been notified?			✓	
SWPPP Update				
Do the SWPPP and Project Schedule adequately reflect the current site conditions and contractor operations?	✓			
Are all BMPs installed in the proper location(s) and according to the details in the SWPPP?	✓			
General				
Are there any other potential concerns at the site?		✓		
Storm Water Monitoring				
Does storm water discharge directly to a water body listed in the General Permit as impaired for sediment/sedimentation or turbidity?		✓		
If yes, were samples for sediment/sedimentation or turbidity collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
Did the sampling results indicate that the discharges are causing or contributing to further impairment?			✓	
If yes, were the erosion/sediment control BMPs improved or maintained to reduce the discharge of sediment to the water body?			✓	
Were there any BMPs not properly implemented or breaches, malfunctions, leakages or spills observed which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan during rain events?			✓	
If sampling indicated pollution of the storm water, were the leaks, breaches, spills, etc. cleaned up and the contaminated soil properly disposed of?			✓	
Were the BMPs maintained or replaced?		✓		

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Were soil amendments (e.g., gypsum, lime) used on the project?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
If sampling indicated pollution of the storm water by the use of the soil amendments, is there a contingency plan for retention onsite of the polluted storm water?			✓	
Did storm water contact stored materials or waste and run off the construction site? (Materials not in watertight containers, etc.)		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	

Notes: wattles in good condition
: swale gravel dams in good condition

GENERAL INFORMATION			
Project Name	Parcel D-1 Remedial Action, Hunters Point Shipyard, San Francisco, California		
Project No.	Contract No. N62473-12-D-2005, CTO-0003		
Construction Stage	☑ Excavation and Earthmoving ☐ Inactive Construction	Work Area No.	149831
Inspector's Name	Sam Hopstone	Date	11/28/2016
Signature	Sam Hopstone	Weather	Sunny
Inspection Type (Check Applicable)	☐ Prior to forecast rain ☑ Weekly ☐ 24-hr intervals during extended rain	☑ After a rain event ☐ Quarterly non-stormwater ☐ Other _____	
Season (Check Applicable)	☑ Rainy	☐ Non-Rainy	
Storm Data (www.wrh.noaa.gov)	Storm Start Date & Time: —	Storm Duration (hrs):	—
	Time elapsed since last storm (Circle Applicable Units) Min. Hr. Days	Approximate Rainfall Amount (inches)	—

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Preservation of Existing Vegetation				
Is temporary fencing provided to preserve vegetation in areas where no construction activity is planned?	✓			
Erosion Control				
Does the applied temporary erosion control provide 100% coverage for the affected areas?	✓			
Are there any non-vegetated areas that may require temporary erosion control?	✓			
Is the area where erosion controls are used required free from visible erosion?	✓			
Temporary Linear Sediment Barriers (Silt Fence, Fiber Rolls, Sandbag Barriers, etc.)				
Are temporary linear sediment barriers properly installed, functional and maintained?	✓			
Are temporary linear sediment barriers free of accumulated litter?	✓			
Is the built-up sediment less than 1/3 the height of the barrier?	✓			
Stockpiles				
Are all locations of temporary stockpiles (include soil, haz waste, and construction materials) in approved areas?	✓			
Are stockpiles protected from run-on, run-off from adjacent areas and from winds?	✓			
Are stockpiles located at least 15 m (50 ft) from concentrated flows, downstream drainage courses and storm drain inlets?	✓			
Are required covers and/or perimeter controls in place?	✓			

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Concentrated Flows				
Are concentrated flow paths free of visible erosion?	✓			
Tracking Control				
Is the entrance stabilized to prevent tracking	✓			
Is the stabilized entrance inspected daily to ensure that it is working properly	✓			
Are points of ingress/egress to public/private roads inspected and swept and vacuumed as needed?	✓			
Are all paved areas free of visible sediment tracking or other particulate matter?	✓			
Wind Erosion Control				
Is dust control implemented?	✓			
Vehicle & Equipment Fueling, Cleaning, and Maintenance				
Are vehicle and equipment fueling, cleaning and maintenance areas reasonably clean and free of spills, leaks, or any other deleterious material?	✓			
Are vehicle and equipment fueling, cleaning and maintenance activities performed on an impermeable surface in dedicated areas?	✓			
If no, are drip pans used?			✓	
Are dedicated fueling, cleaning, and maintenance areas located at least 15 m (50 ft) away from downstream drainage facilities and watercourses and protected from run-on and runoff?	✓			
Is wash water contained for infiltration/ evaporation and disposed of appropriately?			✓	
Is on-site cleaning limited to washing with water (no soap, soaps substitutes, solvents, or steam)?	✓			
On each day of use, are vehicles and equipment inspected for leaks and if necessary, repaired?	✓			
Waste Management & Materials Pollution Control				
Are material storage areas and washout areas protected from run-on and runoff, and located at least 15 m from concentrated flows and downstream drainage facilities?	✓			
Are all material handling and storage areas clean; organized; free of spills, leaks, or any other deleterious material; and stocked with appropriate clean-up supplies?	✓			
Are liquid materials, hazardous materials, and hazardous wastes stored in temporary containment facilities?			✓	
Are bagged and boxed materials stored on pallets?	✓			
Are hazardous materials and wastes stored in appropriate, labeled containers?			✓	
Are proper storage, clean-up, and spill-reporting procedures for hazardous materials and wastes posted in open, conspicuous and accessible locations adjacent to storage areas?			✓	
Are temporary containment facilities free of spills and rainwater?	✓			
Are temporary containment facilities and bagged/boxed materials covered?			✓	
Are spills from mobile equipment fueling and maintenance properly contained and cleaned up?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Is the site free of litter?	✓			
Are trash receptacles provided in the yard, field trailer areas, and at locations where workers congregate for lunch and break periods?	✓			
Is litter from work areas collected and placed in watertight dumpsters?	✓			
Are waste management receptacles free of leaks?	✓			
Are the contents of waste management receptacles properly protected from contact with storm water or from being dislodged by winds?	✓			
Are waste management receptacles filled at or beyond capacity?		✓		
Illicit Connection/ Discharge				
Is there any evidence of illicit discharges or illegal dumping on the project site?		✓		
If yes, has the Owner/Operator been notified?			✓	
SWPPP Update				
Do the SWPPP and Project Schedule adequately reflect the current site conditions and contractor operations?	✓			
Are all BMPs installed in the proper location(s) and according to the details in the SWPPP?	✓			
General				
Are there any other potential concerns at the site?		✓		
Storm Water Monitoring				
Does storm water discharge directly to a water body listed in the General Permit as impaired for sediment/sedimentation or turbidity?		✓		
If yes, were samples for sediment/sedimentation or turbidity collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
Did the sampling results indicate that the discharges are causing or contributing to further impairment?			✓	
If yes, were the erosion/sediment control BMPs improved or maintained to reduce the discharge of sediment to the water body?			✓	
Were there any BMPs not properly implemented or breaches, malfunctions, leakages or spills observed which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan during rain events?			✓	
If sampling indicated pollution of the storm water, were the leaks, breaches, spills, etc. cleaned up and the contaminated soil properly disposed of?			✓	
Were the BMPs maintained or replaced?		✓		

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Were soil amendments (e.g., gypsum, lime) used on the project?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
If sampling indicated pollution of the storm water by the use of the soil amendments, is there a contingency plan for retention onsite of the polluted storm water?			✓	
Did storm water contact stored materials or waste and run off the construction site? (Materials not in watertight containers, etc.)		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	

Notes: wattles in good condition

GENERAL INFORMATION					
Project Name	Parcel D-1 Remedial Action, Hunters Point Shipyard, San Francisco, California				
Project No.	Contract No. N62473-12-D-2005, CTO-0003				
Construction Stage	☑ Excavation and Earthmoving ☐ Inactive Construction		Work Area No.	149831	
Inspector's Name	Sean Hopstone		Date	12/6/2016	
Signature	Sean Hopstone		Weather	cloudy	
Inspection Type (Check Applicable)	☑ Prior to forecast rain ☑ Weekly ☐ 24-hr intervals during extended rain		☐ After a rain event ☐ Quarterly non-stormwater ☐ Other _____		
Season (Check Applicable)	☑ Rainy		☐ Non-Rainy		
Storm Data (www.wrh.noaa.gov)	Storm Start Date & Time:	—	Storm Duration (hrs):	-	
	Time elapsed since last storm (Circle Applicable Units)	Min. Hr. Days	Approximate Rainfall Amount (inches)	-	

INSPECTION OF BMPs				
BMP	Yes	No	N/A	Corrective Action/Comments
Preservation of Existing Vegetation				
Is temporary fencing provided to preserve vegetation in areas where no construction activity is planned?	✓			
Erosion Control				
Does the applied temporary erosion control provide 100% coverage for the affected areas?	✓			
Are there any non-vegetated areas that may require temporary erosion control?	✓			
Is the area where erosion controls are used required free from visible erosion?	✓			
Temporary Linear Sediment Barriers (Silt Fence, Fiber Rolls, Sandbag Barriers, etc.)				
Are temporary linear sediment barriers properly installed, functional and maintained?	✓			
Are temporary linear sediment barriers free of accumulated litter?	✓			
Is the built-up sediment less than 1/3 the height of the barrier?	✓			
Stockpiles				
Are all locations of temporary stockpiles (include soil, haz waste, and construction materials) in approved areas?	✓			
Are stockpiles protected from run-on, run-off from adjacent areas and from winds?	✓			
Are stockpiles located at least 15 m (50 ft) from concentrated flows, downstream drainage courses and storm drain inlets?	✓			
Are required covers and/or perimeter controls in place?	✓			

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Concentrated Flows				
Are concentrated flow paths free of visible erosion?	✓			
Tracking Control				
Is the entrance stabilized to prevent tracking	✓			
Is the stabilized entrance inspected daily to ensure that it is working properly	✓			
Are points of ingress/egress to public/private roads inspected and swept and vacuumed as needed?	✓			
Are all paved areas free of visible sediment tracking or other particulate matter?	✓			
Wind Erosion Control				
Is dust control implemented?	✓			
Vehicle & Equipment Fueling, Cleaning, and Maintenance				
Are vehicle and equipment fueling, cleaning and maintenance areas reasonably clean and free of spills, leaks, or any other deleterious material?	✓			
Are vehicle and equipment fueling, cleaning and maintenance activities performed on an impermeable surface in dedicated areas?	✓			
If no, are drip pans used?			✓	
Are dedicated fueling, cleaning, and maintenance areas located at least 15 m (50 ft) away from downstream drainage facilities and watercourses and protected from run-on and runoff?	✓			
Is wash water contained for infiltration/ evaporation and disposed of appropriately?			✓	
Is on-site cleaning limited to washing with water (no soap, soaps substitutes, solvents, or steam)?	✓			
On each day of use, are vehicles and equipment inspected for leaks and if necessary, repaired?	✓			
Waste Management & Materials Pollution Control				
Are material storage areas and washout areas protected from run-on and runoff, and located at least 15 m from concentrated flows and downstream drainage facilities?	✓			
Are all material handling and storage areas clean; organized; free of spills, leaks, or any other deleterious material; and stocked with appropriate clean-up supplies?	✓			
Are liquid materials, hazardous materials, and hazardous wastes stored in temporary containment facilities?			✓	
Are bagged and boxed materials stored on pallets?	✓			
Are hazardous materials and wastes stored in appropriate, labeled containers?			✓	
Are proper storage, clean-up, and spill-reporting procedures for hazardous materials and wastes posted in open, conspicuous and accessible locations adjacent to storage areas?			✓	
Are temporary containment facilities free of spills and rainwater?	✓			
Are temporary containment facilities and bagged/boxed materials covered?			✓	
Are spills from mobile equipment fueling and maintenance properly contained and cleaned up?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Is the site free of litter?	✓			
Are trash receptacles provided in the yard, field trailer areas, and at locations where workers congregate for lunch and break periods?	✓			
Is litter from work areas collected and placed in watertight dumpsters?	✓			
Are waste management receptacles free of leaks?	✓			
Are the contents of waste management receptacles properly protected from contact with storm water or from being dislodged by winds?	✓			
Are waste management receptacles filled at or beyond capacity?		✓		
Illicit Connection/ Discharge				
Is there any evidence of illicit discharges or illegal dumping on the project site?		✓		
If yes, has the Owner/Operator been notified?			✓	
SWPPP Update				
Do the SWPPP and Project Schedule adequately reflect the current site conditions and contractor operations?	✓			
Are all BMPs installed in the proper location(s) and according to the details in the SWPPP?	✓			
General				
Are there any other potential concerns at the site?		✓		
Storm Water Monitoring				
Does storm water discharge directly to a water body listed in the General Permit as impaired for sediment/sedimentation or turbidity?		✓		
If yes, were samples for sediment/sedimentation or turbidity collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
Did the sampling results indicate that the discharges are causing or contributing to further impairment?			✓	
If yes, were the erosion/sediment control BMPs improved or maintained to reduce the discharge of sediment to the water body?			✓	
Were there any BMPs not properly implemented or breaches, malfunctions, leakages or spills observed which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan during rain events?			✓	
If sampling indicated pollution of the storm water, were the leaks, breaches, spills, etc. cleaned up and the contaminated soil properly disposed of?			✓	
Were the BMPs maintained or replaced?	✓			some sandbags were shifted

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Were soil amendments (e.g., gypsum, lime) used on the project?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
If sampling indicated pollution of the storm water by the use of the soil amendments, is there a contingency plan for retention onsite of the polluted storm water?			✓	
Did storm water contact stored materials or waste and run off the construction site? (Materials not in watertight containers, etc.)		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	

Notes: some sandbags and wattles reinforced.

GENERAL INFORMATION					
Project Name	Parcel D-1 Remedial Action, Hunters Point Shipyard, San Francisco, California				
Project No.	Contract No. N62473-12-D-2005, CTO-0003				
Construction Stage	☑ Excavation and Earthmoving ☐ Inactive Construction		Work Area No.	149831	
Inspector's Name	Sam Hopstone		Date	12/7/16	
Signature	Sam Hopstone		Weather	rainy	
Inspection Type (Check Applicable)	☐ Prior to forecast rain ☐ Weekly ☑ 24-hr intervals during extended rain		☐ After a rain event ☐ Quarterly non-stormwater ☐ Other _____		
Season (Check Applicable)	☑ Rainy		☐ Non-Rainy		
Storm Data (www.wrh.noaa.gov)	Storm Start Date & Time:	12/7/16 1200	Storm Duration (hrs):	–	
	Time elapsed since last storm (Circle Applicable Units)	– Min. Hr. Days	Approximate Rainfall Amount (inches)	<	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Preservation of Existing Vegetation				
Is temporary fencing provided to preserve vegetation in areas where no construction activity is planned?	✓			
Erosion Control				
Does the applied temporary erosion control provide 100% coverage for the affected areas?	✓			
Are there any non-vegetated areas that may require temporary erosion control?	✓			
Is the area where erosion controls are used required free from visible erosion?	✓			
Temporary Linear Sediment Barriers (Silt Fence, Fiber Rolls, Sandbag Barriers, etc.)				
Are temporary linear sediment barriers properly installed, functional and maintained?	✓			
Are temporary linear sediment barriers free of accumulated litter?	✓			
Is the built-up sediment less than 1/3 the height of the barrier?	✓			
Stockpiles				
Are all locations of temporary stockpiles (include soil, haz waste, and construction materials) in approved areas?	✓			
Are stockpiles protected from run-on, run-off from adjacent areas and from winds?	✓			
Are stockpiles located at least 15 m (50 ft) from concentrated flows, downstream drainage courses and storm drain inlets?	✓			
Are required covers and/or perimeter controls in place?	✓			

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Concentrated Flows				
Are concentrated flow paths free of visible erosion?	✓			
Tracking Control				
Is the entrance stabilized to prevent tracking	✓			
Is the stabilized entrance inspected daily to ensure that it is working properly	✓			
Are points of ingress/egress to public/private roads inspected and swept and vacuumed as needed?	✓			
Are all paved areas free of visible sediment tracking or other particulate matter?	✓			
Wind Erosion Control				
Is dust control implemented?	✓			
Vehicle & Equipment Fueling, Cleaning, and Maintenance				
Are vehicle and equipment fueling, cleaning and maintenance areas reasonably clean and free of spills, leaks, or any other deleterious material?	✓			
Are vehicle and equipment fueling, cleaning and maintenance activities performed on an impermeable surface in dedicated areas?	✓			
If no, are drip pans used?			✓	
Are dedicated fueling, cleaning, and maintenance areas located at least 15 m (50 ft) away from downstream drainage facilities and watercourses and protected from run-on and runoff?	✓			
Is wash water contained for infiltration/ evaporation and disposed of appropriately?			✓	
Is on-site cleaning limited to washing with water (no soap, soaps substitutes, solvents, or steam)?	✓			
On each day of use, are vehicles and equipment inspected for leaks and if necessary, repaired?	✓			
Waste Management & Materials Pollution Control				
Are material storage areas and washout areas protected from run-on and runoff, and located at least 15 m from concentrated flows and downstream drainage facilities?	✓			
Are all material handling and storage areas clean; organized; free of spills, leaks, or any other deleterious material; and stocked with appropriate clean-up supplies?	✓			
Are liquid materials, hazardous materials, and hazardous wastes stored in temporary containment facilities?			✓	
Are bagged and boxed materials stored on pallets?	✓			
Are hazardous materials and wastes stored in appropriate, labeled containers?			✓	
Are proper storage, clean-up, and spill-reporting procedures for hazardous materials and wastes posted in open, conspicuous and accessible locations adjacent to storage areas?			✓	
Are temporary containment facilities free of spills and rainwater?	✓			
Are temporary containment facilities and bagged/boxed materials covered?			✓	
Are spills from mobile equipment fueling and maintenance properly contained and cleaned up?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Is the site free of litter?	✓			
Are trash receptacles provided in the yard, field trailer areas, and at locations where workers congregate for lunch and break periods?	✓			
Is litter from work areas collected and placed in watertight dumpsters?	✓			
Are waste management receptacles free of leaks?	✓			
Are the contents of waste management receptacles properly protected from contact with storm water or from being dislodged by winds?	✓			
Are waste management receptacles filled at or beyond capacity?		✓		
Illicit Connection/ Discharge				
Is there any evidence of illicit discharges or illegal dumping on the project site?		✓		
If yes, has the Owner/Operator been notified?			✓	
SWPPP Update				
Do the SWPPP and Project Schedule adequately reflect the current site conditions and contractor operations?	✓			
Are all BMPs installed in the proper location(s) and according to the details in the SWPPP?	✓			
General				
Are there any other potential concerns at the site?		✓		
Storm Water Monitoring				
Does storm water discharge directly to a water body listed in the General Permit as impaired for sediment/sedimentation or turbidity?		✓		
If yes, were samples for sediment/sedimentation or turbidity collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
Did the sampling results indicate that the discharges are causing or contributing to further impairment?			✓	
If yes, were the erosion/sediment control BMPs improved or maintained to reduce the discharge of sediment to the water body?			✓	
Were there any BMPs not properly implemented or breaches, malfunctions, leakages or spills observed which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan during rain events?			✓	
If sampling indicated pollution of the storm water, were the leaks, breaches, spills, etc. cleaned up and the contaminated soil properly disposed of?			✓	
Were the BMPs maintained or replaced?		✓		

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Were soil amendments (e.g., gypsum, lime) used on the project?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
If sampling indicated pollution of the storm water by the use of the soil amendments, is there a contingency plan for retention onsite of the polluted storm water?			✓	
Did storm water contact stored materials or waste and run off the construction site? (Materials not in watertight containers, etc.)		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	

Note: silt socks on Hussey rearranged ; asphalt sloped properly, effective drainage

GENERAL INFORMATION					
Project Name	Parcel D-1 Remedial Action, Hunters Point Shipyard, San Francisco, California				
Project No.	Contract No. N62473-12-D-2005, CTO-0003				
Construction Stage	☑ Excavation and Earthmoving ☐ Inactive Construction		Work Area No.	149931	
Inspector's Name	Sam Hopstone		Date	12/8/16	
Signature	Sam Hopstone		Weather	rainy	
Inspection Type (Check Applicable)	☐ Prior to forecast rain ☐ Weekly ☑ 24-hr intervals during extended rain		☐ After a rain event ☐ Quarterly non-stormwater ☐ Other _____		
Season (Check Applicable)	☑ Rainy		☐ Non-Rainy		
Storm Data (www.wrh.noaa.gov)	Storm Start Date & Time:	12/7/16 1200	Storm Duration (hrs):	20	
	Time elapsed since last storm (Circle Applicable Units)	Min. Hr. Days	Approximate Rainfall Amount (inches)	1.76"	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Preservation of Existing Vegetation				
Is temporary fencing provided to preserve vegetation in areas where no construction activity is planned?	✓			
Erosion Control				
Does the applied temporary erosion control provide 100% coverage for the affected areas?	✓			
Are there any non-vegetated areas that may require temporary erosion control?	✓			
Is the area where erosion controls are used required free from visible erosion?	✓			
Temporary Linear Sediment Barriers (Silt Fence, Fiber Rolls, Sandbag Barriers, etc.)				
Are temporary linear sediment barriers properly installed, functional and maintained?	✓			
Are temporary linear sediment barriers free of accumulated litter?	✓			
Is the built-up sediment less than 1/3 the height of the barrier?	✓			
Stockpiles				
Are all locations of temporary stockpiles (include soil, haz waste, and construction materials) in approved areas?	✓			
Are stockpiles protected from run-on, run-off from adjacent areas and from winds?	✓			
Are stockpiles located at least 15 m (50 ft) from concentrated flows, downstream drainage courses and storm drain inlets?	✓			
Are required covers and/or perimeter controls in place?	✓			

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Concentrated Flows				
Are concentrated flow paths free of visible erosion?	✓			
Tracking Control				
Is the entrance stabilized to prevent tracking	✓			
Is the stabilized entrance inspected daily to ensure that it is working properly	✓			
Are points of ingress/egress to public/private roads inspected and swept and vacuumed as needed?	✓			
Are all paved areas free of visible sediment tracking or other particulate matter?	✓			
Wind Erosion Control				
Is dust control implemented?	✓			
Vehicle & Equipment Fueling, Cleaning, and Maintenance				
Are vehicle and equipment fueling, cleaning and maintenance areas reasonably clean and free of spills, leaks, or any other deleterious material?	✓			
Are vehicle and equipment fueling, cleaning and maintenance activities performed on an impermeable surface in dedicated areas?	✓			
If no, are drip pans used?			✓	
Are dedicated fueling, cleaning, and maintenance areas located at least 15 m (50 ft) away from downstream drainage facilities and watercourses and protected from run-on and runoff?	✓			
Is wash water contained for infiltration/ evaporation and disposed of appropriately?			✓	
Is on-site cleaning limited to washing with water (no soap, soaps substitutes, solvents, or steam)?	✓			
On each day of use, are vehicles and equipment inspected for leaks and if necessary, repaired?	✓			
Waste Management & Materials Pollution Control				
Are material storage areas and washout areas protected from run-on and runoff, and located at least 15 m from concentrated flows and downstream drainage facilities?	✓			
Are all material handling and storage areas clean; organized; free of spills, leaks, or any other deleterious material; and stocked with appropriate clean-up supplies?	✓			
Are liquid materials, hazardous materials, and hazardous wastes stored in temporary containment facilities?			✓	
Are bagged and boxed materials stored on pallets?	✓			
Are hazardous materials and wastes stored in appropriate, labeled containers?			✓	
Are proper storage, clean-up, and spill-reporting procedures for hazardous materials and wastes posted in open, conspicuous and accessible locations adjacent to storage areas?			✓	
Are temporary containment facilities free of spills and rainwater?	✓			
Are temporary containment facilities and bagged/boxed materials covered?			✓	
Are spills from mobile equipment fueling and maintenance properly contained and cleaned up?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Is the site free of litter?	✓			
Are trash receptacles provided in the yard, field trailer areas, and at locations where workers congregate for lunch and break periods?	✓			
Is litter from work areas collected and placed in watertight dumpsters?	✓			
Are waste management receptacles free of leaks?	✓			
Are the contents of waste management receptacles properly protected from contact with storm water or from being dislodged by winds?	✓			
Are waste management receptacles filled at or beyond capacity?		✓		
Illicit Connection/ Discharge				
Is there any evidence of illicit discharges or illegal dumping on the project site?		✓		
If yes, has the Owner/Operator been notified?			✓	
SWPPP Update				
Do the SWPPP and Project Schedule adequately reflect the current site conditions and contractor operations?	✓			
Are all BMPs installed in the proper location(s) and according to the details in the SWPPP?	✓			
General				
Are there any other potential concerns at the site?		✓		
Storm Water Monitoring				
Does storm water discharge directly to a water body listed in the General Permit as impaired for sediment/sedimentation or turbidity?		✓		
If yes, were samples for sediment/sedimentation or turbidity collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
Did the sampling results indicate that the discharges are causing or contributing to further impairment?			✓	
If yes, were the erosion/sediment control BMPs improved or maintained to reduce the discharge of sediment to the water body?			✓	
Were there any BMPs not properly implemented or breaches, malfunctions, leakages or spills observed which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan during rain events?			✓	
If sampling indicated pollution of the storm water, were the leaks, breaches, spills, etc. cleaned up and the contaminated soil properly disposed of?			✓	
Were the BMPs maintained or replaced?	✓			wattles reinforced silt socks rearranged

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Were soil amendments (e.g., gypsum, lime) used on the project?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
If sampling indicated pollution of the storm water by the use of the soil amendments, is there a contingency plan for retention onsite of the polluted storm water?			✓	
Did storm water contact stored materials or waste and run off the construction site? (Materials not in watertight containers, etc.)		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	

Notes: wattles reinforced in front of 3861

: wattles reinforced at asc 9 east

: asphalt has sufficient slope, drains properly

GENERAL INFORMATION					
Project Name	Parcel D-1 Remedial Action, Hunters Point Shipyard, San Francisco, California				
Project No.	Contract No. N62473-12-D-2005, CTO-0003				
Construction Stage	☑ Excavation and Earthmoving ☐ Inactive Construction		Work Area No.	149631	
Inspector's Name	Sam Hopstone		Date	12/12/2016	
Signature	Sam Hopstone		Weather	cloudy	
Inspection Type (Check Applicable)	☑ Prior to forecast rain ☑ Weekly ☐ 24-hr intervals during extended rain		☑ After a rain event ☐ Quarterly non-stormwater ☐ Other _____		
Season (Check Applicable)	☑ Rainy		☐ Non-Rainy		
Storm Data (www.wrh.noaa.gov)	Storm Start Date & Time:	12/7/2016 @ 1200	Storm Duration (hrs):	72	
	Time elapsed since last storm (Circle Applicable Units)	- - 4 Min. Hr. Days	Approximate Rainfall Amount (inches)	2.50"	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Preservation of Existing Vegetation				
Is temporary fencing provided to preserve vegetation in areas where no construction activity is planned?	✓			
Erosion Control				
Does the applied temporary erosion control provide 100% coverage for the affected areas?	✓			
Are there any non-vegetated areas that may require temporary erosion control?	✓			
Is the area where erosion controls are used required free from visible erosion?	✓			
Temporary Linear Sediment Barriers (Silt Fence, Fiber Rolls, Sandbag Barriers, etc.)				
Are temporary linear sediment barriers properly installed, functional and maintained?	✓			
Are temporary linear sediment barriers free of accumulated litter?	✓			
Is the built-up sediment less than 1/3 the height of the barrier?	✓			
Stockpiles				
Are all locations of temporary stockpiles (include soil, haz waste, and construction materials) in approved areas?	✓			
Are stockpiles protected from run-on, run-off from adjacent areas and from winds?	✓			
Are stockpiles located at least 15 m (50 ft) from concentrated flows, downstream drainage courses and storm drain inlets?	✓			
Are required covers and/or perimeter controls in place?	✓			

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Concentrated Flows				
Are concentrated flow paths free of visible erosion?	✓			
Tracking Control				
Is the entrance stabilized to prevent tracking	✓			
Is the stabilized entrance inspected daily to ensure that it is working properly	✓			
Are points of ingress/egress to public/private roads inspected and swept and vacuumed as needed?	✓			
Are all paved areas free of visible sediment tracking or other particulate matter?	✓			
Wind Erosion Control				
Is dust control implemented?	✓			
Vehicle & Equipment Fueling, Cleaning, and Maintenance				
Are vehicle and equipment fueling, cleaning and maintenance areas reasonably clean and free of spills, leaks, or any other deleterious material?	✓			
Are vehicle and equipment fueling, cleaning and maintenance activities performed on an impermeable surface in dedicated areas?	✓			
If no, are drip pans used?			✓	
Are dedicated fueling, cleaning, and maintenance areas located at least 15 m (50 ft) away from downstream drainage facilities and watercourses and protected from run-on and runoff?	✓			
Is wash water contained for infiltration/ evaporation and disposed of appropriately?			✓	
Is on-site cleaning limited to washing with water (no soap, soaps substitutes, solvents, or steam)?	✓			
On each day of use, are vehicles and equipment inspected for leaks and if necessary, repaired?	✓			
Waste Management & Materials Pollution Control				
Are material storage areas and washout areas protected from run-on and runoff, and located at least 15 m from concentrated flows and downstream drainage facilities?	✓			
Are all material handling and storage areas clean; organized; free of spills, leaks, or any other deleterious material; and stocked with appropriate clean-up supplies?	✓			
Are liquid materials, hazardous materials, and hazardous wastes stored in temporary containment facilities?			✓	
Are bagged and boxed materials stored on pallets?	✓			
Are hazardous materials and wastes stored in appropriate, labeled containers?			✓	
Are proper storage, clean-up, and spill-reporting procedures for hazardous materials and wastes posted in open, conspicuous and accessible locations adjacent to storage areas?			✓	
Are temporary containment facilities free of spills and rainwater?	✓			
Are temporary containment facilities and bagged/boxed materials covered?			✓	
Are spills from mobile equipment fueling and maintenance properly contained and cleaned up?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Is the site free of litter?	✓			
Are trash receptacles provided in the yard, field trailer areas, and at locations where workers congregate for lunch and break periods?	✓			
Is litter from work areas collected and placed in watertight dumpsters?	✓			
Are waste management receptacles free of leaks?	✓			
Are the contents of waste management receptacles properly protected from contact with storm water or from being dislodged by winds?	✓			
Are waste management receptacles filled at or beyond capacity?		✓		
Illicit Connection/ Discharge				
Is there any evidence of illicit discharges or illegal dumping on the project site?		✓		
If yes, has the Owner/Operator been notified?			✓	
SWPPP Update				
Do the SWPPP and Project Schedule adequately reflect the current site conditions and contractor operations?	✓			
Are all BMPs installed in the proper location(s) and according to the details in the SWPPP?	✓			
General				
Are there any other potential concerns at the site?		✓		
Storm Water Monitoring				
Does storm water discharge directly to a water body listed in the General Permit as impaired for sediment/sedimentation or turbidity?		✓		
If yes, were samples for sediment/sedimentation or turbidity collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
Did the sampling results indicate that the discharges are causing or contributing to further impairment?			✓	
If yes, were the erosion/sediment control BMPs improved or maintained to reduce the discharge of sediment to the water body?			✓	
Were there any BMPs not properly implemented or breaches, malfunctions, leakages or spills observed which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan during rain events?			✓	
If sampling indicated pollution of the storm water, were the leaks, breaches, spills, etc. cleaned up and the contaminated soil properly disposed of?			✓	
Were the BMPs maintained or replaced?	✓			wattles reinforced

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Were soil amendments (e.g., gypsum, lime) used on the project?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
If sampling indicated pollution of the storm water by the use of the soil amendments, is there a contingency plan for retention onsite of the polluted storm water?			✓	
Did storm water contact stored materials or waste and run off the construction site? (Materials not in watertight containers, etc.)		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	

Notes: reinforced wattles at BMP are 9.

: Parcel D-1 was shut down on Friday 12/9/2016, so no SWPPP inspection was conducted.

GENERAL INFORMATION					
Project Name	Parcel D-1 Remedial Action, Hunters Point Shipyard, San Francisco, California				
Project No.	Contract No. N62473-12-D-2005, CTO-0003				
Construction Stage	☑ Excavation and Earthmoving ☐ Inactive Construction		Work Area No.	149831	
Inspector's Name	Sam Hopstone		Date	12/16/2016	
Signature	Sam Hopstone		Weather	sunny	
Inspection Type (Check Applicable)	☐ Prior to forecast rain ☑ Weekly ☐ 24-hr intervals during extended rain		☑ After a rain event ☐ Quarterly non-stormwater ☐ Other _____		
Season (Check Applicable)	☑ Rainy		☐ Non-Rainy		
Storm Data (www.wrh.noaa.gov)	Storm Start Date & Time:	12/13/16	Storm Duration (hrs):	48	
	Time elapsed since last storm (Circle Applicable Units)	– – 2 Min. Hr. Days	Approximate Rainfall Amount (inches)	1.0"	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Preservation of Existing Vegetation				
Is temporary fencing provided to preserve vegetation in areas where no construction activity is planned?	✓			
Erosion Control				
Does the applied temporary erosion control provide 100% coverage for the affected areas?	✓			
Are there any non-vegetated areas that may require temporary erosion control?	✓			
Is the area where erosion controls are used required free from visible erosion?	✓			
Temporary Linear Sediment Barriers (Silt Fence, Fiber Rolls, Sandbag Barriers, etc.)				
Are temporary linear sediment barriers properly installed, functional and maintained?	✓			
Are temporary linear sediment barriers free of accumulated litter?	✓			
Is the built-up sediment less than 1/3 the height of the barrier?	✓			
Stockpiles				
Are all locations of temporary stockpiles (include soil, haz waste, and construction materials) in approved areas?	✓			
Are stockpiles protected from run-on, run-off from adjacent areas and from winds?	✓			
Are stockpiles located at least 15 m (50 ft) from concentrated flows, downstream drainage courses and storm drain inlets?	✓			
Are required covers and/or perimeter controls in place?	✓			

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Concentrated Flows				
Are concentrated flow paths free of visible erosion?	✓			
Tracking Control				
Is the entrance stabilized to prevent tracking	✓			
Is the stabilized entrance inspected daily to ensure that it is working properly	✓			
Are points of ingress/egress to public/private roads inspected and swept and vacuumed as needed?	✓			
Are all paved areas free of visible sediment tracking or other particulate matter?	✓			
Wind Erosion Control				
Is dust control implemented?	✓			
Vehicle & Equipment Fueling, Cleaning, and Maintenance				
Are vehicle and equipment fueling, cleaning and maintenance areas reasonably clean and free of spills, leaks, or any other deleterious material?	✓			
Are vehicle and equipment fueling, cleaning and maintenance activities performed on an impermeable surface in dedicated areas?	✓			
If no, are drip pans used?			✓	
Are dedicated fueling, cleaning, and maintenance areas located at least 15 m (50 ft) away from downstream drainage facilities and watercourses and protected from run-on and runoff?	✓			
Is wash water contained for infiltration/ evaporation and disposed of appropriately?			✓	
Is on-site cleaning limited to washing with water (no soap, soaps substitutes, solvents, or steam)?	✓			
On each day of use, are vehicles and equipment inspected for leaks and if necessary, repaired?	✓			
Waste Management & Materials Pollution Control				
Are material storage areas and washout areas protected from run-on and runoff, and located at least 15 m from concentrated flows and downstream drainage facilities?	✓			
Are all material handling and storage areas clean; organized; free of spills, leaks, or any other deleterious material; and stocked with appropriate clean-up supplies?	✓			
Are liquid materials, hazardous materials, and hazardous wastes stored in temporary containment facilities?			✓	
Are bagged and boxed materials stored on pallets?	✓			
Are hazardous materials and wastes stored in appropriate, labeled containers?			✓	
Are proper storage, clean-up, and spill-reporting procedures for hazardous materials and wastes posted in open, conspicuous and accessible locations adjacent to storage areas?			✓	
Are temporary containment facilities free of spills and rainwater?	✓			
Are temporary containment facilities and bagged/boxed materials covered?			✓	
Are spills from mobile equipment fueling and maintenance properly contained and cleaned up?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Is the site free of litter?	✓			
Are trash receptacles provided in the yard, field trailer areas, and at locations where workers congregate for lunch and break periods?	✓			
Is litter from work areas collected and placed in watertight dumpsters?	✓			
Are waste management receptacles free of leaks?	✓			
Are the contents of waste management receptacles properly protected from contact with storm water or from being dislodged by winds?	✓			
Are waste management receptacles filled at or beyond capacity?		✓		
Illicit Connection/ Discharge				
Is there any evidence of illicit discharges or illegal dumping on the project site?		✓		
If yes, has the Owner/Operator been notified?			✓	
SWPPP Update				
Do the SWPPP and Project Schedule adequately reflect the current site conditions and contractor operations?	✓			
Are all BMPs installed in the proper location(s) and according to the details in the SWPPP?	✓			
General				
Are there any other potential concerns at the site?		✓		
Storm Water Monitoring				
Does storm water discharge directly to a water body listed in the General Permit as impaired for sediment/sedimentation or turbidity?		✓		
If yes, were samples for sediment/sedimentation or turbidity collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
Did the sampling results indicate that the discharges are causing or contributing to further impairment?			✓	
If yes, were the erosion/sediment control BMPs improved or maintained to reduce the discharge of sediment to the water body?			✓	
Were there any BMPs not properly implemented or breaches, malfunctions, leakages or spills observed which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan during rain events?			✓	
If sampling indicated pollution of the storm water, were the leaks, breaches, spills, etc. cleaned up and the contaminated soil properly disposed of?			✓	
Were the BMPs maintained or replaced?	✓			wattles ~~rearranged~~ reinforced

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Were soil amendments (e.g., gypsum, lime) used on the project?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
If sampling indicated pollution of the storm water by the use of the soil amendments, is there a contingency plan for retention onsite of the polluted storm water?			✓	
Did storm water contact stored materials or waste and run off the construction site? (Materials not in watertight containers, etc.)		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	

Note: Parcel D-1 was shut down on ~~Tuesday~~ Wednesday 12/14 and Thursday 12/15, so no SWPPP inspection was conducted.

: wattles ~~rearranged~~ reinforced along Manseau swale

GENERAL INFORMATION			
Project Name	Parcel D-1 Remedial Action, Hunters Point Shipyard, San Francisco, California		
Project No.	Contract No. N62473-12-D-2005, CTO-0003		
Construction Stage	☑ Excavation and Earthmoving ☐ Inactive Construction	Work Area No.	149831
Inspector's Name	Sam Hopstone	Date	12/21/2016
Signature	Sam Hopstone	Weather	Sunny
Inspection Type (Check Applicable)	☑ Prior to forecast rain ☑ Weekly ☐ 24-hr intervals during extended rain	☐ After a rain event ☐ Quarterly non-stormwater ☐ Other _____	
Season (Check Applicable)	☑ Rainy	☐ Non-Rainy	
Storm Data (www.wrh.noaa.gov)	Storm Start Date & Time:	—	Storm Duration (hrs): —
	Time elapsed since last storm (Circle Applicable Units)	— Min. Hr. Days	Approximate Rainfall Amount (inches) —

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Preservation of Existing Vegetation				
Is temporary fencing provided to preserve vegetation in areas where no construction activity is planned?	✓			
Erosion Control				
Does the applied temporary erosion control provide 100% coverage for the affected areas?	✓			
Are there any non-vegetated areas that may require temporary erosion control?	✓			
Is the area where erosion controls are used required free from visible erosion?	✓			
Temporary Linear Sediment Barriers (Silt Fence, Fiber Rolls, Sandbag Barriers, etc.)				
Are temporary linear sediment barriers properly installed, functional and maintained?	✓			
Are temporary linear sediment barriers free of accumulated litter?	✓			
Is the built-up sediment less than 1/3 the height of the barrier?	✓			
Stockpiles				
Are all locations of temporary stockpiles (include soil, haz waste, and construction materials) in approved areas?	✓			
Are stockpiles protected from run-on, run-off from adjacent areas and from winds?	✓			
Are stockpiles located at least 15 m (50 ft) from concentrated flows, downstream drainage courses and storm drain inlets?	✓			
Are required covers and/or perimeter controls in place?	✓			

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Concentrated Flows				
Are concentrated flow paths free of visible erosion?	✓			
Tracking Control				
Is the entrance stabilized to prevent tracking	✓			
Is the stabilized entrance inspected daily to ensure that it is working properly	✓			
Are points of ingress/egress to public/private roads inspected and swept and vacuumed as needed?	✓			
Are all paved areas free of visible sediment tracking or other particulate matter?	✓			
Wind Erosion Control				
Is dust control implemented?	✓			
Vehicle & Equipment Fueling, Cleaning, and Maintenance				
Are vehicle and equipment fueling, cleaning and maintenance areas reasonably clean and free of spills, leaks, or any other deleterious material?	✓			
Are vehicle and equipment fueling, cleaning and maintenance activities performed on an impermeable surface in dedicated areas?	✓			
If no, are drip pans used?			✓	
Are dedicated fueling, cleaning, and maintenance areas located at least 15 m (50 ft) away from downstream drainage facilities and watercourses and protected from run-on and runoff?	✓			
Is wash water contained for infiltration/ evaporation and disposed of appropriately?			✓	
Is on-site cleaning limited to washing with water (no soap, soaps substitutes, solvents, or steam)?	✓			
On each day of use, are vehicles and equipment inspected for leaks and if necessary, repaired?	✓			
Waste Management & Materials Pollution Control				
Are material storage areas and washout areas protected from run-on and runoff, and located at least 15 m from concentrated flows and downstream drainage facilities?	✓			
Are all material handling and storage areas clean; organized; free of spills, leaks, or any other deleterious material; and stocked with appropriate clean-up supplies?	✓			
Are liquid materials, hazardous materials, and hazardous wastes stored in temporary containment facilities?			✓	
Are bagged and boxed materials stored on pallets?	✓			
Are hazardous materials and wastes stored in appropriate, labeled containers?			✓	
Are proper storage, clean-up, and spill-reporting procedures for hazardous materials and wastes posted in open, conspicuous and accessible locations adjacent to storage areas?			✓	
Are temporary containment facilities free of spills and rainwater?	✓			
Are temporary containment facilities and bagged/boxed materials covered?			✓	
Are spills from mobile equipment fueling and maintenance properly contained and cleaned up?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Is the site free of litter?	✓			
Are trash receptacles provided in the yard, field trailer areas, and at locations where workers congregate for lunch and break periods?	✓			
Is litter from work areas collected and placed in watertight dumpsters?	✓			
Are waste management receptacles free of leaks?	✓			
Are the contents of waste management receptacles properly protected from contact with storm water or from being dislodged by winds?	✓			
Are waste management receptacles filled at or beyond capacity?		✓		
Illicit Connection/ Discharge				
Is there any evidence of illicit discharges or illegal dumping on the project site?		✓		
If yes, has the Owner/Operator been notified?			✓	
SWPPP Update				
Do the SWPPP and Project Schedule adequately reflect the current site conditions and contractor operations?	✓			
Are all BMPs installed in the proper location(s) and according to the details in the SWPPP?	✓			
General				
Are there any other potential concerns at the site?		✓		
Storm Water Monitoring				
Does storm water discharge directly to a water body listed in the General Permit as impaired for sediment/sedimentation or turbidity?		✓		
If yes, were samples for sediment/sedimentation or turbidity collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
Did the sampling results indicate that the discharges are causing or contributing to further impairment?			✓	
If yes, were the erosion/sediment control BMPs improved or maintained to reduce the discharge of sediment to the water body?			✓	
Were there any BMPs not properly implemented or breaches, malfunctions, leakages or spills observed which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan during rain events?			✓	
If sampling indicated pollution of the storm water, were the leaks, breaches, spills, etc. cleaned up and the contaminated soil properly disposed of?			✓	
Were the BMPs maintained or replaced?		✓		

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Were soil amendments (e.g., gypsum, lime) used on the project?	✓	X		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	lime used to dessicate soil, that area was paved the next day.
If sampling indicated pollution of the storm water by the use of the soil amendments, is there a contingency plan for retention onsite of the polluted storm water?			✓	
Did storm water contact stored materials or waste and run off the construction site? (Materials not in watertight containers, etc.)		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	

before rain event.

GENERAL INFORMATION					
Project Name	Parcel D-1 Remedial Action, Hunters Point Shipyard, San Francisco, California				
Project No.	Contract No. N62473-12-D-2005, CTO-0003				
Construction Stage	☑ Excavation and Earthmoving ☐ Inactive Construction		Work Area No.	149831	
Inspector's Name	Sam Hopstone		Date	12/27/2016	
Signature	Sam Hopstone		Weather	Sunny	
Inspection Type (Check Applicable)	☐ Prior to forecast rain ☑ Weekly ☐ 24-hr intervals during extended rain		☑ After a rain event ☐ Quarterly non-stormwater ☐ Other _____		
Season (Check Applicable)	☑ Rainy		☐ Non-Rainy		
Storm Data (www.wrh.noaa.gov)	Storm Start Date & Time:	12/23/16 0300	Storm Duration (hrs):	24	
	Time elapsed since last storm (Circle Applicable Units)	– Min. 12 Hr. 3 Days	Approximate Rainfall Amount (inches)	0.6"	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Preservation of Existing Vegetation				
Is temporary fencing provided to preserve vegetation in areas where no construction activity is planned?	✓			
Erosion Control				
Does the applied temporary erosion control provide 100% coverage for the affected areas?	✓			
Are there any non-vegetated areas that may require temporary erosion control?	✓			
Is the area where erosion controls are used required free from visible erosion?	✓			
Temporary Linear Sediment Barriers (Silt Fence, Fiber Rolls, Sandbag Barriers, etc.)				
Are temporary linear sediment barriers properly installed, functional and maintained?	✓			
Are temporary linear sediment barriers free of accumulated litter?	✓			
Is the built-up sediment less than 1/3 the height of the barrier?	✓			
Stockpiles				
Are all locations of temporary stockpiles (include soil, haz waste, and construction materials) in approved areas?	✓			
Are stockpiles protected from run-on, run-off from adjacent areas and from winds?	✓			
Are stockpiles located at least 15 m (50 ft) from concentrated flows, downstream drainage courses and storm drain inlets?	✓			
Are required covers and/or perimeter controls in place?	✓			

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Concentrated Flows				
Are concentrated flow paths free of visible erosion?	✓			
Tracking Control				
Is the entrance stabilized to prevent tracking	✓			
Is the stabilized entrance inspected daily to ensure that it is working properly	✓			
Are points of ingress/egress to public/private roads inspected and swept and vacuumed as needed?	✓			
Are all paved areas free of visible sediment tracking or other particulate matter?	✓			
Wind Erosion Control				
Is dust control implemented?	✓			
Vehicle & Equipment Fueling, Cleaning, and Maintenance				
Are vehicle and equipment fueling, cleaning and maintenance areas reasonably clean and free of spills, leaks, or any other deleterious material?	✓			
Are vehicle and equipment fueling, cleaning and maintenance activities performed on an impermeable surface in dedicated areas?	✓			
If no, are drip pans used?			✓	
Are dedicated fueling, cleaning, and maintenance areas located at least 15 m (50 ft) away from downstream drainage facilities and watercourses and protected from run-on and runoff?	✓			
Is wash water contained for infiltration/ evaporation and disposed of appropriately?			✓	
Is on-site cleaning limited to washing with water (no soap, soaps substitutes, solvents, or steam)?	✓			
On each day of use, are vehicles and equipment inspected for leaks and if necessary, repaired?	✓			
Waste Management & Materials Pollution Control				
Are material storage areas and washout areas protected from run-on and runoff, and located at least 15 m from concentrated flows and downstream drainage facilities?	✓			
Are all material handling and storage areas clean; organized; free of spills, leaks, or any other deleterious material; and stocked with appropriate clean-up supplies?	✓			
Are liquid materials, hazardous materials, and hazardous wastes stored in temporary containment facilities?			✓	
Are bagged and boxed materials stored on pallets?	✓			
Are hazardous materials and wastes stored in appropriate, labeled containers?			✓	
Are proper storage, clean-up, and spill-reporting procedures for hazardous materials and wastes posted in open, conspicuous and accessible locations adjacent to storage areas?			✓	
Are temporary containment facilities free of spills and rainwater?	✓			
Are temporary containment facilities and bagged/boxed materials covered?			✓	
Are spills from mobile equipment fueling and maintenance properly contained and cleaned up?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Is the site free of litter?	✓			
Are trash receptacles provided in the yard, field trailer areas, and at locations where workers congregate for lunch and break periods?	✓			
Is litter from work areas collected and placed in watertight dumpsters?	✓			
Are waste management receptacles free of leaks?	✓			
Are the contents of waste management receptacles properly protected from contact with storm water or from being dislodged by winds?	✓			
Are waste management receptacles filled at or beyond capacity?		✓		
Illicit Connection/ Discharge				
Is there any evidence of illicit discharges or illegal dumping on the project site?		✓		
If yes, has the Owner/Operator been notified?			✓	
SWPPP Update				
Do the SWPPP and Project Schedule adequately reflect the current site conditions and contractor operations?	✓			
Are all BMPs installed in the proper location(s) and according to the details in the SWPPP?	✓			
General				
Are there any other potential concerns at the site?		✓		
Storm Water Monitoring				
Does storm water discharge directly to a water body listed in the General Permit as impaired for sediment/sedimentation or turbidity?		✓		
If yes, were samples for sediment/sedimentation or turbidity collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
Did the sampling results indicate that the discharges are causing or contributing to further impairment?			✓	
If yes, were the erosion/sediment control BMPs improved or maintained to reduce the discharge of sediment to the water body?			✓	
Were there any BMPs not properly implemented or breaches, malfunctions, leakages or spills observed which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan during rain events?			✓	
If sampling indicated pollution of the storm water, were the leaks, breaches, spills, etc. cleaned up and the contaminated soil properly disposed of?			✓	
Were the BMPs maintained or replaced?		✓		

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Were soil amendments (e.g., gypsum, lime) used on the project?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
If sampling indicated pollution of the storm water by the use of the soil amendments, is there a contingency plan for retention onsite of the polluted storm water?			✓	
Did storm water contact stored materials or waste and run off the construction site? (Materials not in watertight containers, etc.)		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	

Note: D-1 was closed on Friday 12/23/2016 and Monday 12/26/2016, so no SWPPP inspection was conducted.

: All areas paved except Marseau swale, which is wattled and ~~p~~ outlet ~~is~~ has filter over it.

GENERAL INFORMATION					
Project Name	Parcel D-1 Remedial Action, Hunters Point Shipyard, San Francisco, California				
Project No.	Contract No. N62473-12-D-2005, CTO-0003				
Construction Stage	☑ Excavation and Earthmoving ☐ Inactive Construction		Work Area No.	149831	
Inspector's Name	Sam Hopstone		Date	12/29/2016	
Signature	Sam Hopstone		Weather	Sunny	
Inspection Type (Check Applicable)	☑ Prior to forecast rain ☐ Weekly ☐ 24-hr intervals during extended rain		☐ After a rain event ☐ Quarterly non-stormwater ☐ Other _____		
Season (Check Applicable)	☑ Rainy		☐ Non-Rainy		
Storm Data (www.wrh.noaa.gov)	Storm Start Date & Time:	—	Storm Duration (hrs):	—	
	Time elapsed since last storm (Circle Applicable Units)	— Min. Hr. Days	Approximate Rainfall Amount (inches)	—	

INSPECTION OF BMPs				
BMP	Yes	No	N/A	Corrective Action/Comments
Preservation of Existing Vegetation				
Is temporary fencing provided to preserve vegetation in areas where no construction activity is planned?	✓			
Erosion Control				
Does the applied temporary erosion control provide 100% coverage for the affected areas?	✓			
Are there any non-vegetated areas that may require temporary erosion control?	✓			
Is the area where erosion controls are used required free from visible erosion?	✓			
Temporary Linear Sediment Barriers (Silt Fence, Fiber Rolls, Sandbag Barriers, etc.)				
Are temporary linear sediment barriers properly installed, functional and maintained?	✓			
Are temporary linear sediment barriers free of accumulated litter?	✓			
Is the built-up sediment less than 1/3 the height of the barrier?	✓			
Stockpiles				
Are all locations of temporary stockpiles (include soil, haz waste, and construction materials) in approved areas?	✓			
Are stockpiles protected from run-on, run-off from adjacent areas and from winds?	✓			
Are stockpiles located at least 15 m (50 ft) from concentrated flows, downstream drainage courses and storm drain inlets?	✓			
Are required covers and/or perimeter controls in place?	✓			

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Concentrated Flows				
Are concentrated flow paths free of visible erosion?	✓			
Tracking Control				
Is the entrance stabilized to prevent tracking	✓			
Is the stabilized entrance inspected daily to ensure that it is working properly	✓			
Are points of ingress/egress to public/private roads inspected and swept and vacuumed as needed?	✓			
Are all paved areas free of visible sediment tracking or other particulate matter?	✓			
Wind Erosion Control				
Is dust control implemented?	✓			
Vehicle & Equipment Fueling, Cleaning, and Maintenance				
Are vehicle and equipment fueling, cleaning and maintenance areas reasonably clean and free of spills, leaks, or any other deleterious material?	✓			
Are vehicle and equipment fueling, cleaning and maintenance activities performed on an impermeable surface in dedicated areas?	✓			
If no, are drip pans used?			✓	
Are dedicated fueling, cleaning, and maintenance areas located at least 15 m (50 ft) away from downstream drainage facilities and watercourses and protected from run-on and runoff?	✓			
Is wash water contained for infiltration/ evaporation and disposed of appropriately?			✓	
Is on-site cleaning limited to washing with water (no soap, soaps substitutes, solvents, or steam)?	✓			
On each day of use, are vehicles and equipment inspected for leaks and if necessary, repaired?	✓			
Waste Management & Materials Pollution Control				
Are material storage areas and washout areas protected from run-on and runoff, and located at least 15 m from concentrated flows and downstream drainage facilities?	✓			
Are all material handling and storage areas clean; organized; free of spills, leaks, or any other deleterious material; and stocked with appropriate clean-up supplies?	✓			
Are liquid materials, hazardous materials, and hazardous wastes stored in temporary containment facilities?			✓	
Are bagged and boxed materials stored on pallets?	✓			
Are hazardous materials and wastes stored in appropriate, labeled containers?			✓	
Are proper storage, clean-up, and spill-reporting procedures for hazardous materials and wastes posted in open, conspicuous and accessible locations adjacent to storage areas?			✓	
Are temporary containment facilities free of spills and rainwater?	✓			
Are temporary containment facilities and bagged/boxed materials covered?			✓	
Are spills from mobile equipment fueling and maintenance properly contained and cleaned up?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Is the site free of litter?	✓			
Are trash receptacles provided in the yard, field trailer areas, and at locations where workers congregate for lunch and break periods?	✓			
Is litter from work areas collected and placed in watertight dumpsters?	✓			
Are waste management receptacles free of leaks?	✓			
Are the contents of waste management receptacles properly protected from contact with storm water or from being dislodged by winds?	✓			
Are waste management receptacles filled at or beyond capacity?		✓		
Illicit Connection/ Discharge				
Is there any evidence of illicit discharges or illegal dumping on the project site?		✓		
If yes, has the Owner/Operator been notified?			✓	
SWPPP Update				
Do the SWPPP and Project Schedule adequately reflect the current site conditions and contractor operations?	✓			
Are all BMPs installed in the proper location(s) and according to the details in the SWPPP?	✓			
General				
Are there any other potential concerns at the site?		✓		
Storm Water Monitoring				
Does storm water discharge directly to a water body listed in the General Permit as impaired for sediment/sedimentation or turbidity?		✓		
If yes, were samples for sediment/sedimentation or turbidity collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
Did the sampling results indicate that the discharges are causing or contributing to further impairment?			✓	
If yes, were the erosion/sediment control BMPs improved or maintained to reduce the discharge of sediment to the water body?			✓	
Were there any BMPs not properly implemented or breaches, malfunctions, leakages or spills observed which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan during rain events?			✓	
If sampling indicated pollution of the storm water, were the leaks, breaches, spills, etc. cleaned up and the contaminated soil properly disposed of?			✓	
Were the BMPs maintained or replaced?	✓			wattles along Manseau

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Were soil amendments (e.g., gypsum, lime) used on the project?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
If sampling indicated pollution of the storm water by the use of the soil amendments, is there a contingency plan for retention onsite of the polluted storm water?			✓	
Did storm water contact stored materials or waste and run off the construction site? (Materials not in watertight containers, etc.)		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	

Notes: Manseau some wattles adjusted

: Hussey St drain inlet filter socks in good condition

GENERAL INFORMATION

Project Name	Parcel D-1 Remedial Action, Hunters Point Shipyard, San Francisco, California		
Project No.	Contract No. N62473-12-D-2005, CTO-0003		
Construction Stage	☑ Excavation and Earthmoving ☐ Inactive Construction	Work Area No.	D-1 (149831)
Inspector's Name	CHRISTOPHER HANNI	Date	01.05.2017
Signature		Weather	PARTLY CLOUDY
Inspection Type (Check Applicable)	☑ Prior to forecast rain ☐ Weekly ☐ 24-hr intervals during extended rain	☐ After a rain event ☐ Quarterly non-stormwater ☐ Other _____	
Season (Check Applicable)	☑ Rainy	☐ Non-Rainy	
Storm Data (www.wrh.noaa.gov)	Storm Start Date & Time: —	Storm Duration (hrs): —	
	Time elapsed since last storm (Circle Applicable Units) Min. Hr. Days	Approximate Rainfall Amount (inches) —	

INSPECTION OF BMPs

BMP	Yes	No	N/A	Corrective Action/Comments
Preservation of Existing Vegetation				
Is temporary fencing provided to preserve vegetation in areas where no construction activity is planned?	✓			
Erosion Control				
Does the applied temporary erosion control provide 100% coverage for the affected areas?	✓			
Are there any non-vegetated areas that may require temporary erosion control?	✓			
Is the area where erosion controls are used required free from visible erosion?	✓			
Temporary Linear Sediment Barriers (Silt Fence, Fiber Rolls, Sandbag Barriers, etc.)				
Are temporary linear sediment barriers properly installed, functional and maintained?	✓			
Are temporary linear sediment barriers free of accumulated litter?	✓			
Is the built-up sediment less than 1/3 the height of the barrier?	✓			
Stockpiles				
Are all locations of temporary stockpiles (include soil, haz waste, and construction materials) in approved areas?	✓			
Are stockpiles protected from run-on, run-off from adjacent areas and from winds?	✓			
Are stockpiles located at least 15 m (50 ft) from concentrated flows, downstream drainage courses and storm drain inlets?	✓			
Are required covers and/or perimeter controls in place?	✓			

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Concentrated Flows				
Are concentrated flow paths free of visible erosion?	✓			
Tracking Control				
Is the entrance stabilized to prevent tracking	✓			
Is the stabilized entrance inspected daily to ensure that it is working properly	✓			
Are points of ingress/egress to public/private roads inspected and swept and vacuumed as needed?	✓			
Are all paved areas free of visible sediment tracking or other particulate matter?	✓			
Wind Erosion Control				
Is dust control implemented?	✓			
Vehicle & Equipment Fueling, Cleaning, and Maintenance				
Are vehicle and equipment fueling, cleaning and maintenance areas reasonably clean and free of spills, leaks, or any other deleterious material?	✓			
Are vehicle and equipment fueling, cleaning and maintenance activities performed on an impermeable surface in dedicated areas?	✓			
If no, are drip pans used?			✓	
Are dedicated fueling, cleaning, and maintenance areas located at least 15 m (50 ft) away from downstream drainage facilities and watercourses and protected from run-on and runoff?	✓			
Is wash water contained for infiltration/ evaporation and disposed of appropriately?			✓	
Is on-site cleaning limited to washing with water (no soap, soaps substitutes, solvents, or steam)?	✓			
On each day of use, are vehicles and equipment inspected for leaks and if necessary, repaired?	✓			
Waste Management & Materials Pollution Control				
Are material storage areas and washout areas protected from run-on and runoff, and located at least 15 m from concentrated flows and downstream drainage facilities?	✓			
Are all material handling and storage areas clean; organized; free of spills, leaks, or any other deleterious material; and stocked with appropriate clean-up supplies?	✓			
Are liquid materials, hazardous materials, and hazardous wastes stored in temporary containment facilities?			✓	
Are bagged and boxed materials stored on pallets?	✓			
Are hazardous materials and wastes stored in appropriate, labeled containers?			✓	
Are proper storage, clean-up, and spill-reporting procedures for hazardous materials and wastes posted in open, conspicuous and accessible locations adjacent to storage areas?			✓	
Are temporary containment facilities free of spills and rainwater?	✓			
Are temporary containment facilities and bagged/boxed materials covered?			✓	
Are spills from mobile equipment fueling and maintenance properly contained and cleaned up?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Is the site free of litter?	✓			
Are trash receptacles provided in the yard, field trailer areas, and at locations where workers congregate for lunch and break periods?	✓			
Is litter from work areas collected and placed in watertight dumpsters?	✓			
Are waste management receptacles free of leaks?	✓			
Are the contents of waste management receptacles properly protected from contact with storm water or from being dislodged by winds?	✓			
Are waste management receptacles filled at or beyond capacity?		✓		
Illicit Connection/ Discharge				
Is there any evidence of illicit discharges or illegal dumping on the project site?		✓		
If yes, has the Owner/Operator been notified?			✓	
SWPPP Update				
Do the SWPPP and Project Schedule adequately reflect the current site conditions and contractor operations?	✓			
Are all BMPs installed in the proper location(s) and according to the details in the SWPPP?	✓			
General				
Are there any other potential concerns at the site?		✓		
Storm Water Monitoring				
Does storm water discharge directly to a water body listed in the General Permit as impaired for sediment/sedimentation or turbidity?		✓		
If yes, were samples for sediment/sedimentation or turbidity collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
Did the sampling results indicate that the discharges are causing or contributing to further impairment?			✓	
If yes, were the erosion/sediment control BMPs improved or maintained to reduce the discharge of sediment to the water body?			✓	
Were there any BMPs not properly implemented or breaches, malfunctions, leakages or spills observed which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan during rain events?			✓	
If sampling indicated pollution of the storm water, were the leaks, breaches, spills, etc. cleaned up and the contaminated soil properly disposed of?			✓	
Were the BMPs maintained or replaced?		✓		

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Were soil amendments (e.g., gypsum, lime) used on the project?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
If sampling indicated pollution of the storm water by the use of the soil amendments, is there a contingency plan for retention onsite of the polluted storm water?			✓	
Did storm water contact stored materials or waste and run off the construction site? (Materials not in watertight containers, etc.)		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	

GENERAL INFORMATION				
Project Name	Parcel D-1 Remedial Action, Hunters Point Shipyard, San Francisco, California			
Project No.	Contract No. N62473-12-D-2005, CTO-0003			
Construction Stage	☑ Excavation and Earthmoving ☐ Inactive Construction	Work Area No.	149831	
Inspector's Name	Sam Hopstone	Date	1/9/2017	
Signature	Sam Hopstone	Weather	cloudy	
Inspection Type (Check Applicable)	☑ Prior to forecast rain ☑ Weekly ☑ 24-hr intervals during extended rain	☐ After a rain event ☐ Quarterly non-stormwater ☐ Other _____		
Season (Check Applicable)	☑ Rainy	☐ Non-Rainy		
Storm Data (www.wrh.noaa.gov)	Storm Start Date & Time:	1/7/2017@2100	Storm Duration (hrs):	48
	Time elapsed since last storm (Circle Applicable Units)	- - 2 Min. Hr. Days	Approximate Rainfall Amount (inches)	1.2"

INSPECTION OF BMPs				
BMP	Yes	No	N/A	Corrective Action/Comments
Preservation of Existing Vegetation				
Is temporary fencing provided to preserve vegetation in areas where no construction activity is planned?	✓			
Erosion Control				
Does the applied temporary erosion control provide 100% coverage for the affected areas?	✓			
Are there any non-vegetated areas that may require temporary erosion control?	✓			
Is the area where erosion controls are used required free from visible erosion?	✓			
Temporary Linear Sediment Barriers (Silt Fence, Fiber Rolls, Sandbag Barriers, etc.)				
Are temporary linear sediment barriers properly installed, functional and maintained?	✓			
Are temporary linear sediment barriers free of accumulated litter?	✓			
Is the built-up sediment less than 1/3 the height of the barrier?	✓			
Stockpiles				
Are all locations of temporary stockpiles (include soil, haz waste, and construction materials) in approved areas?	✓			
Are stockpiles protected from run-on, run-off from adjacent areas and from winds?	✓			
Are stockpiles located at least 15 m (50 ft) from concentrated flows, downstream drainage courses and storm drain inlets?	✓			
Are required covers and/or perimeter controls in place?	✓			

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Concentrated Flows				
Are concentrated flow paths free of visible erosion?	✓			
Tracking Control				
Is the entrance stabilized to prevent tracking	✓			
Is the stabilized entrance inspected daily to ensure that it is working properly	✓			
Are points of ingress/egress to public/private roads inspected and swept and vacuumed as needed?	✓			
Are all paved areas free of visible sediment tracking or other particulate matter?	✓			
Wind Erosion Control				
Is dust control implemented?	✓			
Vehicle & Equipment Fueling, Cleaning, and Maintenance				
Are vehicle and equipment fueling, cleaning and maintenance areas reasonably clean and free of spills, leaks, or any other deleterious material?	✓			
Are vehicle and equipment fueling, cleaning and maintenance activities performed on an impermeable surface in dedicated areas?	✓			
If no, are drip pans used?			✓	
Are dedicated fueling, cleaning, and maintenance areas located at least 15 m (50 ft) away from downstream drainage facilities and watercourses and protected from run-on and runoff?	✓			
Is wash water contained for infiltration/ evaporation and disposed of appropriately?			✓	
Is on-site cleaning limited to washing with water (no soap, soaps substitutes, solvents, or steam)?	✓			
On each day of use, are vehicles and equipment inspected for leaks and if necessary, repaired?	✓			
Waste Management & Materials Pollution Control				
Are material storage areas and washout areas protected from run-on and runoff, and located at least 15 m from concentrated flows and downstream drainage facilities?	✓			
Are all material handling and storage areas clean; organized; free of spills, leaks, or any other deleterious material; and stocked with appropriate clean-up supplies?	✓			
Are liquid materials, hazardous materials, and hazardous wastes stored in temporary containment facilities?			✓	
Are bagged and boxed materials stored on pallets?	✓			
Are hazardous materials and wastes stored in appropriate, labeled containers?			✓	
Are proper storage, clean-up, and spill-reporting procedures for hazardous materials and wastes posted in open, conspicuous and accessible locations adjacent to storage areas?			✓	
Are temporary containment facilities free of spills and rainwater?	✓			
Are temporary containment facilities and bagged/boxed materials covered?			✓	
Are spills from mobile equipment fueling and maintenance properly contained and cleaned up?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Is the site free of litter?	✓			
Are trash receptacles provided in the yard, field trailer areas, and at locations where workers congregate for lunch and break periods?	✓			
Is litter from work areas collected and placed in watertight dumpsters?	✓			
Are waste management receptacles free of leaks?	✓			
Are the contents of waste management receptacles properly protected from contact with storm water or from being dislodged by winds?	✓			
Are waste management receptacles filled at or beyond capacity?		✓		
Illicit Connection/ Discharge				
Is there any evidence of illicit discharges or illegal dumping on the project site?		✓		
If yes, has the Owner/Operator been notified?			✓	
SWPPP Update				
Do the SWPPP and Project Schedule adequately reflect the current site conditions and contractor operations?	✓			
Are all BMPs installed in the proper location(s) and according to the details in the SWPPP?	✓			
General				
Are there any other potential concerns at the site?		✓		
Storm Water Monitoring				
Does storm water discharge directly to a water body listed in the General Permit as impaired for sediment/sedimentation or turbidity?		✓		
If yes, were samples for sediment/sedimentation or turbidity collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
Did the sampling results indicate that the discharges are causing or contributing to further impairment?			✓	
If yes, were the erosion/sediment control BMPs improved or maintained to reduce the discharge of sediment to the water body?			✓	
Were there any BMPs not properly implemented or breaches, malfunctions, leakages or spills observed which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan during rain events?			✓	
If sampling indicated pollution of the storm water, were the leaks, breaches, spills, etc. cleaned up and the contaminated soil properly disposed of?			✓	
Were the BMPs maintained or replaced?		✓		

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Were soil amendments (e.g., gypsum, lime) used on the project?		√		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			√	
If sampling indicated pollution of the storm water by the use of the soil amendments, is there a contingency plan for retention onsite of the polluted storm water?			√	
Did storm water contact stored materials or waste and run off the construction site? (Materials not in watertight containers, etc.)		√		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			√	

GENERAL INFORMATION			
Project Name	Parcel D-1 Remedial Action, Hunters Point Shipyard, San Francisco, California		
Project No.	Contract No. N62473-12-D-2005, CTO-0003		
Construction Stage	☑ Excavation and Earthmoving ☐ Inactive Construction	Work Area No.	149831
Inspector's Name	Sam Hopstone	Date	1/12/2017
Signature	Sam Hopstone	Weather	cloudy
Inspection Type (Check Applicable)	☐ Prior to forecast rain ☑ Weekly ☑ 24-hr intervals during extended rain	☐ After a rain event ☐ Quarterly non-stormwater ☐ Other _____	
Season (Check Applicable)	☑ Rainy	☐ Non-Rainy	
Storm Data (www.wrh.noaa.gov)	Storm Start Date & Time: 1/7/2017@2100	Storm Duration (hrs): 108	
	Time elapsed since last storm (Circle Applicable Units) – Min. 12 Hr. & 4 Days	Approximate Rainfall Amount (inches)	2.2"

INSPECTION OF BMPs				
BMP	Yes	No	N/A	Corrective Action/Comments
Preservation of Existing Vegetation				
Is temporary fencing provided to preserve vegetation in areas where no construction activity is planned?	✓			
Erosion Control				
Does the applied temporary erosion control provide 100% coverage for the affected areas?	✓			
Are there any non-vegetated areas that may require temporary erosion control?	✓			
Is the area where erosion controls are used required free from visible erosion?	✓			
Temporary Linear Sediment Barriers (Silt Fence, Fiber Rolls, Sandbag Barriers, etc.)				
Are temporary linear sediment barriers properly installed, functional and maintained?	✓			
Are temporary linear sediment barriers free of accumulated litter?	✓			
Is the built-up sediment less than 1/3 the height of the barrier?	✓			
Stockpiles				
Are all locations of temporary stockpiles (include soil, haz waste, and construction materials) in approved areas?	✓			
Are stockpiles protected from run-on, run-off from adjacent areas and from winds?	✓			
Are stockpiles located at least 15 m (50 ft) from concentrated flows, downstream drainage courses and storm drain inlets?	✓			
Are required covers and/or perimeter controls in place?	✓			

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Concentrated Flows				
Are concentrated flow paths free of visible erosion?	✓			
Tracking Control				
Is the entrance stabilized to prevent tracking	✓			
Is the stabilized entrance inspected daily to ensure that it is working properly	✓			
Are points of ingress/egress to public/private roads inspected and swept and vacuumed as needed?	✓			
Are all paved areas free of visible sediment tracking or other particulate matter?	✓			
Wind Erosion Control				
Is dust control implemented?	✓			
Vehicle & Equipment Fueling, Cleaning, and Maintenance				
Are vehicle and equipment fueling, cleaning and maintenance areas reasonably clean and free of spills, leaks, or any other deleterious material?	✓			
Are vehicle and equipment fueling, cleaning and maintenance activities performed on an impermeable surface in dedicated areas?	✓			
If no, are drip pans used?			✓	
Are dedicated fueling, cleaning, and maintenance areas located at least 15 m (50 ft) away from downstream drainage facilities and watercourses and protected from run-on and runoff?	✓			
Is wash water contained for infiltration/ evaporation and disposed of appropriately?			✓	
Is on-site cleaning limited to washing with water (no soap, soaps substitutes, solvents, or steam)?	✓			
On each day of use, are vehicles and equipment inspected for leaks and if necessary, repaired?	✓			
Waste Management & Materials Pollution Control				
Are material storage areas and washout areas protected from run-on and runoff, and located at least 15 m from concentrated flows and downstream drainage facilities?	✓			
Are all material handling and storage areas clean; organized; free of spills, leaks, or any other deleterious material; and stocked with appropriate clean-up supplies?	✓			
Are liquid materials, hazardous materials, and hazardous wastes stored in temporary containment facilities?			✓	
Are bagged and boxed materials stored on pallets?	✓			
Are hazardous materials and wastes stored in appropriate, labeled containers?			✓	
Are proper storage, clean-up, and spill-reporting procedures for hazardous materials and wastes posted in open, conspicuous and accessible locations adjacent to storage areas?			✓	
Are temporary containment facilities free of spills and rainwater?	✓			
Are temporary containment facilities and bagged/boxed materials covered?			✓	
Are spills from mobile equipment fueling and maintenance properly contained and cleaned up?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Is the site free of litter?	✓			
Are trash receptacles provided in the yard, field trailer areas, and at locations where workers congregate for lunch and break periods?	✓			
Is litter from work areas collected and placed in watertight dumpsters?	✓			
Are waste management receptacles free of leaks?	✓			
Are the contents of waste management receptacles properly protected from contact with storm water or from being dislodged by winds?	✓			
Are waste management receptacles filled at or beyond capacity?		✓		
Illicit Connection/ Discharge				
Is there any evidence of illicit discharges or illegal dumping on the project site?		✓		
If yes, has the Owner/Operator been notified?			✓	
SWPPP Update				
Do the SWPPP and Project Schedule adequately reflect the current site conditions and contractor operations?	✓			
Are all BMPs installed in the proper location(s) and according to the details in the SWPPP?	✓			
General				
Are there any other potential concerns at the site?		✓		
Storm Water Monitoring				
Does storm water discharge directly to a water body listed in the General Permit as impaired for sediment/sedimentation or turbidity?		✓		
If yes, were samples for sediment/sedimentation or turbidity collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
Did the sampling results indicate that the discharges are causing or contributing to further impairment?			✓	
If yes, were the erosion/sediment control BMPs improved or maintained to reduce the discharge of sediment to the water body?			✓	
Were there any BMPs not properly implemented or breaches, malfunctions, leakages or spills observed which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan during rain events?			✓	
If sampling indicated pollution of the storm water, were the leaks, breaches, spills, etc. cleaned up and the contaminated soil properly disposed of?			✓	
Were the BMPs maintained or replaced?	✓			uprighted fence panels and waffles

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Were soil amendments (e.g., gypsum, lime) used on the project?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
If sampling indicated pollution of the storm water by the use of the soil amendments, is there a contingency plan for retention onsite of the polluted storm water?			✓	
Did storm water contact stored materials or waste and run off the construction site? (Materials not in watertight containers, etc.)		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	

Notes: D-1 site shut down 1/10/2017 and 1/11/2017 so no SWPPP inspections were conducted on these days.

: crew realigned fence panels blown over during the storm

: some wattles realigned along Marseau swale

GENERAL INFORMATION			
Project Name	Parcel D-1 Remedial Action, Hunters Point Shipyard, San Francisco, California		
Project No.	Contract No. N62473-12-D-2005, CTO-0003		
Construction Stage	☑ Excavation and Earthmoving ☐ Inactive Construction	Work Area No.	149831
Inspector's Name	Sam Hopstone	Date	1/13/2017
Signature	Sam Hopstone	Weather	Sunny
Inspection Type (Check Applicable)	☐ Prior to forecast rain ☐ Weekly ☐ 24-hr intervals during extended rain	☑ After a rain event ☐ Quarterly non-stormwater ☐ Other _____	
Season (Check Applicable)	☑ Rainy	☐ Non-Rainy	
Storm Data (www.wrh.noaa.gov)	Storm Start Date & Time:	1/7/2017@2100	Storm Duration (hrs): 108
	Time elapsed since last storm (Circle Applicable Units) Min. Hr. Days	– 12 41	Approximate Rainfall Amount (inches): 2.3"

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Preservation of Existing Vegetation				
Is temporary fencing provided to preserve vegetation in areas where no construction activity is planned?	✓			
Erosion Control				
Does the applied temporary erosion control provide 100% coverage for the affected areas?	✓			
Are there any non-vegetated areas that may require temporary erosion control?	✓			
Is the area where erosion controls are used required free from visible erosion?	✓			
Temporary Linear Sediment Barriers (Silt Fence, Fiber Rolls, Sandbag Barriers, etc.)				
Are temporary linear sediment barriers properly installed, functional and maintained?	✓			
Are temporary linear sediment barriers free of accumulated litter?	✓			
Is the built-up sediment less than 1/3 the height of the barrier?	✓			
Stockpiles				
Are all locations of temporary stockpiles (include soil, haz waste, and construction materials) in approved areas?	✓			
Are stockpiles protected from run-on, run-off from adjacent areas and from winds?	✓			
Are stockpiles located at least 15 m (50 ft) from concentrated flows, downstream drainage courses and storm drain inlets?	✓			
Are required covers and/or perimeter controls in place?	✓			

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Concentrated Flows				
Are concentrated flow paths free of visible erosion?	✓			
Tracking Control				
Is the entrance stabilized to prevent tracking	✓			
Is the stabilized entrance inspected daily to ensure that it is working properly	✓			
Are points of ingress/egress to public/private roads inspected and swept and vacuumed as needed?	✓			
Are all paved areas free of visible sediment tracking or other particulate matter?	✓			
Wind Erosion Control				
Is dust control implemented?	✓			
Vehicle & Equipment Fueling, Cleaning, and Maintenance				
Are vehicle and equipment fueling, cleaning and maintenance areas reasonably clean and free of spills, leaks, or any other deleterious material?	✓			
Are vehicle and equipment fueling, cleaning and maintenance activities performed on an impermeable surface in dedicated areas?	✓			
If no, are drip pans used?			✓	
Are dedicated fueling, cleaning, and maintenance areas located at least 15 m (50 ft) away from downstream drainage facilities and watercourses and protected from run-on and runoff?	✓			
Is wash water contained for infiltration/ evaporation and disposed of appropriately?			✓	
Is on-site cleaning limited to washing with water (no soap, soaps substitutes, solvents, or steam)?	✓			
On each day of use, are vehicles and equipment inspected for leaks and if necessary, repaired?	✓			
Waste Management & Materials Pollution Control				
Are material storage areas and washout areas protected from run-on and runoff, and located at least 15 m from concentrated flows and downstream drainage facilities?	✓			
Are all material handling and storage areas clean; organized; free of spills, leaks, or any other deleterious material; and stocked with appropriate clean-up supplies?	✓			
Are liquid materials, hazardous materials, and hazardous wastes stored in temporary containment facilities?			✓	
Are bagged and boxed materials stored on pallets?	✓			
Are hazardous materials and wastes stored in appropriate, labeled containers?			✓	
Are proper storage, clean-up, and spill-reporting procedures for hazardous materials and wastes posted in open, conspicuous and accessible locations adjacent to storage areas?			✓	
Are temporary containment facilities free of spills and rainwater?	✓			
Are temporary containment facilities and bagged/boxed materials covered?			✓	
Are spills from mobile equipment fueling and maintenance properly contained and cleaned up?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Is the site free of litter?	✓			
Are trash receptacles provided in the yard, field trailer areas, and at locations where workers congregate for lunch and break periods?	✓			
Is litter from work areas collected and placed in watertight dumpsters?	✓			
Are waste management receptacles free of leaks?	✓			
Are the contents of waste management receptacles properly protected from contact with storm water or from being dislodged by winds?	✓			
Are waste management receptacles filled at or beyond capacity?		✓		
Illicit Connection/ Discharge				
Is there any evidence of illicit discharges or illegal dumping on the project site?		✓		
If yes, has the Owner/Operator been notified?			✓	
SWPPP Update				
Do the SWPPP and Project Schedule adequately reflect the current site conditions and contractor operations?	✓			
Are all BMPs installed in the proper location(s) and according to the details in the SWPPP?	✓			
General				
Are there any other potential concerns at the site?		✓		
Storm Water Monitoring				
Does storm water discharge directly to a water body listed in the General Permit as impaired for sediment/sedimentation or turbidity?		✓		
If yes, were samples for sediment/sedimentation or turbidity collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
Did the sampling results indicate that the discharges are causing or contributing to further impairment?			✓	
If yes, were the erosion/sediment control BMPs improved or maintained to reduce the discharge of sediment to the water body?			✓	
Were there any BMPs not properly implemented or breaches, malfunctions, leakages or spills observed which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan during rain events?			✓	
If sampling indicated pollution of the storm water, were the leaks, breaches, spills, etc. cleaned up and the contaminated soil properly disposed of?			✓	
Were the BMPs maintained or replaced?		✓		

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Were soil amendments (e.g., gypsum, lime) used on the project?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
If sampling indicated pollution of the storm water by the use of the soil amendments, is there a contingency plan for retention onsite of the polluted storm water?			✓	
Did storm water contact stored materials or waste and run off the construction site? (Materials not in watertight containers, etc.)		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	

GENERAL INFORMATION			
Project Name	Parcel D-1 Remedial Action, Hunters Point Shipyard, San Francisco, California		
Project No.	Contract No. N62473-12-D-2005, CTO-0003		
Construction Stage	☑ Excavation and Earthmoving ☐ Inactive Construction	Work Area No.	149831
Inspector's Name	Sam Hopstone	Date	1/16/2017
Signature	Sam Hopstone	Weather	Sunny
Inspection Type (Check Applicable)	☑ Prior to forecast rain ☑ Weekly ☐ 24-hr intervals during extended rain	☐ After a rain event ☐ Quarterly non-stormwater ☐ Other _____	
Season (Check Applicable)	☑ Rainy	☐ Non-Rainy	
Storm Data (www.wrh.noaa.gov)	Storm Start Date & Time: —	Storm Duration (hrs): —	
	Time elapsed since last storm (Circle Applicable Units) Min. Hr. Days —	Approximate Rainfall Amount (inches) —	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Preservation of Existing Vegetation				
Is temporary fencing provided to preserve vegetation in areas where no construction activity is planned?	✓			
Erosion Control				
Does the applied temporary erosion control provide 100% coverage for the affected areas?	✓			
Are there any non-vegetated areas that may require temporary erosion control?	✓			
Is the area where erosion controls are used required free from visible erosion?	✓			
Temporary Linear Sediment Barriers (Silt Fence, Fiber Rolls, Sandbag Barriers, etc.)				
Are temporary linear sediment barriers properly installed, functional and maintained?	✓			
Are temporary linear sediment barriers free of accumulated litter?	✓			
Is the built-up sediment less than 1/3 the height of the barrier?	✓			
Stockpiles				
Are all locations of temporary stockpiles (include soil, haz waste, and construction materials) in approved areas?	✓			
Are stockpiles protected from run-on, run-off from adjacent areas and from winds?	✓			
Are stockpiles located at least 15 m (50 ft) from concentrated flows, downstream drainage courses and storm drain inlets?	✓			
Are required covers and/or perimeter controls in place?	✓			

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Concentrated Flows				
Are concentrated flow paths free of visible erosion?	✓			
Tracking Control				
Is the entrance stabilized to prevent tracking	✓			
Is the stabilized entrance inspected daily to ensure that it is working properly	✓			
Are points of ingress/egress to public/private roads inspected and swept and vacuumed as needed?	✓			
Are all paved areas free of visible sediment tracking or other particulate matter?	✓			
Wind Erosion Control				
Is dust control implemented?	✓			
Vehicle & Equipment Fueling, Cleaning, and Maintenance				
Are vehicle and equipment fueling, cleaning and maintenance areas reasonably clean and free of spills, leaks, or any other deleterious material?	✓			
Are vehicle and equipment fueling, cleaning and maintenance activities performed on an impermeable surface in dedicated areas?	✓			
If no, are drip pans used?			✓	
Are dedicated fueling, cleaning, and maintenance areas located at least 15 m (50 ft) away from downstream drainage facilities and watercourses and protected from run-on and runoff?	✓			
Is wash water contained for infiltration/ evaporation and disposed of appropriately?			✓	
Is on-site cleaning limited to washing with water (no soap, soaps substitutes, solvents, or steam)?	✓			
On each day of use, are vehicles and equipment inspected for leaks and if necessary, repaired?	✓			
Waste Management & Materials Pollution Control				
Are material storage areas and washout areas protected from run-on and runoff, and located at least 15 m from concentrated flows and downstream drainage facilities?	✓			
Are all material handling and storage areas clean; organized; free of spills, leaks, or any other deleterious material; and stocked with appropriate clean-up supplies?	✓			
Are liquid materials, hazardous materials, and hazardous wastes stored in temporary containment facilities?			✓	
Are bagged and boxed materials stored on pallets?	✓			
Are hazardous materials and wastes stored in appropriate, labeled containers?			✓	
Are proper storage, clean-up, and spill-reporting procedures for hazardous materials and wastes posted in open, conspicuous and accessible locations adjacent to storage areas?			✓	
Are temporary containment facilities free of spills and rainwater?	✓			
Are temporary containment facilities and bagged/boxed materials covered?			✓	
Are spills from mobile equipment fueling and maintenance properly contained and cleaned up?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Is the site free of litter?	✓			
Are trash receptacles provided in the yard, field trailer areas, and at locations where workers congregate for lunch and break periods?	✓			
Is litter from work areas collected and placed in watertight dumpsters?	✓			
Are waste management receptacles free of leaks?	✓			
Are the contents of waste management receptacles properly protected from contact with storm water or from being dislodged by winds?	✓			
Are waste management receptacles filled at or beyond capacity?		✓		
Illicit Connection/ Discharge				
Is there any evidence of illicit discharges or illegal dumping on the project site?		✓		
If yes, has the Owner/Operator been notified?			✓	
SWPPP Update				
Do the SWPPP and Project Schedule adequately reflect the current site conditions and contractor operations?	✓			
Are all BMPs installed in the proper location(s) and according to the details in the SWPPP?	✓			
General				
Are there any other potential concerns at the site?		✓		
Storm Water Monitoring				
Does storm water discharge directly to a water body listed in the General Permit as impaired for sediment/sedimentation or turbidity?		✓		
If yes, were samples for sediment/sedimentation or turbidity collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
Did the sampling results indicate that the discharges are causing or contributing to further impairment?			✓	
If yes, were the erosion/sediment control BMPs improved or maintained to reduce the discharge of sediment to the water body?			✓	
Were there any BMPs not properly implemented or breaches, malfunctions, leakages or spills observed which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan during rain events?			✓	
If sampling indicated pollution of the storm water, were the leaks, breaches, spills, etc. cleaned up and the contaminated soil properly disposed of?			✓	
Were the BMPs maintained or replaced?		✓		

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Were soil amendments (e.g., gypsum, lime) used on the project?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
If sampling indicated pollution of the storm water by the use of the soil amendments, is there a contingency plan for retention onsite of the polluted storm water?			✓	
Did storm water contact stored materials or waste and run off the construction site? (Materials not in watertight containers, etc.)		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	

GENERAL INFORMATION			
Project Name	Parcel D-1 Remedial Action, Hunters Point Shipyard, San Francisco, California		
Project No.	Contract No. N62473-12-D-2005, CTO-0003		
Construction Stage	☑ Excavation and Earthmoving ☐ Inactive Construction	Work Area No.	149831
Inspector's Name	Sam Hopstone	Date	1/18/2017
Signature	Sam Hopstone	Weather	rainy
Inspection Type (Check Applicable)	☐ Prior to forecast rain ☐ Weekly ☑ 24-hr intervals during extended rain	☐ After a rain event ☐ Quarterly non-stormwater ☐ Other _____	
Season (Check Applicable)	☑ Rainy	☐ Non-Rainy	
Storm Data (www.wrh.noaa.gov)	Storm Start Date & Time:	1/18/2017 @ 0000	Storm Duration (hrs): 5
	Time elapsed since last storm (Circle Applicable Units)	- - 6 Min. Hr. Days	Approximate Rainfall Amount (inches) 0.2"

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Preservation of Existing Vegetation				
Is temporary fencing provided to preserve vegetation in areas where no construction activity is planned?	✓			
Erosion Control				
Does the applied temporary erosion control provide 100% coverage for the affected areas?	✓			
Are there any non-vegetated areas that may require temporary erosion control?	✓			
Is the area where erosion controls are used required free from visible erosion?	✓			
Temporary Linear Sediment Barriers (Silt Fence, Fiber Rolls, Sandbag Barriers, etc.)				
Are temporary linear sediment barriers properly installed, functional and maintained?	✓			
Are temporary linear sediment barriers free of accumulated litter?	✓			
Is the built-up sediment less than 1/3 the height of the barrier?	✓			
Stockpiles				
Are all locations of temporary stockpiles (include soil, haz waste, and construction materials) in approved areas?	✓			
Are stockpiles protected from run-on, run-off from adjacent areas and from winds?	✓			
Are stockpiles located at least 15 m (50 ft) from concentrated flows, downstream drainage courses and storm drain inlets?	✓			
Are required covers and/or perimeter controls in place?	✓			

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Concentrated Flows				
Are concentrated flow paths free of visible erosion?	✓			
Tracking Control				
Is the entrance stabilized to prevent tracking	✓			
Is the stabilized entrance inspected daily to ensure that it is working properly	✓			
Are points of ingress/egress to public/private roads inspected and swept and vacuumed as needed?	✓			
Are all paved areas free of visible sediment tracking or other particulate matter?	✓			
Wind Erosion Control				
Is dust control implemented?	✓			
Vehicle & Equipment Fueling, Cleaning, and Maintenance				
Are vehicle and equipment fueling, cleaning and maintenance areas reasonably clean and free of spills, leaks, or any other deleterious material?	✓			
Are vehicle and equipment fueling, cleaning and maintenance activities performed on an impermeable surface in dedicated areas?	✓			
If no, are drip pans used?			✓	
Are dedicated fueling, cleaning, and maintenance areas located at least 15 m (50 ft) away from downstream drainage facilities and watercourses and protected from run-on and runoff?	✓			
Is wash water contained for infiltration/ evaporation and disposed of appropriately?			✓	
Is on-site cleaning limited to washing with water (no soap, soaps substitutes, solvents, or steam)?	✓			
On each day of use, are vehicles and equipment inspected for leaks and if necessary, repaired?	✓			
Waste Management & Materials Pollution Control				
Are material storage areas and washout areas protected from run-on and runoff, and located at least 15 m from concentrated flows and downstream drainage facilities?	✓			
Are all material handling and storage areas clean; organized; free of spills, leaks, or any other deleterious material; and stocked with appropriate clean-up supplies?	✓			
Are liquid materials, hazardous materials, and hazardous wastes stored in temporary containment facilities?			✓	
Are bagged and boxed materials stored on pallets?	✓			
Are hazardous materials and wastes stored in appropriate, labeled containers?			✓	
Are proper storage, clean-up, and spill-reporting procedures for hazardous materials and wastes posted in open, conspicuous and accessible locations adjacent to storage areas?			✓	
Are temporary containment facilities free of spills and rainwater?	✓			
Are temporary containment facilities and bagged/boxed materials covered?			✓	
Are spills from mobile equipment fueling and maintenance properly contained and cleaned up?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Is the site free of litter?	✓			
Are trash receptacles provided in the yard, field trailer areas, and at locations where workers congregate for lunch and break periods?	✓			
Is litter from work areas collected and placed in watertight dumpsters?	✓			
Are waste management receptacles free of leaks?	✓			
Are the contents of waste management receptacles properly protected from contact with storm water or from being dislodged by winds?	✓			
Are waste management receptacles filled at or beyond capacity?		✓		
Illicit Connection/ Discharge				
Is there any evidence of illicit discharges or illegal dumping on the project site?		✓		
If yes, has the Owner/Operator been notified?			✓	
SWPPP Update				
Do the SWPPP and Project Schedule adequately reflect the current site conditions and contractor operations?	✓			
Are all BMPs installed in the proper location(s) and according to the details in the SWPPP?	✓			
General				
Are there any other potential concerns at the site?		✓		
Storm Water Monitoring				
Does storm water discharge directly to a water body listed in the General Permit as impaired for sediment/sedimentation or turbidity?		✓		
If yes, were samples for sediment/sedimentation or turbidity collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
Did the sampling results indicate that the discharges are causing or contributing to further impairment?			✓	
If yes, were the erosion/sediment control BMPs improved or maintained to reduce the discharge of sediment to the water body?			✓	
Were there any BMPs not properly implemented or breaches, malfunctions, leakages or spills observed which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan during rain events?			✓	
If sampling indicated pollution of the storm water, were the leaks, breaches, spills, etc. cleaned up and the contaminated soil properly disposed of?			✓	
Were the BMPs maintained or replaced?		✓		

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Were soil amendments (e.g., gypsum, lime) used on the project?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
If sampling indicated pollution of the storm water by the use of the soil amendments, is there a contingency plan for retention onsite of the polluted storm water?			✓	
Did storm water contact stored materials or waste and run off the construction site? (Materials not in watertight containers, etc.)		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	

GENERAL INFORMATION				
Project Name	Parcel D-1 Remedial Action, Hunters Point Shipyard, San Francisco, California			
Project No.	Contract No. N62473-12-D-2005, CTO-0003			
Construction Stage	☑ Excavation and Earthmoving ☐ Inactive Construction		Work Area No.	149931
Inspector's Name	Sam Hopstone		Date	1/19/2017
Signature	Sam Hopstone		Weather	rainy
Inspection Type (Check Applicable)	☐ Prior to forecast rain ☐ Weekly ☑ 24-hr intervals during extended rain		☐ After a rain event ☐ Quarterly non-stormwater ☐ Other _____	
Season (Check Applicable)	☑ Rainy		☐ Non-Rainy	
Storm Data (www.wrh.noaa.gov)	Storm Start Date & Time:	1/18/2017 @ 0000	Storm Duration (hrs):	30
	Time elapsed since last storm (Circle Applicable Units)	Min. ~~Hr.~~ Days	Approximate Rainfall Amount (inches)	1.0"

INSPECTION OF BMPs				
BMP	Yes	No	N/A	Corrective Action/Comments
Preservation of Existing Vegetation				
Is temporary fencing provided to preserve vegetation in areas where no construction activity is planned?	✓			
Erosion Control				
Does the applied temporary erosion control provide 100% coverage for the affected areas?	✓			
Are there any non-vegetated areas that may require temporary erosion control?	✓			
Is the area where erosion controls are used required free from visible erosion?	✓			
Temporary Linear Sediment Barriers (Silt Fence, Fiber Rolls, Sandbag Barriers, etc.)				
Are temporary linear sediment barriers properly installed, functional and maintained?	✓			
Are temporary linear sediment barriers free of accumulated litter?	✓			
Is the built-up sediment less than 1/3 the height of the barrier?	✓			
Stockpiles				
Are all locations of temporary stockpiles (include soil, haz waste, and construction materials) in approved areas?	✓			
Are stockpiles protected from run-on, run-off from adjacent areas and from winds?	✓			
Are stockpiles located at least 15 m (50 ft) from concentrated flows, downstream drainage courses and storm drain inlets?	✓			
Are required covers and/or perimeter controls in place?	✓			

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Concentrated Flows				
Are concentrated flow paths free of visible erosion?	✓			
Tracking Control				
Is the entrance stabilized to prevent tracking	✓			
Is the stabilized entrance inspected daily to ensure that it is working properly	✓			
Are points of ingress/egress to public/private roads inspected and swept and vacuumed as needed?	✓			
Are all paved areas free of visible sediment tracking or other particulate matter?	✓			
Wind Erosion Control				
Is dust control implemented?	✓			
Vehicle & Equipment Fueling, Cleaning, and Maintenance				
Are vehicle and equipment fueling, cleaning and maintenance areas reasonably clean and free of spills, leaks, or any other deleterious material?	✓			
Are vehicle and equipment fueling, cleaning and maintenance activities performed on an impermeable surface in dedicated areas?	✓			
If no, are drip pans used?			✓	
Are dedicated fueling, cleaning, and maintenance areas located at least 15 m (50 ft) away from downstream drainage facilities and watercourses and protected from run-on and runoff?	✓			
Is wash water contained for infiltration/ evaporation and disposed of appropriately?			✓	
Is on-site cleaning limited to washing with water (no soap, soaps substitutes, solvents, or steam)?	✓			
On each day of use, are vehicles and equipment inspected for leaks and if necessary, repaired?	✓			
Waste Management & Materials Pollution Control				
Are material storage areas and washout areas protected from run-on and runoff, and located at least 15 m from concentrated flows and downstream drainage facilities?	✓			
Are all material handling and storage areas clean; organized; free of spills, leaks, or any other deleterious material; and stocked with appropriate clean-up supplies?	✓			
Are liquid materials, hazardous materials, and hazardous wastes stored in temporary containment facilities?			✓	
Are bagged and boxed materials stored on pallets?	✓			
Are hazardous materials and wastes stored in appropriate, labeled containers?			✓	
Are proper storage, clean-up, and spill-reporting procedures for hazardous materials and wastes posted in open, conspicuous and accessible locations adjacent to storage areas?			✓	
Are temporary containment facilities free of spills and rainwater?	✓			
Are temporary containment facilities and bagged/boxed materials covered?			✓	
Are spills from mobile equipment fueling and maintenance properly contained and cleaned up?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Is the site free of litter?	✓			
Are trash receptacles provided in the yard, field trailer areas, and at locations where workers congregate for lunch and break periods?	✓			
Is litter from work areas collected and placed in watertight dumpsters?	✓			
Are waste management receptacles free of leaks?	✓			
Are the contents of waste management receptacles properly protected from contact with storm water or from being dislodged by winds?	✓			
Are waste management receptacles filled at or beyond capacity?		✓		
Illicit Connection/ Discharge				
Is there any evidence of illicit discharges or illegal dumping on the project site?		✓		
If yes, has the Owner/Operator been notified?			✓	
SWPPP Update				
Do the SWPPP and Project Schedule adequately reflect the current site conditions and contractor operations?	✓			
Are all BMPs installed in the proper location(s) and according to the details in the SWPPP?	✓			
General				
Are there any other potential concerns at the site?		✓		
Storm Water Monitoring				
Does storm water discharge directly to a water body listed in the General Permit as impaired for sediment/sedimentation or turbidity?		✓		
If yes, were samples for sediment/sedimentation or turbidity collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
Did the sampling results indicate that the discharges are causing or contributing to further impairment?			✓	
If yes, were the erosion/sediment control BMPs improved or maintained to reduce the discharge of sediment to the water body?			✓	
Were there any BMPs not properly implemented or breaches, malfunctions, leakages or spills observed which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan during rain events?			✓	
If sampling indicated pollution of the storm water, were the leaks, breaches, spills, etc. cleaned up and the contaminated soil properly disposed of?			✓	
Were the BMPs maintained or replaced?		✓		

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Were soil amendments (e.g., gypsum, lime) used on the project?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
If sampling indicated pollution of the storm water by the use of the soil amendments, is there a contingency plan for retention onsite of the polluted storm water?			✓	
Did storm water contact stored materials or waste and run off the construction site? (Materials not in watertight containers, etc.)		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	

Notes: North American Fence & Railing crew moved all spoils from augering to 361 soil stockpile, and our crew reinforced the waffles.

GENERAL INFORMATION			
Project Name	Parcel D-1 Remedial Action, Hunters Point Shipyard, San Francisco, California		
Project No.	Contract No. N62473-12-D-2005, CTO-0003		
Construction Stage	☑ Excavation and Earthmoving ☐ Inactive Construction	Work Area No.	149831
Inspector's Name	Sam Hopstone	Date	1/23/2017
Signature	Sam Hopstone	Weather	rainy
Inspection Type (Check Applicable)	☐ Prior to forecast rain ☑ Weekly ☑ 24-hr intervals during extended rain	☐ After a rain event ☐ Quarterly non-stormwater ☐ Other _____	
Season (Check Applicable)	☑ Rainy	☐ Non-Rainy	
Storm Data (www.wrh.noaa.gov)	Storm Start Date & Time: 1/18/2017 @ 0000	Storm Duration (hrs):	126
	Time elapsed since last storm (Circle Applicable Units) Min. Hr. Days	Approximate Rainfall Amount (inches)	3.3"

INSPECTION OF BMPs				
BMP	Yes	No	N/A	Corrective Action/Comments
Preservation of Existing Vegetation				
Is temporary fencing provided to preserve vegetation in areas where no construction activity is planned?	✓			
Erosion Control				
Does the applied temporary erosion control provide 100% coverage for the affected areas?	✓			
Are there any non-vegetated areas that may require temporary erosion control?	✓			
Is the area where erosion controls are used required free from visible erosion?	✓			
Temporary Linear Sediment Barriers (Silt Fence, Fiber Rolls, Sandbag Barriers, etc.)				
Are temporary linear sediment barriers properly installed, functional and maintained?	✓			
Are temporary linear sediment barriers free of accumulated litter?	✓			
Is the built-up sediment less than 1/3 the height of the barrier?	✓			
Stockpiles				
Are all locations of temporary stockpiles (include soil, haz waste, and construction materials) in approved areas?	✓			
Are stockpiles protected from run-on, run-off from adjacent areas and from winds?	✓			
Are stockpiles located at least 15 m (50 ft) from concentrated flows, downstream drainage courses and storm drain inlets?	✓			
Are required covers and/or perimeter controls in place?	✓			

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Concentrated Flows				
Are concentrated flow paths free of visible erosion?	✓			
Tracking Control				
Is the entrance stabilized to prevent tracking	✓			
Is the stabilized entrance inspected daily to ensure that it is working properly	✓			
Are points of ingress/egress to public/private roads inspected and swept and vacuumed as needed?	✓			
Are all paved areas free of visible sediment tracking or other particulate matter?	✓			
Wind Erosion Control				
Is dust control implemented?	✓			
Vehicle & Equipment Fueling, Cleaning, and Maintenance				
Are vehicle and equipment fueling, cleaning and maintenance areas reasonably clean and free of spills, leaks, or any other deleterious material?	✓			
Are vehicle and equipment fueling, cleaning and maintenance activities performed on an impermeable surface in dedicated areas?	✓			
If no, are drip pans used?			✓	
Are dedicated fueling, cleaning, and maintenance areas located at least 15 m (50 ft) away from downstream drainage facilities and watercourses and protected from run-on and runoff?	✓			
Is wash water contained for infiltration/ evaporation and disposed of appropriately?			✓	
Is on-site cleaning limited to washing with water (no soap, soaps substitutes, solvents, or steam)?	✓			
On each day of use, are vehicles and equipment inspected for leaks and if necessary, repaired?	✓			
Waste Management & Materials Pollution Control				
Are material storage areas and washout areas protected from run-on and runoff, and located at least 15 m from concentrated flows and downstream drainage facilities?	✓			
Are all material handling and storage areas clean; organized; free of spills, leaks, or any other deleterious material; and stocked with appropriate clean-up supplies?	✓			
Are liquid materials, hazardous materials, and hazardous wastes stored in temporary containment facilities?			✓	
Are bagged and boxed materials stored on pallets?	✓			
Are hazardous materials and wastes stored in appropriate, labeled containers?			✓	
Are proper storage, clean-up, and spill-reporting procedures for hazardous materials and wastes posted in open, conspicuous and accessible locations adjacent to storage areas?			✓	
Are temporary containment facilities free of spills and rainwater?	✓			
Are temporary containment facilities and bagged/boxed materials covered?			✓	
Are spills from mobile equipment fueling and maintenance properly contained and cleaned up?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Is the site free of litter?	✓			
Are trash receptacles provided in the yard, field trailer areas, and at locations where workers congregate for lunch and break periods?	✓			
Is litter from work areas collected and placed in watertight dumpsters?	✓			
Are waste management receptacles free of leaks?	✓			
Are the contents of waste management receptacles properly protected from contact with storm water or from being dislodged by winds?	✓			
Are waste management receptacles filled at or beyond capacity?		✓		
Illicit Connection/ Discharge				
Is there any evidence of illicit discharges or illegal dumping on the project site?		✓		
If yes, has the Owner/Operator been notified?			✓	
SWPPP Update				
Do the SWPPP and Project Schedule adequately reflect the current site conditions and contractor operations?	✓			
Are all BMPs installed in the proper location(s) and according to the details in the SWPPP?	✓			
General				
Are there any other potential concerns at the site?		✓		
Storm Water Monitoring				
Does storm water discharge directly to a water body listed in the General Permit as impaired for sediment/sedimentation or turbidity?		✓		
If yes, were samples for sediment/sedimentation or turbidity collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
Did the sampling results indicate that the discharges are causing or contributing to further impairment?			✓	
If yes, were the erosion/sediment control BMPs improved or maintained to reduce the discharge of sediment to the water body?			✓	
Were there any BMPs not properly implemented or breaches, malfunctions, leakages or spills observed which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan during rain events?			✓	
If sampling indicated pollution of the storm water, were the leaks, breaches, spills, etc. cleaned up and the contaminated soil properly disposed of?			✓	
Were the BMPs maintained or replaced?	✓			wattles, sandbags

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Were soil amendments (e.g., gypsum, lime) used on the project?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
If sampling indicated pollution of the storm water by the use of the soil amendments, is there a contingency plan for retention onsite of the polluted storm water?			✓	
Did storm water contact stored materials or waste and run off the construction site? (Materials not in watertight containers, etc.)		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	

Notes: D-1 was shut down Friday 1/20/2017 so no inspection was needed.

: wattles and sandbags around 381 soil stockpile were reinforced

: North American Fence & Railing crew continues to put spoils from augering to the 381 soil stockpile

GENERAL INFORMATION					
Project Name	Parcel D-1 Remedial Action, Hunters Point Shipyard, San Francisco, California				
Project No.	Contract No. N62473-12-D-2005, CTO-0003				
Construction Stage	☑ Excavation and Earthmoving ☐ Inactive Construction		Work Area No.	149831	
Inspector's Name	Sam Hopstone		Date	1/24/2017	
Signature			Weather	cloudy	
Inspection Type (Check Applicable)	☐ Prior to forecast rain ☑ Weekly ☐ 24-hr intervals during extended rain		☑ After a rain event ☐ Quarterly non-stormwater ☐ Other _____		
Season (Check Applicable)	☑ Rainy		☐ Non-Rainy		
Storm Data (www.wrh.noaa.gov)	Storm Start Date & Time:	1/18/2017@0600	Storm Duration (hrs):	120	
	Time elapsed since last storm (Circle Applicable Units)	Min. Hr. Days	Approximate Rainfall Amount (inches)	3.4"	

INSPECTION OF BMPs				
BMP	Yes	No	N/A	Corrective Action/Comments
Preservation of Existing Vegetation				
Is temporary fencing provided to preserve vegetation in areas where no construction activity is planned?	✓			
Erosion Control				
Does the applied temporary erosion control provide 100% coverage for the affected areas?	✓			
Are there any non-vegetated areas that may require temporary erosion control?	✓			
Is the area where erosion controls are used required free from visible erosion?	✓			
Temporary Linear Sediment Barriers (Silt Fence, Fiber Rolls, Sandbag Barriers, etc.)				
Are temporary linear sediment barriers properly installed, functional and maintained?	✓			
Are temporary linear sediment barriers free of accumulated litter?	✓			
Is the built-up sediment less than 1/3 the height of the barrier?	✓			
Stockpiles				
Are all locations of temporary stockpiles (include soil, haz waste, and construction materials) in approved areas?	✓			
Are stockpiles protected from run-on, run-off from adjacent areas and from winds?	✓			
Are stockpiles located at least 15 m (50 ft) from concentrated flows, downstream drainage courses and storm drain inlets?	✓			
Are required covers and/or perimeter controls in place?	✓			

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Concentrated Flows				
Are concentrated flow paths free of visible erosion?	✓			
Tracking Control				
Is the entrance stabilized to prevent tracking	✓			
Is the stabilized entrance inspected daily to ensure that it is working properly	✓			
Are points of ingress/egress to public/private roads inspected and swept and vacuumed as needed?	✓			
Are all paved areas free of visible sediment tracking or other particulate matter?	✓			
Wind Erosion Control				
Is dust control implemented?	✓			
Vehicle & Equipment Fueling, Cleaning, and Maintenance				
Are vehicle and equipment fueling, cleaning and maintenance areas reasonably clean and free of spills, leaks, or any other deleterious material?	✓			
Are vehicle and equipment fueling, cleaning and maintenance activities performed on an impermeable surface in dedicated areas?	✓			
If no, are drip pans used?			✓	
Are dedicated fueling, cleaning, and maintenance areas located at least 15 m (50 ft) away from downstream drainage facilities and watercourses and protected from run-on and runoff?	✓			
Is wash water contained for infiltration/ evaporation and disposed of appropriately?			✓	
Is on-site cleaning limited to washing with water (no soap, soaps substitutes, solvents, or steam)?	✓			
On each day of use, are vehicles and equipment inspected for leaks and if necessary, repaired?	✓			
Waste Management & Materials Pollution Control				
Are material storage areas and washout areas protected from run-on and runoff, and located at least 15 m from concentrated flows and downstream drainage facilities?	✓			
Are all material handling and storage areas clean; organized; free of spills, leaks, or any other deleterious material; and stocked with appropriate clean-up supplies?	✓			
Are liquid materials, hazardous materials, and hazardous wastes stored in temporary containment facilities?			✓	
Are bagged and boxed materials stored on pallets?	✓			
Are hazardous materials and wastes stored in appropriate, labeled containers?			✓	
Are proper storage, clean-up, and spill-reporting procedures for hazardous materials and wastes posted in open, conspicuous and accessible locations adjacent to storage areas?			✓	
Are temporary containment facilities free of spills and rainwater?	✓			
Are temporary containment facilities and bagged/boxed materials covered?			✓	
Are spills from mobile equipment fueling and maintenance properly contained and cleaned up?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Is the site free of litter?	✓			
Are trash receptacles provided in the yard, field trailer areas, and at locations where workers congregate for lunch and break periods?	✓			
Is litter from work areas collected and placed in watertight dumpsters?	✓			
Are waste management receptacles free of leaks?	✓			
Are the contents of waste management receptacles properly protected from contact with storm water or from being dislodged by winds?	✓			
Are waste management receptacles filled at or beyond capacity?		✓		
Illicit Connection/ Discharge				
Is there any evidence of illicit discharges or illegal dumping on the project site?		✓		
If yes, has the Owner/Operator been notified?			✓	
SWPPP Update				
Do the SWPPP and Project Schedule adequately reflect the current site conditions and contractor operations?	✓			
Are all BMPs installed in the proper location(s) and according to the details in the SWPPP?	✓			
General				
Are there any other potential concerns at the site?		✓		
Storm Water Monitoring				
Does storm water discharge directly to a water body listed in the General Permit as impaired for sediment/sedimentation or turbidity?		✓		
If yes, were samples for sediment/sedimentation or turbidity collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
Did the sampling results indicate that the discharges are causing or contributing to further impairment?			✓	
If yes, were the erosion/sediment control BMPs improved or maintained to reduce the discharge of sediment to the water body?			✓	
Were there any BMPs not properly implemented or breaches, malfunctions, leakages or spills observed which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan during rain events?			✓	
If sampling indicated pollution of the storm water, were the leaks, breaches, spills, etc. cleaned up and the contaminated soil properly disposed of?			✓	
Were the BMPs maintained or replaced?		✓		

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Were soil amendments (e.g., gypsum, lime) used on the project?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
If sampling indicated pollution of the storm water by the use of the soil amendments, is there a contingency plan for retention onsite of the polluted storm water?			✓	
Did storm water contact stored materials or waste and run off the construction site? (Materials not in watertight containers, etc.)		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	

GENERAL INFORMATION			
Project Name	Parcel D-1 Remedial Action, Hunters Point Shipyard, San Francisco, California		
Project No.	Contract No. N62473-12-D-2005, CTO-0003		
Construction Stage	☑ Excavation and Earthmoving ☐ Inactive Construction	Work Area No.	149831
Inspector's Name	Sam Hopstone	Date	1/30/2017
Signature		Weather	
Inspection Type (Check Applicable)	☑ Prior to forecast rain ☑ Weekly ☐ 24-hr intervals during extended rain	☐ After a rain event ☐ Quarterly non-stormwater ☐ Other _____	
Season (Check Applicable)	☑ Rainy	☐ Non-Rainy	
Storm Data (www.wrh.noaa.gov)	Storm Start Date & Time:	–	Storm Duration (hrs): –
	Time elapsed since last storm (Circle Applicable Units)	– – 12 Min. Hr. Days	Approximate Rainfall Amount (inches) 3.4"

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Preservation of Existing Vegetation				
Is temporary fencing provided to preserve vegetation in areas where no construction activity is planned?	✓			
Erosion Control				
Does the applied temporary erosion control provide 100% coverage for the affected areas?	✓			
Are there any non-vegetated areas that may require temporary erosion control?	✓			
Is the area where erosion controls are used required free from visible erosion?	✓			
Temporary Linear Sediment Barriers (Silt Fence, Fiber Rolls, Sandbag Barriers, etc.)				
Are temporary linear sediment barriers properly installed, functional and maintained?	✓			
Are temporary linear sediment barriers free of accumulated litter?	✓			
Is the built-up sediment less than 1/3 the height of the barrier?	✓			
Stockpiles				
Are all locations of temporary stockpiles (include soil, haz waste, and construction materials) in approved areas?	✓			
Are stockpiles protected from run-on, run-off from adjacent areas and from winds?	✓			
Are stockpiles located at least 15 m (50 ft) from concentrated flows, downstream drainage courses and storm drain inlets?	✓			
Are required covers and/or perimeter controls in place?	✓			

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Concentrated Flows				
Are concentrated flow paths free of visible erosion?	✓			
Tracking Control				
Is the entrance stabilized to prevent tracking	✓			
Is the stabilized entrance inspected daily to ensure that it is working properly	✓			
Are points of ingress/egress to public/private roads inspected and swept and vacuumed as needed?	✓			
Are all paved areas free of visible sediment tracking or other particulate matter?	✓			
Wind Erosion Control				
Is dust control implemented?	✓			
Vehicle & Equipment Fueling, Cleaning, and Maintenance				
Are vehicle and equipment fueling, cleaning and maintenance areas reasonably clean and free of spills, leaks, or any other deleterious material?	✓			
Are vehicle and equipment fueling, cleaning and maintenance activities performed on an impermeable surface in dedicated areas?	✓			
If no, are drip pans used?			✓	
Are dedicated fueling, cleaning, and maintenance areas located at least 15 m (50 ft) away from downstream drainage facilities and watercourses and protected from run-on and runoff?	✓			
Is wash water contained for infiltration/ evaporation and disposed of appropriately?			✓	
Is on-site cleaning limited to washing with water (no soap, soaps substitutes, solvents, or steam)?	✓			
On each day of use, are vehicles and equipment inspected for leaks and if necessary, repaired?	✓			
Waste Management & Materials Pollution Control				
Are material storage areas and washout areas protected from run-on and runoff, and located at least 15 m from concentrated flows and downstream drainage facilities?	✓			
Are all material handling and storage areas clean; organized; free of spills, leaks, or any other deleterious material; and stocked with appropriate clean-up supplies?	✓			
Are liquid materials, hazardous materials, and hazardous wastes stored in temporary containment facilities?			✓	
Are bagged and boxed materials stored on pallets?	✓			
Are hazardous materials and wastes stored in appropriate, labeled containers?			✓	
Are proper storage, clean-up, and spill-reporting procedures for hazardous materials and wastes posted in open, conspicuous and accessible locations adjacent to storage areas?			✓	
Are temporary containment facilities free of spills and rainwater?	✓			
Are temporary containment facilities and bagged/boxed materials covered?			✓	
Are spills from mobile equipment fueling and maintenance properly contained and cleaned up?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Is the site free of litter?	✓			
Are trash receptacles provided in the yard, field trailer areas, and at locations where workers congregate for lunch and break periods?	✓			
Is litter from work areas collected and placed in watertight dumpsters?	✓			
Are waste management receptacles free of leaks?	✓			
Are the contents of waste management receptacles properly protected from contact with storm water or from being dislodged by winds?	✓			
Are waste management receptacles filled at or beyond capacity?		✓		
Illicit Connection/ Discharge				
Is there any evidence of illicit discharges or illegal dumping on the project site?		✓		
If yes, has the Owner/Operator been notified?			✓	
SWPPP Update				
Do the SWPPP and Project Schedule adequately reflect the current site conditions and contractor operations?	✓			
Are all BMPs installed in the proper location(s) and according to the details in the SWPPP?	✓			
General				
Are there any other potential concerns at the site?		✓		
Storm Water Monitoring				
Does storm water discharge directly to a water body listed in the General Permit as impaired for sediment/sedimentation or turbidity?		✓		
If yes, were samples for sediment/sedimentation or turbidity collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
Did the sampling results indicate that the discharges are causing or contributing to further impairment?			✓	
If yes, were the erosion/sediment control BMPs improved or maintained to reduce the discharge of sediment to the water body?			✓	
Were there any BMPs not properly implemented or breaches, malfunctions, leakages or spills observed which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan during rain events?			✓	
If sampling indicated pollution of the storm water, were the leaks, breaches, spills, etc. cleaned up and the contaminated soil properly disposed of?			✓	
Were the BMPs maintained or replaced?		✓		

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Were soil amendments (e.g., gypsum, lime) used on the project?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
If sampling indicated pollution of the storm water by the use of the soil amendments, is there a contingency plan for retention onsite of the polluted storm water?			✓	
Did storm water contact stored materials or waste and run off the construction site? (Materials not in watertight containers, etc.)		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	

GENERAL INFORMATION					
Project Name	Parcel D-1 Remedial Action, Hunters Point Shipyard, San Francisco, California				
Project No.	Contract No. N62473-12-D-2005, CTO-0003				
Construction Stage	☑ Excavation and Earthmoving ☐ Inactive Construction		Work Area No.	149831	
Inspector's Name	Sam Hopstone		Date	2/1/2017	
Signature	Sam Hopstone		Weather	rainy	
Inspection Type (Check Applicable)	☐ Prior to forecast rain ☐ Weekly ☑ 24-hr intervals during extended rain		☐ After a rain event ☐ Quarterly non-stormwater ☐ Other _____		
Season (Check Applicable)	☑ Rainy		☐ Non-Rainy		
Storm Data (www.wrh.noaa.gov)	Storm Start Date & Time:	-	Storm Duration (hrs):	-	
	Time elapsed since last storm (Circle Applicable Units)	- Min. - Hr. 14 Days	Approximate Rainfall Amount (inches)	3.4"	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Preservation of Existing Vegetation				
Is temporary fencing provided to preserve vegetation in areas where no construction activity is planned?	✓			
Erosion Control				
Does the applied temporary erosion control provide 100% coverage for the affected areas?	✓			
Are there any non-vegetated areas that may require temporary erosion control?	✓			
Is the area where erosion controls are used required free from visible erosion?	✓			
Temporary Linear Sediment Barriers (Silt Fence, Fiber Rolls, Sandbag Barriers, etc.)				
Are temporary linear sediment barriers properly installed, functional and maintained?	✓			
Are temporary linear sediment barriers free of accumulated litter?	✓			
Is the built-up sediment less than 1/3 the height of the barrier?	✓			
Stockpiles				
Are all locations of temporary stockpiles (include soil, haz waste, and construction materials) in approved areas?	✓			
Are stockpiles protected from run-on, run-off from adjacent areas and from winds?	✓			
Are stockpiles located at least 15 m (50 ft) from concentrated flows, downstream drainage courses and storm drain inlets?	✓			
Are required covers and/or perimeter controls in place?	✓			

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Concentrated Flows				
Are concentrated flow paths free of visible erosion?	✓			
Tracking Control				
Is the entrance stabilized to prevent tracking	✓			
Is the stabilized entrance inspected daily to ensure that it is working properly	✓			
Are points of ingress/egress to public/private roads inspected and swept and vacuumed as needed?	✓			
Are all paved areas free of visible sediment tracking or other particulate matter?	✓			
Wind Erosion Control				
Is dust control implemented?	✓			
Vehicle & Equipment Fueling, Cleaning, and Maintenance				
Are vehicle and equipment fueling, cleaning and maintenance areas reasonably clean and free of spills, leaks, or any other deleterious material?	✓			
Are vehicle and equipment fueling, cleaning and maintenance activities performed on an impermeable surface in dedicated areas?	✓			
If no, are drip pans used?			✓	
Are dedicated fueling, cleaning, and maintenance areas located at least 15 m (50 ft) away from downstream drainage facilities and watercourses and protected from run-on and runoff?	✓			
Is wash water contained for infiltration/ evaporation and disposed of appropriately?			✓	
Is on-site cleaning limited to washing with water (no soap, soaps substitutes, solvents, or steam)?	✓			
On each day of use, are vehicles and equipment inspected for leaks and if necessary, repaired?	✓			
Waste Management & Materials Pollution Control				
Are material storage areas and washout areas protected from run-on and runoff, and located at least 15 m from concentrated flows and downstream drainage facilities?	✓			
Are all material handling and storage areas clean; organized; free of spills, leaks, or any other deleterious material; and stocked with appropriate clean-up supplies?	✓			
Are liquid materials, hazardous materials, and hazardous wastes stored in temporary containment facilities?			✓	
Are bagged and boxed materials stored on pallets?	✓			
Are hazardous materials and wastes stored in appropriate, labeled containers?			✓	
Are proper storage, clean-up, and spill-reporting procedures for hazardous materials and wastes posted in open, conspicuous and accessible locations adjacent to storage areas?			✓	
Are temporary containment facilities free of spills and rainwater?	✓			
Are temporary containment facilities and bagged/boxed materials covered?			✓	
Are spills from mobile equipment fueling and maintenance properly contained and cleaned up?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Is the site free of litter?	✓			
Are trash receptacles provided in the yard, field trailer areas, and at locations where workers congregate for lunch and break periods?	✓			
Is litter from work areas collected and placed in watertight dumpsters?	✓			
Are waste management receptacles free of leaks?	✓			
Are the contents of waste management receptacles properly protected from contact with storm water or from being dislodged by winds?	✓			
Are waste management receptacles filled at or beyond capacity?		✓		
Illicit Connection/ Discharge				
Is there any evidence of illicit discharges or illegal dumping on the project site?		✓		
If yes, has the Owner/Operator been notified?			✓	
SWPPP Update				
Do the SWPPP and Project Schedule adequately reflect the current site conditions and contractor operations?	✓			
Are all BMPs installed in the proper location(s) and according to the details in the SWPPP?	✓			
General				
Are there any other potential concerns at the site?		✓		
Storm Water Monitoring				
Does storm water discharge directly to a water body listed in the General Permit as impaired for sediment/sedimentation or turbidity?		✓		
If yes, were samples for sediment/sedimentation or turbidity collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
Did the sampling results indicate that the discharges are causing or contributing to further impairment?			✓	
If yes, were the erosion/sediment control BMPs improved or maintained to reduce the discharge of sediment to the water body?			✓	
Were there any BMPs not properly implemented or breaches, malfunctions, leakages or spills observed which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan during rain events?			✓	
If sampling indicated pollution of the storm water, were the leaks, breaches, spills, etc. cleaned up and the contaminated soil properly disposed of?			✓	
Were the BMPs maintained or replaced?	✓			wattles at Manseau swale

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Were soil amendments (e.g., gypsum, lime) used on the project?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
If sampling indicated pollution of the storm water by the use of the soil amendments, is there a contingency plan for retention onsite of the polluted storm water?			✓	
Did storm water contact stored materials or waste and run off the construction site? (Materials not in watertight containers, etc.)		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	

Note: wattles adjusted around Manseau swale tip

GENERAL INFORMATION					
Project Name	Parcel D-1 Remedial Action, Hunters Point Shipyard, San Francisco, California				
Project No.	Contract No. N62473-12-D-2005, CTO-0003				
Construction Stage	☐ Excavation and Earthmoving ☑ Inactive Construction		Work Area No.	149831	
Inspector's Name	Sam Hopstone		Date	2/2/2017	
Signature	Sam Hopstone		Weather	raing	
Inspection Type (Check Applicable)	☐ Prior to forecast rain ☐ Weekly ☑ 24-hr intervals during extended rain		☐ After a rain event ☐ Quarterly non-stormwater ☐ Other _____		
Season (Check Applicable)	☑ Rainy		☐ Non-Rainy		
Storm Data (www.wrh.noaa.gov)	Storm Start Date & Time:	2/1/17 1200	Storm Duration (hrs):	8	
	Time elapsed since last storm (Circle Applicable Units)	— Min. Hr. Days	Approximate Rainfall Amount (inches)	0.2"	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Preservation of Existing Vegetation				
Is temporary fencing provided to preserve vegetation in areas where no construction activity is planned?	✓			
Erosion Control				
Does the applied temporary erosion control provide 100% coverage for the affected areas?	✓			
Are there any non-vegetated areas that may require temporary erosion control?	✓			
Is the area where erosion controls are used required free from visible erosion?	✓			
Temporary Linear Sediment Barriers (Silt Fence, Fiber Rolls, Sandbag Barriers, etc.)				
Are temporary linear sediment barriers properly installed, functional and maintained?	✓			
Are temporary linear sediment barriers free of accumulated litter?	✓			
Is the built-up sediment less than 1/3 the height of the barrier?	✓			
Stockpiles				
Are all locations of temporary stockpiles (include soil, haz waste, and construction materials) in approved areas?	✓			
Are stockpiles protected from run-on, run-off from adjacent areas and from winds?	✓			
Are stockpiles located at least 15 m (50 ft) from concentrated flows, downstream drainage courses and storm drain inlets?	✓			
Are required covers and/or perimeter controls in place?	✓			

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Concentrated Flows				
Are concentrated flow paths free of visible erosion?	✓			
Tracking Control				
Is the entrance stabilized to prevent tracking	✓			
Is the stabilized entrance inspected daily to ensure that it is working properly	✓			
Are points of ingress/egress to public/private roads inspected and swept and vacuumed as needed?	✓			
Are all paved areas free of visible sediment tracking or other particulate matter?	✓			
Wind Erosion Control				
Is dust control implemented?	✓			
Vehicle & Equipment Fueling, Cleaning, and Maintenance				
Are vehicle and equipment fueling, cleaning and maintenance areas reasonably clean and free of spills, leaks, or any other deleterious material?	✓			
Are vehicle and equipment fueling, cleaning and maintenance activities performed on an impermeable surface in dedicated areas?	✓			
If no, are drip pans used?			✓	
Are dedicated fueling, cleaning, and maintenance areas located at least 15 m (50 ft) away from downstream drainage facilities and watercourses and protected from run-on and runoff?	✓			
Is wash water contained for infiltration/ evaporation and disposed of appropriately?			✓	
Is on-site cleaning limited to washing with water (no soap, soaps substitutes, solvents, or steam)?	✓			
On each day of use, are vehicles and equipment inspected for leaks and if necessary, repaired?	✓			
Waste Management & Materials Pollution Control				
Are material storage areas and washout areas protected from run-on and runoff, and located at least 15 m from concentrated flows and downstream drainage facilities?	✓			
Are all material handling and storage areas clean; organized; free of spills, leaks, or any other deleterious material; and stocked with appropriate clean-up supplies?	✓			
Are liquid materials, hazardous materials, and hazardous wastes stored in temporary containment facilities?			✓	
Are bagged and boxed materials stored on pallets?	✓			
Are hazardous materials and wastes stored in appropriate, labeled containers?			✓	
Are proper storage, clean-up, and spill-reporting procedures for hazardous materials and wastes posted in open, conspicuous and accessible locations adjacent to storage areas?			✓	
Are temporary containment facilities free of spills and rainwater?	✓			
Are temporary containment facilities and bagged/boxed materials covered?			✓	
Are spills from mobile equipment fueling and maintenance properly contained and cleaned up?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Is the site free of litter?	✓			
Are trash receptacles provided in the yard, field trailer areas, and at locations where workers congregate for lunch and break periods?	✓			
Is litter from work areas collected and placed in watertight dumpsters?	✓			
Are waste management receptacles free of leaks?	✓			
Are the contents of waste management receptacles properly protected from contact with storm water or from being dislodged by winds?	✓			
Are waste management receptacles filled at or beyond capacity?		✓		
Illicit Connection/ Discharge				
Is there any evidence of illicit discharges or illegal dumping on the project site?		✓		
If yes, has the Owner/Operator been notified?			✓	
SWPPP Update				
Do the SWPPP and Project Schedule adequately reflect the current site conditions and contractor operations?	✓			
Are all BMPs installed in the proper location(s) and according to the details in the SWPPP?	✓			
General				
Are there any other potential concerns at the site?		✓		
Storm Water Monitoring				
Does storm water discharge directly to a water body listed in the General Permit as impaired for sediment/sedimentation or turbidity?		✓		
If yes, were samples for sediment/sedimentation or turbidity collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
Did the sampling results indicate that the discharges are causing or contributing to further impairment?			✓	
If yes, were the erosion/sediment control BMPs improved or maintained to reduce the discharge of sediment to the water body?			✓	
Were there any BMPs not properly implemented or breaches, malfunctions, leakages or spills observed which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan during rain events?			✓	
If sampling indicated pollution of the storm water, were the leaks, breaches, spills, etc. cleaned up and the contaminated soil properly disposed of?			✓	
Were the BMPs maintained or replaced?		✓		

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Were soil amendments (e.g., gypsum, lime) used on the project?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
If sampling indicated pollution of the storm water by the use of the soil amendments, is there a contingency plan for retention onsite of the polluted storm water?			✓	
Did storm water contact stored materials or waste and run off the construction site? (Materials not in watertight containers, etc.)		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	

Note: All fence is installed, so no earthmoving is underway. ~~We~~ D-1 Phase I is now inactive construction.

GENERAL INFORMATION					
Project Name	Parcel D-1 Remedial Action, Hunters Point Shipyard, San Francisco, California				
Project No.	Contract No. N62473-12-D-2005, CTO-0003				
Construction Stage	☐ Excavation and Earthmoving ☑ Inactive Construction		Work Area No.	149831	
Inspector's Name	Sam Hopstone		Date	2/10/2017	
Signature	Sam Hopstone		Weather	sunny	
Inspection Type (Check Applicable)	☐ Prior to forecast rain ☑ Weekly ☐ 24-hr intervals during extended rain		☑ After a rain event ☐ Quarterly non-stormwater ☐ Other _____		
Season (Check Applicable)	☑ Rainy		☐ Non-Rainy		
Storm Data (www.wrh.noaa.gov)	Storm Start Date & Time:	2/6/17 1800	Storm Duration (hrs):	72	
	Time elapsed since last storm (Circle Applicable Units)	– Min. – Hr. 4 Days	Approximate Rainfall Amount (inches)	2.3	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Preservation of Existing Vegetation				
Is temporary fencing provided to preserve vegetation in areas where no construction activity is planned?	✓			
Erosion Control				
Does the applied temporary erosion control provide 100% coverage for the affected areas?	✓			
Are there any non-vegetated areas that may require temporary erosion control?	✓			
Is the area where erosion controls are used required free from visible erosion?	✓			
Temporary Linear Sediment Barriers (Silt Fence, Fiber Rolls, Sandbag Barriers, etc.)				
Are temporary linear sediment barriers properly installed, functional and maintained?	✓			
Are temporary linear sediment barriers free of accumulated litter?	✓			
Is the built-up sediment less than 1/3 the height of the barrier?	✓			
Stockpiles				
Are all locations of temporary stockpiles (include soil, haz waste, and construction materials) in approved areas?	✓			
Are stockpiles protected from run-on, run-off from adjacent areas and from winds?	✓			
Are stockpiles located at least 15 m (50 ft) from concentrated flows, downstream drainage courses and storm drain inlets?	✓			
Are required covers and/or perimeter controls in place?	✓			

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Concentrated Flows				
Are concentrated flow paths free of visible erosion?	✓			
Tracking Control				
Is the entrance stabilized to prevent tracking	✓			
Is the stabilized entrance inspected daily to ensure that it is working properly	✓			
Are points of ingress/egress to public/private roads inspected and swept and vacuumed as needed?	✓			
Are all paved areas free of visible sediment tracking or other particulate matter?	✓			
Wind Erosion Control				
Is dust control implemented?	✓			
Vehicle & Equipment Fueling, Cleaning, and Maintenance				
Are vehicle and equipment fueling, cleaning and maintenance areas reasonably clean and free of spills, leaks, or any other deleterious material?	✓			
Are vehicle and equipment fueling, cleaning and maintenance activities performed on an impermeable surface in dedicated areas?	✓			
If no, are drip pans used?			✓	
Are dedicated fueling, cleaning, and maintenance areas located at least 15 m (50 ft) away from downstream drainage facilities and watercourses and protected from run-on and runoff?	✓			
Is wash water contained for infiltration/ evaporation and disposed of appropriately?			✓	
Is on-site cleaning limited to washing with water (no soap, soaps substitutes, solvents, or steam)?	✓			
On each day of use, are vehicles and equipment inspected for leaks and if necessary, repaired?	✓			
Waste Management & Materials Pollution Control				
Are material storage areas and washout areas protected from run-on and runoff, and located at least 15 m from concentrated flows and downstream drainage facilities?	✓			
Are all material handling and storage areas clean; organized; free of spills, leaks, or any other deleterious material; and stocked with appropriate clean-up supplies?	✓			
Are liquid materials, hazardous materials, and hazardous wastes stored in temporary containment facilities?			✓	
Are bagged and boxed materials stored on pallets?	✓			
Are hazardous materials and wastes stored in appropriate, labeled containers?			✓	
Are proper storage, clean-up, and spill-reporting procedures for hazardous materials and wastes posted in open, conspicuous and accessible locations adjacent to storage areas?			✓	
Are temporary containment facilities free of spills and rainwater?	✓			
Are temporary containment facilities and bagged/boxed materials covered?			✓	
Are spills from mobile equipment fueling and maintenance properly contained and cleaned up?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Is the site free of litter?	✓			
Are trash receptacles provided in the yard, field trailer areas, and at locations where workers congregate for lunch and break periods?	✓			
Is litter from work areas collected and placed in watertight dumpsters?	✓			
Are waste management receptacles free of leaks?	✓			
Are the contents of waste management receptacles properly protected from contact with storm water or from being dislodged by winds?	✓			
Are waste management receptacles filled at or beyond capacity?		✓		
Illicit Connection/ Discharge				
Is there any evidence of illicit discharges or illegal dumping on the project site?		✓		
If yes, has the Owner/Operator been notified?			✓	
SWPPP Update				
Do the SWPPP and Project Schedule adequately reflect the current site conditions and contractor operations?	✓			
Are all BMPs installed in the proper location(s) and according to the details in the SWPPP?	✓			
General				
Are there any other potential concerns at the site?		✓		
Storm Water Monitoring				
Does storm water discharge directly to a water body listed in the General Permit as impaired for sediment/sedimentation or turbidity?		✓		
If yes, were samples for sediment/sedimentation or turbidity collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
Did the sampling results indicate that the discharges are causing or contributing to further impairment?			✓	
If yes, were the erosion/sediment control BMPs improved or maintained to reduce the discharge of sediment to the water body?			✓	
Were there any BMPs not properly implemented or breaches, malfunctions, leakages or spills observed which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan during rain events?			✓	
If sampling indicated pollution of the storm water, were the leaks, breaches, spills, etc. cleaned up and the contaminated soil properly disposed of?			✓	
Were the BMPs maintained or replaced?		✓		

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Were soil amendments (e.g., gypsum, lime) used on the project?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
If sampling indicated pollution of the storm water by the use of the soil amendments, is there a contingency plan for retention onsite of the polluted storm water?			✓	
Did storm water contact stored materials or waste and run off the construction site? (Materials not in watertight containers, etc.)		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	

Note: Parcel D-1 was shut down 2/3 through 2/9, so no SWPPP inspection was conducted

: All BMPs held up during the storm.

GENERAL INFORMATION					
Project Name	Parcel D-1 Remedial Action, Hunters Point Shipyard, San Francisco, California				
Project No.	Contract No. N62473-12-D-2005, CTO-0003				
Construction Stage	☐ Excavation and Earthmoving ☑ Inactive Construction		Work Area No.	149831	
Inspector's Name	Sam Hopstone		Date	2/13/2017	
Signature			Weather	Cloudy	
Inspection Type (Check Applicable)	☑ Prior to forecast rain ☑ Weekly ☐ 24-hr intervals during extended rain		☐ After a rain event ☐ Quarterly non-stormwater ☐ Other _____		
Season (Check Applicable)	☑ Rainy		☐ Non-Rainy		
Storm Data (www.wrh.noaa.gov)	Storm Start Date & Time:	2/6/17 1800	Storm Duration (hrs):	72	
	Time elapsed since last storm (Circle Applicable Units)	- - 7 Min. Hr. Days	Approximate Rainfall Amount (inches)	2.3	

INSPECTION OF BMPs				
BMP	Yes	No	N/A	Corrective Action/Comments
Preservation of Existing Vegetation				
Is temporary fencing provided to preserve vegetation in areas where no construction activity is planned?	✓			
Erosion Control				
Does the applied temporary erosion control provide 100% coverage for the affected areas?	✓			
Are there any non-vegetated areas that may require temporary erosion control?	✓			
Is the area where erosion controls are used required free from visible erosion?	✓			
Temporary Linear Sediment Barriers (Silt Fence, Fiber Rolls, Sandbag Barriers, etc.)				
Are temporary linear sediment barriers properly installed, functional and maintained?	✓			
Are temporary linear sediment barriers free of accumulated litter?	✓			
Is the built-up sediment less than 1/3 the height of the barrier?	✓			
Stockpiles				
Are all locations of temporary stockpiles (include soil, haz waste, and construction materials) in approved areas?	✓			
Are stockpiles protected from run-on, run-off from adjacent areas and from winds?	✓			
Are stockpiles located at least 15 m (50 ft) from concentrated flows, downstream drainage courses and storm drain inlets?	✓			
Are required covers and/or perimeter controls in place?	✓			

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Concentrated Flows				
Are concentrated flow paths free of visible erosion?	✓			
Tracking Control				
Is the entrance stabilized to prevent tracking	✓			
Is the stabilized entrance inspected daily to ensure that it is working properly	✓			
Are points of ingress/egress to public/private roads inspected and swept and vacuumed as needed?	✓			
Are all paved areas free of visible sediment tracking or other particulate matter?	✓			
Wind Erosion Control				
Is dust control implemented?	✓			
Vehicle & Equipment Fueling, Cleaning, and Maintenance				
Are vehicle and equipment fueling, cleaning and maintenance areas reasonably clean and free of spills, leaks, or any other deleterious material?	✓			
Are vehicle and equipment fueling, cleaning and maintenance activities performed on an impermeable surface in dedicated areas?	✓			
If no, are drip pans used?			✓	
Are dedicated fueling, cleaning, and maintenance areas located at least 15 m (50 ft) away from downstream drainage facilities and watercourses and protected from run-on and runoff?	✓			
Is wash water contained for infiltration/ evaporation and disposed of appropriately?			✓	
Is on-site cleaning limited to washing with water (no soap, soaps substitutes, solvents, or steam)?	✓			
On each day of use, are vehicles and equipment inspected for leaks and if necessary, repaired?	✓			
Waste Management & Materials Pollution Control				
Are material storage areas and washout areas protected from run-on and runoff, and located at least 15 m from concentrated flows and downstream drainage facilities?	✓			
Are all material handling and storage areas clean; organized; free of spills, leaks, or any other deleterious material; and stocked with appropriate clean-up supplies?	✓			
Are liquid materials, hazardous materials, and hazardous wastes stored in temporary containment facilities?			✓	
Are bagged and boxed materials stored on pallets?	✓			
Are hazardous materials and wastes stored in appropriate, labeled containers?			✓	
Are proper storage, clean-up, and spill-reporting procedures for hazardous materials and wastes posted in open, conspicuous and accessible locations adjacent to storage areas?			✓	
Are temporary containment facilities free of spills and rainwater?	✓			
Are temporary containment facilities and bagged/boxed materials covered?			✓	
Are spills from mobile equipment fueling and maintenance properly contained and cleaned up?			✓	

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Is the site free of litter?	✓			
Are trash receptacles provided in the yard, field trailer areas, and at locations where workers congregate for lunch and break periods?	✓			
Is litter from work areas collected and placed in watertight dumpsters?	✓			
Are waste management receptacles free of leaks?	✓			
Are the contents of waste management receptacles properly protected from contact with storm water or from being dislodged by winds?	✓			
Are waste management receptacles filled at or beyond capacity?		✓		
Illicit Connection/ Discharge				
Is there any evidence of illicit discharges or illegal dumping on the project site?		✓		
If yes, has the Owner/Operator been notified?			✓	
SWPPP Update				
Do the SWPPP and Project Schedule adequately reflect the current site conditions and contractor operations?	✓			
Are all BMPs installed in the proper location(s) and according to the details in the SWPPP?	✓			
General				
Are there any other potential concerns at the site?		✓		
Storm Water Monitoring				
Does storm water discharge directly to a water body listed in the General Permit as impaired for sediment/sedimentation or turbidity?		✓		
If yes, were samples for sediment/sedimentation or turbidity collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
Did the sampling results indicate that the discharges are causing or contributing to further impairment?			✓	
If yes, were the erosion/sediment control BMPs improved or maintained to reduce the discharge of sediment to the water body?			✓	
Were there any BMPs not properly implemented or breaches, malfunctions, leakages or spills observed which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan during rain events?			✓	
If sampling indicated pollution of the storm water, were the leaks, breaches, spills, etc. cleaned up and the contaminated soil properly disposed of?			✓	
Were the BMPs maintained or replaced?		✓		

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action/Comments**
Were soil amendments (e.g., gypsum, lime) used on the project?		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	
If sampling indicated pollution of the storm water by the use of the soil amendments, is there a contingency plan for retention onsite of the polluted storm water?			✓	
Did storm water contact stored materials or waste and run off the construction site? (Materials not in watertight containers, etc.)		✓		
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?			✓	

Note: Parcel 0-1 Phase 1 is complete; inactive construction

: Parcel 0-1 Phase 2 has not begun

Appendix D
Air Monitoring Report
(provided on electronic copy only)

AIR MONITORING SUMMARY REPORT
Remedial Action in Parcel D-1
Hunters Point Naval Shipyard
San Francisco, California

Contract Number: N62473-12-D-2005
Contract Task Order: 0003

Prepared for:

Base Realignment and Closure
Program Management Office West Naval Facilities Engineering Command
33000 Nixie Way, Building 50
San Diego, California 92147

Prepared by:

Aptim Federal Services LLC
4005 Port Chicago Highway, Suite 200
Concord, California 94520-1120

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Acronyms and Abbreviations

APTIM	Aptim Federal Services LLC
CB&I	CB&I Federal Services LLC
CFR	Code of Federal Regulations
DCP	dust control plan
EPA	U.S. Environmental Protection Agency
HPNS	Hunters Point Naval Shipyard
L/min	liters per minute
NIOSH	National Institute for Occupational Safety and Health
OSHA	Occupational Safety and Health Administration
PM10	particulate matter larger than 10 microns in size
TSP	total suspended particulates
Work Plan	*Final Revision 1, Final Remedial Action Work Plan, Remedial Action in Parcel D-1, Hunters Point Naval Shipyard, San Francisco, California*

1.0 Introduction

Aptim Federal Services LLC (APTIM; formerly CB&I Federal Services, LLC [CB&I]) provided environmental remediation services to the U.S. Navy under the Environmental Multiple Award Contract, Contract No. N62473-12-D-2005, Contract Task Order 0003. APTIM performed air monitoring at Hunters Point Naval Shipyard (HPNS) in accordance with the Dust Control Plan (DCP) included as Appendix B to the *Final Revision 1, Final Work Plan, Remedial Action Work Plan, Remedial Action in Parcel D-1, Hunters Point Naval Shipyard, San Francisco, California* (Work Plan; CB&I, 2016). The DCP describes procedures that minimize dust during work activities, and requires air monitoring to ensure these procedures are effective. The DCP helps prevent exposure of residents and construction crews to potential airborne chemicals of concern, and dust from the work area.

This summary report describes the following:

- Where and how air monitoring samples were collected
- What test methods were used to analyze air monitoring samples
- How air monitoring data were evaluated

This summary report also presents the air monitoring test results and compares the results with the established action levels included in the Work Plan (CB&I, 2016).

2.0 Monitoring Site Locations

Air monitoring stations were mobilized to collect air samples upwind and downwind of work areas for the duration of the project. The predominant wind direction at HPNS is from the west. Locations of air monitoring stations and wind direction are shown on Figure 1. At a minimum, one downwind and one upwind location were used to collect air samples during field activities. Air monitoring was performed to ensure effective dust control. The locations of the air monitoring stations were determined in the Work Plan based on the prevailing wind direction and were modified as needed. A windsock was used to show wind direction and weather forecasts were checked daily at www.noaa.gov. Monitoring stations remained stationary while sampling was conducted. Each monitoring station included three separate monitoring systems for:

1. Total suspended particulates (TSP) and for arsenic, lead and manganese
2. Particulate matter larger than 10 microns in size (PM10)
3. Asbestos

3.0 Analytical Methods

TSP, Arsenic, Lead, and Manganese. TSP samples were collected with a high-volume (39 to 60 cubic feet per minute) air sampler in accordance with U.S. Environmental Protection Agency's (EPA's) reference sampling method for TSP, described in Title 40 Code of Federal Regulations (CFR), Part 50, Appendix B. Each sample was collected on a filter over an approximately 24-hour period; the filter was then weighed to determine the amount of TSP collected. Once the amount of TSP was determined, the sample was analyzed for arsenic, lead and manganese in accordance with one of the IO-3 methods identified in the *Compendium of Methods for the Determination of Inorganic Compounds in Ambient Air* (EPA, 1999). The equipment specifications and sampling procedures used, including the sampling apparatus, filters, equipment accuracy, equipment calibration, and quality assurance checks, all conform to those specified in the analytical method.

PM10. Air samples were collected and analyzed for PM10 in accordance with EPA's reference sampling method for PM10, described in 40 CFR Part 50, Appendix J. Each sample was collected on a filter over an approximately 24-hour period; the filter was then weighed to evaluate the concentrations of PM10 in ambient air.

Asbestos. Air samples were collected and analyzed for asbestos in accordance with the National Institute for Occupational Safety and Health (NIOSH) Method 7400, in the *NIOSH Manual of Analytical Methods* (NIOSH, 1994). Method 7400 requires that samples be collected on three-piece cellulose ester filters, which are fitted with conductive cowlings, at a sampling rate of between 0.5 liter per minute (L/min) and 16 L/min.

4.0 Analysis of Dust and Air Monitoring Data

Analytical results from air monitoring samples were compared with the threshold criteria listed in Table 1.

Table 1 Air Monitoring Threshold Criteria

Test Parameters	Threshold Criteria	Basis
PM10	5,000 µg/m^3	Cal/OSHA PEL[a]
TSP	0.5 mg/m^3	Basewide HPNS Level selected to minimize overall permissible dust release from sites
Arsenic	10 µg/m^3	Cal/OSHA PEL
Lead	50 µg/m^3	Cal/OSHA PEL
Manganese	200 µg/m^3	Cal/OSHA PEL
Asbestos	0.1 fiber/cm^3	Cal/OSHA PEL

Notes:

[a] – Cal/OSHA PEL for particulates not otherwise regulated (respiratory) used for PM10.

µg/m^3 – micrograms per cubic meter

Cal/OSHA – California Occupational Safety and Health Administration

fiber/cm^3 – fibers per cubic centimeter

HPNS – Hunters Point Naval Shipyard

mg/m^3 – milligrams per cubic meter

PEL – permissible exposure limit

PM10 – particulate matter smaller than 10 microns in diameter

TSP – total suspended particulates

5.0 Air Monitoring Results

Data were not collected from November 24 through 28, 2016 because the site was shut down for the holidays; there was no site work during the holidays. Data were not collected on the following dates because of rain:

- October 3, 2016
- October 14 through 17, 2016
- October 25, 2016
- October 27 through November 4, 2016
- November 21 through 23, 2016, and
- December 6 through 22, 2016

Data were not collected on the following dates as described below:

- June 21, 2016, downwind sample for TSP and metals: The sample filter blew away in the wind and was not able to be retrieved.

- June 9, 2016 and November 7, 2016, downwind samples for asbestos: The sample filters were overloaded with non-fibrous particles making asbestos fiber counting not possible. TSP and PM10 results from the downwind sample location on these dates were below their respective action levels.
- August 29, 2016, upwind sample for asbestos: The sample filter was damaged due to a spider web.

None of the construction activities exceeded the established threshold limit values at any time during project execution. Weather information (including ambient pressure and temperature data) and air monitoring results are presented in the tables included as Attachment 1.

6.0 References

CB&I Federal Services LLC (CB&I), 2016, *Final Revision 1, Final Remedial Action Work Plan, Remedial Action in Parcel D-1, Hunters Point Naval Shipyard, California*, May.

National Institute for Occupational Safety and Health (NIOSH), 1994, *NIOSH Manual of Analytical Methods, Method 7400*, August.

U.S. Environmental Protection Agency (EPA), 1999, *Compendium of Methods for the Determination of Inorganic Compounds in Ambient Air*.

Figure

SUPPORT TRAILER AND STORAGE AREA

EMPLOYEE PARKING

PARCEL C

"E" ST.

Station 22 - Downwind

Station 18 - Downwind

BERTH 10

BERTH 11

South Pier

BERTH 13

BERTH 12

BERTH 14

SOUTH SLIP

San Francisco Bay

0 250 500 Feet

MORRELL ST.

COCHRANE ST.

BACKFILL BEHIND SEAWALL

Station 20 - Downwind

BERTH 15

BERTH 16

BERTH 17

BERTH 18

AREA FOR RIPRAP STABILIZATION

IMPORT MATERIAL STOCKPILE

AGGREGATE BASE/RIPRAP STOCKPILE

Gun Mole Pier

PARCEL D-1

PARCEL G

PREVALENT WIND DIRECTION WEST TO EAST

BERTH 20

BERTH 19

BACKFILL BEHIND SEAWALL

BERTH 21

AREA FOR RIPRAP STABILIZATION

BERTH 22

BERTH 23

BERTH 24

BERTH 28

BERTH 27

MANSEAU ST.

HUSSEY ST.

Station 17 - Upwind

MAHAN ST.

BERTH 29

PARCEL E

"H" ST.

Legend

- Air Monitoring Station
- Windsock
- Approximate Location of Turbidity Curtain
- Stockpile
- Existing Surface with No Asphalt (Durable Cover to be Constructed)
- Existing Asphalt Pavement Requiring New Asphalt or Asphalt Repair
- Building (Existing)
- Parcel Boundary

NOTES:

1. Locations of site support features and engineering controls are subject to change based on site conditions and professional judgement.
2. Prevailing wind direction will be monitored daily and the downwind station may be adjusted accordingly to ensure the capture of downwind air quality conditions.
3. Air monitoring will be performed at two locations, one upwind and one downwind. Locations of monitoring stations may be adjusted per actual wind directions and specific work locations.

CBI

U.S. Department of the Navy
BRAC PMO West
San Diego, California

FIGURE 1
AIR MONITORING LOCATIONS

REMEDIAL ACTION AT PARCEL D-1
HUNTERS POINT NAVAL SHIPYARD, SAN FRANCISCO, CA

Attachment 1
Air Sampling Results

Table 1
Ambient Pressure and Temperature Monitoring Results

Sample Date	Ambient Pressure (in Hg)	Ambient Temperature (°C)
9-Jun-16	29.87	15.8
10-Jun-16	29.90	16.4
13-Jun-16	29.99	14.9
14-Jun-16	29.93	16.3
15-Jun-16	29.93	15.7
16-Jun-16	29.98	20.7
17-Jun-16	29.96	21.6
20-Jun-16	29.97	18.6
21-Jun-16	29.91	20.5
22-Jun-16	29.90	14.7
23-Jun-16	29.97	17.3
24-Jun-16	29.97	17.0
27-Jun-16	30.0	15.00
28-Jun-16	30.0	13.94
29-Jun-16	30.0	12.44
30-Jun-16	29.9	14.50
5-Jul-16	30.0	14.33
6-Jul-16	30.0	13.89
7-Jul-16	30.0	14.00
8-Jul-16	30.0	15.11
11-Jul-16	29.9	16.39
12-Jul-16	30.0	15.11
13-Jul-16	30.0	17.17
14-Jul-16	30.0	15.11
15-Jul-16	29.9	15.28
18-Jul-16	30.0	15.28
19-Jul-16	30.0	14.94
20-Jul-16	30.0	15.06
21-Jul-16	30.1	15.78
22-Jul-16	30.1	15.78
25-Jul-16	29.9	15.56
26-Jul-16	29.8	17.78
27-Jul-16	29.9	16.06
28-Jul-16	29.9	14.50
29-Jul-16	29.8	14.72
1-Aug-16	30.0	16.78
2-Aug-16	30.0	15.39

Table 1
Ambient Pressure and Temperature Monitoring Results

Sample Date	Ambient Pressure (in Hg)	Ambient Temperature (°C)
3-Aug-16	30.0	15.44
4-Aug-16	29.9	14.17
5-Aug-16	29.9	15.00
8-Aug-16	29.9	15.94
9-Aug-16	29.8	16.11
10-Aug-16	29.9	15.94
11-Aug-16	30.0	15.39
12-Aug-16	30.0	14.89
15-Aug-16	29.9	14.67
16-Aug-16	29.9	14.72
17-Aug-16	29.8	15.11
18-Aug-16	29.9	16.11
19-Aug-16	29.9	16.06
20-Aug-16	29.9	15.72
22-Aug-16	30.0	15.17
23-Aug-16	30.0	16.22
24-Aug-16	30.0	15.17
25-Aug-16	29.9	15.06
26-Aug-16	29.9	17.72
27-Aug-16	30.0	17.50
29-Aug-16	30.0	16.72
30-Aug-16	29.9	17.44
31-Aug-16	29.9	16.67
1-Sep-16	30.0	14.94
2-Sep-16	29.9	16.33
6-Sep-16	29.9	17.44
7-Sep-16	29.9	20.28
8-Sep-16	30.0	16.56
9-Sep-16	30.0	14.72
12-Sep-16	29.9	15.11
13-Sep-16	29.9	17.72
14-Sep-16	30.1	18.72
15-Sep-16	30.0	15.56
16-Sep-16	30.0	16.39
19-Sep-16	29.9	20.56
20-Sep-16	29.9	15.94
21-Sep-16	29.9	15.22

Table 1
Ambient Pressure and Temperature Monitoring Results

Sample Date	Ambient Pressure (in Hg)	Ambient Temperature (°C)
22-Sep-16	30.0	15.67
23-Sep-16	30.1	16.78
26-Sep-16	29.9	24.56
27-Sep-16	29.9	19.56
28-Sep-16	29.9	14.33
29-Sep-16	30.0	13.44
30-Sep-16	30.1	14.33
3-Oct-16	30.0	15.06
4-Oct-16	30.0	16.56
5-Oct-16	30.1	16.33
6-Oct-16	30.0	17.44
7-Oct-16	29.9	19.67
10-Oct-16	30.0	14.56
11-Oct-16	30.1	15.72
12-Oct-16	30.1	13.67
13-Oct-16	30.0	16.50
14-Oct-16	29.9	16.89
17-Oct-16	29.9	16.39
18-Oct-16	30.1	15.94
19-Oct-16	30.1	17.11
20-Oct-16	30.0	18.94
21-Oct-16	29.9	17.00
24-Oct-16	30.0	16.83
25-Oct-16	30.0	18.33
26-Oct-16	30.0	17.44
27-Oct-16	29.9	16.33
28-Oct-16	29.9	17.11
31-Oct-16	30.0	14.00
1-Nov-16	30.0	15.11
2-Nov-16	30.2	15.28
3-Nov-16	30.1	14.67
4-Nov-16	30.1	17.56
7-Nov-16	30.2	16.22
8-Nov-16	30.2	21.78
9-Nov-16	30.2	14.89
10-Nov-16	30.0	13.89
11-Nov-16	30.1	18.72

Table 1
Ambient Pressure and Temperature Monitoring Results

Sample Date	Ambient Pressure (in Hg)	Ambient Temperature (°C)
14-Nov-16	30.2	14.33
15-Nov-16	30.1	14.78
16-Nov-16	30.1	13.33
17-Nov-16	30.2	10.00
18-Nov-16	30.1	15.56
21-Nov-16	30.1	13.28
22-Nov-16	30.2	13.50
23-Nov-16	30.2	13.06
24-Nov-16	30.2	11.67
25-Nov-16	30.0	12.33
28-Nov-16	30.1	12.94
29-Nov-16	30.2	12.61
30-Nov-16	30.2	11.28
1-Dec-16	30.2	12.50
2-Dec-16	30.3	14.17
5-Dec-16	30.2	11.50
6-Dec-16	30.2	10.50
7-Dec-16	30.2	8.72
8-Dec-16	30.2	11.22
9-Dec-16	30.3	15.06
12-Dec-16	30.2	11.22
13-Dec-16	30.2	12.33
14-Dec-16	30.1	13.89
15-Dec-16	30.0	12.67
16-Dec-16	30.2	9.44
19-Dec-16	30.5	8.78
20-Dec-16	30.4	11.22
21-Dec-16	30.2	12.89
22-Dec-16	30.1	12.11

Notes:

°C - degrees Celsius

in Hg - inches of mercury

Ambient pressure and ambient temperature data were gathered from the wunderground weather website (www.wunderground.com). Data were collected from station KCASANFR348 at 1200.

Table 2
TSP and Metals Monitoring Results

Sample Date	Sample Location	Sampling Period (hours)	TSP (mg/m^3)	TSP Exceedance? (Yes/No)	Arsenic ($\mu g/m^3$)	Arsenic Exceedance? (Yes/No)	Lead ($\mu g/m^3$)	Lead Exceedance? (Yes/No)	Manganese ($\mu g/m^3$)	Manganese Exceedance? (Yes/No)
06/09/2016	Upwind - 17	6.5	0.027	No	<0.016	No	<0.016	No	0.01802	No
06/09/2016	Downwind - 22	6.5	0.032	No	<0.016	No	<0.016	No	0.01996	No
06/10/2016	Upwind - 17	7.0	0.019	No	<0.016	No	<0.016	No	<0.016	No
06/10/2016	Downwind - 22	7.0	0.150	No	<0.016	No	0.03426	No	0.12926	No
06/13/2016	Upwind - 17	6.7	0.083	No	<0.016	No	<0.016	No	0.04944	No
06/13/2016	Downwind - 22	6.6	0.079	No	<0.016	No	<0.016	No	0.06302	No
06/14/2016	Upwind - 17	24.0	0.078	No	<0.016	No	0.02951	No	0.04261	No
06/14/2016	Downwind - 22	23.9	0.096	No	<0.016	No	0.03257	No	0.08434	No
06/15/2016	Upwind - 17	23.9	0.050	No	<0.016	No	0.01624	No	0.04454	No
06/15/2016	Downwind - 22	24.0	0.018	No	<0.016	No	<0.016	No	0.01036	No
06/16/2016	Upwind - 17	24.4	0.003	No	<0.016	No	<0.016	No	0.01693	No
06/16/2016	Downwind - 22	24.0	0.009	No	<0.016	No	<0.016	No	0.00789	No
06/17/2016	Upwind - 17	6.5	0.022	No	<0.016	No	<0.016	No	0.01409	No
06/17/2016	Downwind - 22	6.7	0.026	No	<0.016	No	<0.016	No	<0.016	No
06/20/2016	Upwind - 17	22.8	0.050	No	<0.016	No	0.01117	No	0.02073	No
06/20/2016	Downwind - 22	23.7	0.023	No	<0.016	No	<0.016	No	0.00883	No
06/21/2016	Upwind - 17	24.2	0.047	No	<0.016	No	0.01428	No	0.01968	No
06/21/2016	Downwind - 22	N/A	Note 1	N/A	Note 1	N/A	Note 1	N/A	Note 1	N/A
06/22/2016	Upwind - 17	24.1	0.025	No	<0.016	No	0.00836	No	0.01215	No
06/22/2016	Downwind - 22	24.2	0.048	No	<0.016	No	0.00930	No	0.02748	No
06/23/2016	Upwind - 17	23.8	0.047	No	<0.016	No	0.01847	No	0.02792	No
06/23/2016	Downwind - 22	23.5	0.047	No	<0.016	No	0.00859	No	0.03373	No
06/24/2016	Upwind - 17	7.0	0.013	No	<0.016	No	<0.016	No	<0.016	No
06/24/2016	Downwind - 22	7.2	0.021	No	<0.016	No	<0.016	No	0.02752	No
06/27/2016	Upwind - 17	23.9	0.028	No	<0.016	No	<0.016	No	0.01187	No
06/27/2016	Downwind - 22	24.1	0.029	No	<0.016	No	<0.016	No	0.01994	No
06/28/2016	Upwind - 17	23.8	0.022	No	<0.016	No	<0.016	No	0.00922	No
06/28/2016	Downwind - 22	24.4	0.028	No	<0.016	No	<0.016	No	0.01453	No
06/29/2016	Upwind - 17	24.0	0.032	No	<0.016	No	<0.016	No	0.00877	No
06/29/2016	Downwind - 22	23.7	0.043	No	<0.016	No	<0.016	No	0.02460	No
06/30/2016	Upwind - 17	7.3	0.044	No	<0.016	No	<0.016	No	0.02618	No
06/30/2016	Downwind - 22	7.0	0.052	No	<0.016	No	<0.016	No	0.03690	No
07/05/2016	Upwind - 17	23.8	0.023	No	<0.016	No	<0.016	No	0.00914	No
07/05/2016	Downwind - 22	24.3	0.022	No	<0.016	No	<0.016	No	0.01031	No
07/06/2016	Upwind - 17	24.2	0.024	No	<0.016	No	<0.016	No	0.00827	No
07/06/2016	Downwind - 22	23.9	0.062	No	<0.016	No	<0.016	No	0.04583	No
07/07/2016	Upwind - 17	23.7	0.007	No	<0.016	No	<0.016	No	0.00410	No
07/07/2016	Downwind - 22	24.0	0.014	No	<0.016	No	<0.016	No	0.00962	No
07/08/2016	Upwind - 17	7.3	0.009	No	<0.016	No	<0.016	No	0.01346	No
07/08/2016	Downwind - 22	7.2	0.010	No	<0.016	No	<0.016	No	0.01550	No
07/11/2016	Upwind - 17	24.0	0.031	No	<0.016	No	0.01110	No	0.01373	No
07/11/2016	Downwind - 22	24.0	0.036	No	<0.016	No	<0.016	No	0.02605	No
07/12/2016	Upwind - 17	24.1	0.016	No	<0.016	No	<0.016	No	0.00658	No

Table 2
TSP and Metals Monitoring Results

Sample Date	Sample Location	Sampling Period (hours)	TSP (mg/m^3)	TSP Exceedance? (Yes/No)	Arsenic ($\mu g/m^3$)	Arsenic Exceedance? (Yes/No)	Lead ($\mu g/m^3$)	Lead Exceedance? (Yes/No)	Manganese ($\mu g/m^3$)	Manganese Exceedance? (Yes/No)
07/12/2016	Downwind - 22	24.0	0.018	No	<0.016	No	<0.016	No	0.01147	No
07/13/2016	Upwind - 17	24.0	0.022	No	<0.016	No	<0.016	No	0.00928	No
07/13/2016	Downwind - 22	24.0	0.031	No	<0.016	No	<0.016	No	0.01308	No
07/14/2016	Upwind - 17	23.9	0.022	No	<0.016	No	<0.016	No	0.01772	No
07/14/2016	Downwind - 22	24.1	0.024	No	<0.016	No	<0.016	No	0.01521	No
07/15/2016	Upwind - 17	7.2	0.019	No	<0.016	No	<0.016	No	0.02156	No
07/15/2016	Downwind - 22	7.5	0.023	No	<0.016	No	<0.016	No	0.02084	No
07/18/2016	Upwind - 17	23.9	0.016	No	<0.016	No	<0.016	No	0.01017	No
07/18/2016	Downwind - 22	24.0	0.029	No	<0.016	No	<0.016	No	0.02063	No
07/19/2016	Upwind - 17	24.3	0.018	No	<0.016	No	<0.016	No	0.00853	No
07/19/2016	Downwind - 22	24.3	0.053	No	<0.016	No	0.00727	No	0.04547	No
07/20/2016	Upwind - 17	24.0	0.014	No	<0.016	No	<0.016	No	0.00912	No
07/20/2016	Downwind - 22	23.9	0.032	No	<0.016	No	0.00825	No	0.02630	No
07/21/2016	Upwind - 17	23.7	0.032	No	<0.016	No	0.00975	No	0.01471	No
07/21/2016	Downwind - 22	23.8	0.043	No	<0.016	No	<0.016	No	0.02833	No
07/22/2016	Upwind - 17	7.3	0.005	No	<0.016	No	<0.016	No	<0.016	No
07/22/2016	Downwind - 22	7.5	0.017	No	<0.016	No	<0.016	No	0.01673	No
07/25/2016	Upwind - 17	24.1	0.012	No	<0.016	No	<0.016	No	0.00672	No
07/25/2016	Downwind - 22	24.1	0.027	No	<0.016	No	<0.016	No	0.01571	No
07/26/2016	Upwind - 17	24.1	0.012	No	<0.016	No	<0.016	No	0.00703	No
07/26/2016	Downwind - 22	24.2	0.015	No	<0.016	No	<0.016	No	0.01065	No
07/27/2016	Upwind - 17	23.7	0.021	No	<0.016	No	<0.016	No	0.01024	No
07/27/2016	Downwind - 22	23.8	0.015	No	<0.016	No	<0.016	No	0.01289	No
07/28/2016	Upwind - 17	24.4	0.017	No	<0.016	No	<0.016	No	0.00874	No
07/28/2016	Downwind - 22	24.1	0.023	No	<0.016	No	<0.016	No	0.01809	No
07/29/2016	Upwind - 17	6.8	0.017	No	<0.016	No	<0.016	No	0.02368	No
07/29/2016	Downwind - 22	7.3	0.025	No	<0.016	No	<0.016	No	0.02006	No
08/01/2016	Upwind - 17	24.0	0.025	No	<0.016	No	0.00755	No	0.01301	No
08/01/2016	Downwind - 22	24.0	0.024	No	<0.016	No	<0.016	No	0.01661	No
08/02/2016	Upwind - 17	24.0	0.032	No	<0.016	No	<0.016	No	0.01276	No
08/02/2016	Downwind - 22	23.9	0.031	No	<0.016	No	<0.016	No	0.01745	No
08/03/2016	Upwind - 17	23.8	0.048	No	<0.016	No	0.00820	No	0.01622	No
08/03/2016	Downwind - 22	24.0	0.061	No	<0.016	No	<0.016	No	0.03852	No
08/04/2016	Upwind - 17	24.0	0.018	No	<0.016	No	<0.016	No	0.00698	No
08/04/2016	Downwind - 22	24.0	0.009	No	<0.016	No	0.00925	No	0.01911	No
08/05/2016	Upwind - 17	7.3	0.013	No	<0.016	No	<0.016	No	0.01816	No
08/05/2016	Downwind - 22	7.4	0.066	No	<0.016	No	<0.016	No	0.02916	No
08/08/2016	Upwind - 17	24.1	0.029	No	<0.016	No	<0.016	No	0.00904	No
08/08/2016	Downwind - 22	24.1	0.042	No	<0.016	No	<0.016	No	0.01744	No
08/09/2016	Upwind - 17	24.0	0.021	No	<0.016	No	0.00817	No	0.02580	No
08/09/2016	Downwind - 22	24.0	0.032	No	<0.016	No	<0.016	No	0.01426	No
08/10/2016	Upwind - 17	24.0	0.020	No	<0.016	No	<0.016	No	<0.016	No
08/10/2016	Downwind - 22	24.0	0.026	No	<0.016	No	<0.016	No	0.01486	No

Table 2
TSP and Metals Monitoring Results

Sample Date	Sample Location	Sampling Period (hours)	TSP (mg/m^3)	TSP Exceedance? (Yes/No)	Arsenic ($\mu g/m^3$)	Arsenic Exceedance? (Yes/No)	Lead ($\mu g/m^3$)	Lead Exceedance? (Yes/No)	Manganese ($\mu g/m^3$)	Manganese Exceedance? (Yes/No)
08/11/2016	Upwind - 17	23.8	0.028	No	<0.016	No	<0.016	No	0.00982	No
08/11/2016	Downwind - 22	24.0	0.026	No	<0.016	No	<0.016	No	0.01359	No
08/12/2016	Upwind - 17	7.3	0.026	No	<0.016	No	<0.016	No	0.02699	No
08/12/2016	Downwind - 22	7.3	0.030	No	<0.016	No	<0.016	No	0.02151	No
08/15/2016	Upwind - 17	24.0	0.040	No	<0.016	No	<0.016	No	0.02599	No
08/15/2016	Downwind - 22	23.8	0.021	No	<0.016	No	0.01474	No	0.13815	No
08/16/2016	Upwind - 17	23.8	0.038	No	<0.016	No	0.00747	No	0.02784	No
08/16/2016	Downwind - 22	24.3	0.025	No	<0.016	No	0.01094	No	0.01620	No
08/17/2016	Upwind - 17	23.8	0.045	No	<0.016	No	0.00907	No	0.03334	No
08/17/2016	Downwind - 22	23.8	0.024	No	<0.016	No	<0.016	No	0.01457	No
08/18/2016	Upwind - 17	24.0	0.055	No	<0.016	No	0.00962	No	0.04518	No
08/18/2016	Downwind - 22	24.1	0.273	No	<0.016	No	0.02053	No	0.21748	No
08/19/2016	Upwind - 17	24.1	0.054	No	<0.016	No	<0.016	No	0.04063	No
08/19/2016	Downwind - 22	24.0	0.176	No	<0.016	No	0.01496	No	0.15387	No
08/20/2016	Upwind - 17	5.7	0.044	No	<0.016	No	<0.016	No	0.03224	No
08/20/2016	Downwind - 22	5.7	0.105	No	<0.016	No	<0.016	No	0.09788	No
08/22/2016	Upwind - 17	24.5	0.029	No	<0.016	No	<0.016	No	0.01860	No
08/22/2016	Downwind - 22	24.0	0.089	No	<0.016	No	0.00943	No	0.07351	No
08/23/2016	Upwind - 17	23.6	0.034	No	<0.016	No	<0.016	No	0.01877	No
08/23/2016	Downwind - 22	24.0	0.310	No	<0.016	No	0.02808	No	0.24348	No
08/24/2016	Upwind - 17	24.2	0.041	No	<0.016	No	<0.016	No	0.02497	No
08/24/2016	Downwind - 22	23.6	0.058	No	<0.016	No	<0.016	No	0.04333	No
08/25/2016	Upwind - 17	23.9	0.012	No	<0.016	No	<0.016	No	0.00540	No
08/25/2016	Downwind - 22	23.9	0.041	No	<0.016	No	<0.016	No	0.02758	No
08/26/2016	Upwind - 17	23.9	0.014	No	<0.016	No	<0.016	No	0.00542	No
08/26/2016	Downwind - 22	24.5	0.020	No	<0.016	No	<0.016	No	0.01004	No
08/27/2016	Upwind - 17	5.2	0.017	No	<0.016	No	<0.016	No	<0.016	No
08/27/2016	Downwind - 22	5.1	0.039	No	<0.016	No	<0.016	No	0.02179	No
08/29/2016	Upwind - 17	23.9	0.022	No	<0.016	No	<0.016	No	0.00788	No
08/29/2016	Downwind - 22	23.9	0.084	No	<0.016	No	<0.016	No	0.06477	No
08/30/2016	Upwind - 17	24.0	0.053	No	<0.016	No	0.01496	No	0.02477	No
08/30/2016	Downwind - 22	24.0	0.023	No	<0.016	No	<0.016	No	0.02164	No
08/31/2016	Upwind - 17	24.0	0.062	No	<0.016	No	0.00834	No	0.03531	No
08/31/2016	Downwind - 22	24.0	0.141	No	<0.016	No	0.03519	No	0.08399	No
09/01/2016	Upwind - 17	24.0	0.044	No	<0.016	No	<0.016	No	0.01747	No
09/01/2016	Downwind - 22	24.0	0.037	No	<0.016	No	<0.016	No	0.01214	No
09/02/2016	Upwind - 17	24.0	0.063	No	<0.016	No	<0.016	No	0.02992	No
09/02/2016	Downwind - 22	24.0	0.058	No	<0.016	No	<0.016	No	0.02262	No
09/06/2016	Upwind - 17	23.5	0.055	No	<0.016	No	<0.016	No	0.02266	No
09/06/2016	Downwind - 22	23.5	0.049	No	<0.016	No	<0.016	No	0.01515	No
09/07/2016	Upwind - 17	24.8	0.072	No	<0.016	No	0.01013	No	0.03543	No
09/07/2016	Downwind - 22	25.0	0.051	No	<0.016	No	0.01507	No	0.01660	No
09/08/2016	Upwind - 17	23.9	0.052	No	<0.016	No	0.00763	No	0.01981	No

Table 2
TSP and Metals Monitoring Results

Sample Date	Sample Location	Sampling Period (hours)	TSP (mg/m^3)	TSP Exceedance? (Yes/No)	Arsenic ($\mu g/m^3$)	Arsenic Exceedance? (Yes/No)	Lead ($\mu g/m^3$)	Lead Exceedance? (Yes/No)	Manganese ($\mu g/m^3$)	Manganese Exceedance? (Yes/No)
09/08/2016	Downwind - 22	24.0	0.050	No	<0.016	No	0.00828	No	0.02550	No
09/09/2016	Upwind - 17	8.0	0.070	No	<0.016	No	<0.016	No	0.01683	No
09/09/2016	Downwind - 22	7.2	0.064	No	<0.016	No	<0.016	No	0.03978	No
09/12/2016	Upwind - 17	24.0	0.038	No	<0.016	No	<0.016	No	0.02268	No
09/12/2016	Downwind - 22	24.8	0.076	No	<0.016	No	<0.016	No	0.05160	No
09/13/2016	Upwind - 17	24.1	0.040	No	<0.016	No	<0.016	No	0.01271	No
09/13/2016	Downwind - 22	23.3	0.036	No	<0.016	No	<0.016	No	0.01009	No
09/14/2016	Upwind - 17	23.8	0.043	No	<0.016	No	0.00805	No	0.01598	No
09/14/2016	Downwind - 22	24.5	0.060	No	<0.016	No	0.01814	No	0.04132	No
09/15/2016	Upwind - 17	25.2	0.039	No	<0.016	No	<0.016	No	0.01684	No
09/15/2016	Downwind - 22	24.9	0.057	No	<0.016	No	<0.016	No	0.03631	No
09/16/2016	Upwind - 17	6.8	0.044	No	<0.016	No	<0.016	No	0.02986	No
09/16/2016	Downwind - 22	6.2	0.045	No	<0.016	No	<0.016	No	0.03060	No
09/19/2016	Upwind - 17	24.0	0.044	No	<0.016	No	<0.016	No	0.01870	No
09/19/2016	Downwind - 22	24.0	0.049	No	<0.016	No	<0.016	No	0.02520	No
09/20/2016	Upwind - 17	24.1	0.034	No	<0.016	No	<0.016	No	0.01368	No
09/20/2016	Downwind - 22	24.1	0.067	No	<0.016	No	<0.016	No	0.04301	No
09/21/2016	Upwind - 17	24.0	0.008	No	<0.016	No	<0.016	No	0.00742	No
09/21/2016	Downwind - 22	24.0	0.160	No	<0.016	No	0.00240	No	0.14161	No
09/22/2016	Upwind - 17	23.9	0.002	No	<0.016	No	<0.016	No	<0.016	No
09/22/2016	Downwind - 22	24.5	0.095	No	<0.016	No	0.00985	No	0.06185	No
09/23/2016	Upwind - 17	8.0	0.008	No	<0.016	No	<0.016	No	<0.016	No
09/23/2016	Downwind - 22	7.6	0.200	No	<0.016	No	0.02367	No	0.16918	No
09/26/2016	Upwind - 17	24.4	0.013	No	<0.016	No	0.00856	No	0.00795	No
09/26/2016	Downwind - 22	24.4	0.048	No	<0.016	No	0.01193	No	0.03013	No
09/27/2016	Upwind - 17	23.5	0.023	No	<0.016	No	0.02598	No	0.01684	No
09/27/2016	Downwind - 22	23.7	0.062	No	<0.016	No	0.01834	No	0.04072	No
09/28/2016	Upwind - 17	24.8	0.025	No	<0.016	No	0.01266	No	0.01296	No
09/28/2016	Downwind - 22	23.8	0.098	No	<0.016	No	0.02759	No	0.05815	No
09/29/2016	Upwind - 17	24.0	0.015	No	<0.016	No	<0.016	No	0.00932	No
09/29/2016	Downwind - 22	24.0	0.100	No	<0.016	No	0.01312	No	0.07602	No
09/30/2016	Upwind - 17	7.4	0.023	No	<0.016	No	<0.016	No	0.01684	No
09/30/2016	Downwind - 22	8.0	0.024	No	<0.016	No	<0.016	No	0.02943	No
10/03/2016	Upwind - 17	0.0	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
10/03/2016	Downwind - 22	0.0	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
10/04/2016	Upwind - 17	22.9	0.031	No	<0.016	No	<0.016	No	0.00963	No
10/04/2016	Downwind - 22	23.7	0.032	No	<0.016	No	<0.016	No	0.01933	No
10/05/2016	Upwind - 17	24.1	0.031	No	<0.016	No	<0.016	No	0.01124	No
10/05/2016	Downwind - 22	24.1	0.038	No	<0.016	No	<0.016	No	0.02389	No
10/06/2016	Upwind - 17	24.2	0.029	No	<0.016	No	0.00877	No	0.01120	No
10/06/2016	Downwind - 22	23.7	0.034	No	<0.016	No	0.01258	No	0.03965	No
10/07/2016	Upwind - 17	7.8	0.052	No	<0.016	No	<0.016	No	0.05484	No
10/07/2016	Downwind - 22	8.0	0.002	No	<0.016	No	<0.016	No	0.01484	No

Table 2
TSP and Metals Monitoring Results

Sample Date	Sample Location	Sampling Period (hours)	TSP (mg/m^3)	TSP Exceedance? (Yes/No)	Arsenic ($\mu g/m^3$)	Arsenic Exceedance? (Yes/No)	Lead ($\mu g/m^3$)	Lead Exceedance? (Yes/No)	Manganese ($\mu g/m^3$)	Manganese Exceedance? (Yes/No)
10/10/2016	Upwind - 17	25.3	0.062	No	<0.016	No	<0.016	No	0.04484	No
10/10/2016	Downwind - 22	24.8	0.073	No	<0.016	No	<0.016	No	0.06598	No
10/11/2016	Upwind - 17	23.5	0.030	No	<0.016	No	<0.016	No	0.02010	No
10/11/2016	Downwind - 22	23.5	0.042	No	<0.016	No	<0.016	No	0.03681	No
10/12/2016	Upwind - 17	24.2	0.029	No	<0.016	No	<0.016	No	0.01699	No
10/12/2016	Downwind - 22	24.1	0.069	No	<0.016	No	<0.016	No	0.07025	No
10/13/2016	Upwind - 17	6.8	0.055	No	<0.016	No	<0.016	No	0.03902	No
10/13/2016	Downwind - 22	7.2	0.050	No	<0.016	No	<0.016	No	0.03757	No
10/14/2016	Upwind - 17	0.0	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
10/14/2016	Downwind - 22	0.0	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
10/17/2016	Upwind - 17	0.0	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
10/17/2016	Downwind - 22	0.0	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
10/18/2016	Upwind - 17	23.6	0.053	No	<0.016	No	0.00905	No	0.03032	No
10/18/2016	Downwind - 22	24.5	0.035	No	<0.016	No	<0.016	No	0.01892	No
10/19/2016	Upwind - 17	23.7	0.063	No	<0.016	No	0.01127	No	0.03822	No
10/19/2016	Downwind - 22	23.8	0.038	No	<0.016	No	<0.016	No	0.01927	No
10/20/2016	Upwind - 17	24.0	0.075	No	<0.016	No	0.02906	No	0.05174	No
10/20/2016	Downwind - 22	24.0	0.210	No	<0.016	No	0.02201	No	0.02544	No
10/21/2016	Upwind - 17	9.8	0.200	No	<0.016	No	<0.016	No	0.15241	No
10/21/2016	Downwind - 22	9.8	0.100	No	<0.016	No	<0.016	No	0.08224	No
10/24/2016	Upwind - 17	24.6	0.032	No	<0.016	No	<0.016	No	0.02161	No
10/24/2016	Downwind - 22	24.6	0.038	No	<0.016	No	<0.016	No	0.02083	No
10/25/2016	Upwind - 17	0.0	Note 2	Note 2	<0.016	Note 2	Note 2	Note 2	Note 2	Note 2
10/25/2016	Downwind - 22	0.0	Note 2	Note 2	<0.016	Note 2	Note 2	Note 2	Note 2	Note 2
10/26/2016	Upwind - 17	24.1	0.040	No	<0.016	No	<0.016	No	0.02254	No
10/26/2016	Downwind - 22	24.1	0.014	No	<0.016	No	<0.016	No	0.01002	No
10/27/2016	Upwind - 17	0.0	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
10/27/2016	Downwind - 22	0.0	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
10/28/2016	Upwind - 17	0.0	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
10/28/2016	Downwind - 22	0.0	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
10/31/2016	Upwind - 17	0.0	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
10/31/2016	Downwind - 22	0.0	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
11/01/2016	Upwind - 17	0.0	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
11/01/2016	Downwind - 22	0.0	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
11/02/2016	Upwind - 17	0.0	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
11/02/2016	Downwind - 22	0.0	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
11/03/2016	Upwind - 17	0.0	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
11/03/2016	Downwind - 22	0.0	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
11/04/2016	Upwind - 17	0.0	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
11/04/2016	Downwind - 22	0.0	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
11/07/2016	Upwind - 17	26 5	0.042	No	<0.016	No	0.01704	No	0.02521	No
11/07/2016	Downwind - 22	26.6	0.026	No	<0.016	No	0.00897	No	0.01240	No
11/08/2016	Upwind - 17	21.0	0.046	No	<0.016	No	0.00967	No	0.01604	No

Table 2
TSP and Metals Monitoring Results

Sample Date	Sample Location	Sampling Period (hours)	TSP (mg/m^3)	TSP Exceedance? (Yes/No)	Arsenic ($\mu g/m^3$)	Arsenic Exceedance? (Yes/No)	Lead ($\mu g/m^3$)	Lead Exceedance? (Yes/No)	Manganese ($\mu g/m^3$)	Manganese Exceedance? (Yes/No)
11/08/2016	Downwind - 22	20.8	0.032	No	<0.016	No	<0.016	No	0.00932	No
11/09/2016	Upwind - 17	23.9	0.050	No	<0.016	No	0.00929	No	0.02172	No
11/09/2016	Downwind - 22	24.0	0.038	No	<0.016	No	0.00754	No	0.01343	No
11/10/2016	Upwind - 17	23.9	0.060	No	<0.016	No	0.01058	No	0.03168	No
11/10/2016	Downwind - 22	24.5	0.028	No	<0.016	No	<0.016	No	0.01249	No
11/11/2016	Upwind - 17	7.7	0.056	No	<0.016	No	<0.016	No	0.02936	No
11/11/2016	Downwind - 22	7.6	0.091	No	<0.016	No	<0.016	No	0.06480	No
11/14/2016	Upwind - 17	23.7	0.026	No	<0.016	No	<0.016	No	0.01450	No
11/14/2016	Downwind - 22	23.8	0.036	No	<0.016	No	<0.016	No	0.01059	No
11/15/2016	Upwind - 17	23.6	0.031	No	<0.016	No	<0.016	No	0.01435	No
11/15/2016	Downwind - 22	24.1	0.021	No	<0.016	No	<0.016	No	0.01362	No
11/16/2016	Upwind - 17	24.3	0.049	No	<0.016	No	<0.016	No	0.02697	No
11/16/2016	Downwind - 22	23.8	0.005	No	<0.016	No	<0.016	No	0.00706	No
11/17/2016	Upwind - 17	23.9	0.039	No	<0.016	No	<0.016	No	0.01784	No
11/17/2016	Downwind - 22	24.8	0.019	No	<0.016	No	<0.016	No	0.01058	No
11/18/2016	Upwind - 17	9.8	0.034	No	<0.016	No	<0.016	No	0.02429	No
11/18/2016	Downwind - 22	9.2	0.079	No	<0.016	No	<0.016	No	0.06789	No
11/21/2016	Upwind - 17	0.0	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
11/21/2016	Downwind - 22	0.0	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
11/22/2016	Upwind - 17	0.0	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
11/22/2016	Downwind - 22	0.0	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
11/23/2016	Upwind - 17	0.0	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
11/23/2016	Downwind - 22	0.0	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
11/24/2016	Upwind - 17	0.0	Note 3	Note 3	Note 3	Note 3	Note 3	Note 3	Note 3	Note 3
11/24/2016	Downwind - 22	0.0	Note 3	Note 3	Note 3	Note 3	Note 3	Note 3	Note 3	Note 3
11/25/2016	Upwind - 17	0.0	Note 3	Note 3	Note 3	Note 3	Note 3	Note 3	Note 3	Note 3
11/25/2016	Downwind - 22	0.0	Note 3	Note 3	Note 3	Note 3	Note 3	Note 3	Note 3	Note 3
11/28/2016	Upwind - 17	0.0	Note 3	Note 3	Note 3	Note 3	Note 3	Note 3	Note 3	Note 3
11/28/2016	Downwind - 22	0.0	Note 3	Note 3	Note 3	Note 3	Note 3	Note 3	Note 3	Note 3
11/29/2016	Upwind - 17	24 5	0.063	No	<0.016	No	<0.016	No	0.03339	No
11/29/2016	Downwind - 22	23.4	0.024	No	<0.016	No	<0.016	No	0.01062	No
11/30/2016	Upwind - 17	24 5	0.028	No	<0.016	No	0.01105	No	0.01459	No
11/30/2016	Downwind - 22	24.8	0.015	No	<0.016	No	<0.016	No	0.00880	No
12/01/2016	Upwind - 17	24.0	0.076	No	<0.016	No	0.01490	No	0.03359	No
12/01/2016	Downwind - 22	24.0	0.043	No	<0.016	No	<0.016	No	0.02244	No
12/02/2016	Upwind - 17	8.5	0.084	No	<0.016	No	0.03271	No	0.06439	No
12/02/2016	Downwind - 22	8.5	0.035	No	<0.016	No	<0.016	No	0.01991	No
12/05/2016	Upwind - 17	25 5	0.029	No	<0.016	No	<0.016	No	0.01067	No
12/05/2016	Downwind - 22	25.0	0.026	No	<0.016	No	<0.016	No	0.01153	No
12/06/2016	Upwind - 17	0.0	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
12/06/2016	Downwind - 22	0.0	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
12/07/2016	Upwind - 17	0.0	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
12/07/2016	Downwind - 22	0.0	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2

Table 2
TSP and Metals Monitoring Results

Sample Date	Sample Location	Sampling Period (hours)	TSP (mg/m^3)	TSP Exceedance? (Yes/No)	Arsenic ($\mu g/m^3$)	Arsenic Exceedance? (Yes/No)	Lead ($\mu g/m^3$)	Lead Exceedance? (Yes/No)	Manganese ($\mu g/m^3$)	Manganese Exceedance? (Yes/No)
12/08/2016	Upwind - 17	0.0	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
12/08/2016	Downwind - 22	0.0	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
12/09/2016	Upwind - 17	0.0	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
12/09/2016	Downwind - 22	0.0	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
12/12/2016	Upwind - 17	0.0	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
12/12/2016	Downwind - 22	0.0	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
12/13/2016	Upwind - 17	0.0	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
12/13/2016	Downwind - 22	0.0	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
12/14/2016	Upwind - 17	0.0	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
12/14/2016	Downwind - 22	0.0	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
12/15/2016	Upwind - 17	0.0	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
12/15/2016	Downwind - 22	0.0	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
12/16/2016	Upwind - 17	0.0	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
12/16/2016	Downwind - 22	0.0	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
12/19/2016	Upwind - 17	25.0	0.054	No	<0.016	No	<0.016	No	0.03549	No
12/19/2016	Downwind - 22	25.0	0.011	No	<0.016	No	<0.016	No	0.00800	No
12/20/2016	Upwind - 17	25.1	0.067	No	<0.016	No	0.01126	No	0.04827	No
12/20/2016	Downwind - 22	25.1	0.022	No	<0.016	No	<0.016	No	0.01945	No
12/21/2016	Upwind - 17	24.4	0.077	No	<0.016	No	0.01597	No	0.05694	No
12/21/2016	Downwind - 22	24.4	0.026	No	<0.016	No	<0.016	No	0.01702	No
12/22/2016	Upwind - 17	4.3	0.050	No	<0.016	No	<0.016	No	0.04673	No
12/22/2016	Downwind - 22	4.4	0.011	No	<0.016	No	<0.016	No	0.02565	No

Notes:

Sample locations are shown on Figure 1.

The threshold criteria are as follows: TSP = 0.5 mg/m^3, arsenic = 10 $\mu g/m^3$, lead = 50 $\mu g/m^3$, manganese = 200 $\mu g/m^3$.

The detection limit for TSP is 0.06 $\mu g/m^3$ assuming a minimum sample volume of 1,600 m^3. The detection limits for arsenic, lead and manganese are 16 ng/m^3 assuming minimum sample volumes of 1,600 m^3.

$\mu g/m^3$ - micrograms per cubic meter

mg/m^3 - milligrams per cubic meter

N/A - not applicable

ng/m^3 - nanograms per cubic meter

TSP - total suspended particulates

Note 1 - Sample unable to be retrieved.

Note 2 - Sample not collected due to inclement conditions: Rain.

Note 3 - Samples were not collected as project site was closed for holidays.

Table 3
PM10 Monitoring Results

Sample Date	Sample Location	Sampling Period (hours)	PM10 ($\mu g/m^3$)	PM10 Exceedance? (Yes/No)
06/09/2016	Upwind - 17	6.5	23.0	No
06/09/2016	Downwind - 22	6.5	10.0	No
06/10/2016	Upwind - 17	7.0	16.0	No
06/10/2016	Downwind - 22	7.0	210.0	No
06/13/2016	Upwind - 17	6.7	20.0	No
06/13/2016	Downwind - 22	6.6	59.0	No
06/14/2016	Upwind - 17	24.0	41.0	No
06/14/2016	Downwind - 22	23.9	42.0	No
06/15/2016	Upwind - 17	23.9	3.5	No
06/15/2016	Downwind - 22	24.0	5.0	No
06/16/2016	Upwind - 17	24.4	5.1	No
06/16/2016	Downwind - 22	24.0	2.1	No
06/17/2016	Upwind - 17	6.5	86.0	No
06/17/2016	Downwind - 22	6.7	33.0	No
06/20/2016	Upwind - 17	22.8	24.0	No
06/20/2016	Downwind - 22	23.7	100.0	No
06/21/2016	Upwind - 17	24.2	28.0	No
06/21/2016	Downwind - 22	24.8	24.0	No
06/22/2016	Upwind - 17	24.1	26.0	No
06/22/2016	Downwind - 22	23.2	7.7	No
06/23/2016	Upwind - 17	23.8	18.0	No
06/23/2016	Downwind - 22	23.5	30.0	No
06/24/2016	Upwind - 17	7.0	4.5	No
06/24/2016	Downwind - 22	7.2	1.0	No
06/27/2016	Upwind - 17	23.9	19.0	No
06/27/2016	Downwind - 22	24.1	14.0	No
06/28/2016	Upwind - 17	23.8	16.0	No
06/28/2016	Downwind - 22	24.4	17.0	No
06/29/2016	Upwind - 17	24.0	3.2	No
06/29/2016	Downwind - 22	23.7	28.0	No
06/30/2016	Upwind - 17	7.3	16.0	No
06/30/2016	Downwind - 22	7.0	18.0	No
07/05/2016	Upwind - 17	23.8	24.0	No
07/05/2016	Downwind - 22	24.3	24.0	No
07/06/2016	Upwind - 17	24.2	13.0	No
07/06/2016	Downwind - 22	23.9	29.0	No
07/07/2016	Upwind - 17	23.7	7.7	No

Table 3
PM10 Monitoring Results

Sample Date	Sample Location	Sampling Period (hours)	PM10 ($\mu g/m^3$)	PM10 Exceedance? (Yes/No)
07/07/2016	Downwind - 22	24.0	8.3	No
07/08/2016	Upwind - 17	7.3	0.61	No
07/08/2016	Downwind - 22	7.2	3.1	No
07/11/2016	Upwind - 17	24.0	12.0	No
07/11/2016	Downwind - 22	24.0	19.0	No
07/12/2016	Upwind - 17	24.1	12.0	No
07/12/2016	Downwind - 22	24.0	13.0	No
07/13/2016	Upwind - 17	24.0	16.0	No
07/13/2016	Downwind - 22	24.0	17.0	No
07/14/2016	Upwind - 17	23.9	0.31	No
07/14/2016	Downwind - 22	24.1	14.0	No
07/15/2016	Upwind - 17	7.2	1.0	No
07/15/2016	Downwind - 22	7.5	3.6	No
07/18/2016	Upwind - 17	23.9	0.50	No
07/18/2016	Downwind - 22	24.0	14.0	No
07/19/2016	Upwind - 17	24.3	0.31	No
07/19/2016	Downwind - 22	24.3	2.3	No
07/20/2016	Upwind - 17	24.0	1.6	No
07/20/2016	Downwind - 22	23.9	2.2	No
07/21/2016	Upwind - 17	23.7	0.38	No
07/21/2016	Downwind - 22	23.8	1.0	No
07/22/2016	Upwind - 17	7.3	2.3	No
07/22/2016	Downwind - 22	7.5	3.2	No
07/25/2016	Upwind - 17	24.1	7.7	No
07/25/2016	Downwind - 22	24.1	0.7	No
07/26/2016	Upwind - 17	24.1	10.0	No
07/26/2016	Downwind - 22	24.2	14.0	No
07/27/2016	Upwind - 17	23.7	9.2	No
07/27/2016	Downwind - 22	23.8	17.0	No
07/28/2016	Upwind - 17	24.4	5.6	No
07/28/2016	Downwind - 22	24.1	9.7	No
07/29/2016	Upwind - 17	6.8	9.1	No
07/29/2016	Downwind - 22	7.3	5.7	No
08/01/2016	Upwind - 17	24.0	10.0	No
08/01/2016	Downwind - 22	24.0	9.4	No
08/02/2016	Upwind - 17	24.0	17.0	No

Table 3
PM10 Monitoring Results

Sample Date	Sample Location	Sampling Period (hours)	PM10 ($\mu g/m^3$)	PM10 Exceedance? (Yes/No)
08/02/2016	Downwind - 22	23.9	16.0	No
08/03/2016	Upwind - 17	23.8	27.0	No
08/03/2016	Downwind - 22	24.0	28.0	No
08/04/2016	Upwind - 17	24.0	6.8	No
08/04/2016	Downwind - 22	24.0	7.7	No
08/05/2016	Upwind - 17	7.3	12.0	No
08/05/2016	Downwind - 22	7.4	29.0	No
08/08/2016	Upwind - 17	24.1	25.0	No
08/08/2016	Downwind - 22	24.1	25.0	No
08/09/2016	Upwind - 17	24.0	39.0	No
08/09/2016	Downwind - 22	24.0	26.00	No
08/10/2016	Upwind - 17	24.0	14.0	No
08/10/2016	Downwind - 22	24.0	14.0	No
08/11/2016	Upwind - 17	23.8	12.0	No
08/11/2016	Downwind - 22	24.0	16.0	No
08/12/2016	Upwind - 17	7.3	27.0	No
08/12/2016	Downwind - 22	7.3	25.0	No
08/15/2016	Upwind - 17	24.0	17.0	No
08/15/2016	Downwind - 22	23.8	8.8	No
08/16/2016	Upwind - 17	23.8	25.0	No
08/16/2016	Downwind - 22	24.3	12.0	No
08/17/2016	Upwind - 17	23.8	28.0	No
08/17/2016	Downwind - 22	23.8	12.0	No
08/18/2016	Upwind - 17	24.0	32.0	No
08/18/2016	Downwind - 22	24.1	84.0	No
08/19/2016	Upwind - 17	24.1	35.0	No
08/19/2016	Downwind - 22	24.0	58.0	No
08/20/2016	Upwind - 17	5.7	17.0	No
08/20/2016	Downwind - 22	5.7	12.0	No
08/22/2016	Upwind - 17	24.5	16.0	No
08/22/2016	Downwind - 22	24.0	46.0	No
08/23/2016	Upwind - 17	23.6	20.0	No
08/23/2016	Downwind - 22	24.0	120.0	No
08/24/2016	Upwind - 17	24.2	21.0	No
08/24/2016	Downwind - 22	23.6	22.0	No
08/25/2016	Upwind - 17	23.9	6.3	No

Table 3
PM10 Monitoring Results

Sample Date	Sample Location	Sampling Period (hours)	PM10 ($\mu g/m^3$)	PM10 Exceedance? (Yes/No)
08/25/2016	Downwind - 22	23.9	19.0	No
08/26/2016	Upwind - 17	23.9	11.0	No
08/26/2016	Downwind - 22	24.5	13.0	No
08/27/2016	Upwind - 17	5.2	16.0	No
08/27/2016	Downwind - 22	5.1	45.0	No
08/29/2016	Upwind - 17	23.9	15.0	No
08/29/2016	Downwind - 22	23.9	32.0	No
08/30/2016	Upwind - 17	24.0	24.0	No
08/30/2016	Downwind - 22	24.0	1.7	No
08/31/2016	Upwind - 17	24.0	30.0	No
08/31/2016	Downwind - 22	24.0	22.0	No
09/01/2016	Upwind - 17	24.0	24.0	No
09/01/2016	Downwind - 22	24.0	18.0	No
09/02/2016	Upwind - 17	24.0	38.0	No
09/02/2016	Downwind - 22	24.0	26.0	No
09/06/2016	Upwind - 17	23.5	34.0	No
09/06/2016	Downwind - 22	23.5	16.0	No
09/07/2016	Upwind - 17	24.8	49.0	No
09/07/2016	Downwind - 22	25.0	20.0	No
09/08/2016	Upwind - 17	23.9	36.0	No
09/08/2016	Downwind - 22	24.0	1.9	No
09/09/2016	Upwind - 17	8.0	28.0	No
09/09/2016	Downwind - 22	7.2	24.0	No
09/12/2016	Upwind - 17	24.0	21.0	No
09/12/2016	Downwind - 22	24.8	28.0	No
09/13/2016	Upwind - 17	24.1	28.0	No
09/13/2016	Downwind - 22	23.3	29.0	No
09/14/2016	Upwind - 17	23.8	25.0	No
09/14/2016	Downwind - 22	24.5	37.0	No
09/15/2016	Upwind - 17	25.2	20.0	No
09/15/2016	Downwind - 22	24.9	18.0	No
09/16/2016	Upwind - 17	6.8	20.0	No
09/16/2016	Downwind - 22	6.2	19.0	No
09/19/2016	Upwind - 17	24.0	28.0	No
09/19/2016	Downwind - 22	24.0	34.0	No
09/20/2016	Upwind - 17	24.1	25.0	No

Table 3
PM10 Monitoring Results

Sample Date	Sample Location	Sampling Period (hours)	PM10 (µg/m^3)	PM10 Exceedance? (Yes/No)
09/20/2016	Downwind - 22	24.1	26.0	No
09/21/2016	Upwind - 17	24.0	44.0	No
09/21/2016	Downwind - 22	24.0	50.0	No
09/22/2016	Upwind - 17	23.9	24.0	No
09/22/2016	Downwind - 22	24.5	48.0	No
09/23/2016	Upwind - 17	8.0	33.0	No
09/23/2016	Downwind - 22	7.6	100.0	No
09/26/2016	Upwind - 17	24.4	34.0	No
09/26/2016	Downwind - 22	24.4	32.0	No
09/27/2016	Upwind - 17	23.5	24.0	No
09/27/2016	Downwind - 22	23.7	27.0	No
09/28/2016	Upwind - 17	24.8	22.0	No
09/28/2016	Downwind - 22	23.8	39.0	No
09/29/2016	Upwind - 17	24.0	18.0	No
09/29/2016	Downwind - 22	24.0	68.0	No
09/30/2016	Upwind - 17	7.4	27.0	No
09/30/2016	Downwind - 22	8.0	66.0	No
10/03/2016	Upwind - 17	0.0	Note 1	Note 1
10/03/2016	Downwind - 22	0.0	Note 1	Note 1
10/04/2016	Upwind - 17	22.9	12.0	No
10/04/2016	Downwind - 22	23.7	16.0	No
10/05/2016	Upwind - 17	24.1	15.0	No
10/05/2016	Downwind - 22	24.1	22.0	No
10/06/2016	Upwind - 17	24.2	12.0	No
10/06/2016	Downwind - 22	23.7	18.0	No
10/07/2016	Upwind - 17	7.8	10.0	No
10/07/2016	Downwind - 22	8.0	29.0	No
10/10/2016	Upwind - 17	25.3	24.0	No
10/10/2016	Downwind - 22	24.8	26.0	No
10/11/2016	Upwind - 17	23.5	14.0	No
10/11/2016	Downwind - 22	23.5	19.0	No
10/12/2016	Upwind - 17	24.2	12.0	No
10/12/2016	Downwind - 22	24.1	23.0	No
10/13/2016	Upwind - 17	6.8	34.0	No
10/13/2016	Downwind - 22	7.2	23.0	No
10/14/2016	Upwind - 17	0.0	Note 1	Note 1

Table 3
PM10 Monitoring Results

Sample Date	Sample Location	Sampling Period (hours)	PM10 ($\mu g/m^3$)	PM10 Exceedance? (Yes/No)
10/14/2016	Downwind - 22	0.0	Note 1	Note 1
10/17/2016	Upwind - 17	0.0	Note 1	Note 1
10/17/2016	Downwind - 22	0.0	Note 1	Note 1
10/18/2016	Upwind - 17	23.6	30.0	No
10/18/2016	Downwind - 22	24.5	27.0	No
10/19/2016	Upwind - 17	23.7	35.0	No
10/19/2016	Downwind - 22	23.8	35.0	No
10/20/2016	Upwind - 17	24.0	39.0	No
10/20/2016	Downwind - 22	24.0	34.0	No
10/21/2016	Upwind - 17	9.8	88.0	No
10/21/2016	Downwind - 22	9.8	43.0	No
10/24/2016	Upwind - 17	24.6	23.0	No
10/24/2016	Downwind - 22	24.6	12.0	No
10/25/2016	Upwind - 17	0.0	Note 1	Note 1
10/25/2016	Downwind - 22	0.0	Note 1	Note 1
10/26/2016	Upwind - 17	24.1	19.0	No
10/26/2016	Downwind - 22	24.1	11.0	No
10/27/2016	Upwind - 17	0.0	Note 1	Note 1
10/27/2016	Downwind - 22	0.0	Note 1	Note 1
10/28/2016	Upwind - 17	0.0	Note 1	Note 1
10/28/2016	Downwind - 22	0.0	Note 1	Note 1
10/31/2016	Upwind - 17	0.0	Note 1	Note 1
10/31/2016	Downwind - 22	0.0	Note 1	Note 1
11/01/2016	Upwind - 17	0.0	Note 1	Note 1
11/01/2016	Downwind - 22	0.0	Note 1	Note 1
11/02/2016	Upwind - 17	0.0	Note 1	Note 1
11/02/2016	Downwind - 22	0.0	Note 1	Note 1
11/03/2016	Upwind - 17	0.0	Note 1	Note 1
11/03/2016	Downwind - 22	0.0	Note 1	Note 1
11/04/2016	Upwind - 17	0.0	Note 1	Note 1
11/04/2016	Downwind - 22	0.0	Note 1	Note 1
11/07/2016	Upwind - 17	26.5	25.0	No
11/07/2016	Downwind - 22	26.6	42.0	No
11/08/2016	Upwind - 17	21.0	32.0	No
11/08/2016	Downwind - 22	20.8	38.0	No
11/09/2016	Upwind - 17	23.9	38.0	No

Table 3
PM10 Monitoring Results

Sample Date	Sample Location	Sampling Period (hours)	PM10 ($\mu g/m^3$)	PM10 Exceedance? (Yes/No)
11/09/2016	Downwind - 22	24.0	54.0	No
11/10/2016	Upwind - 17	23.9	37.0	No
11/10/2016	Downwind - 22	24.5	38.0	No
11/11/2016	Upwind - 17	7.7	33.0	No
11/11/2016	Downwind - 22	7.6	61.0	No
11/14/2016	Upwind - 17	23.7	14.0	No
11/14/2016	Downwind - 22	23.8	13.0	No
11/15/2016	Upwind - 17	23.6	14.0	No
11/15/2016	Downwind - 22	24.1	11.0	No
11/16/2016	Upwind - 17	24.3	17.0	No
11/16/2016	Downwind - 22	23.8	<0.06	No
11/17/2016	Upwind - 17	23.9	35.0	No
11/17/2016	Downwind - 22	24.8	17.0	No
11/18/2016	Upwind - 17	9.8	26.0	No
11/18/2016	Downwind - 22	9.2	29.0	No
11/21/2016	Upwind - 17	0.0	Note 1	Note 1
11/21/2016	Downwind - 22	0.0	Note 1	Note 1
11/22/2016	Upwind - 17	0.0	Note 1	Note 1
11/22/2016	Downwind - 22	0.0	Note 1	Note 1
11/23/2016	Upwind - 17	0.0	Note 1	Note 1
11/23/2016	Downwind - 22	0.0	Note 1	Note 1
11/24/2016	Upwind - 17	0.0	Note 2	Note 2
11/24/2016	Downwind - 22	0.0	Note 2	Note 2
11/25/2016	Upwind - 17	0.0	Note 2	Note 2
11/25/2016	Downwind - 22	0.0	Note 2	Note 2
11/28/2016	Upwind - 17	0.0	Note 2	Note 2
11/28/2016	Downwind - 22	0.0	Note 2	Note 2
11/29/2016	Upwind - 17	24.5	38.0	No
11/29/2016	Downwind - 22	23.4	24.0	No
11/30/2016	Upwind - 17	24.5	19.0	No
11/30/2016	Downwind - 22	24.8	20.0	No
12/01/2016	Upwind - 17	24.0	ND	No
12/01/2016	Downwind - 22	24.0	39.0	No
12/02/2016	Upwind - 17	8.5	13.0	No
12/02/2016	Downwind - 22	8.5	55.0	No
12/05/2016	Upwind - 17	25.5	13.0	No

Table 3
PM10 Monitoring Results

Sample Date	Sample Location	Sampling Period (hours)	PM10 ($\mu g/m^3$)	PM10 Exceedance? (Yes/No)
12/05/2016	Downwind - 22	25.0	15.0	No
12/06/2016	Upwind - 17	0.0	Note 1	Note 1
12/06/2016	Downwind - 22	0.0	Note 1	Note 1
12/07/2016	Upwind - 17	0.0	Note 1	Note 1
12/07/2016	Downwind - 22	0.0	Note 1	Note 1
12/08/2016	Upwind - 17	0.0	Note 1	Note 1
12/08/2016	Downwind - 22	0.0	Note 1	Note 1
12/09/2016	Upwind - 17	0.0	Note 1	Note 1
12/09/2016	Downwind - 22	0.0	Note 1	Note 1
12/12/2016	Upwind - 17	0.0	Note 1	Note 1
12/12/2016	Downwind - 22	0.0	Note 1	Note 1
12/13/2016	Upwind - 17	0.0	Note 1	Note 1
12/13/2016	Downwind - 22	0.0	Note 1	Note 1
12/14/2016	Upwind - 17	0.0	Note 1	Note 1
12/14/2016	Downwind - 22	0.0	Note 1	Note 1
12/15/2016	Upwind - 17	0.0	Note 1	Note 1
12/15/2016	Downwind - 22	0.0	Note 1	Note 1
12/16/2016	Upwind - 17	0.0	Note 1	Note 1
12/16/2016	Downwind - 22	0.0	Note 1	Note 1
12/19/2016	Upwind - 17	25.0	22.0	No
12/19/2016	Downwind - 22	25.0	13.0	No
12/20/2016	Upwind - 17	25.1	34.0	No
12/20/2016	Downwind - 22	25.1	14.0	No
12/21/2016	Upwind - 17	24.4	38.0	No
12/21/2016	Downwind - 22	24.4	29.0	No
12/22/2016	Upwind - 17	4.3	20.0	No
12/22/2016	Downwind - 22	4.4	9.1	No

Notes:

Sample locations are shown on Figure 1.

The threshold value for PM10 is 5,000 $\mu g/m^3$.

The detection limit for PM10 is 0.06 $\mu g/m^3$ assuming a minimum sample volume of 1,600 m^3.

$\mu g/m^3$ - micrograms per cubic meter

N/A - not applicable

PM10 - particulate matter smaller than 10 microns in diameter

Note 1 - Sample not collected due to inclement conditions: Rain.

Note 2 - Samples were not collected as project site was closed for holidays.

Table 4
Asbestos Monitoring Results

Sample Date	Sample Location	Sampling Period (hours)	Asbestos (fibers/cm^3)	Asbestos Exceedance? (Yes/No)
06/09/2016	Upwind - 17	6.5	0.0040	No
06/09/2016	Downwind - 22	Note 1	Note 1	Note 1
06/10/2016	Upwind - 17	7.0	0.0030	No
06/10/2016	Downwind - 22	7.0	0.0030	No
06/13/2016	Upwind - 17	6.6	0.0030	No
06/13/2016	Downwind - 22	5.6	0.0040	No
06/14/2016	Upwind - 17	24.0	0.0010	No
06/14/2016	Downwind - 22	23.9	0.0010	No
06/15/2016	Upwind - 17	23.9	0.0010	No
06/15/2016	Downwind - 22	23.9	0.0010	No
06/16/2016	Upwind - 17	24.5	0.0010	No
06/16/2016	Downwind - 22	24.0	0.0010	No
06/17/2016	Upwind - 17	6.4	0.0040	No
06/17/2016	Downwind - 22	6.7	0.0030	No
06/20/2016	Upwind - 17	22.8	0.0010	No
06/20/2016	Downwind - 22	23.7	0.0010	No
06/21/2016	Upwind - 17	24.2	0.0010	No
06/21/2016	Downwind - 22	23.8	0.0010	No
06/22/2016	Upwind - 17	24.1	0.0010	No
06/22/2016	Downwind - 22	24.2	0.0010	No
06/23/2016	Upwind - 17	23.8	0.0010	No
06/23/2016	Downwind - 22	23.5	0.0010	No
06/24/2016	Upwind - 17	7.0	0.0030	No
06/24/2016	Downwind - 22	7.2	0.0030	No
06/27/2016	Upwind - 17	24.0	0.0010	No
06/27/2016	Downwind - 22	24.1	0.0010	No
06/28/2016	Upwind - 17	23.7	0.0010	No
06/28/2016	Downwind - 22	24.4	0.0010	No
06/29/2016	Upwind - 17	24.0	0.0010	No
06/29/2016	Downwind - 22	23.7	0.0010	No
06/30/2016	Upwind - 17	7.3	0.0030	No
06/30/2016	Downwind - 22	7.0	0.0030	No
07/05/2016	Upwind - 17	23.8	0.0010	No
07/05/2016	Downwind - 22	24.1	0.0010	No
07/06/2016	Upwind - 17	23.9	0.0010	No
07/06/2016	Downwind - 22	24.0	0.0010	No
07/07/2016	Upwind - 17	23.7	0.0010	No

Table 4
Asbestos Monitoring Results

Sample Date	Sample Location	Sampling Period (hours)	Asbestos (fibers/cm^3)	Asbestos Exceedance? (Yes/No)
07/07/2016	Downwind - 22	24.0	0.0010	No
07/08/2016	Upwind - 17	7.2	0.0030	No
07/08/2016	Downwind - 22	7.2	0.0030	No
07/11/2016	Upwind - 17	24.0	0.0005	No
07/11/2016	Downwind - 22	24.0	0.0140	No
07/12/2016	Upwind - 17	24.1	0.0003	No
07/12/2016	Downwind - 22	24.0	0.0023	No
07/13/2016	Upwind - 17	24.0	0.0016	No
07/13/2016	Downwind - 22	24.0	0.0022	No
07/14/2016	Upwind - 17	23.9	0.0004	No
07/14/2016	Downwind - 22	24.1	0.0010	No
07/15/2016	Upwind - 17	7.2	0.0023	No
07/15/2016	Downwind - 22	7.5	0.0032	No
07/18/2016	Upwind - 17	23.9	0.0010	No
07/18/2016	Downwind - 22	24.0	0.0010	No
07/19/2016	Upwind - 17	24.3	0.0010	No
07/19/2016	Downwind - 22	24.3	0.0010	No
07/20/2016	Upwind - 17	24.0	0.0010	No
07/20/2016	Downwind - 22	23.9	0.0010	No
07/21/2016	Upwind - 17	23.7	0.0010	No
07/21/2016	Downwind - 22	23.8	0.0010	No
07/22/2016	Upwind - 17	7.3	0.0030	No
07/22/2016	Downwind - 22	7.5	0.0030	No
07/25/2016	Upwind - 17	24.1	0.0010	No
07/25/2016	Downwind - 22	24.1	0.0010	No
07/26/2016	Upwind - 17	24.1	0.0010	No
07/26/2016	Downwind - 22	24.2	0.0010	No
07/27/2016	Upwind - 17	23.7	0.0010	No
07/27/2016	Downwind - 22	23.8	0.0010	No
07/28/2016	Upwind - 17	24.4	0.0010	No
07/28/2016	Downwind - 22	24.1	0.0010	No
07/29/2016	Upwind - 17	6.8	0.0030	No
07/29/2016	Downwind - 22	7.3	0.0030	No
08/01/2016	Upwind - 17	24.0	0.0020	No
08/01/2016	Downwind - 22	24.0	0.0020	No
08/02/2016	Upwind - 17	24.0	0.0020	No
08/02/2016	Downwind - 22	23.9	0.0020	No

Table 4
Asbestos Monitoring Results

Sample Date	Sample Location	Sampling Period (hours)	Asbestos (fibers/cm^3)	Asbestos Exceedance? (Yes/No)
08/03/2016	Upwind - 17	23.8	0.0020	No
08/03/2016	Downwind - 22	24.0	0.0020	No
08/04/2016	Upwind - 17	24.0	0.0020	No
08/04/2016	Downwind - 22	24.0	0.0020	No
08/05/2016	Upwind - 17	7.3	0.0060	No
08/05/2016	Downwind - 22	7.4	0.0060	No
08/08/2016	Upwind - 17	24.1	0.0010	No
08/08/2016	Downwind - 22	24.1	0.0010	No
08/09/2016	Upwind - 17	24.0	0.0010	No
08/09/2016	Downwind - 22	24.0	0.0010	No
08/10/2016	Upwind - 17	24.0	0.0010	No
08/10/2016	Downwind - 22	24.0	0.0010	No
08/11/2016	Upwind - 17	23.8	0.0010	No
08/11/2016	Downwind - 22	24.0	0.0010	No
08/12/2016	Upwind - 17	7.3	0.0030	No
08/12/2016	Downwind - 22	7.3	0.0030	No
08/15/2016	Upwind - 17	24.0	0.0020	No
08/15/2016	Downwind - 22	23.8	0.0020	No
08/16/2016	Upwind - 17	23.8	0.0020	No
08/16/2016	Downwind - 22	24.3	0.0020	No
08/17/2016	Upwind - 17	23.8	0.0020	No
08/17/2016	Downwind - 22	23.8	0.0020	No
08/18/2016	Upwind - 17	24.0	0.0020	No
08/18/2016	Downwind - 22	24.1	0.0020	No
08/19/2016	Upwind - 17	24.1	0.0020	No
08/19/2016	Downwind - 22	24.0	0.0020	No
08/20/2016	Upwind - 17	5.7	0.0080	No
08/20/2016	Downwind - 22	5.7	0.0080	No
08/22/2016	Upwind - 17	24.5	0.0020	No
08/22/2016	Downwind - 22	24.0	0.0020	No
08/23/2016	Upwind - 17	23.6	0.0020	No
08/23/2016	Downwind - 22	24.0	0.0020	No
08/24/2016	Upwind - 17	24.2	0.0020	No
08/24/2016	Downwind - 22	23.6	0.0020	No
08/25/2016	Upwind - 17	23.9	0.0020	No
08/25/2016	Downwind - 22	23.9	0.0020	No
08/26/2016	Upwind - 17	23.9	0.0020	No

Table 4
Asbestos Monitoring Results

Sample Date	Sample Location	Sampling Period (hours)	Asbestos (fibers/cm^3)	Asbestos Exceedance? (Yes/No)
08/26/2016	Downwind - 22	24.5	0.0020	No
08/27/2016	Upwind - 17	5.2	0.0090	No
08/27/2016	Downwind - 22	5.1	0.0090	No
08/29/2016	Upwind - 17	23.9	Note 2	Note 2
08/29/2016	Downwind - 22	23.9	0.0020	No
08/30/2016	Upwind - 17	24.0	0.0020	No
08/30/2016	Downwind - 22	24.0	0.0020	No
08/31/2016	Upwind - 17	24.0	0.0020	No
08/31/2016	Downwind - 22	24.0	0.0020	No
09/01/2016	Upwind - 17	24.0	0.0020	No
09/01/2016	Downwind - 22	24.0	0.0020	No
09/02/2016	Upwind - 17	24.0	0.0020	No
09/02/2016	Downwind - 22	24.0	0.0020	No
09/06/2016	Upwind - 17	23.5	0.0020	No
09/06/2016	Downwind - 22	23.5	0.0020	No
09/07/2016	Upwind - 17	24.8	0.0020	No
09/07/2016	Downwind - 22	25.0	0.0020	No
09/08/2016	Upwind - 17	23.9	0.0020	No
09/08/2016	Downwind - 22	24.0	0.0020	No
09/09/2016	Upwind - 17	8.0	0.0060	No
09/09/2016	Downwind - 22	7.2	0.0060	No
09/12/2016	Upwind - 17	24.0	0.0020	No
09/12/2016	Downwind - 22	24.8	0.0020	No
09/13/2016	Upwind - 17	24.1	0.0020	No
09/13/2016	Downwind - 22	23.3	0.0020	No
09/14/2016	Upwind - 17	23.8	0.0020	No
09/14/2016	Downwind - 22	24.5	0.0020	No
09/15/2016	Upwind - 17	25.2	0.0020	No
09/15/2016	Downwind - 22	24.9	0.0020	No
09/16/2016	Upwind - 17	6.8	0.0070	No
09/16/2016	Downwind - 22	6.2	0.0070	No
09/19/2016	Upwind - 17	24.0	0.0020	No
09/19/2016	Downwind - 22	24.0	0.0020	No
09/20/2016	Upwind - 17	24.1	0.0020	No
09/20/2016	Downwind - 22	24.1	0.0020	No
09/21/2016	Upwind - 17	24.0	0.0020	No
09/21/2016	Downwind - 22	24.0	0.0020	No

Table 4
Asbestos Monitoring Results

Sample Date	Sample Location	Sampling Period (hours)	Asbestos (fibers/cm^3)	Asbestos Exceedance? (Yes/No)
09/22/2016	Upwind - 17	23.9	0.0020	No
09/22/2016	Downwind - 22	24.5	0.0020	No
09/23/2016	Upwind - 17	8.0	0.0060	No
09/23/2016	Downwind - 22	7.6	0.0060	No
09/26/2016	Upwind - 17	24.4	0.0020	No
09/26/2016	Downwind - 22	24.4	0.0020	No
09/27/2016	Upwind - 17	23.5	0.0020	No
09/27/2016	Downwind - 22	23.7	0.0020	No
09/28/2016	Upwind - 17	24.8	0.0020	No
09/28/2016	Downwind - 22	23.8	0.0020	No
09/29/2016	Upwind - 17	24.0	0.0020	No
09/29/2016	Downwind - 22	24.0	0.0020	No
09/30/2016	Upwind - 17	7.4	0.0060	No
09/30/2016	Downwind - 22	8.0	0.0060	No
10/03/2016	Upwind - 17	0.0	Note 3	Note 3
10/03/2016	Downwind - 22	0.0	Note 3	Note 3
10/04/2016	Upwind - 17	22.9	0.0020	No
10/04/2016	Downwind - 22	23.7	0.0020	No
10/05/2016	Upwind - 17	24.1	0.0020	No
10/05/2016	Downwind - 22	24.1	0.0020	No
10/06/2016	Upwind - 17	24.2	0.0020	No
10/06/2016	Downwind - 22	23.7	0.0020	No
10/07/2016	Upwind - 17	7.8	0.0060	No
10/07/2016	Downwind - 22	8.0	0.0060	No
10/10/2016	Upwind - 17	25.3	0.0020	No
10/10/2016	Downwind - 22	24.8	0.0020	No
10/11/2016	Upwind - 17	23.5	0.0020	No
10/11/2016	Downwind - 22	23.5	0.0020	No
10/12/2016	Upwind - 17	24.2	0.0020	No
10/12/2016	Downwind - 22	24.1	0.0020	No
10/13/2016	Upwind - 17	6.8	0.0070	No
10/13/2016	Downwind - 22	7.2	0.0060	No
10/14/2016	Upwind - 17	0.0	Note 3	Note 3
10/14/2016	Downwind - 22	0.0	Note 3	Note 3
10/17/2016	Upwind - 17	0.0	Note 3	Note 3
10/17/2016	Downwind - 22	0.0	Note 3	Note 3
10/18/2016	Upwind - 17	23.6	0.0020	No

Table 4
Asbestos Monitoring Results

Sample Date	Sample Location	Sampling Period (hours)	Asbestos (fibers/cm^3)	Asbestos Exceedance? (Yes/No)
10/18/2016	Downwind - 22	24.5	0.0020	No
10/19/2016	Upwind - 17	23.7	0.0020	No
10/19/2016	Downwind - 22	23.8	0.0020	No
10/20/2016	Upwind - 17	24.0	0.0020	No
10/20/2016	Downwind - 22	24.0	0.0020	No
10/21/2016	Upwind - 17	9.8	0.0050	No
10/21/2016	Downwind - 22	9.8	0.0050	No
10/24/2016	Upwind - 17	24.6	0.0020	No
10/24/2016	Downwind - 22	24.6	0.0020	No
10/25/2016	Upwind - 17	0.0	Note 3	Note 3
10/25/2016	Downwind - 22	0.0	Note 3	Note 3
10/26/2016	Upwind - 17	24.1	0.0020	No
10/26/2016	Downwind - 22	24.1	0.0020	No
10/27/2016	Upwind - 17	0.0	Note 3	Note 3
10/27/2016	Downwind - 22	0.0	Note 3	Note 3
10/28/2016	Upwind - 17	0.0	Note 3	Note 3
10/28/2016	Downwind - 22	0.0	Note 3	Note 3
10/31/2016	Upwind - 17	0.0	Note 3	Note 3
10/31/2016	Downwind - 22	0.0	Note 3	Note 3
11/01/2016	Upwind - 17	0.0	Note 3	Note 3
11/01/2016	Downwind - 22	0.0	Note 3	Note 3
11/02/2016	Upwind - 17	0.0	Note 3	Note 3
11/02/2016	Downwind - 22	0.0	Note 3	Note 3
11/03/2016	Upwind - 17	0.0	Note 3	Note 3
11/03/2016	Downwind - 22	0.0	Note 3	Note 3
11/04/2016	Upwind - 17	0.0	Note 3	Note 3
11/04/2016	Downwind - 22	0.0	Note 3	Note 3
11/07/2016	Upwind - 17	26.5	0.0020	No
11/07/2016	Downwind - 22	26.6	Note 1	Note 1
11/08/2016	Upwind - 17	21.0	0.0020	No
11/08/2016	Downwind - 22	20.8	0.0020	No
11/09/2016	Upwind - 17	23.9	0.0020	No
11/09/2016	Downwind - 22	24.0	0.0020	No
11/10/2016	Upwind - 17	23.9	0.0020	No
11/10/2016	Downwind - 22	24.5	0.0020	No
11/11/2016	Upwind - 17	7.7	0.0060	No
11/11/2016	Downwind - 22	7.6	0.0060	No

Table 4
Asbestos Monitoring Results

Sample Date	Sample Location	Sampling Period (hours)	Asbestos (fibers/cm^3)	Asbestos Exceedance? (Yes/No)
11/14/2016	Upwind - 17	23.7	0.0020	No
11/14/2016	Downwind - 22	23.8	0.0020	No
11/15/2016	Upwind - 17	23.6	0.0020	No
11/15/2016	Downwind - 22	24.1	0.0020	No
11/16/2016	Upwind - 17	24.3	0.0020	No
11/16/2016	Downwind - 22	23.8	0.0020	No
11/17/2016	Upwind - 17	23.9	0.0020	No
11/17/2016	Downwind - 22	24.8	0.0020	No
11/18/2016	Upwind - 17	9.8	0.0050	No
11/18/2016	Downwind - 22	9.2	0.0050	No
11/21/2016	Upwind - 17	0.0	Note 3	Note 3
11/21/2016	Downwind - 22	0.0	Note 3	Note 3
11/22/2016	Upwind - 17	0.0	Note 3	Note 3
11/22/2016	Downwind - 22	0.0	Note 3	Note 3
11/23/2016	Upwind - 17	0.0	Note 3	Note 3
11/23/2016	Downwind - 22	0.0	Note 3	Note 3
11/24/2016	Upwind - 17	0.0	Note 4	Note 4
11/24/2016	Downwind - 22	0.0	Note 4	Note 4
11/25/2016	Upwind - 17	0.0	Note 4	Note 4
11/25/2016	Downwind - 22	0.0	Note 4	Note 4
11/28/2016	Upwind - 17	0.0	Note 4	Note 4
11/28/2016	Downwind - 22	0.0	Note 4	Note 4
11/29/2016	Upwind - 17	24.5	0.0020	No
11/29/2016	Downwind - 22	23.4	0.0020	No
11/30/2016	Upwind - 17	24.5	0.0020	No
11/30/2016	Downwind - 22	24.8	0.0020	No
12/01/2016	Upwind - 17	24.0	0.0020	No
12/01/2016	Downwind - 22	24.0	0.0020	No
12/02/2016	Upwind - 17	8.5	0.0050	No
12/02/2016	Downwind - 22	8.5	0.0050	No
12/05/2016	Upwind - 17	25.5	0.0020	No
12/05/2016	Downwind - 22	25.0	0.0020	No
12/06/2016	Upwind - 17	0.0	Note 3	Note 3
12/06/2016	Downwind - 22	0.0	Note 3	Note 3
12/07/2016	Upwind - 17	0.0	Note 3	Note 3
12/07/2016	Downwind - 22	0.0	Note 3	Note 3
12/08/2016	Upwind - 17	0.0	Note 3	Note 3

Table 4
Asbestos Monitoring Results

Sample Date	Sample Location	Sampling Period (hours)	Asbestos (fibers/cm^3)	Asbestos Exceedance? (Yes/No)
12/08/2016	Downwind - 22	0.0	Note 3	Note 3
12/09/2016	Upwind - 17	0.0	Note 3	Note 3
12/09/2016	Downwind - 22	0.0	Note 3	Note 3
12/12/2016	Upwind - 17	0.0	Note 3	Note 3
12/12/2016	Downwind - 22	0.0	Note 3	Note 3
12/13/2016	Upwind - 17	0.0	Note 3	Note 3
12/13/2016	Downwind - 22	0.0	Note 3	Note 3
12/14/2016	Upwind - 17	0.0	Note 3	Note 3
12/14/2016	Downwind - 22	0.0	Note 3	Note 3
12/15/2016	Upwind - 17	0.0	Note 3	Note 3
12/15/2016	Downwind - 22	0.0	Note 3	Note 3
12/16/2016	Upwind - 17	0.0	Note 3	Note 3
12/16/2016	Downwind - 22	0.0	Note 3	Note 3
12/19/2016	Upwind - 17	25.0	0.0020	No
12/19/2016	Downwind - 22	25.0	0.0020	No
12/20/2016	Upwind - 17	25.1	0.0020	No
12/20/2016	Downwind - 22	25.1	0.0020	No
12/21/2016	Upwind - 17	24.4	0.0020	No
12/21/2016	Downwind - 22	24.4	0.0020	No
12/22/2016	Upwind - 17	4.3	0.0110	No
12/22/2016	Downwind - 22	4.4	0.0100	No

Notes:

Sample locations are shown on Figure 1.

The threshold value for asbestos is 0.1 fibers/cm^3.

The detection limit is 0.003 fibers/cm^3 assuming a minimum sample volume of 900 liters.

fibers/cm^3 - fibers per cubic centimeter

N/A - not applicable

Note 1 - Sample was reported by laboratory to be "Overloaded"; a sample result was not reported.
Note 2 - Sample filter was reported by laboratory to be "Damaged"; a sample result was not reported.

Note 3 - Sample not collected due to inclement conditions: Rain.

Note 4 - Samples were not collected as project site was closed for holidays.

Appendix E
Photograph Log

PHOTOGRAPH LOG

Photograph 1 – Best Management Practices (BMPs) installed along Manseau Street swale, facing west - June 13, 2016

Photograph 2 – Security fence installed along Manseau Street, facing west – June 13, 2016

PHOTOGRAPH LOG

Photograph 3 – Air monitoring equipment installed at South Pier – June 15, 2016

Photograph 4 – Seawall requiring repair, Berth 15, Gun Mole Pier – June 16, 2016

PHOTOGRAPH LOG

Photograph 5 – Stockpiling green waste near Buildings 368 and 369 – June 17, 2016

Photograph 6 – Installing turbidity curtain at Berth 15 – June 22, 2016

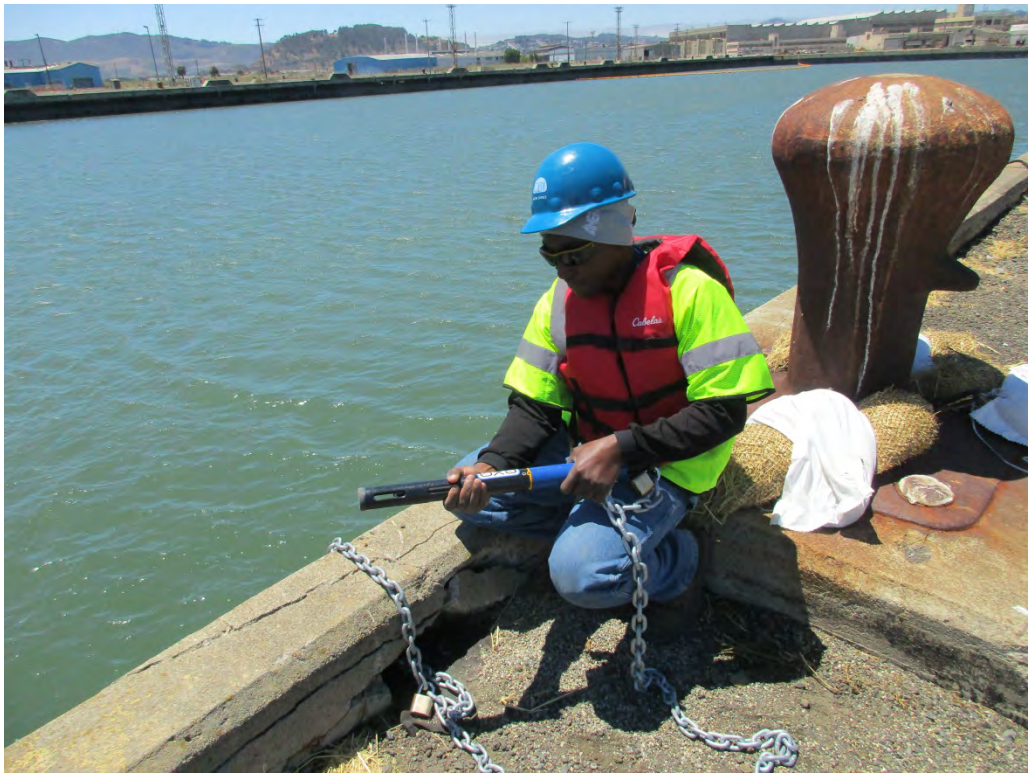
PHOTOGRAPH LOG

Photograph 7 – Turbidity curtain in place along Berth 15 – June 22, 2016

Photograph 8 – Performing foundation crack repair in Building 369 – June 24, 2016

PHOTOGRAPH LOG

Photograph 9 – Installing turbidity curtain at Berth 17, Gun Mole Pier – June 24, 2016



Photograph 10 – Installing water quality monitor at Berth 12, South Pier – June 27, 2016

PHOTOGRAPH LOG

Photograph 11 – Dust suppression at South Pier – June 27, 2016

Photograph 12 – Removing metal piping and debris at Berth 15, Gun Mole Pier – June 28., 2016

Photograph 13 – Compacting subgrade layer in 1-foot lifts, South Pier – June 29, 2016

Photograph 14 – Removing concrete debris at Berth 19, Gun Mole Pier – June 29, 2016

Photograph 15 – Placing rumble strips and tire cleaning gravel at site entrance – June 30, 2016

Photograph 16 – Preparing for gabion basket installation, Gun Mole Pier – July 6, 2016

Photograph 17 – Relocating metal debris, Gun Mole Pier – July 6, 2016

Photograph 18 – Grading and compacting subgrade, South Pier – July 7, 2016

Photograph 19 – Confirming monitoring well coordinates – July 7, 2016

Photograph 20 – Backfilling and compacting utility trench, South Pier – July 11, 2016

Photograph 21 – Demolishing damaged concrete structure at Berth 19, Gun Mole Pier – July 11, 2016

Photograph 22 – Covering utility trenches with filter fabric, South Pier – July 12, 2016

Photograph 23 – Placing rip rap at Berth 17, Gun Mole Pier – July 13, 2016

Photograph 24 – Street sweeping Manseau Street – July 14, 2016

Photograph 25 – Backfilling trenches, Building 274 – July 15, 2016

Photograph 26 – Unloading rip rap, Gun Mole Pier – July 15, 2016

Photograph 27 – Operators setting grade stakes, South Pier – July 19, 2016

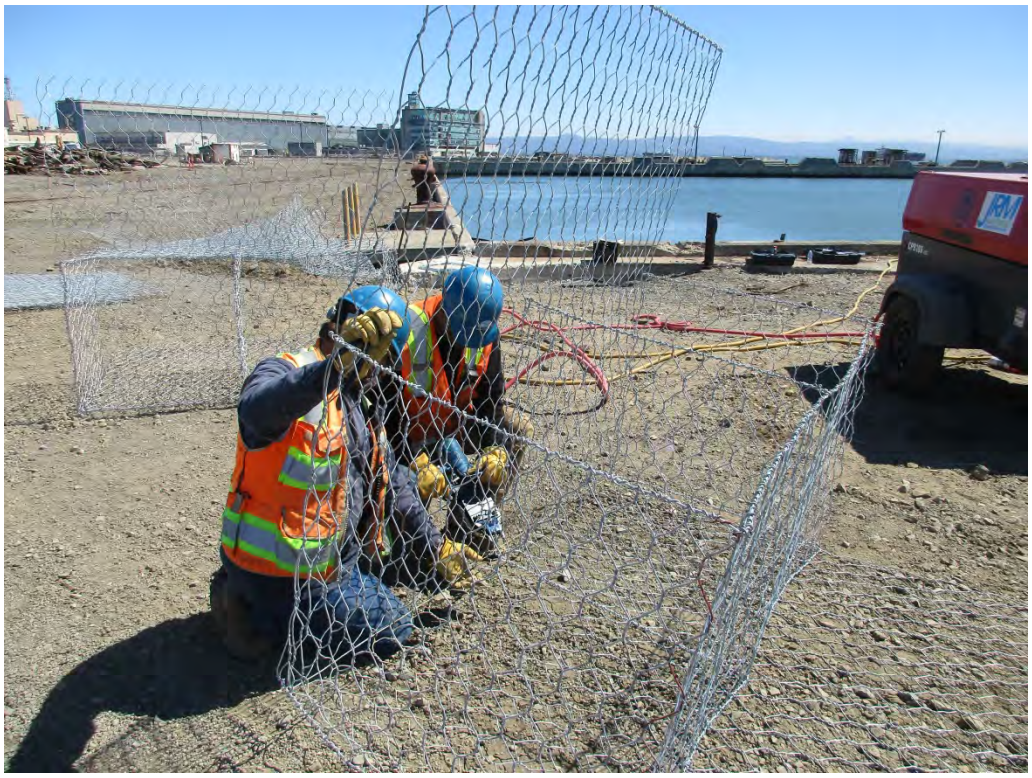
Photograph 28 – Placing filter fabric at Berth 17, Gun Mole Pier – July 20, 2016

Photograph 29 – Filling gabion baskets with rock at Berth 15, Gun Mole Pier – July 20, 2016

Photograph 30 – Placing rock in gabion baskets, Gun Mole Pier – July 25, 2016

Photograph 31 – Closing gabion baskets, Gun Mole Pier – July 27, 2016

Photograph 32 – Preparing surface for gabion baskets, Gun Mole Pier – July 28, 2016



Photograph 33 – Assembling gabion baskets, Gun Mole Pier – July 29, 2016

Photograph 34 – Placing steel covers on utility openings, South Pier – August 2, 2016

Photograph 35 – Securing utility opening cover, South Pier – August 4, 2016

Photograph 36 – Grading and compacting, Gun Mole Pier – August 5, 2016

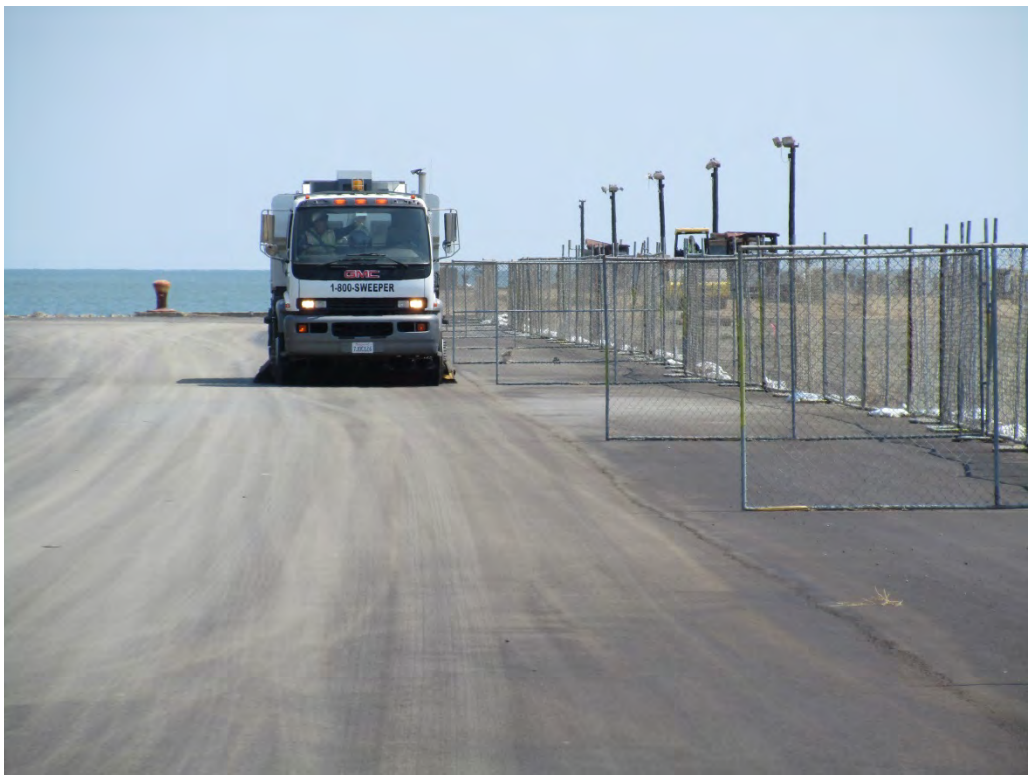
Photograph 37 – Compacting backfill in 1-foot lifts, Gun Mole Pier – August 8, 2016

Photograph 38 – Grading and compacting, Gun Mole Pier – August 8, 2016

Photograph 39 – Checking grade, Gun Mole Pier – August 8, 2016

Photograph 40 – Removing gravel and filter fabric, Manseau Street swale – August 11, 2016

Photograph 41 – Surveying grade, north triangle area between Morrell and E Streets – August 11, 2016



Photograph 42 – Sweeping E Street – August 18, 2016

Photograph 43 – Compacting backfill behind gabion baskets, Gun Mole Pier – August 20, 2016

Photograph 44 – Installing gabion baskets, Gun Mole Pier – August 20, 2016

Photograph 45 – Compaction testing of subgrade, South Pier – August 22, 2016

Photograph 46 – Installing and sealing gabion baskets, Gun Mole Pier – August 24, 2016

Photograph 47 – Loading import soil into dump truck, Brisbane – August 31, 2016

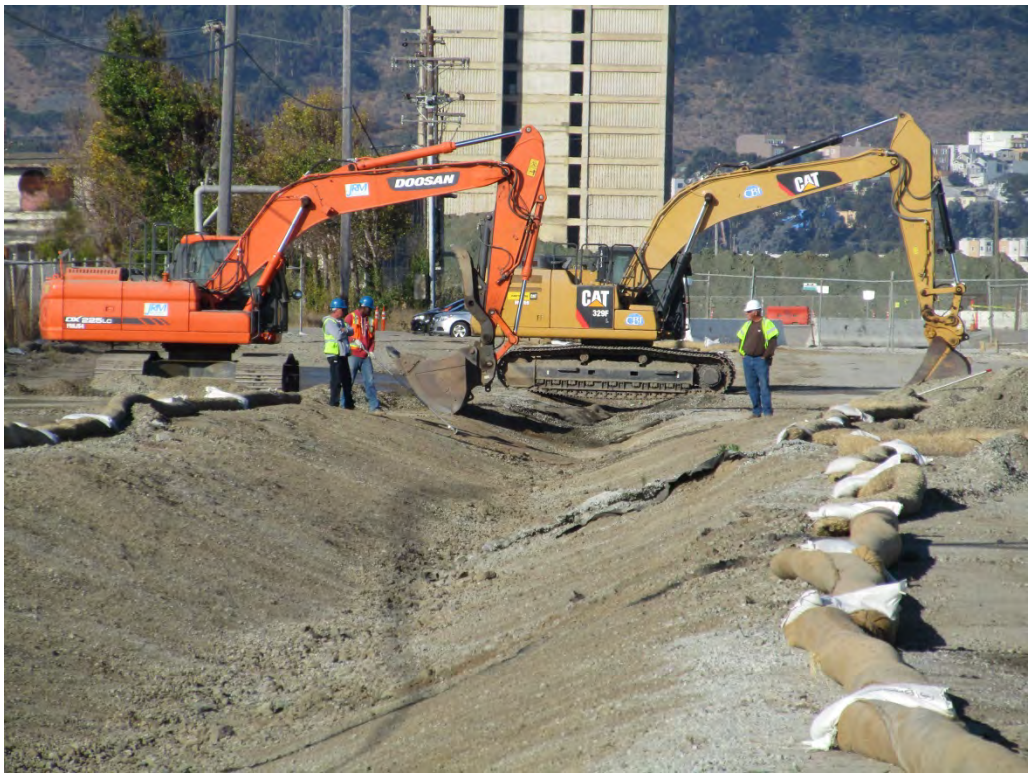
Photograph 48 – Unloading import fill soil, Building 308 – August 31, 2016

Photograph 49 – Placing rip rap at Berth 19, Gun Mole Pier – September 6, 2016

Photograph 50 – Removing concrete vault, South Pier – September 12, 2016

Photograph 51 – Sand cone density testing, North Triangle – September 13, 2016

Photograph 52 – Surveying subgrade, North Triangle – September 13, 2016



Photograph 53 – Preparing subgrade, Manseau Street swale – September 20, 2016

Photograph 54 – Chemist retrieving aggregate base for testing, Brisbane – September 21, 2016

Photograph 55 – Preparing concrete form, Building 308 – September 28, 2016

Photograph 56 – Concrete form, former Building 384 foundation, Gun Mole Pier – September 28, 2016

Photograph 57 – Concrete form, former Building 384 foundation, Gun Mole Pier – September 28, 2016

Photograph 58 – Pouring concrete, Building 306 – October 3, 2016

Photograph 59 – Finishing concrete, former Building 384 foundation, Gun Mole Pier – October 3, 2016

Photograph 60 – Finishing concrete, former Building 384 foundation, Gun Mole Pier – October 3, 2016

Photograph 61 – Performing crack repair, Building 306 – October 4, 2016

Photograph 62 – Finishing concrete, Building 274 – October 7, 2016

Photograph 63 – Performing interim survey, E Street – October 7, 2016

Photograph 64 – Repairing foundation crack, Building 369 – October 10, 2016

Photograph 65 – Grading aggregate base layer, North Triangle – October 10, 2016

Photograph 66 – Repairing foundation crack, Building 368 – October 11, 2016

Photograph 67 – Receiving aggregate base, North Triangle – October 12, 2016

Photograph 68 – Compacting aggregate base, North Triangle – October 13, 2016

Photograph 69 – Compacting aggregate base, South Pier – October 13, 2016

Photograph 70 – Unloading aggregate base, North Triangle – October 18, 2016

Photograph 71 – Removing turbidity curtain, Gun Mole Pier – October 27, 2016

Photograph 72 – Grading aggregate base layer, Gun Mole Pier – November 7, 2016

Photograph 73 – Grading aggregate base layer, Gun Mole Pier – November 7, 2016

Photograph 74 – Grading aggregate base layer, Gun Mole Pier – November 10, 2016

Photograph 75 – Rolling asphalt, Gun Mole Pier – November 29, 2016

Photograph 76 – Staging asphalt dump trucks, Gun Mole Pier – November 29, 2016

Photograph 77 – Unloading asphalt into spreader, Gun Mole Pier, November 29, 2016

Photograph 78 – Unloading asphalt into spreader, Gun Mole Pier – November 29, 2016

Photograph 79 – Drilling asphalt cores, Gun Mole Pier – November 30, 2016

Photograph 80 – Steamrolling asphalt, North Triangle – December 1, 2016

Photograph 81 – Collecting loose asphalt sample, North Triangle – December 19, 2016

Photograph 82 – Testing asphalt density, North Triangle – December 19, 2016

Photograph 83 – Collecting asphalt core samples, North Triangle – December 20, 2016

Photograph 84 – Steamrolling asphalt, North Triangle – December 21, 2016

Photograph 85 – Asphalt core hole filled with hot mix asphalt, North Triangle – December 28, 2016

Photograph 86 – Exposing buried monitoring well for well extension – January 12, 2017

Photograph 87 – Pouring concrete around extended monitoring well, North Triangle – January 12, 2017

Photograph 88 – Completed extended monitoring well, North Triangle – January 17, 2017

Photograph 89 – Augering fence post holes, E Street – January 17, 2017

Photograph 90 – Completed permanent survey monument, North Triangle – January 27, 2017

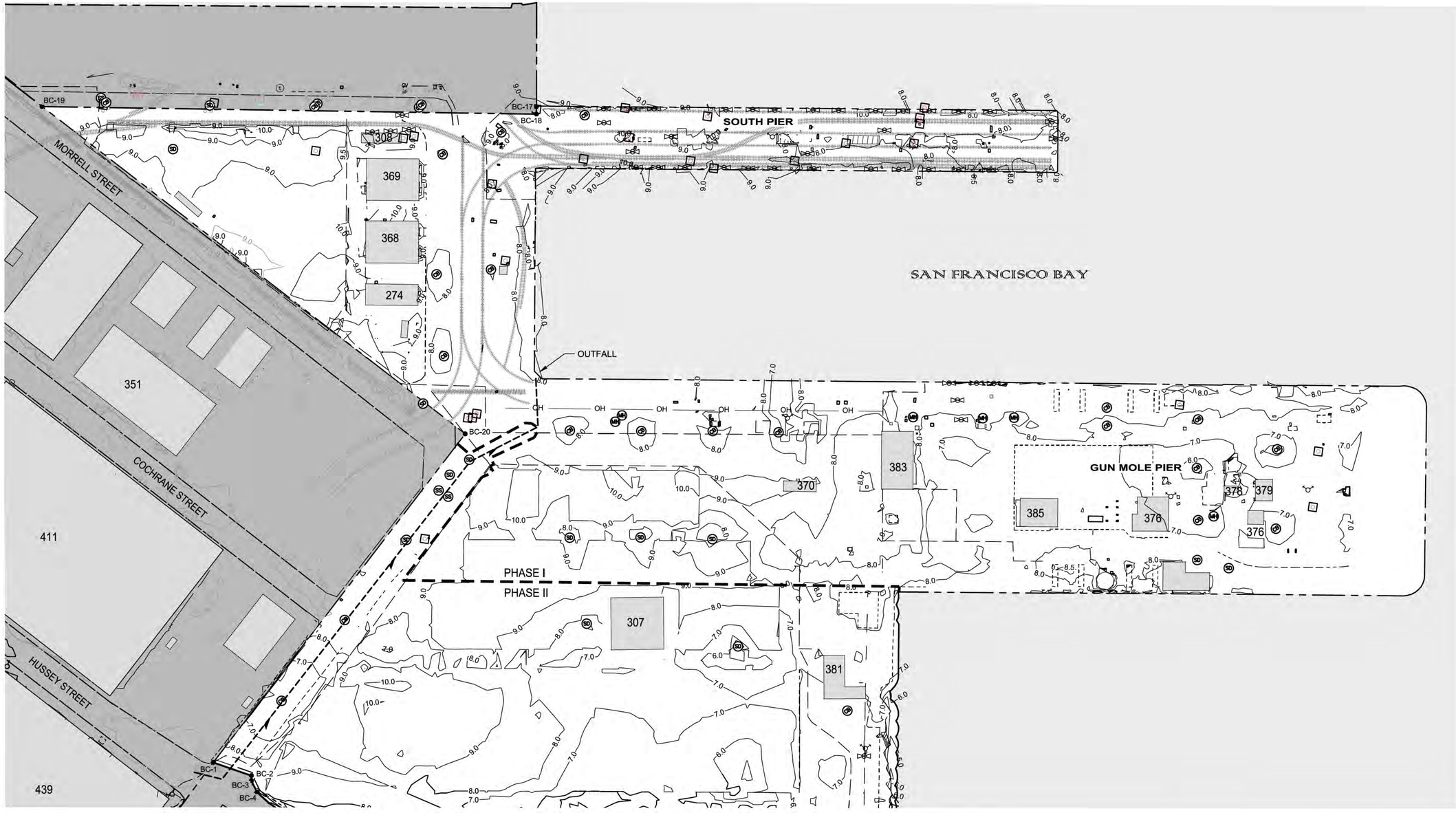
Photograph 91 – Fence install complete, Morrell Street – January 30, 2017

Photograph 92 – Fence installed around stabilized area, Gun Mole Pier – February 1, 2017

Photograph 93 – Entrance sign, E Street – February 3, 2017

Photograph 94 – Warning sign installed along fence, E Street – February 3, 2017

Appendix F
Construction As-Builts



PARCEL BOUNDARY CONTROL POINTS					
POINT ID	EASTING	NORTHING	POINT ID	EASTING	NORTHING
BC-1	1460326.00	450138.69	BC-17	1461577.95	450770.48
BC-2	1460369.00	450074.59	BC-18	1461569.66	450759.04
BC-3	1460363.38	450066.91	BC-19	1460820.71	451341.70
BC-4	1460358.75	450042.25	BC-20	1461091.30	450351.22

BASIS OF BEARINGS AND ELEVATION

HORIZONTAL: NAD 1927 ZONE-III (HUNTERS POINT WEST 1 PID HT0613) USFT.
VERTICAL : NGVD 29

LEGEND

- PARCEL BOUNDARY
- SAN FRANCISCO BAY
- EXISTING CONTOUR (1 FT)
- EXISTING FENCE
- RAILROAD TRACK
- OH — OVERHEAD ELECTRICAL LINE
- ASPHALT / CONCRETE EDGE
- CONCRETE PAD
- 369 — EXISTING BUILDING
- MH — MANHOLE
- SS — SANITARY SEWER
- SD — STORM DRAIN
- CB — CATCH BASIN
- WATER VALVE
- FIRE HYDRANT
- UTILITY FEATURES
- •BC-1 — PARCEL BOUNDARY CONTROL POINT
- STORM DRAIN AND FLOW DIRECTION

100' 0 100' 200'

SCALE: 1" = 100'

SYMBOL	DESCRIPTION	PREP BY	DATE	APPROVED

REVISIONS

PREPARED BY: APTIM

DESIGNED BY:
DRAWN BY:
CHECKED BY:
RE-CHECKED BY:
APPROVED BY:
DATE: 10/10/17

SIZE D
IF SHEET IS LESS THAN 22" X 34" IT IS A REDUCED PRINT
SCALE REDUCED ACCORDINGLY

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND
BRAC PMO WEST
SAN DIEGO, CALIFORNIA

PARCEL D-1 DURABLE COVER PRE-EXISTING SITE PLAN

FILE NO: 149831-D6
DWG. NO.
C1
SHEET 2 OF 7

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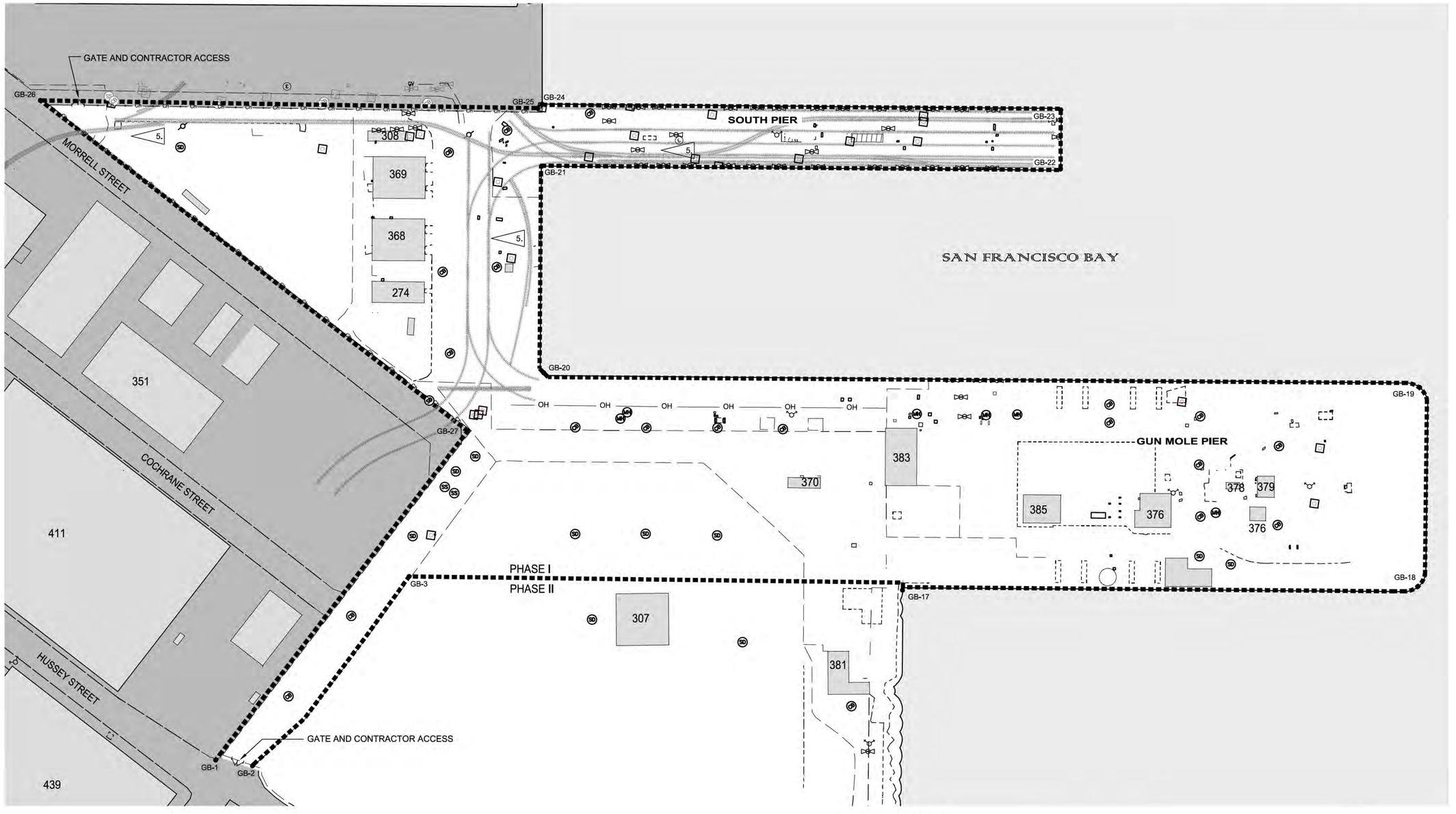

CLEARING AND GRUBBING CONTROL POINTS					
POINT ID	EASTING	NORTHING	POINT ID	EASTING	NORTHING
GB-1	1460315.52	450140.79	GB-21	1461506.41	450676.78
GB-2	1460365.57	450089.23	GB-22	1462302.76	450069.87
GB-3	1460826.35	450198.88	GB-23	1462371.62	450160.56
GB-17	1461570.63	449605.00	GB-24	1461579.38	450771.56
GB-18	1462368.83	449012.39	GB-25	1461568.23	450770.29
GB-19	1462602.50	449316.66	GB-26	1460810.61	451359.69
GB-20	1461270.10	450355.94	GB-27	1461085.16	450354.71

Notes:

1. AS NECESSARY, ALL FENCING, CURBING, DEBRIS, REFUSE, OR OTHER MATERIALS THAT OBSTRUCTED CONSTRUCTION WAS REMOVED PRIOR TO SUBGRADE PREPARATION.
2. OPEN UTILITY VAULTS THAT COULD NOT BE FILLED WITH IMPORT MATERIAL WERE SEALED PRIOR TO SUBGRADE PREPARATION.
3. OPEN UTILITY VAULTS WERE COVERED WITH STEEL PLATES WHICH WERE WELDED AND SEALED WITH FOAM TO PROVIDE A WATER TIGHT SURFACE.
4. DEBRIS, REFUSE, AND LOOSE OBJECTS WERE REMOVED FROM ALL BUILDINGS.
5. EXISTING RAILROAD TIES WHICH COULD NOT BE COVERED DURING SUBGRADE PREPARATION WERE REMOVED AND DISPOSED OF OFFSITE AS NON-HAZARDOUS SPECIAL WASTE.

LEGEND

- SAN FRANCISCO BAY
- EXISTING FENCE
- RAILROAD TRACK
- OVERHEAD ELECTRICAL LINE
- ASPHALT / CONCRETE EDGE
- CONCRETE PAD
- EXISTING BUILDING
- MANHOLE
- SANITARY SEWER
- STORM DRAIN
- CATCH BASIN
- WATER VALVE
- FIRE HYDRANT
- UTILITY FEATURES
- GB-1 GRUBBING BOUNDARY CONTROL POINT
- APPROXIMATE LIMITS OF CLEARING AND GRUBBING AND DEBRIS REMOVAL
- SITE SECURITY FENCE
- GATE

100' 0 100' 200'

SCALE: 1" = 100'

REVISIONS

SYMBOL	DESCRIPTION	PREP BY	DATE	APPROVED

PREPARED BY: APTIM

RE-CHECKED BY:
APPROVED BY:
DATE: 10/10/17

DESIGNED BY:
DRAWN BY:
CHECKED BY:

SIZE D
IF SHEET IS LESS THAN 22" X 34" IT IS A REDUCED PRINT
SCALE REDUCED ACCORDINGLY

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
BRAC PMO WEST
SAN DIEGO, CALIFORNIA

PARCEL D-1 DURABLE COVER CLEARING, GRUBBING, AND SURFACE DEBRIS REMOVAL

FILE NO: 149831-D7

DWG. NO.
C2

SHEET 3 OF 7

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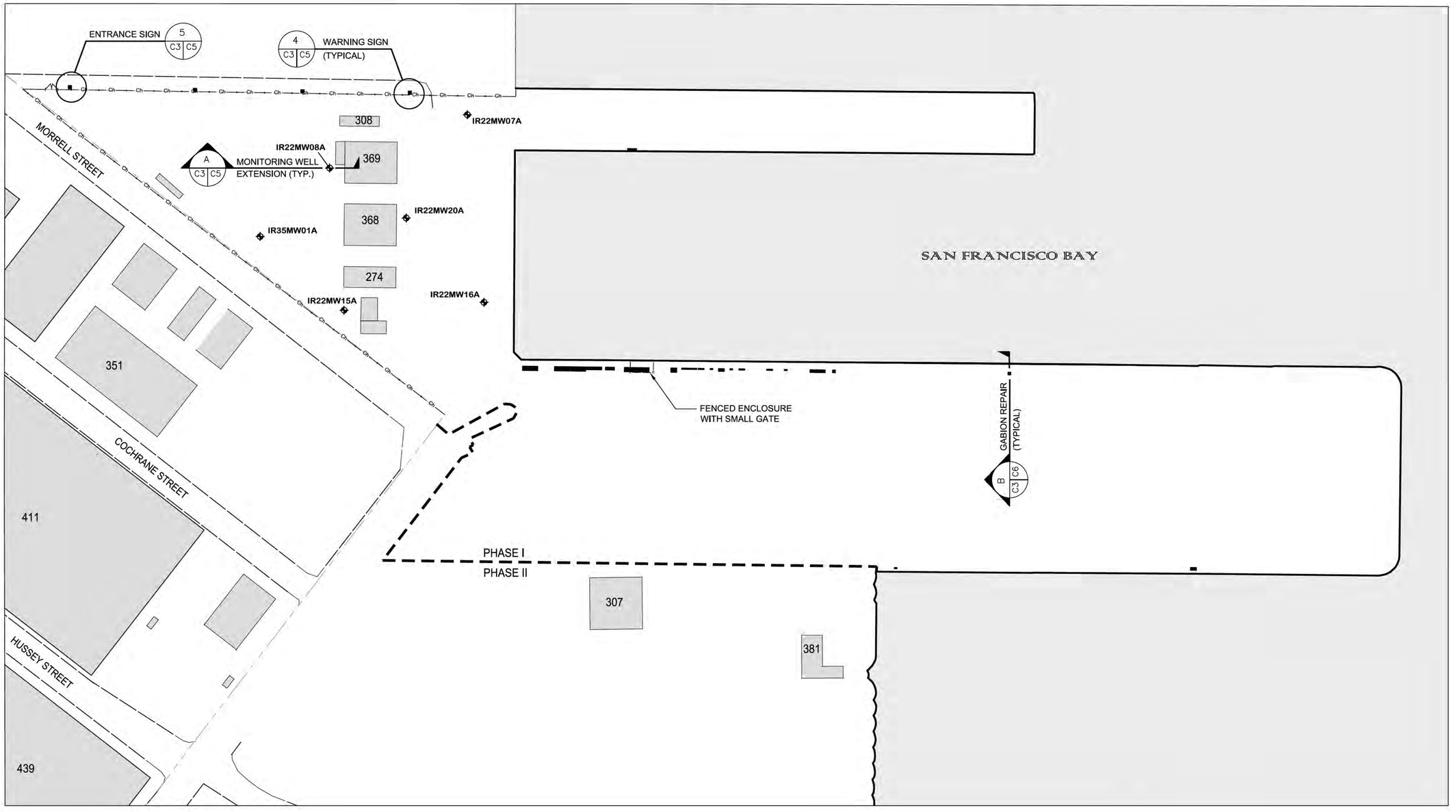

GROUNDWATER MONITORING WELL CONTROL POINTS					
WELL ID	EASTING	NORTHING	WELL ID	EASTING	NORTHING
IR22MW07A	1461474.22	450787.16	IR22MW16A	1461282.12	450478.87
IR22MW08A	1461200.11	450865.00	IR22MW20A	1461260.22	450699.09
IR22MW15A	1461057.43	450629.22	IR35MW01A	1461013.64	450840.09

BASIS OF BEARINGS AND ELEVATION

HORIZONTAL: NAD 1927 ZONE-III (HUNTERS POINT WEST 1 PID HT0613) USFT.
VERTICAL : NGVD 29

LEGEND

- SAN FRANCISCO BAY
- EXISTING BUILDING
- EXISTING MONITORING WELLS
- GABION REPAIR LOCATION
- Ch—Ch SITE SECURITY FENCE
- GATE
- WARNING SIGN

100' 0 100' 200'

SCALE: 1" = 100'

REVISIONS

SYMBOL	DESCRIPTION	PREP BY	DATE	APPROVED

PREPARED BY: APTIM

RE-CHECKED BY:
APPROVED BY:
DATE: 10/10/17

DESIGNED BY:
DRAWN BY:
CHECKED BY:

SIZE D
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SCALE REDUCED ACCORDINGLY

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
BRAC PMO WEST
SAN DIEGO, CALIFORNIA

PARCEL D-1 DURABLE COVER FINAL MONITORING WELLS AND GABION REPAIR LOCATIONS

FILE NO: 149831-D8

DWG. NO.
C3

SHEET 4 OF 7

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GATE 1 C4 C6

F C4 C5 BUIDLING FOUNDATION REPAIR

FENCE 2 C4 C6

3 C4 C6 FENCE POST

DURABLE COVER G C4 C5

SOUTH PIER

SURVEY MONUMENT C C4 C6

SAN FRANCISCO BAY

FINAL GRADE AT BUILDING BUFFER E C4 C5

GUN MOLE PIER

MORRELL STREET

COCHRANE STREET

HUSSEY STREET

351

411

439

369

368

274

306

307

381

384

PHASE I

PHASE II

F C4 C5 [FORMER] BUIDLING FOUNDATION REPAIR

D C4 C6 RIPRAP STABILIZATION (TYPICAL)

LEGEND

- SAN FRANCISCO BAY
- EXISTING BUILDING
- ASPHALT
- RIPRAP STABILIZATION
- ELECTRICAL CONDUIT
- EXISTING MONITORING WELLS
- SITE SECURITY FENCE
- WARNING SIGN
- GATE
- SURVEY MONUMENT

100' 0 100' 200'

SCALE: 1" = 100'

SYMBOL	DESCRIPTION	PREP BY	DATE	APPROVED

REVISIONS

PREPARED BY: APTIM

DESIGNED BY:
DRAWN BY:
CHECKED BY:

RE-CHECKED BY:
APPROVED BY:
DATE: 10/10/17

SIZE D
IF SHEET IS LESS THAN 22" X 34" IT IS A REDUCED PRINT
SCALE REDUCED ACCORDINGLY

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
BRAC PMO WEST
SAN DIEGO, CALIFORNIA

PARCEL D-1 DURABLE COVER FINAL GRADING PLAN

FILE NO: 149831-D9

DWG. NO.
C4

SHEET 5 OF 7

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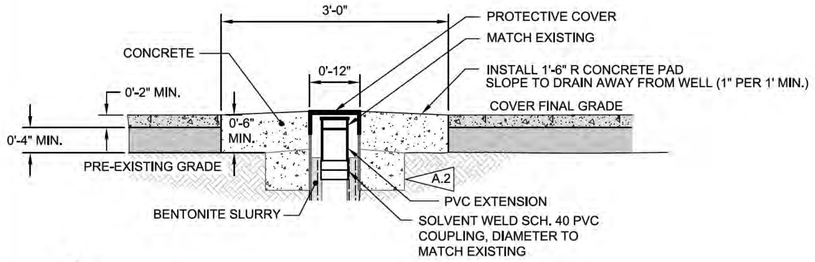


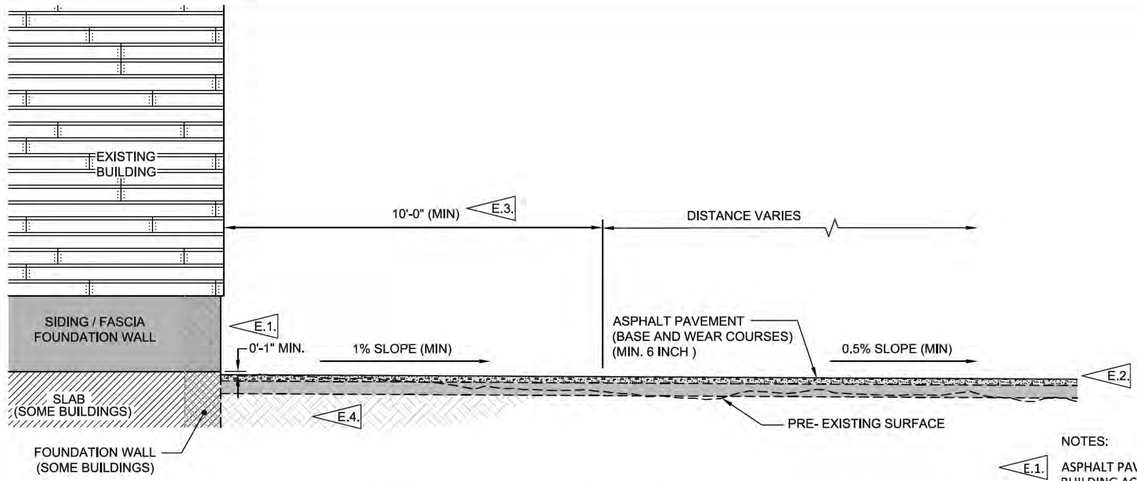
A / C3 C5 FLUSH MOUNTED MONITORING WELL EXTENSION (TYP.)
FOR ALL EXISTING WELLS IRXXMWXX

SCALE: 1" = 1'-0"

NOTE:

A.1. PROTECTED AND EXTENDED ALL MONITORING WELLS.

A.2. CONCRETE PADS AND/OR FLUSH MOUNTED PROTECTIVE CASINGS WERE REMOVED AS NEEDED.



E / C4 C5 FINAL GRADE AT BUILDING BUFFER (TYP)

NOT TO SCALE

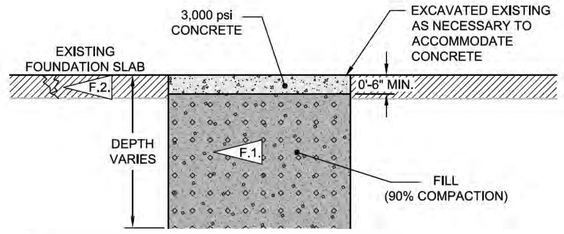
NOTES:

E.1. ASPHALT PAVEMENT DOES NOT OBSTRUCT BUILDING ACCESS. ASPHALT ELEVATION AT LEAST 1 INCH BELOW THE TOP OF FOUNDATION SLAB OR WALL ALONG BUILDING OR ENTRY THRESHOLD.

E.2. MAINTAINED SLOPE AS SHOWN TO EXISTING DRAINAGE FEATURES OR SITE BOUNDARY.

E.3. SLOPE EXTENDED FROM BUILDINGS A MINIMUM OF 10 FEET UNLESS OBSTRUCTED. FOR ADJACENT BUILDINGS LESS THAN 10 FEET DISTANCE, 1% SLOPE DISTANCE WAS SPLIT.

E.4. FILLED AS NEEDED TO ACHIEVE REQUIRED GRADES.

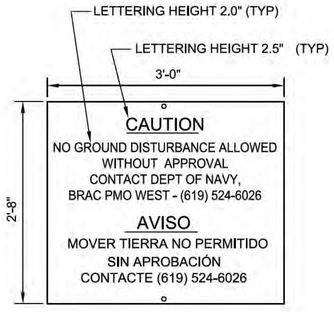


F / C4 C5 REPAIR OF VOIDS AND PREVIOUS EXCAVATIONS WITHIN BUILDING SLABS (TYP.)

NOT TO SCALE

F.1. EXCAVATIONS COMPLETED TO SURFACE WITH A MINIMUM OF 6-INCHES OF CONCRETE TO MATCH SURROUNDING FOUNDATION SLAB.

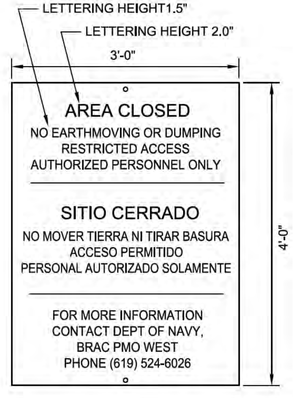
F.2. CRACKS REPAIRED IN FOUNDATION SLABS.



NOTE:
SIGN AFFIXED TO FENCE.

4 / C3 C5 WARNING SIGN (TYP)

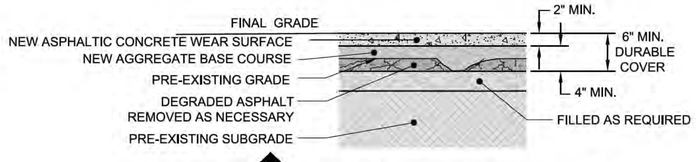
SCALE: 1" = 1'-0"



5 / C3 C5 ENTRANCE SIGN (TYP)

SCALE: 1" = 1'-0"

NOTE:
SIGN AFFIXED TO FENCE BY ENTRY POINTS, WHERE VISIBLE TO ONCOMING VEHICLE AND PEDESTRIAN TRAFFIC.



G / C4 C5 DURABLE COVER CROSS SECTION - NEW CONSTRUCTION(TYP.)

SCALE: 1" = 1'-0"

1' 0 1' 2'

SCALE: 1" = 1'-0"

REVISIONS

SYMBOL	DESCRIPTION	PREP.BY	DATE	APPROVED

PREPARED BY: APTIM

DESIGNED BY:
DRAWN BY:
CHECKED BY:
RE-CHECKED BY:
APPROVED BY:
DATE: 10/10/17

SIZE D
IF SHEET IS LESS THAN 22" X 34" IT IS A REDUCED PRINT
SCALE REDUCED ACCORDINGLY

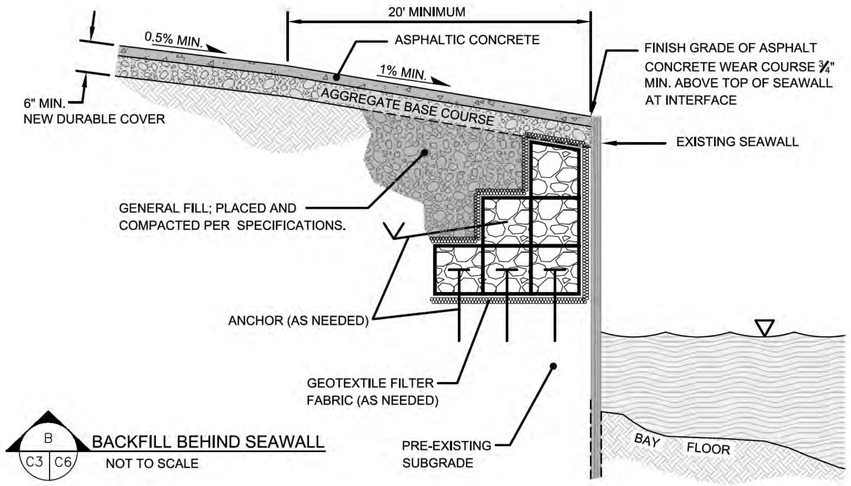
DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
BRAC PMO WEST
SAN DIEGO, CALIFORNIA

PARCEL D-1 DURABLE COVER
DETAILS (1 OF 2)

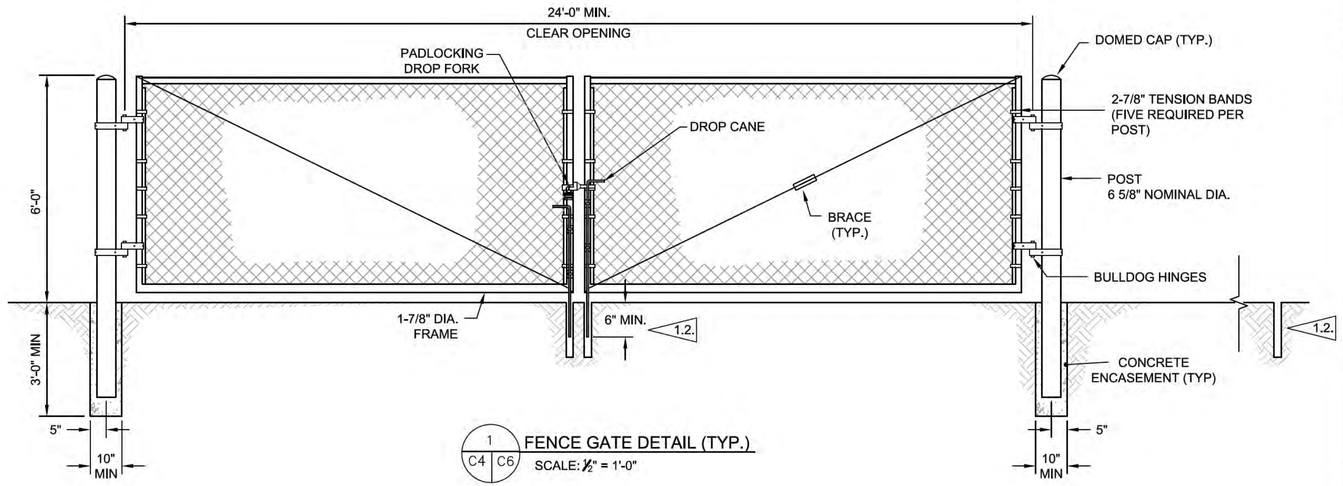
FILE NO: 149831-D10

DWG. NO.
C5

SHEET 6 OF 7



B | C3 | C6 — **BACKFILL BEHIND SEAWALL**
NOT TO SCALE



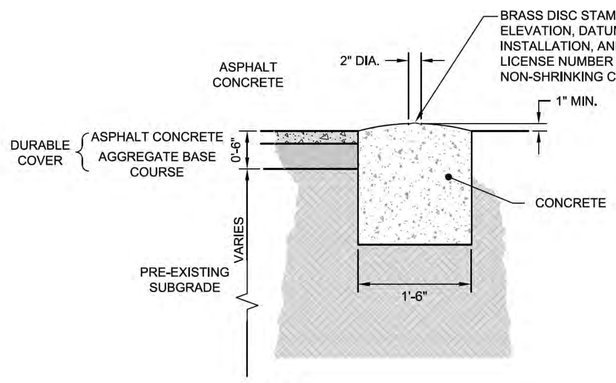
1 | C4 | C6 — **FENCE GATE DETAIL (TYP.)**
SCALE: ½" = 1'-0"

FENCE GATE NOTES:

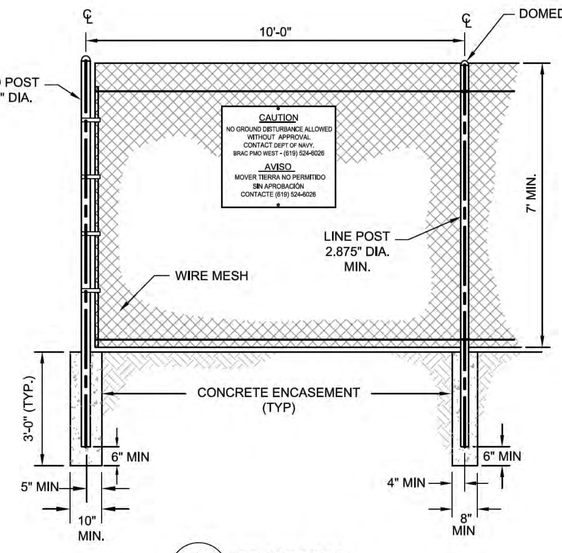
1.1. HINGES OFFSET TO ALLOW GATE TO REST FLUSH TO FENCE WHEN OPENED FULLY OUTWARD.

1.2. CANE RECEIVERS INSTALLED FOR CLOSED AND FULLY OPEN POSITIONS ALL GATES BOTH SIDES.

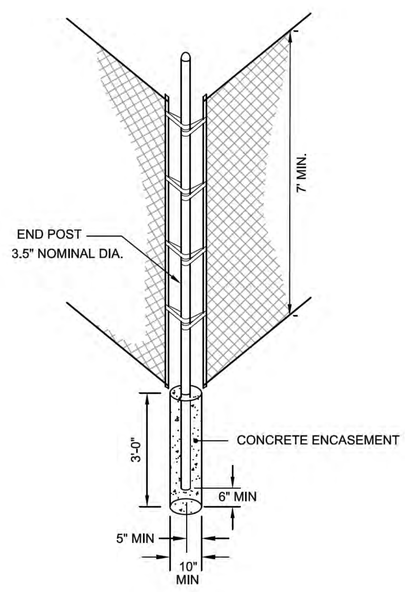
1.3. GALVANIZED STEEL RECEIVER PIPE EMBEDDED 6" DEEPER THAN END OF DROPPED CANE.



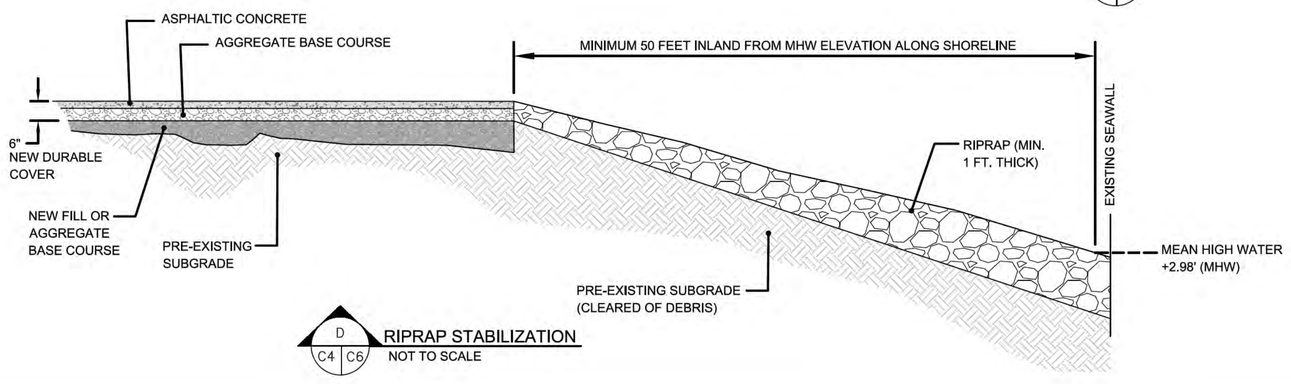
C | C4 | C6 — **MONUMENT (TYP.)**
SCALE: 1" = 1'-0"



2 | C4 | C6 — **FENCE DETAIL**
SCALE: ½" = 1'-0"



3 | C4 | C6 — **FENCE POST DETAIL**
SCALE: ½" = 1'-0"



D | C4 | C6 — **RIPRAP STABILIZATION**
NOT TO SCALE

2' 0 2' 4' — SCALE: 1" = 2'

1' 0 1' 2' — SCALE: 1" = 1'

REVISIONS

SYMBOL	DESCRIPTION	PREP BY	DATE	APPROVED

PREPARED BY: APTIM

RE-CHECKED BY:
APPROVED BY:
DATE: 10/10/17

DESIGNED BY:
DRAWN BY:
CHECKED BY:

SIZE D
IF SHEET IS LESS THAN 22" X 34" IT IS A REDUCED PRINT
SCALE REDUCED ACCORDINGLY

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND
BRAC PMO WEST
SAN DIEGO, CALIFORNIA

PARCEL D-1 DURABLE COVER DETAILS (2 OF 2)

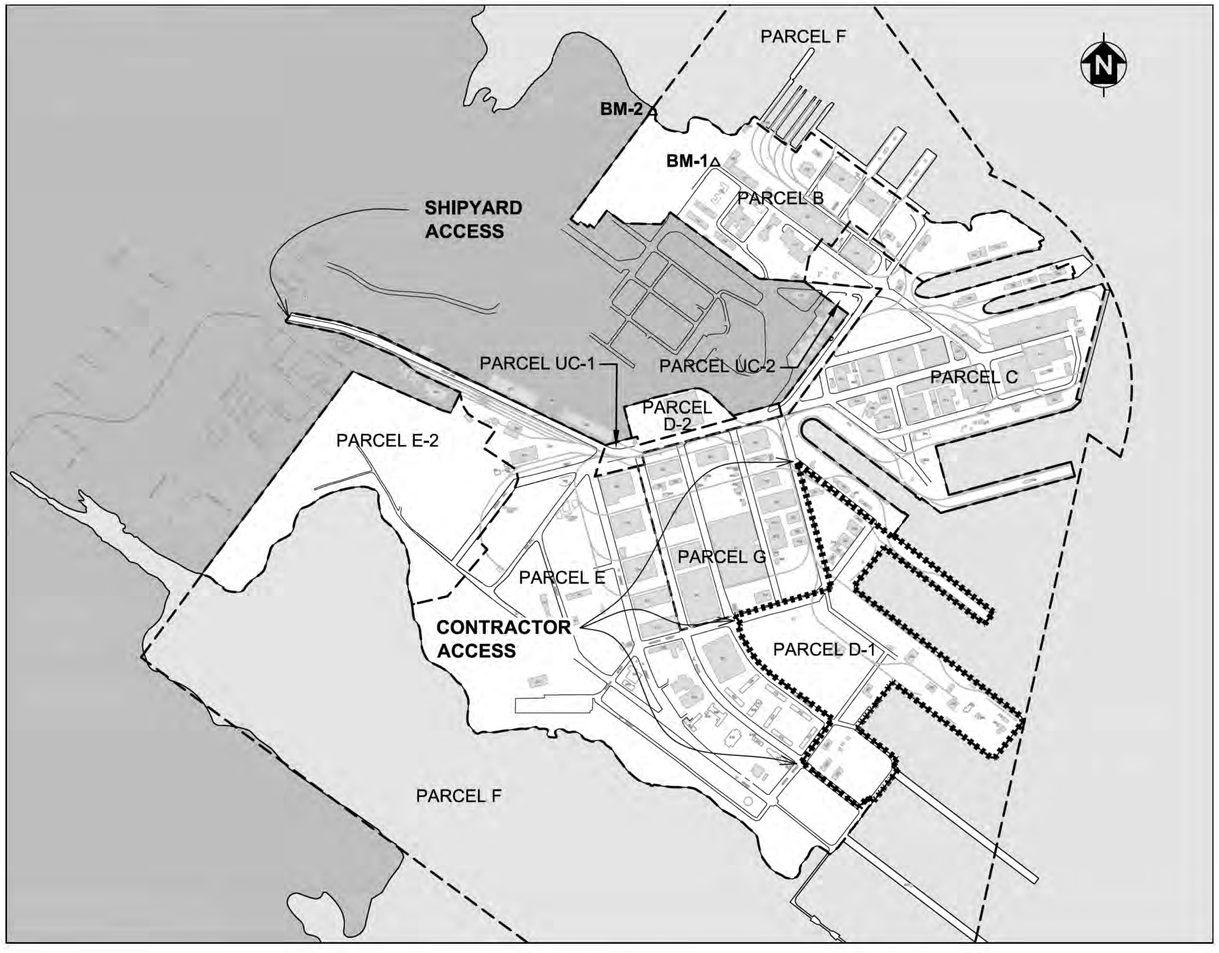
FILE NO: 149831-D11

DWG. NO.
C6

SHEET 7 OF 7

C:\CADD\Hunters Point EMWC\149831 D1\ 149831-D11.dwg 10/26/2017 Karen.Black DN

HUNTERS POINT NAVAL SHIPYARD
SAN FRANCISCO, CALIFORNIA
PARCEL D-1 DURABLE COVER
RECORD DRAWINGS



LOCATION MAP

600' 0 600' 1200'

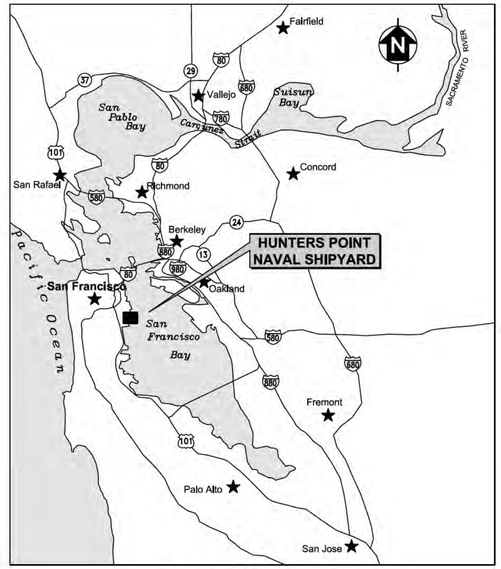
SCALE: 1" = 600'

SURVEY BENCHMARKS			
Control Point	Eastlng	Northing	Elevation
BM-1	1460168.99	453718.89	11.76
BM-2	1459671.50	454121.67	5.81

NOTE: OFF-SITE TOPOGRAPHY HAS BEEN SHOWN AS REFERENCED BUT HAS NOT BEEN TIED TO THE SITE TOPOGRAPHY. EXISTING TOPOGRAPHY ESTIMATED PRECISION ± 1' DUE TO MINOR REGRADING OF THE SITE FOLLOWING AS SHOWN BASELINE SURVEY.

BASIS OF BEARINGS AND ELEVATION

HORIZONTAL: NAD 1927 ZONE-III (HUNTERS POINT WEST 1 PID HT0613) USFT.
VERTICAL : NGVD 29

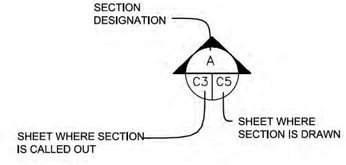


VICINITY MAP

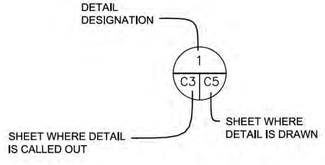
NOT TO SCALE

INDEX OF DRAWINGS

DWG	DESCRIPTION
G1	VICINITY MAP, LOCATION MAP, AND SHEET INDEX
C1	PRE-EXISTING SITE PLAN
C2	CLEARING, GRUBBING, AND SURFACE DEBRIS REMOVAL
C3	FINAL MONITORING WELLS AND GABION REPAIR LOCATIONS
C4	FINAL GRADING PLAN
C5	DETAILS (1 OF 2)
C6	DETAILS (2 OF 2)



NOTE: SECTIONS ARE CALLED OUT ON FIRST RELEVANT SHEET ONLY.



NOTE: DETAILS ARE CALLED OUT ON FIRST RELEVANT SHEET ONLY.

REVISIONS

SYMBOL	DESCRIPTION	PREP. BY	DATE	APPROVED

PREPARED BY: APTIM

DESIGNED BY: _____ DRAWN BY: _____ CHECKED BY: _____

RE-CHECKED BY: _____ APPROVED BY: _____ DATE: 10/10/17

SIZE D
IF SHEET IS LESS THAN 22" X 34" IT IS A REDUCED PRINT
SCALE REDUCED ACCORDINGLY

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
BRAC PMO WEST
SAN DIEGO, CALIFORNIA

PARCEL D-1 DURABLE COVER
VICINITY MAP, LOCATION MAP, AND SHEET INDEX

FILE NO: 149831-D5

DWG. NO.
G1

SHEET 1 OF 7

C:\CADD\Hunters Point EMAC\149831 D1\ 149831-D5.dwg 10/26/2017 Karen.Black DN

Appendix G
Import Sampling Results and Data Validation
(provided on electronic copy only)

From:	Bercik, Lisa M.
To:	Howard, Leslie CTR NAVFAC HQ, BRAC PMO (leslie.howard.ctr@navy.mil)
Cc:	Hanif, Chris; Kalombo, Eddie
Subject:	Approved Import Source, CTO 0003 Remedial Action in Parcel D-1, HPNS, SF, CA
Date:	Wednesday, June 15, 2016 1:26:00 PM
Attachments:	Table 1 Bernard Pile Import Fill Data Summary.pdf

Hi Leslie,

CB&I has located, sampled, and characterized a borrow source to use as import material at Parcel D-1, Hunters Point Naval Shipyard, San Francisco, California. This email is to notify you that an acceptable source has been selected and includes the borrow source identification and location, summary of characterization data, and the determination to use this source. The attached table includes the chemical and radiological results. The radiological results are draft (7-day) and we expect the final results to meet the radiological comparison criteria.

Borrow Source/Location: Bernard Pile, 5 Beatty Way, Brisbane, California

Import Material Sampling and Characterization Summary: The borrow source is located in a nonindustrial area and is not a site undergoing an environmental cleanup. CB&I sampled the borrow material on May 17, 2016. The samples were collected and analyzed for chemical and radiological constituents in accordance with the Backfill Acceptance Plan (BAP; Appendix E to the Final Revision 1, Final Remedial Action Work Plan, Remedial Action in Parcel D-1, San Francisco, California, dated May 2016, CB&I). The material was sampled according to the frequency and procedures described in the California Department of Toxic Substances Control Information Advisory on Clean Import Fill Material (2001). Analytical results were compared to the criteria listed in Table E.1 of the BAP (CB&I, 2016) and are provided in Table 1. There were no exceedances of the chemical and radiological comparison criteria; however, for some semivolatile organic compounds (SVOCs), the laboratory detection limits were above the comparison criteria. The SVOCs were not detected and, because this material is from a borrow source is located in a nonindustrial area and is not a site undergoing an environmental cleanup, it can be reasonably concluded these SVOCs are not present in the material.

Determination: CB&I approves the use of this borrow source for import material at the site.

Please let me know if you have any questions. We plan to start bringing this material onto the site within the next week.

Thanks,
Lisa

Lisa Bercik, PE, QSD, QSP
Project Manager
Federal Services
619.446.4508 direct
619.213.3389 cell
lisa.bercik@cbifederalservices.com

CB&I Federal Services
1230 Columbia Street, Suite 1200
San Diego, California 92101
United States of America
www.cbi.com

TABLE 1
BERNARD PILE IMPORT FILL DATA

Analtyical Method	Analyte	Comparison Criteria	Units	BS-BERNARD-01				BS-BERNARD-02				BS-BERNARD-03				BS-BERNARD-04				BS-BERNARD-05				BS-BERNARD-06				BS-BERNARD-07				BS-BERNARD-08				BS-BERNARD-09				BS-BERNARD-10				BS-BERNARD-11				BS-BERNARD-12				BS-BERNARD-13			
				Result	VQ	MDL	DF	Result	VQ	MDL	DF	Result	VQ	MDL	DF	Result	VQ	MDL	DF	Result	VQ	MDL	DF	Result	VQ	MDL	DF	Result	VQ	MDL	DF	Result	VQ	MDL	DF	Result	VQ	MDL	DF	Result	VQ	MDL	DF	Result	VQ	MDL	DF	Result	VQ	MDL	DF	Result	VQ	MDL	DF
VOCs by EPA 8260	Acetone	61,000,000	µg/kg	3.5	U			4.2	U			3.5	U			3.6	U			3.8	U			3.2	U			3.6	U			4.4	U			4	U			4.1	U			3.9	U			4	U			4.6	U		
	Benzene	1,100	µg/kg	0.44	U			0.52	U			0.44	U			0.45	U			0.47	U			0.4	U			0.45	U			0.56	U			0.49	U			0.52	U			0.48	U			0.5	U			0.92	U		
	Bromodichloromethane	270	µg/kg	0.44	U			0.52	U			0.44	U			0.45	U			0.47	U			0.4	U			0.45	U			0.56	U			0.49	U			0.52	U			0.48	U			0.5	U			0.92	U		
	Bromoform	62,000	µg/kg	0.88	U			1	U			0.88	U			0.89	U			0.94	U			0.81	U			0.89	U			1.1	U			0.99	U			1	U			0.97	U			1	U			1.8	U		
	Bromomethane	7,300	µg/kg	1.8	U			2.1	U			1.8	U			1.8	U			1.9	U			1.6	U			1.8	U			2.2	U			2	U			2.1	U			1.9	U			2	U			0.92	U		
	2-Butanone	28,000,000	µg/kg	3.5	U			4.2	U			3.5	U			3.6	U			3.8	U			3.2	U			3.6	U			4.4	U			4	U			4.1	U			3.9	U			4	U			4.6	U		
	Carbon Disulfide	820,000	µg/kg	0.88	U			1	U			0.88	U			0.89	U			0.94	U			0.81	U			0.89	U			1.1	U			0.99	U			1	U			0.97	U			1	U			0.92	U		
	Carbon Tetrachloride	610	µg/kg	0.44	U			0.52	U			0.44	U			0.45	U			0.47	U			0.4	U			0.45	U			0.56	U			0.49	U			0.52	U			0.48	U			0.5	U			0.92	U		
	Chlorobenzene	290,000	µg/kg	0.44	U			0.52	U			0.44	U			0.45	U			0.47	U			0.4	U			0.45	U			0.56	U			0.49	U			0.52	U			0.48	U			0.5	U			0.92	U		
	Dibromochloromethane	680	µg/kg	0.44	U			0.52	U			0.44	U			0.45	U			0.47	U			0.4	U			0.45	U			0.56	U			0.49	U			0.52	U			0.48	U			0.5	U			0.92	U		
	Chloroethane	15,000,000	µg/kg	1.8	U			2.1	U			1.8	U			1.8	U			1.9	U			1.6	U			1.8	U			2.2	U			2	U			2.1	U			1.9	U			2	U			0.92	U		
	Chloroform	290	µg/kg	0.44	U			0.52	U			0.44	U			0.45	U			0.47	U			0.4	U			0.45	U			0.56	U			0.49	U			0.52	U			0.48	U			0.5	U			0.92	U		
	Chloromethane	120,000	µg/kg	1.8	U			2.1	U			1.8	U			1.8	U			1.9	U			1.6	U			1.8	U			2.2	U			2	U			2.1	U			1.9	U			2	U			0.92	U		
	cis-1,3-Dichloropropene	1,700	µg/kg	0.44	U			0.52	U			0.44	U			0.45	U			0.47	U			0.4	U			0.45	U			0.56	U			0.49	U			0.52	U			0.48	U			0.5	U			0.92	U		
	trans-1,3-Dichloropropene	1,700	µg/kg	0.44	U			0.52	U			0.44	U			0.45	U			0.47	U			0.4	U			0.45	U			0.56	U			0.49	U			0.52	U			0.48	U			0.5	U			0.92	U		
	1,2-Dichlorobenzene	1,900,000	µg/kg	0.44	U			0.52	U			0.44	U			0.45	U			0.47	U			0.4	U			0.45	U			0.56	U			0.49	U			0.52	U			0.48	U			0.5	U			0.92	U		
	1,4-Dichlorobenzene	2,400	µg/kg	0.44	U			0.52	U			0.44	U			0.45	U			0.47	U			0.4	U			0.45	U			0.56	U			0.49	U			0.52	U			0.48	U			0.5	U			0.92	U		
	1,1-Dichloroethane	3,300	µg/kg	0.44	U			0.52	U			0.44	U			0.45	U			0.47	U			0.4	U			0.45	U			0.56	U			0.49	U			0.52	U			0.48	U			0.5	U			0.92	U		
	1,2-Dichloroethane	430	µg/kg	0.44	U			0.52	U			0.44	U			0.45	U			0.47	U			0.4	U			0.45	U			0.56	U			0.49	U			0.52	U			0.48	U			0.5	U			0.92	U		
	1,1-Dichloroethene	240,000	µg/kg	0.88	U			1	U			0.88	U			0.89	U			0.94	U			0.81	U			0.89	U			1.1	U			0.99	U			1	U			0.97	U			1	U			0.92	U		
	cis-1,2-Dichloroethene	160,000	µg/kg	0.44	U			0.52	U			0.44	U			0.45	U			0.47	U			0.4	U			0.45	U			0.56	U			0.49	U			0.52	U			0.48	U			0.5	U			0.92	U		
	trans-1,2-Dichloroethene	150,000	µg/kg	0.88	U			1	U			0.88	U			0.89	U			0.94	U			0.81	U			0.89	U			1.1	U			0.99	U			1	U			0.97	U			1	U			0.92	U		
	1,2-Dichloropropane	940	µg/kg	0.44	U			0.52	U			0.44	U			0.45	U			0.47	U			0.4	U			0.45	U			0.56	U			0.49	U			0.52	U			0.48	U			0.5	U			0.92	U		
	Ethyl benzene	5,400	µg/kg	0.44	U			0.52	U			0.44	U			0.45	U			0.47	U			0.4	U			0.45	U			0.56	U			0.49	U			0.52	U			0.48	U			0.5	U			0.92	U		
	Methylene Chloride	56,000	µg/kg	0.44	U			0.52	U			0.44	U			0.45	U			0.47	U			0.4	U			0.45	U			0.56	U			0.49	U			0.52	U			0.48	U			0.5	U			1.8	U		
	Methyl isobutyl ketone	5,300,000	µg/kg	0.88	U			1	U			0.88	U			0.89	U			0.94	U			0.81	U			0.89	U			1.1	U			0.99	U			1	U			0.97	U			1	U			1.8	U		
	Methyl tertiary butyl ether	43,000	µg/kg	0.44	U			0.52	U			0.44	U			0.45	U			0.47	U			0.4	U			0.45	U			0.56	U			0.49	U			0.52	U			0.48	U			0.5	U			0.92	U		
	Naphthalene	3,600	µg/kg	1.8	U			2.1	U			1.8	U			1.8	U			1.9	U			1.6	U			1.8	U			2.2	U			2	U			2.1	U			1.9	U			2	U			0.92	U		
	Styrene	6,300,000	µg/kg	0.44	U			0.52	U			0.44	U			0.45	U			0.47	U			0.4	U			0.45	U			0.56	U			0.49	U			0.52	U			0.48	U			0.5	U			0.92	U		
	1,1,2,2-Tetrachloroethane	560	µg/kg	0.44	U			0.52	U			0.44	U			0.45	U			0.47	U			0.4	U			0.45	U			0.56	U			0.49	U			0.52	U			0.48	U			0.5	U			0.92	U		
	Tetrachloroethene	22,000	µg/kg	0.44	U			0.52	U			0.44	U			0.45	U			0.47	U			0.4	U			0.45	U			0.56	U			0.49	U			0.52	U			0.48	U			0.5	U			0.92	U		
	Toluene	5,000,000	µg/kg	0.44	U			0.52	U			0.44	U			0.45	U			0.47	U			0.4	U			0.45	U			0.56	U			0.49	U			0.52	U			0.48	U			0.5	U			0.92	U		
	1,1,1-Trichloroethane	8,700,000	µg/kg	0.44	U			0.52	U			0.44	U			0.45	U			0.47	U			0.4	U			0.45	U			0.56	U			0.49	U			0.52	U			0.48	U			0.5	U			0.92	U		
	1,1,2-Trichloroethane	1,100	µg/kg	0.88	U			1	U			0.88	U			0.89	U			0.94	U			0.81	U			0.89	U			1.1	U			0.99	U			1	U			0.97	U			1	U			0.92	U		
	Trichloroethene	910	µg/kg	0.44	U			0.52	U			0.44	U			0.45	U			0.47	U			0.4	U			0.45	U			0.56	U			0.49	U			0.52	U			0.48	U			0.5	U			0.92	U		
	Vinyl Acetate	970,000	µg/kg	1.8	U			2.1	U			1.8	U			1.8	U			1.9	U			1.6	U			1.8	U			2.2	U			2	U			2.1	U			1.9	U			2	U			1.8	U		
	Vinyl Chloride	60	µg/kg	0.44	U			0.52	U			0.44	U			0.45	U			0.47	U			0.4	U			0.45	U			0.56	U			0.49	U			0.52	U			0.48	U			0.5	U			0.92	U		
	Xylene (Total)	630,000	µg/kg	1.32	U			1.52	U			1.32	U			1.34	U			1.41	U			1.21	U			1.34	U			1.66	U			1.48	U			1.52	U			1.45	U			1.5	U			2.72	U		
SVOCs by EPA 8270	Acenaphthene	3,400,000	µg/kg	36	U	11	1	74	U	22	2	180	U	66	5	37	U	11	1	300	U	110	8.33	74	U	22	2	37	U	11	1	38	U	11	1	740	U	190	20	370	U	93	10	180	U	45	5	300	U	75	8.33	310	U	110	8.33
	Anthracene	17,000,000	µg/kg	36	U	12	1	74	U	25	2	180	U	66	5	37	U	13	1	300	U	110	8.33	74	U	25	2	37	U	13	1	38	U	13	1	740	U	200	20	370	U	100	10	180	U	48	5	300	U	81	8.33	310	U	110	8.33
	Benzo(a)anthracene	150	µg/kg	36	U	11	1	28	J	23	2	49	J	47	5	11	J	11	1	300	U	78	8.33	74	U	23	2	37	U	11	1	38	U	12	1	740	U	190	20	370	U	93	10	180	U	45	5	300	U	75	8.33	91	J	80	8.33
	Benzo(a)pyrene	330	µg/kg	36	U	9.5	1	30	J	19	2	180	U	47	5	13	J	9.8	1	300	U	78	8.33	74	U	20	2	37	U	9.7	1	38	U	9.9	1	740	U	190	20	370	U	93	10	180	U	45	5	300	U	75	8.33	310	U	81	8.33
	Benzo(b)fluoranthene	1,760	µg/kg	13	J	9.8	1	39	J	20	2	76	J	66	5	26	J	10	1	300	U	110	8.33	74	U	20	2	37	U	10	1	38	U	10	1	740	U	190	20	370	U	93	10	180	U	45	5	300	U	75	8.33	310	U	110	8.33
	Benzo(k)fluoranthene	1,500	µg/kg	36	U	10	1	74	U	21	2	180	U	47	5	37	U	11	1	300	U	78	8.33	74	U	21	2	37	U	11	1	38	U	11	1	740	U	190	20	370	U	93	10	180	U	45	5	300	U	75	8.33	310	U	81	8.33
	Bis(2-Chloroethyl) Ether	210	µg/kg	91	U	65	1	190	U	130	2	180	U	68	5	37	U	66	1	300	U	110	8.33	74	U	130	2	37	U	66	1	38	U	67	1	740	U	490	20	370	U	240	10	180	U	120	5	300	U	200	8.33	310	U	210	8.33
	Benzoic acid	240,000,000	µg/kg	910	U	480	1	1900	U	970	2	4600	U	2700	5	930	U	490	1	7500	U	4500	8.33	930	U	980	2	460	U b	480	1	470	U b	490	1	9200	U b	8300	20	4600	U b	4200	10	2200	U b	2000	5	3700	U b	3400	8.33	7800	U	4700	8.33
	Bis(2-Chloro-1-methylethyl) Ether	4,600	µg/kg	36	U	11	1	74	U	22	2	180	U	63	5	37	U	11	1	300	U	100	8.33	74	U	22	2	37	U	11	1	38	U	11	1	740	U	230	20	370	U	110	10	180	U	55	5	300	U	92	8.33	310	U	110	8.33
	Bis(2-Ethylhexyl) Phthalate	35,000	µg/kg	16	J	14	1	74	U	29	2	180	U	48	5	22	J	15	1	300	U	79	8.33	74	U	29	2	16	J	14	1	19	J	15	1	740	U	190	20	370	U	95	10	180	U	46	5	300	U	77	8.33	310	U	81	8.33
	Butyl Benzyl Phthalate	260,000	µg/kg	36	U	11	1	74	U	22	2	180	U	66	5	37	U	11	1	300	U	110	8.33	74	U	22	2	37	U	11	1	38	U	11	1	740	U	210	20	370	U	110	10	180	U	51	5	300	U	86	8.33	310	U	110	8.33
	4-Chloroaniline	2,400	µg/kg	36	U	10	1	74	U	21	2	180	U	90	5	37	U	10	1	300	U	150	8.33	74	U	21	2	37	U	10	1	38	U	11	1	740	U	280	20	370	U	140	10	180	U	67	5	300	U	110	8.33	310	U	150	8.33
	2-Chloronaphthalene	6,300,000	µg/kg	36	U	9.8	1	74	U	20	2	460	U	300	5	93	U	10	1	750	U	500	8.33	74	U	20	2	37	U	9.9	1	38	U	10	1	740	U	190	20	370	U	93	10	180	U	45	5	300	U	75	8.33	780	U	520	8.33
	2-Chlorophenol	390,000	µg/kg	36	U	11	1	74	U	22	2	180	U	90	5	37	U	11	1	300	U	150	8.33	74	U	22	2	37	U	11	1	38	U	11	1	740	U	310	20	370	U	150	10	180	U	74	5	300	U	130	8.33	310	U	150	8.33
	Chrysene	15,000	µg/kg	13	J	12	1	41	J	25	2	180	U	66	5	20	J	13	1	300	U	110	8.33	74	U	25	2	37	U	12	1	38	U	13	1	740	U	190	20	370	U	93	10	180	U	45	5	300	U	75	8.33	310	U	110	8.33
	Di-n-Octyl Phthalate	730,000	µg/kg	36	U	11	1	74	U	22	2	180	U	46	5	37	U	11	1	300	U	76	8.33	190	U	22	2	92	U	11	1	94	U	11	1	1800	U	750	20	920	U	380	10	440	U	180	5	750	U	310	8.33	780	U	320	8.33
	Dibenz(a,h)anthracene	15	µg/kg	36	U	10	1	74	U	21	2	180	U	66	5	37	U	10	1	300	U	110	8.33	74	U	21	2	37	U	10	1	38	U	11	1	740	U	190	20	370	U	93	10	180	U	45	5	300	U	75	8.33	310	U	110	8.33
	Dibenzofuran	78,000	µg/kg	36	U	11	1	74	U	23	2	180	U	48	5	37	U	12	1	300	U	79	8.33	74	U	23	2	37	U	11	1	38	U	12	1	740	U	190	20	370	U	93	10	180	U	45	5	300	U	75	8.33	310	U	82	8.33
	1,2-Dichlorobenzene	1,900,000	µg/kg	36	U	11	1	74	U	22	2	180	U	52	5	37	U	11	1	300	U	85	8.33	74	U	22	2	37	U	11	1	38	U	11	1	740	U	490	20	370	U	240	10	180	U	120	5	300	U	200	8.33	310	U	88	8.33
	1,3-Dichlorobenzene	NA	µg/kg	91	U	62	1	190	U	130	2	180	U	66	5	37	U	63	1	300	U	110	8.33	190	U	130	2	92	U	63	1	94	U	64	1	1800	U	930	20	920	U	470	10	440	U	220	5	750	U	380	8.33	310	U	110	8.33
	1,4-Dichlorobenzene	2,400	µg/kg	36	U	11	1	74	U	22	2	180	U	55	5	37	U	11	1	300	U	91	8.33	190	U	22	2	92	U	11	1	94	U	11	1	1800	U	930	20	920	U	470	10	440	U	220	5	750	U	380	8.33	310	U	94	8.33
	3,3'-Dichlorobenzidine	1,100	µg/kg	36	U	11	1	74	U	22	2	460	U	230	5	93	U	11	1	750	U	390	8.33	370	U	22	2	180	U	11	1	190	U	11	1	3700	U	1800	20	1800	U	880	10	890	U	420	5	1500	U	710	8.33	780	U	400	8.33
	2,4-Dichlorophenol	180,000	µg/kg	36	U	11	1	74	U	22	2	180	U	69	5	37	U	11	1	300	U	110	8.33	74	U	22	2	37	U	11	1	38	U	11	1	740	U	210	20	370	U	100	10	180	U	50	5	300	U	84	8.33	310	U	120	8.33
	Diethyl Phthalate	49,000,000	µg/kg	36	U	12	1	74	U	25	2	180	U	46	5	37	U	13	1	300	U	77	8.33	74	U	25	2	37	U	13	1	38	U	13	1	740	U	190	20	370	U	93	10	180	U	45	5	300	U	75	8.33	310	U	79	8.33
	Di-N-butyl Phthalate	6,100,000	µg/kg	36	U	13	1	74	U	27	2	180	U	66	5	37	U	13	1	300	U	110	8.33	74	U	27	2	37	U	13	1	38	U	14	1	740	U	210	20	370	U	110	10	180	U	51	5	300	U	86	8.33	310	U	110	8.33
	Dimethyl Phthalate	7,800,000	µg/kg	36	U	11	1	74	U	22	2	180	U	51	5	37	U	11	1	300	U	84	8.33	74	U	22	2	37	U	11	1	38	U	11	1	740	U	190	20	370	U	93	10	180	U	45	5	300	U	75	8.33	310	U	87	8.33
	2,4-Dimethylphenol	1,200,000	µg/kg	36	U	15	1	74	U	31	2	180	U	75	5	37	U	16	1	300	U	120	8.33	74	U	31	2	37	U	15	1	38	U	16	1	740	U	410	20	370	U	210	10	180	U	99	5	300	U	170	8.33	310	U	130	8.33
	2,4-Dinitrophenol	120,000	µg/kg	180	U	70	1	370	U	360	2	3300	U	870	5	670	U	180	1	5400	U	1400	8.33	370	U	140	2	180	U b	71	1	190	U b	73	1	3700	U b	1700	20	1800	U b	830	10	890	U b	400	5	1500	U b	670	8.33	5600	U	1500	8.33
	2,4-Dinitrotoluene	1,600	µg/kg	36	U	10	1	74	U	21	2	180	U	53	5	37	U	11	1	300	U	87	8.33	74	U	21	2	37	U	11	1	38	U	11	1	740	U	180	20	370	U	93	10	180	U	45	5	300	U	75	8.33	310	U	90	8.33
	Fluoranthene	2,300,000	µg/kg	13	J	11	1	60	J	23	2	91	J	47	5	25	J	12	1	300	U	78	8.33	74	U	23	2	37	U	11	1	38	U	12	1	740	U	210	20	370	U	100	10	180	U	50	5	300	U	84	8.33	170	J	80	8.33
	2,6-Dinitrotoluene	61,000	µg/kg	36	U	9.7	1	74	U	20	2	180	U	48	5	37	U	10	1	300	U	79	8.33	190	U	20	2	92	U	9.9	1	94	U	10	1	1800	U	740	20	920	U	370	10	440	U	180	5	750	U	300	8.33	310	U	82	8.33
	Fluorene	2,300,000	µg/kg	36	U	11	1	74	U	22	2	180	U	49	5	10	J	11	1	300	U	80	8.33	74	U	22	2	37	U	11	1	38	U	11	1	740	U	190	20	370	U	93	10	180	U	45	5	300	U	75	8.33	310	U	83	8.33
	Hexachlorobenzene	300	µg/kg	36	U	12	1	74	U	24	2	180	U	66	5	37	U	12	1	300	U	110	8.33	74	U	24	2	37	U	12	1	38	U	12	1	740	U	190	20	370	U	93	10	180	U	45	5	300	U	75	8.33	310	U	110	8.33
	Hexachlorobutadiene	6,200	µg/kg	36	U	9.7	1	74	U	20	2	460	U	330	5	93	U	9.9	1	750	U	550	8.33	74	U	20	2	37	U	9.8	1	38	U	10	1	740	U	490	20	370	U	240	10	180	U	120	5	300	U	200	8.33	780	U	560	8.33
	Hexachlorocyclopentadiene	370,000	µg/kg	36	U b	15	1	74	U	30	2	460	U b	330	5	93	U b	67	1	750	U b	550	8.33	370	U	30	2	180	U b	15	1	190	U b	15	1	3700	U b	1700	20	1800	U b	840	10	890	U b	410	5	1500	U b	680	8.33	780	U b	560	8.33
	Hexachloroethane	35,000	µg/kg	36	U	11	1	74	U	22	2	180	U	66	5	37	U	11	1	300	U	110	8.33	190	U	22	2	92	U	11	1	94	U	11	1	1800	U	930	20	920	U	470	10	440	U	220	5	750	U	380	8.33	310	U	110	8.33
	Indeno(1,2,3-cd)pyrene	150	µg/kg	36	U	9.6	1	22	J	20	2	180	U	66	5	37	U	9.8	1	300	U	110	8.33	74	U	20	2	37	U	9.8	1	38	U	10	1	740	U	190	20	370	U	93	10	180	U	45	5	300	U	75	8.33	310	U	110	8.33
	Isophorone	510,000	µg/kg	36	U	11	1	74	U	22	2	180	U	59	5	37	U	11	1	300	U	98	8.33	74	U	22	2	37	U	11	1	38	U	11	1	740	U	230	20	370	U	110	10	180	U	54	5	300	U	91	8.33	310	U	95	8.33
	4-Methylphenol	6,100,000	µg/kg	36	U	11	1	74	U	22	2	180	U	96	5	37	U	11	1	300	U	160	8.33	74	U	22	2	37	U	11	1	38	U	11	1	740	U	350	20	370	U	180	10	180	U	85	5	300	U	140	8.33	310	U	160	8.33
	2-Methylphenol	3,100,000	µg/kg	36	U	15	1	74	U	30	2	180	U	84	5	37	U	15	1	300	U	140	8.33	74	U	30	2	37	U	15	1	38	U	15	1	740	U	320	20	370	U	160	10	180	U	77	5	300	U	130	8.33	310	U	140	8.33
	Naphthalene	3,600	µg/kg	36	U	11	1	74	U	22	2	180	U	48	5	37	U	11	1	300	U	79	8.33	74	U	22	2	37	U	11	1	38	U	11	1	740	U	290	20	370	U	140	10	180	U	69	5	300	U	120	8.33	310	U	82	8.33
	2-Nitroaniline	610,000	µg/kg	36	U	12	1	74	U	24	2	460	U	180	5	93	U	12	1	750	U	300	8.33	190	U	24	2	92	U	12	1	94	U	12	1	1800	U	750	20	920	U	380	10	440	U	180	5	750	U	300	8.33	780	U	320	8.33
	3-Nitroaniline	NA	µg/kg	36	U	11	1	74	U	22	2	460	U	180	5	93	U	11	1	750	U	300	8.33	74	U	22	2	37	U	11	1	38	U	11	1	740	U	190	20	370	U	93	10	180	U	45	5	300	U	75	8.33	780	U	310	8.33
	4-Nitroaniline	24,000	µg/kg	36	U	11	1	74	U	22	2	460	U	180	5	93	U	11	1	750	U	300	8.33	74	U	22	2	37	U	11	1	38	U	11	1	740	U	230	20	370	U	120	10	180	U	56	5	300	U	95	8.33	310	U	99	8.33
	Nitrobenzene	4,800	µg/kg	36	U	12	1	74	U	24	2	180	U	66	5	37	U	12	1	300	U	110	8.33	74	U	24	2	37	U	12	1	38	U	12	1	740	U	490	20	370	U	240	10	180	U	120	5	300	U	200	8.33	310	U	210	8.33
	N-Nitroso-di-n-propylamine	69	µg/kg	36	U	11	1	74	U	22	2	180	U	180	5	37	U	11	1	300	U	300	8.33	74	U	22	2	37	U	11	1	38	U	11	1	740	U	340	20	370	U	170	10	180	U	81	5	300	U	140	8.33	310	U	140	8.33
	N-Nitrosodimethylamine	2.3	µg/kg	91	U	51	1	190	U	100	2	180	U	180	5	37	U	53	1	300	U	300	8.33	190	U	110	2	92	U	52	1	94	U	53	1	1800	U	930	20	920	U	470	10	440	U	220	5	750	U	380	8.33	310	U	310	8.33
	N-Nitrosodiphenylamine	99,000	µg/kg	36	U	12	1	74	U	23	2	460	U	310	5	93	U	12	1	750	U	500	8.33	74	U	24	2	37	U	12	1	38	U	12	1	740	U	190	20	370	U	93	10	180	U	45	5	300	U	75	8.33	780	U	520	8.33
	Pentachlorophenol	890	µg/kg	180	U	140	1	370	U	280	2	910	U	810	5	190	U	140	1	1500	U	1300	8.33	370	U	290	2	180	U	140	1	190	U	140	1	3700	U	2300	20	1800	U	1100	10	890	U	550	5	1500	U	920	8.33	1600	U	1400	8.33
	Phenol	18,000,000	µg/kg	36	U	11	1	74	U	22	2	180	U	95	5	37	U	11	1	300	U	160	8.33	74	U	22	2	37	U	11	1	38	U	11	1	740	U	330	20	370	U	170	10	180	U	80	5	300	U	130	8.33	310	U	160	8.33
	Pyrene	1,700,000	µg/kg	18	J	12	1	81	J	24	2	110	J	51	5	39	J	12	1	300	U	84	8.33	74	U	24	2	12	J	12	1	11	J	12	1	740	U	190	20	370	U	93	10	180	U	45	5	300	U	75	8.33	160	J	87	8.33
	1,2,4-Trichlorobenzene	22,000	µg/kg	36	U	11	1	74	U	22	2	180	U	53	5	37	U	11	1	300	U	87	8.33	74	U	22	2	37	U	11	1	38	U	11	1	740	U	490	20	370	U	240	10	180	U	120	5	300	U	200	8.33	310	U	90	8.33
	2,4,5-Trichlorophenol	6,100,000	µg/kg	36	U	9.1	1	74	U	19	2	180	U	48	5	37	U	9.3	1	300	U	79	8.33	74	U	19	2	37	U	9.3	1	38	U	9.5	1	740	U	200	20	370	U	100	10	180	U	49	5	300	U	82	8.33	310	U	82	8.33
	2,4,6-Trichlorophenol	44,000	µg/kg	36	U	14	1	74	U	28	2	180	U	76	5	37	U	14	1	300	U	130	8.33	74	U	28	2	37	U	14	1	38	U	14	1	740	U	240	20	370	U	120	10	180	U	59	5	300	U	99	8.33	310	U	130	8.33

TABLE 1
BERNARD PILE IMPORT FILL DATA

Analtyical Method	Analyte	Comparison Criteria	Units	BS-BERNARD-01				BS-BERNARD-02				BS-BERNARD-03				BS-BERNARD-04				BS-BERNARD-05				BS-BERNARD-06				BS-BERNARD-07				BS-BERNARD-08				BS-BERNARD-09				BS-BERNARD-10				BS-BERNARD-11				BS-BERNARD-12				BS-BERNARD-13			
				Result	VQ	MDL	DF	Result	VQ	MDL	DF	Result	VQ	MDL	DF	Result	VQ	MDL	DF	Result	VQ	MDL	DF	Result	VQ	MDL	DF	Result	VQ	MDL	DF	Result	VQ	MDL	DF	Result	VQ	MDL	DF	Result	VQ	MDL	DF	Result	VQ	MDL	DF	Result	VQ	MDL	DF	Result	VQ	MDL	DF
OCPs by EPA 8081 B	alpha-Chlordane	1,600	µg/kg	1.9	U			1.9	U			0.93	C J			1.9	U			1	C J			1.9	U			1.9	U			1.9	U			2.6	C J			1.4	C J			5.7	C			5.1	C J			4	U		
	gamma-Chlordane	1,600	µg/kg	3.9	U			3.9	U			3.8	U			3.9	U			3.8	U			6.6	C			3.9	U			7.2	C			3.8	U			3.8	U			6.4	C			4.3	C J			1.8	J		
	4,4'-DDD	2,000	µg/kg	3.8	U			3.8	U			3.7	U			3.8	U			3.7	U			3.9	U			3.8	U			3.9	U			2.9	C J			3.6	J			3.6	U			7.9	U		
	4,4'-DDE	1,400	µg/kg	3.8	U			3.8	U			3.7	U			3.8	U			3.7	U			3.9	U			3.8	U			3.9	U			9.9	J			1.7	J			7.7	C J b			3.6	U			7.9	U		
	4,4'-DDT	1,700	µg/kg	3.8	U			3.8	U			1.4	C J			1.7	C J			2.1	C J			3.9	U			3.8	U			3.9	U			4.9	J			2.2	C J			19	b			5.6	J			7.9	U		
	alpha-BHC	77	µg/kg	1.9	U			1.9	U			1.8	U			1.9	U			1.9	U			1.9	U			1.9	U			1.9	U			1.9	U			1.8	U			1.8	U			1.8	U			4	U		
	beta-BHC	270	µg/kg	3.9	U			3.9	U			3.8	U			3.9	U			3.8	U			4	U			3.9	U			4	U			3.8	U			3.8	U			3.7	U			3.7	U			4	U		
	gamma-BHC	520	µg/kg	1.9	U			1.9	U			1.8	U			1.9	U			1.9	U			1.9	U			1.9	U			1.9	U			1.9	U			1.8	U			0.71	C J			1.8	U			4	U		
	Heptachlor	110	µg/kg	1.9	U			1.9	U			1.8	U			1.9	U			1.9	U			1.9	U			1.9	U			1.9	U			1.9	U			1.8	U			1.8	U			1.8	U			4	U		
	Aldrin	29	µg/kg	1.9	U			1.9	U			1.8	U			1.9	U			1.9	U			1.9	U			1.9	U			1.9	U			1.9	U			1.8	U			1.8	U			1.8	U			4	U		
	Heptachlor epoxide	53	µg/kg	1.9	U			1.9	U			1.8	U			1.9	U			1.9	U			1.9	U			1.9	U			1.9	U			1.9	U			1.8	U			2.8	C J			1.8	U			4	U		
	Endosulfan I	370,000	µg/kg	1.9	U			1.9	U			1.8	U			1.9	U			1.9	U			1.9	U			1.9	U			1.9	U			1.9	U			1.8	U			1.8	U			1.8	U			4	U		
	Endosulfan II	370,000	µg/kg	3.8	U			3.8	U			3.7	U			3.8	U			3.7	U			3.9	U			3.8	U			3.9	U			3.7	U			3.7	U			3.6	U			1.7	C J			7.9	U		
	Dieldrin	30	µg/kg	3.8	U			3.8	U			3.7	U			3.8	U			3.7	U			3.9	U			3.8	U			3.9	U			3.7	U			3.7	U			2	C J			3.6	U			3.8	U		
	Endrin	18,000	µg/kg	3.8	U			3.8	U			3.7	U			3.8	U			3.7	U			3.9	U			3.8	U			3.9	U			3.7	U			3.7	U			3	C J			3.6	U			7.9	U		
	Methoxychlor	310,000	µg/kg	19	U			19	U			18	U			19	U			19	U			19	U			19	U			19	U			19	U			18	U			18	U			18	U			40	U		
	Toxaphene	440	µg/kg	100	U			100	U			97	U			100	U			99	U			100	U			100	U			100	U			98	U			98	U			96	U			95	U			100	U		
PCBs by EPA 8082A	Aroclor-1016	3,900	µg/kg	5.3	U			5.3	U			5.2	U			5.3	U			5.3	U			5.5	U			5.3	U			5.5	U			5.2	U			5.2	U			6.4	U			6.5	U			5.4	U		
	Aroclor-1221	140	µg/kg	14	U			14	U			14	U			14	U			14	U			15	U			14	U			15	U			14	U			14	U			17	U			17	U			14	U		
	Aroclor-1232	140	µg/kg	7.1	U			7.1	U			6.9	U			7.1	U			7	U			7.3	U			7.1	U			7.3	U			7	U			6.9	U			8.5	U			8.6	U			7.2	U		
	Aroclor-1242	220	µg/kg	7.1	U			7.1	U			6.9	U			7.1	U			7	U			7.3	U			7.1	U			7.3	U			7	U			6.9	U			8.5	U			8.6	U			7.2	U		
	Aroclor-1248	220	µg/kg	7.1	U			7.1	U			6.9	U			7.1	U			7	U			7.3	U			7.1	U			7.3	U			7	U			6.9	U			8.5	U			8.6	U			7.2	U		
	Aroclor-1254	220	µg/kg	5.3	U			5.3	U			5.2	U			5.3	U			5.3	U			5.5	U			5.3	U			5.5	U			5.2	U			5.2	U			6.4	U			6.5	U			5.4	U		
	Aroclor-1260	220	µg/kg	2.9	U			5.3	U			5	J			5.3	U			45				5.5	U			5.3	U			3	J			36				5.1	J			7.7	J			5.5	U			23			
TPH by EPA 8015	Gasoline C7-12	315	mg/kg	0.023	J			0.021	J			0.016	J			0.019	J			0.021	J			0.019	J			0.029	J			0.039	J			0.015	J			0.018	J			0.039	J			0.023	J			0.05	J		
	Diesel C10-C24	1,500	mg/kg	12				14				26				19				24				5.8				8.5				6.6				19				16				15				14				27			
	Motor Oil C24-C36	1,850	mg/kg	65				57				110				77				170				28				31				34				170				130				110				110				150			
	Total TPH	3,500	mg/kg	65				57				110				77				170				28				31				34				170				130				110				110				150			
Metals by EPA 6010	Antimony	31	mg/kg	1.1				0.83				0.95				0.72				1.3				0.77				0.82				0.71				0.98				0.92				0.8				0.8				1.1			
Metals by EPA 6010	Arsenic	11.1	mg/kg	3.2				3				4.2				3				4.4				3				3.7				2.8				3.6				3.7				3.6				3.7				4.6			
	Barium	15,000	mg/kg	95				84				140				100				120				95				110				75				130				130				91				110				130			
	Beryllium	160	mg/kg	0.41				0.38				0.48				0.38				0.45				0.36				0.4				0.31				0.44				0.43				0.33				0.41				0.42			
	Cadmium	70	mg/kg	0.89				0.93				1				0.89				1.2				0.86				0.93				0.8				1.1				1.2				0.83				1.2				1.1			
	Chromium	NA	mg/kg	50				64				62				55				73				49				57				54				62				74				46				76				83			
	Cobalt	23	mg/kg	10				11				13				10				14				9.7				11				9.6				13				14				9.8				13				13			
	Copper	3,100	mg/kg	20				15				24				14				30				14				16				10				29				32				16				32				29			
	Lead	400	mg/kg	16				12				22				8.8				63				4.9	J			7.6				3.7	J			29				26				28				32				45			
	Manganese	1,800	mg/kg	470				300				410				300				500				260				290				240				430				430				350				390				450			
	Mercury	10	mg/kg	0.067				0.051				0.12				0.042				0.15				0.038				0.034				0.039				0.18				0.15				0.14				0.12				0.19			
	Molybdenum	390	mg/kg	0.31				0.13	U			0.48				0.25	J			0.42				0.32				0.13	U			0.22	J			0.41				0.37				0.35				0.37				0.41			
	Nickel	2,650	mg/kg	50				72				63				54				92				48				55				50				62				61				49				67				73			
	Selenium	390	mg/kg	0.43	U			0.41	U			0.4	U			0.48	U			0.42	U			0.42	U			0.43	U			0.45	U			0.43	U			0.41	U			0.45	J			0.41	U			0.48	U		
	Silver	390	mg/kg	0.18	J			0.1	J			0.071	J			0.11	J			0.16	J			0.12	J			0.071	J			0.1	J			0.14	J			0.1	J			0.12	J			0.076	J			0.13	J		
	Thallium	0.81	mg/kg	0.43	U			0.41	U			0.4	U			0.48	U			0.42	U			0.42	U			0.43	U			0.45	U			0.43	U			0.41	U			0.4	U			0.41	U			0.48	U		
	Vanadium	390	mg/kg	41				48				50				46				57				41				47				44				54				64				38				59				52			
	Zinc	23,400	mg/kg	51				45				59				49				67				44				45				37				66				63				46				63				61			
Radionuclides by Gamma Spectroscopy	Radium-226	1.633	pCi/g	0.47				0.454				0.528				0.422				0.49				0.375				0.413				0.451				0.585				0.605				0.383				0.482				0.492			
	Cesium-137	0.133	pCi/g	0.00978	U			0.0216	U			0.00806	U			0.031	U			0.00307	U			0.0238	U			0.0175	U			0.0446	U			0.00532	U			0.0057	U			0.0106	U			0.00851	U			0.00605	U		
Asbestos by CARB 435	Asbestos	<0.25	%	0	U			0	U			0	U			0	U			0	U			0	U			0	U			0	U			0	U			0	U			0	U			0	U			0	U		

TABLE 1
BERNARD PILE IMPORT FILL DATA

Analtyical Method	Analyte	Comparison Criteria	Units	BS-BERNARD-14				BS-BERNARD-15				BS-BERNARD-16				BS-BERNARD-17				BS-BERNARD-18				BS-BERNARD-19				BS-BERNARD-20				BS-BERNARD-21				BS-BERNARD-22			
				Result	VQ	MDL	DF	Result	VQ	MDL	DF	Result	VQ	MDL	DF	Result	VQ	MDL	DF	Result	VQ	MDL	DF	Result	VQ	MDL	DF	Result	VQ	MDL	DF	Result	VQ	MDL	DF	Result	VQ	MDL	DF
VOCs by EPA 8260	Acetone	61,000,000	µg/kg	4.5	U			4.7	U			4.8	U			4.5	U			4.9	U			4.7	U			4.8	U			4.9	U			4.7	U		
	Benzene	1,100	µg/kg	0.89	U			0.94	U			0.96	U			0.91	U			0.98	U			0.95	U			0.96	U			0.99	U			0.94	U		
	Bromodichloromethane	270	µg/kg	0.89	U			0.94	U			0.96	U			0.91	U			0.98	U			0.95	U			0.96	U			0.99	U			0.94	U		
	Bromoform	62,000	µg/kg	1.8	U			1.9	U			1.9	U			1.8	U			2	U			1.9	U			1.9	U			2	U			1.9	U		
	Bromomethane	7,300	µg/kg	0.89	U			0.94	U			0.96	U			0.91	U			0.98	U			0.95	U			0.96	U			0.99	U			0.94	U		
	2-Butanone	28,000,000	µg/kg	4.5	U			4.7	U			4.8	U			4.5	U			4.9	U			4.7	U			4.8	U			4.9	U			4.7	U		
	Carbon Disulfide	820,000	µg/kg	0.89	U			0.94	U			0.96	U			0.91	U			0.98	U			0.95	U			0.96	U			0.99	U			0.94	U		
	Carbon Tetrachloride	610	µg/kg	0.89	U			0.94	U			0.96	U			0.91	U			0.98	U			0.95	U			0.96	U			0.99	U			0.94	U		
	Chlorobenzene	290,000	µg/kg	0.89	U			0.94	U			0.96	U			0.91	U			0.98	U			0.95	U			0.96	U			0.99	U			0.94	U		
	Dibromochloromethane	680	µg/kg	0.89	U			0.94	U			0.96	U			0.91	U			0.98	U			0.95	U			0.96	U			0.99	U			0.94	U		
	Chloroethane	15,000,000	µg/kg	0.89	U			0.94	U			0.96	U			0.91	U			0.98	U			0.95	U			0.96	U			0.99	U			0.94	U		
	Chloroform	290	µg/kg	0.89	U			0.94	U			0.96	U			0.91	U			0.98	U			0.95	U			0.96	U			0.99	U			0.94	U		
	Chloromethane	120,000	µg/kg	0.89	U			0.94	U			0.96	U			0.91	U			0.98	U			0.95	U			0.96	U			0.99	U			0.94	U		
	cis-1,3-Dichloropropene	1,700	µg/kg	0.89	U			0.94	U			0.96	U			0.91	U			0.98	U			0.95	U			0.96	U			0.99	U			0.94	U		
	trans-1,3-Dichloropropene	1,700	µg/kg	0.89	U			0.94	U			0.96	U			0.91	U			0.98	U			0.95	U			0.96	U			0.99	U			0.94	U		
	1,2-Dichlorobenzene	1,900,000	µg/kg	0.89	U			0.94	U			0.96	U			0.91	U			0.98	U			0.95	U			0.96	U			0.99	U			0.94	U		
	1,4-Dichlorobenzene	2,400	µg/kg	0.89	U			0.94	U			0.96	U			0.91	U			0.98	U			0.95	U			0.96	U			0.99	U			0.94	U		
	1,1-Dichloroethane	3,300	µg/kg	0.89	U			0.94	U			0.96	U			0.91	U			0.98	U			0.95	U			0.96	U			0.99	U			0.94	U		
	1,2-Dichloroethane	430	µg/kg	0.89	U			0.94	U			0.96	U			0.91	U			0.98	U			0.95	U			0.96	U			0.99	U			0.94	U		
	1,1-Dichloroethene	240,000	µg/kg	0.89	U			0.94	U			0.96	U			0.91	U			0.98	U			0.95	U			0.96	U			0.99	U			0.94	U		
	cis-1,2-Dichloroethene	160,000	µg/kg	0.89	U			0.94	U			0.96	U			0.91	U			0.98	U			0.95	U			0.96	U			0.99	U			0.94	U		
	trans-1,2-Dichloroethene	150,000	µg/kg	0.89	U			0.94	U			0.96	U			0.91	U			0.98	U			0.95	U			0.96	U			0.99	U			0.94	U		
	1,2-Dichloropropane	940	µg/kg	0.89	U			0.94	U			0.96	U			0.91	U			0.98	U			0.95	U			0.96	U			0.99	U			0.94	U		
	Ethyl benzene	5,400	µg/kg	0.89	U			0.94	U			0.96	U			0.91	U			0.98	U			0.95	U			0.96	U			0.99	U			0.94	U		
	Methylene Chloride	56,000	µg/kg	1.8	U			1.9	U			1.9	U			1.8	U			2	U			1.9	U			1.9	U			2	U			1.9	U		
	Methyl isobutyl ketone	5,300,000	µg/kg	1.8	U			1.9	U			1.9	U			1.8	U			2	U			1.9	U			1.9	U			2	U			1.9	U		
	Methyl tertiary butyl ether	43,000	µg/kg	0.89	U			0.94	U			0.96	U			0.91	U			0.98	U			0.95	U			0.96	U			0.99	U			0.94	U		
	Naphthalene	3,600	µg/kg	0.89	U			0.94	U			0.96	U			0.91	U			0.98	U			0.95	U			0.96	U			0.99	U			0.94	U		
	Styrene	6,300,000	µg/kg	0.89	U			0.94	U			0.96	U			0.91	U			0.98	U			0.95	U			0.96	U			0.99	U			0.94	U		
	1,1,2,2-Tetrachloroethane	560	µg/kg	0.89	U			0.94	U			0.96	U			0.91	U			0.98	U			0.95	U			0.96	U			0.99	U			0.94	U		
	Tetrachloroethene	22,000	µg/kg	0.89	U			0.94	U			0.96	U			0.91	U			0.98	U			0.95	U			0.96	U			0.99	U			0.94	U		
	Toluene	5,000,000	µg/kg	0.89	U			0.94	U			0.96	U			0.91	U			0.98	U			0.95	U			0.96	U			0.99	U			0.94	U		
	1,1,1-Trichloroethane	8,700,000	µg/kg	0.89	U			0.94	U			0.96	U			0.91	U			0.98	U			0.95	U			0.96	U			0.99	U			0.94	U		
	1,1,2-Trichloroethane	1,100	µg/kg	0.89	U			0.94	U			0.96	U			0.91	U			0.98	U			0.95	U			0.96	U			0.99	U			0.94	U		
	Trichloroethene	910	µg/kg	0.89	U			0.94	U			0.96	U			0.91	U			0.98	U			0.95	U			0.96	U			0.99	U			0.94	U		
	Vinyl Acetate	970,000	µg/kg	1.8	U			1.9	U			1.9	U			1.8	U			2	U			1.9	U			1.9	U			2	U			1.9	U		
	Vinyl Chloride	60	µg/kg	0.89	U			0.94	U			0.96	U			0.91	U			0.98	U			0.95	U			0.96	U			0.99	U			0.94	U		
	Xylene (Total)	630,000	µg/kg	2.69	U			2.84	U			2.86	U			2.71	U			2.98	U			2.85	U			2.86	U			2.99	U			2.84	U		
SVOCs by EPA 8270	Acenaphthene	3,400,000	µg/kg	370	U	92	10	180	U	64	5	170	U	63	5	1500	U	370	20	350	U	120	10	380	U	140	10	370	U	130	10	360	U	130	10	370	U	130	10
	Anthracene	17,000,000	µg/kg	370	U	99	10	180	U	64	5	170	U	63	5	1500	U	400	20	350	U	120	10	380	U	140	10	370	U	130	10	360	U	130	10	370	U	130	10
	Benzo(a)anthracene	150	µg/kg	130	J	92	10	180	U	46	5	170	U	45	5	1500	U	370	20	350	U	89	10	380	U	99	10	370	U	95	10	95	J	94	10	370	U	97	10
	Benzo(a)pyrene	330	µg/kg	370	U	92	10	180	U	47	5	170	U	45	5	1500	U	370	20	350	U	90	10	380	U	100	10	370	U	95	10	360	U	95	10	370	U	97	10
	Benzo(b)fluoranthene	1,760	µg/kg	100	J	92	10	180	U	64	5	170	U	63	5	1500	U	370	20	350	U	120	10	380	U	140	10	370	U	130	10	360	U	130	10	370	U	130	10
	Benzo(k)fluoranthene	1,500	µg/kg	370	U	92	10	180	U	47	5	170	U	45	5	1500	U	370	20	350	U	90	10	380	U	100	10	370	U	95	10	360	U	95	10	370	U	97	10
	Bis(2-Chloroethyl) Ether	210	µg/kg	370	U	240	10	180	U	120	5	170	U	120	5	1500	U	970	20	350	U	230	10	380	U	250	10	370	U	140	10	360	U	140	10	370	U	140	10
	Benzoic acid	240,000,000	µg/kg	4600	U b	4200	10	4500	U	2700	5	4400	U	2600	5	37000	U	22000	20	8700	U	5200	10	9600	U	5700	10	9200	U	5500	10	9100	U	5500	10	9400	U	5600	10
	Bis(2-Chloro-1-methylethyl) Ether	4,600	µg/kg	370	U	110	10	180	U	55	5	170	U	54	5	1500	U	450	20	350	U	110	10	380	U	120	10	370	U	110	10	360	U	110	10	370	U	120	10
	Bis(2-Ethylhexyl) Phthalate	35,000	µg/kg	370	U	94	10	180	U	47	5	170	U	46	5	1500	U	380	20	350	U	90	10	380	U	100	10	370	U	96	10	360	U	95	10	370	U	98	10
	Butyl Benzyl Phthalate	260,000	µg/kg	370	U	110	10	180	U	64	5	170	U	63	5	1500	U	420	20	350	U	120	10	380	U	140	10	370	U	130	10	360	U	130	10	370	U	130	10
	4-Chloroaniline	2,400	µg/kg	370	U	140	10	180	U	88	5	170	U	86	5	1500	U	550	20	350	U	170	10	380	U	190	10	370	U	180	10	360	U	180	10	370	U	180	10
	2-Chloronaphthalene	6,300,000	µg/kg	370	U	92	10	450	U	300	5	440	U	290	5	3700	U	370	20	870	U	570	10	960	U	630	10	920	U	610	10	910	U	600	10	940	U	620	10
	2-Chlorophenol	390,000	µg/kg	370	U	150	10	180	U	88	5	170	U	86	5	1500	U	610	20	350	U	170	10	380	U	190	10	370	U	180	10	360	U	180	10	370	U	180	10
	Chrysene	15,000	µg/kg	120	J	92	10	180	U	64	5	170	U	63	5	1500	U	370	20	350	U	120	10	380	U	140	10	370	U	130	10	360	U	130	10	370	U	130	10
	Di-n-Octyl Phthalate	730,000	µg/kg	920	U	380	10	450	U	180	5	440	U	180	5	3700	U	1500	20	870	U	350	10	960	U	390	10	370	U	93	10	360	U	92	10	940	U	380	10
	Dibenz(a,h)anthracene	15	µg/kg	370	U	92	10	180	U	64	5	170	U	63	5	1500	U	370	20	350	U	120	10	380	U	140	10	370	U	130	10	360	U	130	10	370	U	130	10
	Dibenzofuran	78,000	µg/kg	370	U	92	10	180	U	47	5	170	U	46	5	1500	U	370	20	350	U	91	10	380	U	100	10	370	U	96	10	360	U	96	10	370	U	98	10
	1,2-Dichlorobenzene	1,900,000	µg/kg	370	U	240	10	180	U	51	5	170	U	50	5	1500	U	970	20	350	U	98	10	380	U	110	10	370	U	100	10	360	U	100	10	370	U	110	10
	1,3-Dichlorobenzene	NA	µg/kg	920	U	460	10	180	U	64	5	170	U	63	5	1500	U	1800	20	350	U	120	10	380	U	140	10	370	U	130	10	360	U	130	10	370	U	130	10
	1,4-Dichlorobenzene	2,400	µg/kg	920	U	460	10	180	U	54	5	170	U	53	5	1500	U	1800	20	350	U	100	10	380	U	120	10	370	U	110	10	360	U	110	10	370	U	110	10
	3,3'-Dichlorobenzidine	1,100	µg/kg	1800	U	870	10	450	U	230	5	440	U	220	5	3700	U	3500	20	870	U	450	10	960	U	490	10	920	U	470	10	910	U	470	10	940	U	480	10
	2,4-Dichlorophenol	180,000	µg/kg	370	U	100	10	180	U	68	5	170	U	66	5	1500	U	410	20	350	U	130	10	380	U	140	10	370	U	140	10	360	U	140	10	370	U	140	10
	Diethyl Phthalate	49,000,000	µg/kg	370	U	92	10	180	U	46	5	170	U	45	5	1500	U	370	20	350	U	88	10	380	U	98	10	370	U	93	10	360	U	93	10	370	U	95	10
	Di-N-butyl Phthalate	6,100,000	µg/kg	370	U	110	10	180	U	64	5	170	U	63	5	1500	U	420	20	350	U	120	10	380	U	140	10	370	U	130	10	360	U	130	10	370	U	130	10
	Dimethyl Phthalate	7,800,000	µg/kg	370	U	92	10	180	U	50	5	170	U	49	5	1500	U	370	20	350	U	97	10	380	U	110	10	370	U	100	10	360	U	100	10	370	U	100	10
	2,4-Dimethylphenol	1,200,000	µg/kg	370	U	200	10	180	U	74	5	170	U	72	5	1500	U	820	20	350	U	140	10	380	U	160	10	370	U	150	10	360	U	150	10	370	U	150	10
	2,4-Dinitrophenol	120,000	µg/kg	1800	U b	830	10	3200	U	860	5	3100	U	840	5	26000	U	7000	20	6200	U	1700	10	6900	U	1800	10	6600	U	1800	10	6600	U	1700	10	6700	U	1800	10
	2,4-Dinitrotoluene	1,600	µg/kg	370	U	92	10	180	U	52	5	170	U	51	5	1500	U	370	20	350	U	100	10	380	U	110	10	370	U	110	10	360	U	110	10	370	U	110	10
	Fluoranthene	2,300,000	µg/kg	210	J	100	10	180	U	46	5	47	J	45	5	1500	U	410	20	92	J	90	10	380	U	99	10	370	U	95	10	110	J	94	10	370	U	97	10
	2,6-Dinitrotoluene	61,000	µg/kg	920	U	370	10	180	U	47	5	170	U	46	5	1500	U	1500	20	350	U	91	10	380	U	100	10	370	U	97	10	360	U	96	10	370	U	99	10
	Fluorene	2,300,000	µg/kg	370	U	92	10	180	U	48	5	170	U	47	5	1500	U	370	20	350	U	93	10	380	U	100	10	370	U	98	10	360	U	97	10	370	U	100	10
	Hexachlorobenzene	300	µg/kg	370	U	92	10	180	U	64	5	170	U	63	5	1500	U	370	20	350	U	120	10	380	U	140	10	370	U	130	10	360	U	130	10	370	U	130	10
	Hexachlorobutadiene	6,200	µg/kg	370	U	240	10	450	U	330	5	440	U	320	5	3700	U	970	20	870	U	630	10	960	U	700	10	920	U	670	10	910	U	660	10	940	U	680	10
	Hexachlorocyclopentadiene	370,000	µg/kg	1800	U	840	10	450	U b	320	5	440	U b	320	5	3700	U b	2700	20	870	U b	630	10	960	U b	690	10	920	U	670	10	910	U	660	10	940	U b	680	10
	Hexachloroethane	35,000	µg/kg	920	U	460	10	180	U	64	5	170	U	63	5	1500	U	1800	20	350	U	120	10	380	U	140	10	370	U	130	10	360	U	130	10	370	U	130	10
	Indeno(1,2,3-cd)pyrene	150	µg/kg	370	U	92	10	180	U	64	5	170	U	63	5	1500	U	370	20	350	U	120	10	380	U	140	10	370	U	130	10	360	U	130	10	370	U	130	10
	Isophorone	510,000	µg/kg	370	U	110	10	180	U	55	5	170	U	53	5	1500	U	450	20	350	U	110	10	380	U	120	10	370	U	110	10	360	U	110	10	370	U	120	10
	4-Methylphenol	6,100,000	µg/kg	370	U	180	10	180	U	94	5	170	U	92	5	1500	U	700	20	350	U	180	10	380	U	200	10	370	U	190	10	360	U	190	10	370	U	200	10
	2-Methylphenol	3,100,000	µg/kg	370	U	160	10	180	U	83	5	170	U	81	5	1500	U	630	20	350	U	160	10	380	U	180	10	370	U	170	10	360	U	170	10	370	U	170	10
	Naphthalene	3,600	µg/kg	370	U	140	10	180	U	47	5	170	U	46	5	1500	U	570	20	350	U	91	10	380	U	100	10	370	U	97	10	360	U	96	10	370	U	99	10
	2-Nitroaniline	610,000	µg/kg	920	U	370	10	450	U	180	5	440	U	180	5	3700	U	1500	20	870	U	350	10	960	U	390	10	920	U	370	10	910	U	370	10	940	U	380	10
	3-Nitroaniline	NA	µg/kg	370	U	92	10	450	U	180	5	440	U	170	5	3700	U	370	20	870	U	340	10	960	U	380	10	920	U	360	10	910	U	360	10	940	U	370	10
	4-Nitroaniline	24,000	µg/kg	370	U	120	10	180	U	57	5	170	U	55	5	1500	U	460	20	350	U	110	10	380	U	120	10	920	U	360	10	910	U	360	10	940	U	370	10
	Nitrobenzene	4,800	µg/kg	370	U	240	10	180	U	120	5	170	U	120	5	1500	U	530	20	350	U	120	10	380	U	140	10	370	U	240	10	360	U	240	10	370	U	130	10
	N-Nitroso-di-n-propylamine	69	µg/kg	370	U	170	10	180	U	82	5	170	U	80	5	1500	U	670	20	350	U	160	10	380	U	170	10	370	U	360	10	360	U	360	10	370	U	370	10
	N-Nitrosodimethylamine	2.3	µg/kg	920	U	460	10	180	U	180	5	170	U	170	5	1500	U	1800	20	350	U	340	10	380	U	380	10	370	U	360	10	360	U	360	10	370	U	370	10
	N-Nitrosodiphenylamine	99,000	µg/kg	370	U	92	10	450	U	300	5	440	U	290	5	3700	U	370	20	870	U	580	10	960	U	640	10	920	U	610	10	910	U	610	10	940	U	630	10
	Pentachlorophenol	890	µg/kg	1800	U	1100	10	900	U	800	5	870	U	780	5	7300	U	4500	20	1700	U	1500	10	1900	U	1700	10	1800	U	1600	10	1800	U	1600	10	1900	U	1700	10
	Phenol	18,000,000	µg/kg	370	U	170	10	180	U	93	5	170	U	91	5	1500	U	660	20	350	U	180	10	380	U	200	10	370	U	190	10	360	U	190	10	370	U	190	10
	Pyrene	1,700,000	µg/kg	200	J	92	10	180	U	50	5	59	J	49	5	1500	U	370	20	350	U	97	10	380	U	110	10	100	J	100	10	110	J	100	10	370	U	110	10
	1,2,4-Trichlorobenzene	22,000	µg/kg	370	U	240	10	180	U	52	5	170	U	51	5	1500	U	970	20	350	U	100	10	380	U	110	10	370	U	110	10	360	U	110	10	370	U	110	10
	2,4,5-Trichlorophenol	6,100,000	µg/kg	370	U	100	10	180	U	47	5	170	U	46	5	1500	U	400	20	350	U	91	10	380	U	100	10	370	U	96	10	360	U	96	10	370	U	99	10
	2,4,6-Trichlorophenol	44,000	µg/kg	370	U	120	10	180	U	75	5	170	U	73	5	1500	U	480	20	350	U	140	10	380	U	160	10	370	U	150	10	360	U	150	10	370	U	160	10

TABLE 1
BERNARD PILE IMPORT FILL DATA

Analtyical Method	Analyte	Comparison Criteria	Units	BS-BERNARD-14				BS-BERNARD-15				BS-BERNARD-16				BS-BERNARD-17				BS-BERNARD-18				BS-BERNARD-19				BS-BERNARD-20				BS-BERNARD-21				BS-BERNARD-22			
				Result	VQ	MDL	DF	Result	VQ	MDL	DF	Result	VQ	MDL	DF	Result	VQ	MDL	DF	Result	VQ	MDL	DF	Result	VQ	MDL	DF	Result	VQ	MDL	DF	Result	VQ	MDL	DF	Result	VQ	MDL	DF
OCPs by EPA 8081 B	**alpha-Chlordane**	**1,600**	µg/kg	1.7	J			1.4	J			1.3	J			3.9	U			2.1	J			4	U			1.8	J			3.8	U			1.7	J		
	gamma-Chlordane	**1,600**	µg/kg	3.8	U			3.7	U			3.7	U			3.9	U			1.9	J			4	U			2.2	J			3.8	U			1.9	J		
	4,4'-DDD	**2,000**	µg/kg	7.6	U			7.4	U			7.4	U			7.7	U			7.3	U			8	U			7.6	U			7.7	U			7.8	U		
	4,4'-DDE	**1,400**	µg/kg	7.6	U			7.4	U			7.4	U			7.7	U			7.3	U			2.1	J			7.6	U			7.7	U			7.8	U		
	4,4'-DDT	**1,700**	µg/kg	7.6	U			7.4	U			7.4	U			7.7	U			7.3	U			8	U			7.6	U			7.7	U			7.8	U		
	alpha-BHC	**77**	µg/kg	3.8	U			3.7	U			3.7	U			3.9	U			3.7	U			4	U			3.8	U			3.8	U			3.9	U		
	beta-BHC	**270**	µg/kg	3.8	U			3.7	U			3.7	U			3.9	U			3.7	U			4	U			3.8	U			3.8	U			3.9	U		
	gamma-BHC	**520**	µg/kg	3.8	U			3.7	U			3.7	U			3.9	U			3.7	U			4	U			3.8	U			3.8	U			3.9	U		
	Heptachlor	**110**	µg/kg	3.8	U			3.7	U			3.7	U			3.9	U			3.7	U			4	U			3.8	U			3.8	U			3.9	U		
	Aldrin	**29**	µg/kg	3.8	U			3.7	U			3.7	U			3.9	U			3.7	U			4	U			3.8	U			3.8	U			3.9	U		
	Heptachlor epoxide	**53**	µg/kg	3.8	U			3.7	U			3.7	U			3.9	U			3.7	U			4	U			3.8	U			3.8	U			3.9	U		
	Endosulfan I	**370,000**	µg/kg	3.8	U			3.7	U			3.7	U			3.9	U			3.7	U			4	U			3.8	U			3.8	U			3.9	U		
	Endosulfan II	**370,000**	µg/kg	7.6	U			7.4	U			7.4	U			7.7	U			7.3	U			8	U			7.6	U			7.7	U			7.8	U		
	Dieldrin	**30**	µg/kg	3.7	U			3.6	U			3.6	U			1.6	J			3.6	U			3.9	U			2.4	J			3.7	U			1.7	J		
	Endrin	**18,000**	µg/kg	7.6	U			7.4	U			7.4	U			7.7	U			7.3	U			8	U			7.6	U			7.7	U			7.8	U		
	Methoxychlor	**310,000**	µg/kg	38	U			37	U			37	U			39	U			37	U			40	U			38	U			38	U			39	U		
	Toxaphene	**440**	µg/kg	98	U			95	U			96	U			99	U			94	U			100	U			97	U			99	U			100	U		
PCBs by EPA 8082A	**Aroclor-1016**	**3,900**	µg/kg	5.2	U			5.1	U			5.1	U			5.3	U			5	U			5.5	U			5.2	U			5.3	U			5.3	U		
	Aroclor-1221	**140**	µg/kg	14	U			14	U			14	U			14	U			13	U			15	U			14	U			14	U			14	U		
	Aroclor-1232	**140**	µg/kg	7	U			6.8	U			6.8	U			7.1	U			6.7	U			7.3	U			6.9	U			7	U			7.1	U		
	Aroclor-1242	**220**	µg/kg	7	U			6.8	U			6.8	U			7.1	U			6.7	U			7.3	U			6.9	U			7	U			7.1	U		
	Aroclor-1248	**220**	µg/kg	7	U			6.8	U			6.8	U			7.1	U			6.7	U			7.3	U			6.9	U			7	U			7.1	U		
	Aroclor-1254	**220**	µg/kg	5.2	U			5.1	U			5.1	U			5.3	U			5	U			5.5	U			5.2	U			5.3	U			5.3	U		
	Aroclor-1260	**220**	µg/kg	9.2	J			8.5	J			9.4	J			19				15				19				15				14				10	J		
TPH by EPA 8015	**Gasoline C7-12**	**315**	mg/kg	0.025	J			0.035	J			0.019	J			0.02	J			0.074	J			0.024	J			0.038	U			0.021	J			0.016	J		
	Diesel C10-C24	**1,500**	mg/kg	17				23				24				28				18				47				33				28				29			
	Motor Oil C24-C36	**1,850**	mg/kg	100				140				120				200				140				300				230				160				170			
	Total TPH	**3,500**	mg/kg	100				140				120				200				140				300				230				160				170			
Metals by EPA 6010	**Antimony**	**31**	mg/kg	0.78				1				3.6				0.95				1				3.5				1				1.2				3.8			
Metals by EPA 6010	**Arsenic**	**11.1**	mg/kg	4.3				4				4				4.3				5.5				5.4				4.8				5.9				5			
	Barium	**15,000**	mg/kg	110				110				100				140				130				120				120				120				130			
	Beryllium	**160**	mg/kg	0.4				0.39				0.39				0.43				0.42				0.41				0.42				0.48				0.44			
	Cadmium	**70**	mg/kg	1				0.98				0.95				1.2				1.1				0.99				1.1				1.1				1.1			
	Chromium	**NA**	mg/kg	67				66				65				81				71				68				69				68				70			
	Cobalt	**23**	mg/kg	11				11				12				14				13				11				12				13				13			
	Copper	**3,100**	mg/kg	19				16				15				23				25				26				22				24				28			
	Lead	**400**	mg/kg	46				27				23				52				40				45				42				40				44			
	Manganese	**1,800**	mg/kg	370				430				350				470				420				400				500				410				470			
	Mercury	**10**	mg/kg	0.13				0.11				0.11				0.19				0.17				0.22				0.18				0.17				0.18			
	Molybdenum	**390**	mg/kg	0.4				0.34				0.12	U			0.42				0.45				0.44				0.46				0.53				0.49			
	Nickel	**2,650**	mg/kg	69				68				65				81				72				70				73				77				77			
	Selenium	**390**	mg/kg	0.47	U			0.44	U			0.4	U			0.44	U			0.46	U			0.36	J			0.48	U			0.45	U			0.48	U		
	Silver	**390**	mg/kg	0.13	J			0.16	J			0.12	J			0.13	J			0.13	J			0.12	J			0.15	J			0.14	J			0.14	J		
	Thallium	**0.81**	mg/kg	0.47	U			0.44	U			0.4	U			0.44	U			0.46	U			0.45	U			0.48	U			0.45	U			0.48	U		
	Vanadium	**390**	mg/kg	50				51				47				55				52				51				52				53				51			
	Zinc	**23,400**	mg/kg	58				55				54				70				65				64				66				70				75			
Radionuclides by Gamma Spectroscopy	**Radium-226**	**1.633**	pCi/g	0.541				0.46				0.45				0.546				0.457				0.595				0.568				0.551				0.486			
	Cesium-137	**0.133**	pCi/g	0.00739	U			0.0154	U			0.0174	U			0.0162	U			0.00431	U			0.0122	U			0.0423	U			0.0179	U			0.0183	U		
Asbestos by CARB 435	**Asbestos**	**<0.25**	%	0	U			0	U			0	U			0	U			0	U			0	U			0	U			0	U			0	U		

Notes:
Draft 7-day gamma spectroscopy results are reported. The table will be updated with final results when they become available.
% - percent
µg/kg - microgram per kilogram
b - low response observed; however analytes met minimum response criteria
EPA - U.S. Environmental Protection Agency
HPAL - Hunters Point Ambient Level
J - estimated result (detected below reporting limit)
mg/kg - milligram per kilogram
PCB - polychlorinated biphenyl
pCi/g - picocurie per gram
RSL - EPA Regional Screening Levels for Residential Soil
TPH - total petroleum hydrocarbon
SVOC - semivolatile organic compound
U - not detected at or above the reporting limit
VOC - volatile organic compound
VQ - validation qualifier
MDL - method dection limit (the lowest concentration level that can be determined to be statistically different from a blank (99% confidence)
DF - dilution factor
Compound detection limit is above the comparison criterion; compound not detected.

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 277038
ANALYTICAL REPORT

CB&I	Project : 149831
4005 Port Chicago Highway	Location : HPNS Parcel D-1
Concord, CA 94520-1120	Level : III

Sample ID	Lab ID
BS-BERNARD-01-051916	277038-001
BS-BERNARD-02-051916	277038-002
BS-BERNARD-03-051916	277038-003
BS-BERNARD-04-051916	277038-004
BS-BERNARD-05-051916	277038-005
BS-BERNARD-06-051916	277038-006
BS-BERNARD-07-051916	277038-007
BS-BERNARD-08-051916	277038-008
BS-BERNARD-09-051916	277038-009
BS-BERNARD-10-051916	277038-010
BS-BERNARD-11-051916	277038-011
BS-BERNARD-12-051916	277038-012

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: _____ Date: 06/30/2016

Mike Dahlquist
Project Manager
mike.dahlquist@ctberk.com

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**277038**
Client:	**CB&I**
Project:	**149831**
Location:	**HPNS Parcel D-1**
Request Date:	**05/20/16**
Samples Received:	**05/20/16**

This data package contains sample and QC results for twelve soil samples, requested for the above referenced project on 05/20/16. See attached cooler receipt form for any sample receipt problems or discrepancies.

TPH-Purgeables and/or BTXE by GC (EPA 8015D):
Matrix spikes were not performed for this analysis in batch 235352 due to insufficient sample amount.

Low recoveries were observed for gasoline C7-C12 in the MS/MSD for batch 235356; the parent sample was not a project sample, the LCS was within limits, and the associated RPD was within limits.

Gasoline C7-C12 was detected between the MDL and half the RL in the method blank for batch 235352; this analyte was not detected in samples at or above the LOD.

Gasoline C7-C12 was detected between the MDL and half the RL in the method blank for batch 235356.

No other analytical problems were encountered.

TPH-Extractables by GC (EPA 8015D):
No analytical problems were encountered.

Volatile Organics by GC/MS (EPA 8260C):
Low response was observed for bromomethane in the ICV analyzed 04/22/16 02:45; this analyte was not detected at or above the RL in the associated samples, and affected data was qualified with "b".

High responses were observed for chloromethane and Freon 12 in the CCV analyzed 05/24/16 12:19; these analytes were not detected at or above the RL in the associated samples, and affected data was qualified with "b".

High responses were observed for a number of analytes in the CCV analyzed 05/22/16 15:57; these analytes were not detected at or above the RL in the associated samples, and affected data was qualified with "b".

Low recovery was observed for vinyl acetate in the MSD for batch 235404; the parent sample was not a project sample, and the LCS was within limits. High recoveries were observed for acetone, 2-butanone, and MTBE in the MS/MSD for batch 235404; the LCS was within limits, the associated RPDs were within

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**277038**
Client:	**CB&I**
Project:	**149831**
Location:	**HPNS Parcel D-1**
Request Date:	**05/20/16**
Samples Received:	**05/20/16**

Volatile Organics by GC/MS (EPA 8260C):

limits, and these analytes were not detected at or above the RL in the associated samples. High RPD was observed for vinyl acetate; this analyte was not detected at or above the RL in the associated samples.

High surrogate recoveries were observed for dibromofluoromethane in many samples; no target analytes were detected in these samples.

Acetone was detected between the MDL and half the RL in the method blank for batch 235335; this analyte was not detected in samples at or above the LOD.

No other analytical problems were encountered.

Semivolatile Organics by GC/MS (EPA 8270D):

Low responses were observed for a number of analytes in the CCV analyzed 05/26/16 20:29; these analytes met minimum response criteria, and affected data was qualified with "b".

Low response was observed for hexachlorocyclopentadiene in the CCV analyzed 05/26/16 22:11; this analyte met minimum response criteria, and affected data was qualified with "b".

High responses were observed for many analytes in the CCV analyzed 05/26/16 11:11; affected data was qualified with "b".

Low response was observed for hexachlorocyclopentadiene in the CCV analyzed 05/26/16 22:13; this analyte met minimum response criteria, and affected data was qualified with "b". High response was observed for Di-n-octylphthalate; this analyte was not detected at or above the RL in the associated samples.

Low responses were observed for 2,4-dinitrophenol and hexachlorocyclopentadiene in the CCV analyzed 05/28/16 00:05; these analytes met minimum response criteria, and affected data was qualified with "b".

Low response was observed for hexachlorocyclopentadiene in the CCV analyzed 05/27/16 07:31; this analyte was not detected at or above the RL in the associated samples, and affected data was qualified with "b". Low responses were observed for 4,6-dinitro-2-methylphenol, 2,4-dinitrophenol, and hexachlorocyclopentadiene; affected data was qualified with "b".

Low internal standard response was observed for 1,4-dichlorobenzene-d4 in

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**277038**
Client:	**CB&I**
Project:	**149831**
Location:	**HPNS Parcel D-1**
Request Date:	**05/20/16**
Samples Received:	**05/20/16**

Semivolatile Organics by GC/MS (EPA 8270D):

BS-BERNARD-02-051916 (lab # 277038-002).

Low recovery was observed for 4,6-dinitro-2-methylphenol in the LCS for batch 235475.

Low recoveries were observed for hexachlorocyclopentadiene in the MS/MSD of BS-BERNARD-01-051916 (lab # 277038-001); the LCS was within limits. High RPD was observed for many analytes; these analytes were not detected at or above the RL in the associated samples.

Many samples were diluted due to the dark and viscous nature of the sample extracts.

BS-BERNARD-06-051916 (lab # 277038-006) was diluted due to high non-target analytes.

No other analytical problems were encountered.

Pesticides (EPA 8081B):

All samples underwent sulfur cleanup using the copper option in EPA Method 3660B.

All samples underwent florisil cleanup using EPA Method 3620C.

High response was observed for 4,4'-DDE in the ICV analyzed 05/24/16 01:10; this analyte was not detected at or above the RL in the associated samples, and affected data was qualified with "b".

High responses were observed for alpha-BHC, gamma-BHC, and endrin aldehyde in the ICV analyzed 05/27/16 02:24; affected data was qualified with "b".

High responses were observed for a number of analytes in the CCV analyzed 05/27/16 13:18; these analytes were not detected at or above the RL in the associated samples.

High responses were observed for 4,4'-DDE, heptachlor, and methoxychlor in the CCV analyzed 05/27/16 15:04; these analytes were not detected at or above the RL in the associated samples.

High response was observed for 4,4'-DDT in the CCV analyzed 05/27/16 13:18;

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**277038**
Client:	**CB&I**
Project:	**149831**
Location:	**HPNS Parcel D-1**
Request Date:	**05/20/16**
Samples Received:	**05/20/16**

Pesticides (EPA 8081B):
this analyte was not detected at or above the RL in the associated sample.

High response was observed for 4,4'-DDT in the CCV analyzed 05/27/16 15:04; this analyte was not detected at or above the RL in the associated sample.

High responses were observed for many analytes in the CCV analyzed 05/25/16 14:18.

Low recoveries were observed for alpha-chlordane, 4,4'-DDE, and 4,4'-DDT in the MS/MSD of BS-BERNARD-11-051916 (lab # 277038-011); the LCS was within limits. High recoveries were observed for 4,4'-DDD and dieldrin; the LCS was within limits, and these analytes were not detected at or above the RL in the associated samples. High RPD was observed for 4,4'-DDD, 4,4'-DDT, and dieldrin.

4,4'-DDE, endrin, and heptachlor epoxide were detected between the MDL and half the RL in the method blank for batch 235428.

Many samples were diluted due to the color of the sample extracts.

No other analytical problems were encountered.

PCBs (EPA 8082A):
All samples underwent sulfuric acid cleanup using EPA Method 3665A.

All samples underwent sulfur cleanup using the copper option in EPA Method 3660B.

Matrix spikes QC837113,QC837114 (batch 235472) were not reported because the parent sample required a dilution that would have diluted out the spikes.

No other analytical problems were encountered.

Metals (EPA 6010C and EPA 7471B):
Low recovery was observed for mercury in the MS of BS-BERNARD-19-051916 (lab # 277036-007); the BS/BSD were within limits, and the associated RPD was within limits.

High recovery was observed for mercury in the MSD of BS-BERNARD-09-051916 (lab # 277038-009); the BS/BSD were within limits, and the associated RPD was

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**277038**
Client:	**CB&I**
Project:	**149831**
Location:	**HPNS Parcel D-1**
Request Date:	**05/20/16**
Samples Received:	**05/20/16**

Metals (EPA 6010C and EPA 7471B):
within limits.

Low recoveries were observed for antimony in the MS/MSD of BS-BERNARD-01-051916 (lab # 277038-001); the BS/BSD were within limits, and the associated RPD was within limits. High recoveries were observed for barium and nickel; the BS/BSD were within limits, and the associated RPDs were within limits.

Low recovery was observed for thallium in the post digest spike of BS-BERNARD-01-051916 (lab # 277038-001); the BS/BSD were within limits. High recovery was observed for selenium; the BS/BSD were within limits, and this analyte was not detected at or above the RL in the associated samples.

High % differences were observed for a number of analytes in the serial dilution of BS-BERNARD-01-051916 (lab # 277038-001) and the serial dilution of BS-BERNARD-09-051916 (lab # 277038-009).

Mercury was detected between the MDL and half the RL in the method blank for batch 235510.

Iron was detected above half the RL in the method blank for batch 235517; this analyte was detected in samples at a level at least 10 times that of the blank.

No other analytical problems were encountered.

Moisture (ASTM D2216/CLP):
No analytical problems were encountered.

Chain of Custody

CBI

4005 Port Chicago Hwy
Concord, CA 94520

CHAIN OF CUSTODY

27038

Ref. Document # 149831-002

Page 1 of 1

Project Manager: *Lisa Bersich*

(Name & phone #)

Send Report To: *Eddie Kalombo*
Phone/Fax Number: *415-987-0760*
Address: *4005 Port Chicago Hwy*
City: *Concord, CA, 94520*

Project Number: 149831
Project Name: HPNS - Parcel D-1
Project Location: HPNS
Purchase Order #: 202570
Shipment/Pickup Date: 5/20/2016
Waybill Number:
Lab Destination: Curtis & Tompkins, 2323 5th Street, Berkeley, CA 94710
Lab Contact Name / ph. #: Mike Dahlquist 510.204.2225

Sampler's Name(s): Eddie Kalombo

	Sample ID	Location ID	Collection Information: Date	Time	Method	Matrix	# of containers	Preservative	Container Type: Beginning Depth	Ending depth	Analyses Requested: Title 22 Metals 6010B/7471B + Fe & Mn	TPH Extractables (diesel, motor oil) 8015B with SILCA GEL CLEAN UP	Organic Lead CA LUFT	SVOCs 8270C/D	OC Pesticides 8081A	PCBs 8082	VOC 8260B/C	TPH-Purgeables 8015B		Cooler Temperature
								ice			ice	ice	ice	ice	ice	ice	ice	ice		
								16 oz Jar									EnCore			
1	BS-BERNARD-01-051916	Bernard Pile	05/19/16	0730	G	S	1		3	6	X	X		X	X	X	X	X		
2	BS-BERNARD-02-051916	Bernard Pile	05/19/16	0735	G	S	1		3	6	X	X		X	X	X	X	X		
3	BS-BERNARD-03-051916	Bernard Pile	05/19/16	0740	G	S	1		3	6	X	X		X	X	X	X	X		
4	BS-BERNARD-04-051916	Bernard Pile	05/19/16	0745	G	S	1		3	6	X	X		X	X	X	X	X		
5	BS-BERNARD-05-051916	Bernard Pile	05/19/16	0750	G	S	1		3	6	X	X		X	X	X	X	X		
6	BS-BERNARD-06-051916	Bernard Pile	05/19/16	0800	G	S	1		3	6	X	X		X	X	X	X	X		
7	BS-BERNARD-07-051916	Bernard Pile	05/19/16	0805	G	S	1		3	6	X	X		X	X	X	X	X		
8	BS-BERNARD-08-051916	Bernard Pile	05/19/16	0810	G	S	1		3	6	X	X		X	X	X	X	X		
9	BS-BERNARD-09-051916	Bernard Pile	05/19/16	0815	G	S	1		3	6	X	X		X	X	X	X	X		
10	BS-BERNARD-10-051916	Bernard Pile	05/19/16	0822	G	S	1		3	6	X	X		X	X	X	X	X		
11	BS-BERNARD-11-051916	Bernard Pile	05/19/16	0830	G	S	1		3	6	X	X		X	X	X	X	X		
12	BS-BERNARD-12-051916	Bernard Pile	05/19/16	0835	G	S	1		3	6	X	X		X	X	X	X	X		
	Temp Blank																			X

Special Instructions: Report on Dry Weight Basis.

Turnaround Time: ☐ 24-hr ☐ 48-hr
Standard TAT -5-day ☐ 72-hr ☐ 5-day

Level of QC Required: II **III** IV Project Specific:

Relinquished By: Date: 5.20.16 Time: 1345
Received By: Date: 5/20/16 Time: 1345

Relinquished By: Date: Time:
Received By: Date: Time:

Method Codes
LF= low flow
G = Grab

Matrix Codes
DW = Drinking Water
SO =Soil
GW = Ground Water
BW= Blank Water
WW = Waste Water
WP=Waste Product

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 277038 Date Received 5/20/16 Number of coolers 3
Client CB:I Project 49831

Date Opened 5/20 By (print) CJN (sign)
Date Logged in ↓ By (print) ↓ (sign) ↓

1. Did cooler come with a shipping slip (airbill, etc) YES (NO)
   Shipping info
2A. Were custody seals present? .... ☐ YES (circle) on cooler on samples ☒ NO
   How many Name Date
2B. Were custody seals intact upon arrival? YES NO (N/A)
3. Were custody papers dry and intact when received? (YES) NO
4. Were custody papers filled out properly (ink, signed, etc)? (YES) NO
5. Is the project identifiable from custody papers? (If so fill out top of form) (YES) NO
6. Indicate the packing in cooler: (if other, describe)

☐ Bubble Wrap ☐ Foam blocks ☒ Bags ☐ None
☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation: * Notify PM if temperature exceeds 6°C

Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C) 5.1°, 3.2°, 5.6

☐ Temperature blank(s) included? ☐ Thermometer# ☒ IR Gun# 4

☐ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? (YES) NO
   If YES, what time were they transferred to freezer? 5/20/16 1840
9. Did all bottles arrive unbroken/unopened? (YES) NO
10. Are there any missing / extra samples? YES (NO)
11. Are samples in the appropriate containers for indicated tests? (YES) NO
12. Are sample labels present, in good condition and complete? (YES) NO
13. Do the sample labels agree with custody papers? (YES) NO
14. Was sufficient amount of sample sent for tests requested? (YES) NO
15. Are the samples appropriately preserved? YES NO (N/A)
16. Did you check preservatives for all bottles for each sample? YES NO (N/A)
17. Did you document your preservative check? (pH strip lot#) YES NO (N/A)
18. Did you change the hold time in LIMS for unpreserved VOAs? YES NO (N/A)
19. Did you change the hold time in LIMS for preserved terracores? YES NO (N/A)
20. Are bubbles > 6mm absent in VOA samples? YES NO (N/A)
21. Was the client contacted concerning this sample delivery? YES (NO)
   If YES, Who was called? By Date:

COMMENTS

Curtis & Tompkins, Ltd.

Detections Summary for 277038

Results for any subcontracted analyses are not included in this summary.

Client : CB&I
Project : 149831
Location : HPNS Parcel D-1

Client Sample ID : BS-BERNARD-01-051916 Laboratory Sample ID : 277038-001

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Gasoline C7-C12	0.023	J	0.18	0.013	mg/Kg	Dry	1.000	EPA 8015D	EPA 5035
Diesel C10-C24	12	Y	1.1	0.34	mg/Kg	Dry	1.000	EPA 8015D	EPA 3550B
Motor Oil C24-C36	65		5.5	1.7	mg/Kg	Dry	1.000	EPA 8015D	EPA 3550B
Fluoranthene	13	J	73	11	ug/Kg	Dry	1.000	EPA 8270D	EPA 3550B
Pyrene	18	J	73	12	ug/Kg	Dry	1.000	EPA 8270D	EPA 3550B
Chrysene	13	J	73	12	ug/Kg	Dry	1.000	EPA 8270D	EPA 3550B
bis(2-Ethylhexyl)phthalate	16	J	360	14	ug/Kg	Dry	1.000	EPA 8270D	EPA 3550B
Benzo(b)fluoranthene	13	J	73	9.8	ug/Kg	Dry	1.000	EPA 8270D	EPA 3550B
Aroclor-1260	2.9	J	11	1.7	ug/Kg	Dry	1.000	EPA 8082A	EPA 3550B
Iron	23,000		130	42	mg/Kg	Dry	25.00	EPA 6010C	EPA 3050B
Manganese	470		0.27	0.055	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Antimony	1.1		0.53	0.16	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Arsenic	3.2		0.27	0.078	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Barium	95		0.27	0.057	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Beryllium	0.41		0.11	0.013	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cadmium	0.89		0.27	0.027	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Chromium	50		0.27	0.067	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cobalt	10		0.27	0.032	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Copper	20		0.28	0.092	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Lead	16		0.27	0.078	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Mercury	0.067		0.017	0.0031	mg/Kg	Dry	1.000	EPA 7471B	METHOD
Molybdenum	0.31		0.27	0.052	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Nickel	50		0.27	0.070	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Silver	0.18	J	0.27	0.043	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Vanadium	41		0.27	0.061	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Zinc	51		1.1	0.21	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B

Curtis & Tompkins, Ltd.

Client Sample ID : BS-BERNARD-02-051916 Laboratory Sample ID : 277038-002

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Gasoline C7-C12	0.021	J	0.19	0.014	mg/Kg	Dry	1.000	EPA 8015D	EPA 5035
Diesel C10-C24	14	Y	1.1	0.34	mg/Kg	Dry	1.000	EPA 8015D	EPA 3550B
Motor Oil C24-C36	57		5.5	1.7	mg/Kg	Dry	1.000	EPA 8015D	EPA 3550B
Phenanthrene	53	J	150	23	ug/Kg	Dry	2.000	EPA 8270D	EPA 3550B
Fluoranthene	60	J	150	23	ug/Kg	Dry	2.000	EPA 8270D	EPA 3550B
Pyrene	81	J	150	24	ug/Kg	Dry	2.000	EPA 8270D	EPA 3550B
Benzo(a)anthracene	28	J	150	23	ug/Kg	Dry	2.000	EPA 8270D	EPA 3550B
Chrysene	41	J	150	25	ug/Kg	Dry	2.000	EPA 8270D	EPA 3550B
Benzo(b)fluoranthene	39	J	150	20	ug/Kg	Dry	2.000	EPA 8270D	EPA 3550B
Benzo(a)pyrene	30	J	150	19	ug/Kg	Dry	2.000	EPA 8270D	EPA 3550B
Indeno(1,2,3-cd)pyrene	22	J	150	20	ug/Kg	Dry	2.000	EPA 8270D	EPA 3550B
Benzo(g,h,i)perylene	35	J	150	23	ug/Kg	Dry	2.000	EPA 8270D	EPA 3550B
Iron	26,000		130	40	mg/Kg	Dry	25.00	EPA 6010C	EPA 3050B
Manganese	300		0.25	0.052	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Antimony	0.83		0.51	0.15	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Arsenic	3.0		0.25	0.074	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Barium	84		0.25	0.055	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Beryllium	0.38		0.10	0.013	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cadmium	0.93		0.25	0.026	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Chromium	64		0.25	0.064	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cobalt	11		0.25	0.030	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Copper	15		0.25	0.085	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Lead	12		6.4	1.8	mg/Kg	Dry	25.00	EPA 6010C	EPA 3050B
Mercury	0.051		0.018	0.0032	mg/Kg	Dry	1.000	EPA 7471B	METHOD
Nickel	72		0.25	0.067	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Silver	0.10	J	0.25	0.041	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Vanadium	48		0.25	0.058	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Zinc	45		1.0	0.20	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B

Curtis & Tompkins, Ltd.

Client Sample ID : BS-BERNARD-03-051916 Laboratory Sample ID : 277038-003

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Gasoline C7-C12	0.016	J	0.19	0.014	mg/Kg	Dry	1.000	EPA 8015D	EPA 5035
Diesel C10-C24	26	Y	1.1	0.33	mg/Kg	Dry	1.000	EPA 8015D	EPA 3550B
Motor Oil C24-C36	110		5.5	1.7	mg/Kg	Dry	1.000	EPA 8015D	EPA 3550B
Phenanthrene	73	J	360	52	ug/Kg	Dry	5.000	EPA 8270D	EPA 3550B
Fluoranthene	91	J	360	47	ug/Kg	Dry	5.000	EPA 8270D	EPA 3550B
Pyrene	110	J	360	51	ug/Kg	Dry	5.000	EPA 8270D	EPA 3550B
Benzo(a)anthracene	49	J	360	47	ug/Kg	Dry	5.000	EPA 8270D	EPA 3550B
Benzo(b)fluoranthene	76	J	360	66	ug/Kg	Dry	5.000	EPA 8270D	EPA 3550B
4,4'-DDT	1.4	C,J	11	1.1	ug/Kg	Dry	3.000	EPA 8081B	EPA 3550B
alpha-Chlordane	0.93	C,J	5.5	0.78	ug/Kg	Dry	3.000	EPA 8081B	EPA 3550B
Aroclor-1260	5.0	J	10	1.7	ug/Kg	Dry	1.000	EPA 8082A	EPA 3550B
Iron	27,000		120	39	mg/Kg	Dry	25.00	EPA 6010C	EPA 3050B
Manganese	410		0.25	0.051	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Antimony	0.95		0.49	0.15	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Arsenic	4.2		0.25	0.072	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Barium	140		0.25	0.053	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Beryllium	0.48		0.099	0.012	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cadmium	1.0		0.25	0.025	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Chromium	62		0.25	0.062	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cobalt	13		0.25	0.030	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Copper	24		0.25	0.082	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Lead	22		6.2	1.7	mg/Kg	Dry	25.00	EPA 6010C	EPA 3050B
Mercury	0.12		0.018	0.0032	mg/Kg	Dry	1.000	EPA 7471B	METHOD
Molybdenum	0.48		0.25	0.048	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Nickel	63		0.25	0.065	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Silver	0.071	J	0.25	0.039	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Vanadium	50		0.25	0.056	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Zinc	59		0.99	0.20	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B

Curtis & Tompkins, Ltd.

Client Sample ID : BS-BERNARD-04-051916 Laboratory Sample ID : 277038-004

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Gasoline C7-C12	0.019	J	0.19	0.014	mg/Kg	Dry	1.000	EPA 8015D	EPA 5035
Diesel C10-C24	19	Y	1.1	0.34	mg/Kg	Dry	1.000	EPA 8015D	EPA 3550B
Motor Oil C24-C36	77		5.5	1.7	mg/Kg	Dry	1.000	EPA 8015D	EPA 3550B
Phenanthrene	21	J	74	12	ug/Kg	Dry	1.000	EPA 8270D	EPA 3550B
Fluoranthene	22	J	74	12	ug/Kg	Dry	1.000	EPA 8270D	EPA 3550B
Pyrene	31	J	74	12	ug/Kg	Dry	1.000	EPA 8270D	EPA 3550B
Benzo(a)anthracene	12	J	74	11	ug/Kg	Dry	1.000	EPA 8270D	EPA 3550B
Chrysene	21	J	74	13	ug/Kg	Dry	1.000	EPA 8270D	EPA 3550B
bis(2-Ethylhexyl)phthalate	17	J	370	15	ug/Kg	Dry	1.000	EPA 8270D	EPA 3550B
Benzo(b)fluoranthene	19	J	74	10	ug/Kg	Dry	1.000	EPA 8270D	EPA 3550B
Benzo(a)pyrene	13	J	74	9.8	ug/Kg	Dry	1.000	EPA 8270D	EPA 3550B
Indeno(1,2,3-cd)pyrene	11	J	74	9.8	ug/Kg	Dry	1.000	EPA 8270D	EPA 3550B
Benzo(g,h,i)perylene	18	J	74	11	ug/Kg	Dry	1.000	EPA 8270D	EPA 3550B
4,4'-DDT	1.7	C,J	11	1.1	ug/Kg	Dry	3.000	EPA 8081B	EPA 3550B
Iron	24,000		150	47	mg/Kg	Dry	25.00	EPA 6010C	EPA 3050B
Manganese	300		0.30	0.061	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Antimony	0.72		0.60	0.18	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Arsenic	3.0		0.30	0.087	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Barium	100		0.30	0.064	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Beryllium	0.38		0.12	0.015	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cadmium	0.89		0.30	0.030	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Chromium	55		0.30	0.075	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cobalt	10		0.30	0.036	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Copper	14		0.30	0.10	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Lead	8.8		7.5	2.1	mg/Kg	Dry	25.00	EPA 6010C	EPA 3050B
Mercury	0.042		0.017	0.0030	mg/Kg	Dry	1.000	EPA 7471B	METHOD
Molybdenum	0.25	J	0.30	0.058	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Nickel	54		0.30	0.079	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Silver	0.11	J	0.30	0.048	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Vanadium	46		0.30	0.068	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Zinc	49		1.2	0.24	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B

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Client Sample ID : BS-BERNARD-05-051916 Laboratory Sample ID : 277038-005

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Gasoline C7-C12	0.021	J	0.19	0.014	mg/Kg	Dry	1.000	EPA 8015D	EPA 5035
Diesel C10-C24	24	Y	1.1	0.34	mg/Kg	Dry	1.000	EPA 8015D	EPA 3550B
Motor Oil C24-C36	170		5.5	1.7	mg/Kg	Dry	1.000	EPA 8015D	EPA 3550B
4,4'-DDT	2.1	C,J	11	1.1	ug/Kg	Dry	3.000	EPA 8081B	EPA 3550B
alpha-Chlordane	1.0	C,J	5.6	0.79	ug/Kg	Dry	3.000	EPA 8081B	EPA 3550B
Aroclor-1260	45		11	1.7	ug/Kg	Dry	1.000	EPA 8082A	EPA 3550B
Iron	30,000		130	41	mg/Kg	Dry	25.00	EPA 6010C	EPA 3050B
Manganese	500		0.26	0.054	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Antimony	1.3		0.52	0.16	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Arsenic	4.4		0.26	0.076	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Barium	120		0.26	0.056	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Beryllium	0.45		0.10	0.013	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cadmium	1.2		0.26	0.027	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Chromium	73		0.26	0.066	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cobalt	14		0.26	0.031	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Copper	30		0.26	0.087	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Lead	63		6.5	1.8	mg/Kg	Dry	25.00	EPA 6010C	EPA 3050B
Mercury	0.15		0.017	0.0031	mg/Kg	Dry	1.000	EPA 7471B	METHOD
Molybdenum	0.42		0.26	0.051	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Nickel	92		0.26	0.069	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Silver	0.16	J	0.26	0.042	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Vanadium	57		0.26	0.060	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Zinc	67		1.0	0.21	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B

Client Sample ID : BS-BERNARD-06-051916 Laboratory Sample ID : 277038-006

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Gasoline C7-C12	0.019	J	0.19	0.014	mg/Kg	Dry	1.000	EPA 8015D	EPA 5035
Diesel C10-C24	5.8	Y	1.1	0.34	mg/Kg	Dry	1.000	EPA 8015D	EPA 3550B
Motor Oil C24-C36	28		5.6	1.7	mg/Kg	Dry	1.000	EPA 8015D	EPA 3550B
gamma-Chlordane	6.6	C	5.8	1.0	ug/Kg	Dry	3.000	EPA 8081B	EPA 3550B
Iron	23,000		130	41	mg/Kg	Dry	25.00	EPA 6010C	EPA 3050B
Manganese	260		0.26	0.053	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Antimony	0.77		0.52	0.16	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Arsenic	3.0		0.26	0.076	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Barium	95		0.26	0.056	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Beryllium	0.36		0.10	0.013	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cadmium	0.86		0.26	0.027	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Chromium	49		0.26	0.066	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cobalt	9.7		0.26	0.031	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Copper	14		0.26	0.087	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Lead	4.9	J	6.5	1.8	mg/Kg	Dry	25.00	EPA 6010C	EPA 3050B
Mercury	0.038		0.018	0.0032	mg/Kg	Dry	1.000	EPA 7471B	METHOD
Molybdenum	0.32		0.26	0.051	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Nickel	48		0.26	0.068	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Silver	0.12	J	0.26	0.041	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Vanadium	41		0.26	0.059	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Zinc	44		1.0	0.21	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B

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Client Sample ID : BS-BERNARD-07-051916 Laboratory Sample ID : 277038-007

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Gasoline C7-C12	0.029	J	0.19	0.014	mg/Kg	Dry	1.000	EPA 8015D	EPA 5035
Diesel C10-C24	8.5	Y	1.1	0.33	mg/Kg	Dry	1.000	EPA 8015D	EPA 3550B
Motor Oil C24-C36	31		5.5	1.7	mg/Kg	Dry	1.000	EPA 8015D	EPA 3550B
Phenanthrene	17	J	74	12	ug/Kg	Dry	1.000	EPA 8270D	EPA 3550B
Pyrene	15	J	74	12	ug/Kg	Dry	1.000	EPA 8270D	EPA 3550B
bis(2-Ethylhexyl)phthalate	18	J	370	14	ug/Kg	Dry	1.000	EPA 8270D	EPA 3550B
Iron	25,000		130	42	mg/Kg	Dry	25.00	EPA 6010C	EPA 3050B
Manganese	290		0.27	0.055	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Antimony	0.82		0.53	0.16	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Arsenic	3.7		0.27	0.078	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Barium	110		0.27	0.057	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Beryllium	0.40		0.11	0.013	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cadmium	0.93		0.27	0.027	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Chromium	57		0.27	0.067	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cobalt	11		0.27	0.032	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Copper	16		0.27	0.089	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Lead	7.6		6.7	1.9	mg/Kg	Dry	25.00	EPA 6010C	EPA 3050B
Mercury	0.034		0.017	0.0031	mg/Kg	Dry	1.000	EPA 7471B	METHOD
Nickel	55		0.27	0.070	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Silver	0.071	J	0.27	0.043	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Vanadium	47		0.27	0.061	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Zinc	45		1.1	0.21	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B

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Client Sample ID : BS-BERNARD-08-051916 Laboratory Sample ID : 277038-008

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Gasoline C7-C12	0.039	J	0.21	0.015	mg/Kg	Dry	1.000	EPA 8015D	EPA 5035
Diesel C10-C24	6.6	Y	1.1	0.35	mg/Kg	Dry	1.000	EPA 8015D	EPA 3550B
Motor Oil C24-C36	34		5.7	1.7	mg/Kg	Dry	1.000	EPA 8015D	EPA 3550B
Pyrene	13	J	75	12	ug/Kg	Dry	1.000	EPA 8270D	EPA 3550B
bis(2-Ethylhexyl)phthalate	19	J	380	15	ug/Kg	Dry	1.000	EPA 8270D	EPA 3550B
gamma-Chlordane	7.2	C	5.8	1.0	ug/Kg	Dry	3.000	EPA 8081B	EPA 3550B
Aroclor-1260	3.0	J	11	1.8	ug/Kg	Dry	1.000	EPA 8082A	EPA 3550B
Iron	21,000		140	45	mg/Kg	Dry	25.00	EPA 6010C	EPA 3050B
Manganese	240		0.28	0.058	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Antimony	0.71		0.57	0.17	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Arsenic	2.8		0.28	0.083	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Barium	75		0.28	0.061	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Beryllium	0.31		0.11	0.014	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cadmium	0.80		0.28	0.029	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Chromium	54		0.28	0.072	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cobalt	9.6		0.28	0.034	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Copper	10		0.28	0.095	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Lead	3.7	J	7.1	2.0	mg/Kg	Dry	25.00	EPA 6010C	EPA 3050B
Mercury	0.039		0.017	0.0031	mg/Kg	Dry	1.000	EPA 7471B	METHOD
Molybdenum	0.22	J	0.28	0.056	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Nickel	50		0.28	0.075	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Silver	0.10	J	0.28	0.045	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Vanadium	44		0.28	0.065	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Zinc	37		1.1	0.23	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B

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Client Sample ID : BS-BERNARD-09-051916 Laboratory Sample ID : 277038-009

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Gasoline C7-C12	0.015	J	0.19	0.014	mg/Kg	Dry	1.000	EPA 8015D	EPA 5035
Diesel C10-C24	19	Y	1.1	0.33	mg/Kg	Dry	1.000	EPA 8015D	EPA 3550B
Motor Oil C24-C36	170		5.4	1.6	mg/Kg	Dry	1.000	EPA 8015D	EPA 3550B
4,4'-DDE	9.9	J	11	1.5	ug/Kg	Dry	3.000	EPA 8081B	EPA 3550B
4,4'-DDD	2.9	C,J	11	1.1	ug/Kg	Dry	3.000	EPA 8081B	EPA 3550B
4,4'-DDT	4.9	J	11	1.1	ug/Kg	Dry	3.000	EPA 8081B	EPA 3550B
alpha-Chlordane	2.6	C,J	5.6	0.78	ug/Kg	Dry	3.000	EPA 8081B	EPA 3550B
Aroclor-1260	36		10	1.7	ug/Kg	Dry	1.000	EPA 8082A	EPA 3550B
Iron	29,000		130	42	mg/Kg	Dry	25.00	EPA 6010C	EPA 3050B
Manganese	430		0.27	0.055	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Antimony	0.98		0.53	0.16	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Arsenic	3.6		0.27	0.077	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Barium	130		0.27	0.057	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Beryllium	0.44		0.11	0.013	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cadmium	1.1		0.27	0.027	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Chromium	62		0.27	0.067	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cobalt	13		0.27	0.032	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Copper	29		0.27	0.089	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Lead	29		6.7	1.9	mg/Kg	Dry	25.00	EPA 6010C	EPA 3050B
Mercury	0.18		0.018	0.0032	mg/Kg	Dry	1.000	EPA 7471B	METHOD
Molybdenum	0.41		0.27	0.052	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Nickel	62		0.27	0.070	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Silver	0.14	J	0.27	0.042	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Vanadium	54		0.27	0.061	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Zinc	66		1.1	0.21	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B

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Client Sample ID : BS-BERNARD-10-051916 Laboratory Sample ID : 277038-010

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Gasoline C7-C12	0.018	J	0.19	0.014	mg/Kg	Dry	1.000	EPA 8015D	EPA 5035
Diesel C10-C24	16	Y	1.1	0.34	mg/Kg	Dry	1.000	EPA 8015D	EPA 3550B
Motor Oil C24-C36	130		5.5	1.7	mg/Kg	Dry	1.000	EPA 8015D	EPA 3550B
4,4'-DDE	1.7	J	11	1.5	ug/Kg	Dry	3.000	EPA 8081B	EPA 3550B
4,4'-DDD	3.6	J	11	1.1	ug/Kg	Dry	3.000	EPA 8081B	EPA 3550B
4,4'-DDT	2.2	C,J	11	1.1	ug/Kg	Dry	3.000	EPA 8081B	EPA 3550B
alpha-Chlordane	1.4	C,J	5.5	0.78	ug/Kg	Dry	3.000	EPA 8081B	EPA 3550B
Aroclor-1260	5.1	J	10	1.7	ug/Kg	Dry	1.000	EPA 8082A	EPA 3550B
Iron	32,000		130	41	mg/Kg	Dry	25.00	EPA 6010C	EPA 3050B
Manganese	430		0.26	0.053	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Antimony	0.92		0.51	0.15	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Arsenic	3.7		0.26	0.075	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Barium	130		0.26	0.055	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Beryllium	0.43		0.10	0.013	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cadmium	1.2		0.26	0.026	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Chromium	74		0.26	0.065	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cobalt	14		0.26	0.031	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Copper	32		0.26	0.086	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Lead	26		6.4	1.8	mg/Kg	Dry	25.00	EPA 6010C	EPA 3050B
Mercury	0.15		0.017	0.0031	mg/Kg	Dry	1.000	EPA 7471B	METHOD
Molybdenum	0.37		0.26	0.050	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Nickel	61		0.26	0.068	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Silver	0.10	J	0.26	0.041	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Vanadium	64		0.26	0.059	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Zinc	63		1.0	0.21	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B

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Client Sample ID : BS-BERNARD-11-051916 Laboratory Sample ID : 277038-011

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Gasoline C7-C12	0.039	J	0.21	0.010	mg/Kg	Dry	1.000	EPA 8015D	EPA 5035
Diesel C10-C24	15	Y	1.1	0.33	mg/Kg	Dry	1.000	EPA 8015D	EPA 3550B
Motor Oil C24-C36	110		5.4	1.6	mg/Kg	Dry	1.000	EPA 8015D	EPA 3550B
gamma-BHC	0.71	C,J	5.4	0.70	ug/Kg	Dry	3.000	EPA 8081B	EPA 3550B
Heptachlor epoxide	2.8	C,J	5.4	0.85	ug/Kg	Dry	3.000	EPA 8081B	EPA 3550B
Dieldrin	2.0	C,J	5.4	1.4	ug/Kg	Dry	3.000	EPA 8081B	EPA 3550B
4,4'-DDE	7.7	C,J,b	11	1.1	ug/Kg	Dry	3.000	EPA 8081B	EPA 3550B
Endrin	3.0	C,J	11	1.6	ug/Kg	Dry	3.000	EPA 8081B	EPA 3550B
4,4'-DDT	16	C	11	1.4	ug/Kg	Dry	3.000	EPA 8081B	EPA 3550B
alpha-Chlordane	5.7	C	5.4	0.58	ug/Kg	Dry	3.000	EPA 8081B	EPA 3550B
gamma-Chlordane	6.4	C	5.4	0.56	ug/Kg	Dry	3.000	EPA 8081B	EPA 3550B
Aroclor-1260	7.7	J	13	2.0	ug/Kg	Dry	1.000	EPA 8082A	EPA 3550B
Iron	21,000		130	40	mg/Kg	Dry	25.00	EPA 6010C	EPA 3050B
Manganese	350		0.25	0.051	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Antimony	0.80		0.50	0.15	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Arsenic	3.6		0.25	0.073	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Barium	91		0.25	0.054	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Beryllium	0.33		0.10	0.012	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cadmium	0.83		0.25	0.026	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Chromium	46		0.25	0.063	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cobalt	9.8		0.25	0.030	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Copper	16		0.25	0.084	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Lead	28		6.3	1.7	mg/Kg	Dry	25.00	EPA 6010C	EPA 3050B
Mercury	0.14		0.017	0.0031	mg/Kg	Dry	1.000	EPA 7471B	METHOD
Molybdenum	0.35		0.25	0.049	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Nickel	49		0.25	0.066	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Selenium	0.45	J	0.50	0.15	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Silver	0.12	J	0.25	0.040	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Vanadium	38		0.25	0.057	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Zinc	46		1.0	0.20	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B

Curtis & Tompkins, Ltd.

Client Sample ID : BS-BERNARD-12-051916 Laboratory Sample ID : 277038-012

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Gasoline C7-C12	0.023	J	0.20	0.0098	mg/Kg	Dry	1.000	EPA 8015D	EPA 5035
Diesel C10-C24	14	Y	1.1	0.32	mg/Kg	Dry	1.000	EPA 8015D	EPA 3550B
Motor Oil C24-C36	110		5.3	1.6	mg/Kg	Dry	1.000	EPA 8015D	EPA 3550B
Endosulfan II	1.7	C,J	10	1.4	ug/Kg	Dry	3.000	EPA 8081B	EPA 3550B
4,4'-DDT	5.6	J	10	1.0	ug/Kg	Dry	3.000	EPA 8081B	EPA 3550B
alpha-Chlordane	5.1	C,J	5.4	0.57	ug/Kg	Dry	3.000	EPA 8081B	EPA 3550B
gamma-Chlordane	4.3	C,J	5.4	0.55	ug/Kg	Dry	3.000	EPA 8081B	EPA 3550B
Aroclor-1260	5.5	J	13	2.1	ug/Kg	Dry	1.000	EPA 8082A	EPA 3550B
Iron	28,000		130	40	mg/Kg	Dry	25.00	EPA 6010C	EPA 3050B
Manganese	390		0.25	0.052	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Antimony	0.80		0.51	0.15	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Arsenic	3.7		0.25	0.074	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Barium	110		0.25	0.054	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Beryllium	0.41		0.10	0.013	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cadmium	1.2		0.25	0.026	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Chromium	76		0.25	0.064	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cobalt	13		0.25	0.030	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Copper	32		0.25	0.084	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Lead	32		6.3	1.8	mg/Kg	Dry	25.00	EPA 6010C	EPA 3050B
Mercury	0.12		0.017	0.0031	mg/Kg	Dry	1.000	EPA 7471B	METHOD
Molybdenum	0.37		0.25	0.049	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Nickel	67		0.25	0.067	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Silver	0.076	J	0.25	0.040	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Vanadium	59		0.25	0.058	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Zinc	63		1.0	0.20	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B

C = Presence confirmed, but RPD between columns exceeds 40%

J = Estimated value

Y = Sample exhibits chromatographic pattern which does not resemble standard

b = See narrative

Laboratory Job Number 277038

ANALYTICAL REPORT

TPH-Purgeables and/or BTXE by GC

Matrix: Soil

Curtis & Tompkins, Ltd.

Gasoline by GC/FID (5035 Prep)

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 5035
Project#:	149831	Analysis:	EPA 8015D
Matrix:	Soil	Dil'n Fac:	1.000
Units:	mg/Kg	Sampled:	05/19/16
Basis:	dry	Received:	05/20/16

Field ID:	BS-BERNARD-01-051916	Moisture:	9%
Type:	SAMPLE	Batch#:	235352
Lab ID:	277038-001	Analyzed:	05/23/16

Analyte	Result	LOQ	DL
Gasoline C7-C12	0.023 J	0.18	0.013

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	101	67-134

Field ID:	BS-BERNARD-02-051916	Moisture:	9%
Type:	SAMPLE	Batch#:	235352
Lab ID:	277038-002	Analyzed:	05/23/16

Analyte	Result	LOQ	DL
Gasoline C7-C12	0.021 J	0.19	0.014

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	105	67-134

Field ID:	BS-BERNARD-03-051916	Moisture:	8%
Type:	SAMPLE	Batch#:	235352
Lab ID:	277038-003	Analyzed:	05/23/16

Analyte	Result	LOQ	DL
Gasoline C7-C12	0.016 J	0.19	0.014

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	109	67-134

Field ID:	BS-BERNARD-04-051916	Moisture:	9%
Type:	SAMPLE	Batch#:	235352
Lab ID:	277038-004	Analyzed:	05/23/16

Analyte	Result	LOQ	DL
Gasoline C7-C12	0.019 J	0.19	0.014

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	103	67-134

J= Estimated value
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Gasoline by GC/FID (5035 Prep)

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 5035
Project#:	149831	Analysis:	EPA 8015D
Matrix:	Soil	Dil'n Fac:	1.000
Units:	mg/Kg	Sampled:	05/19/16
Basis:	dry	Received:	05/20/16

Field ID:	BS-BERNARD-05-051916	Moisture:	9%
Type:	SAMPLE	Batch#:	235352
Lab ID:	277038-005	Analyzed:	05/23/16

Analyte	Result	LOQ	DL
Gasoline C7-C12	0.021 J	0.19	0.014

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	101	67-134

Field ID:	BS-BERNARD-06-051916	Moisture:	11%
Type:	SAMPLE	Batch#:	235352
Lab ID:	277038-006	Analyzed:	05/23/16

Analyte	Result	LOQ	DL
Gasoline C7-C12	0.019 J	0.19	0.014

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	101	67-134

Field ID:	BS-BERNARD-07-051916	Moisture:	9%
Type:	SAMPLE	Batch#:	235352
Lab ID:	277038-007	Analyzed:	05/23/16

Analyte	Result	LOQ	DL
Gasoline C7-C12	0.029 J	0.19	0.014

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	97	67-134

Field ID:	BS-BERNARD-08-051916	Moisture:	12%
Type:	SAMPLE	Batch#:	235352
Lab ID:	277038-008	Analyzed:	05/24/16

Analyte	Result	LOQ	DL
Gasoline C7-C12	0.039 J	0.21	0.015

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	103	67-134

J= Estimated value
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Gasoline by GC/FID (5035 Prep)

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 5035
Project#:	149831	Analysis:	EPA 8015D
Matrix:	Soil	Dil'n Fac:	1.000
Units:	mg/Kg	Sampled:	05/19/16
Basis:	dry	Received:	05/20/16

Field ID:	BS-BERNARD-09-051916	Moisture:	8%
Type:	SAMPLE	Batch#:	235352
Lab ID:	277038-009	Analyzed:	05/24/16

Analyte	Result	LOQ	DL
Gasoline C7-C12	0.015 J	0.19	0.014

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	104	67-134

Field ID:	BS-BERNARD-10-051916	Moisture:	9%
Type:	SAMPLE	Batch#:	235352
Lab ID:	277038-010	Analyzed:	05/24/16

Analyte	Result	LOQ	DL
Gasoline C7-C12	0.018 J	0.19	0.014

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	108	67-134

Field ID:	BS-BERNARD-11-051916	Moisture:	7%
Type:	SAMPLE	Batch#:	235356
Lab ID:	277038-011	Analyzed:	05/23/16

Analyte	Result	LOQ	DL
Gasoline C7-C12	0.039 J	0.21	0.010

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	97	67-134

Field ID:	BS-BERNARD-12-051916	Moisture:	6%
Type:	SAMPLE	Batch#:	235356
Lab ID:	277038-012	Analyzed:	05/23/16

Analyte	Result	LOQ	DL
Gasoline C7-C12	0.023 J	0.20	0.0098

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	119	67-134

J= Estimated value
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Gasoline by GC/FID (5035 Prep)

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 5035
Project#:	149831	Analysis:	EPA 8015D
Matrix:	Soil	Dil'n Fac:	1.000
Units:	mg/Kg	Sampled:	05/19/16
Basis:	dry	Received:	05/20/16

Type: BLANK
Lab ID: QC836638
Batch#: 235352
Analyzed: 05/23/16

Analyte	Result	LOQ	DL
Gasoline C7-C12	0.018 J	0.20	0.015

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	87	67-134

Type: BLANK
Lab ID: QC836652
Batch#: 235356
Analyzed: 05/23/16

Analyte	Result	LOQ	DL
Gasoline C7-C12	0.15 J	1.0	0.049

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	104	67-134

J= Estimated value
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Gasoline by GC/FID (5035 Prep)

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 5035
Project#:	149831	Analysis:	EPA 8015D
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC836637	Batch#:	235352
Matrix:	Soil	Analyzed:	05/23/16
Units:	mg/Kg		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1.000	0.9992	100	79-122

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	96	67-134

Curtis & Tompkins, Ltd.

Batch QC Report

Gasoline by GC/FID (5035 Prep)

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 5035
Project#:	149831	Analysis:	EPA 8015D
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC836651	Batch#:	235356
Matrix:	Soil	Analyzed:	05/23/16
Units:	mg/Kg		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1.000	1.029	103	79-122

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	118	67-134

Curtis & Tompkins, Ltd.

Batch QC Report

Gasoline by GC/FID (5035 Prep)

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 5030C
Project#:	149831	Analysis:	EPA 8015D
Field ID:	ZZZZZZZZZZ	Diln Fac:	1.000
MSS Lab ID:	277043-002	Batch#:	235356
Matrix:	Soil	Sampled:	05/20/16
Units:	mg/Kg	Received:	05/20/16
Basis:	as received	Analyzed:	05/23/16

Type: MS Lab ID: QC836653

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	0.1808	9.615	7.566	77 *	79-122

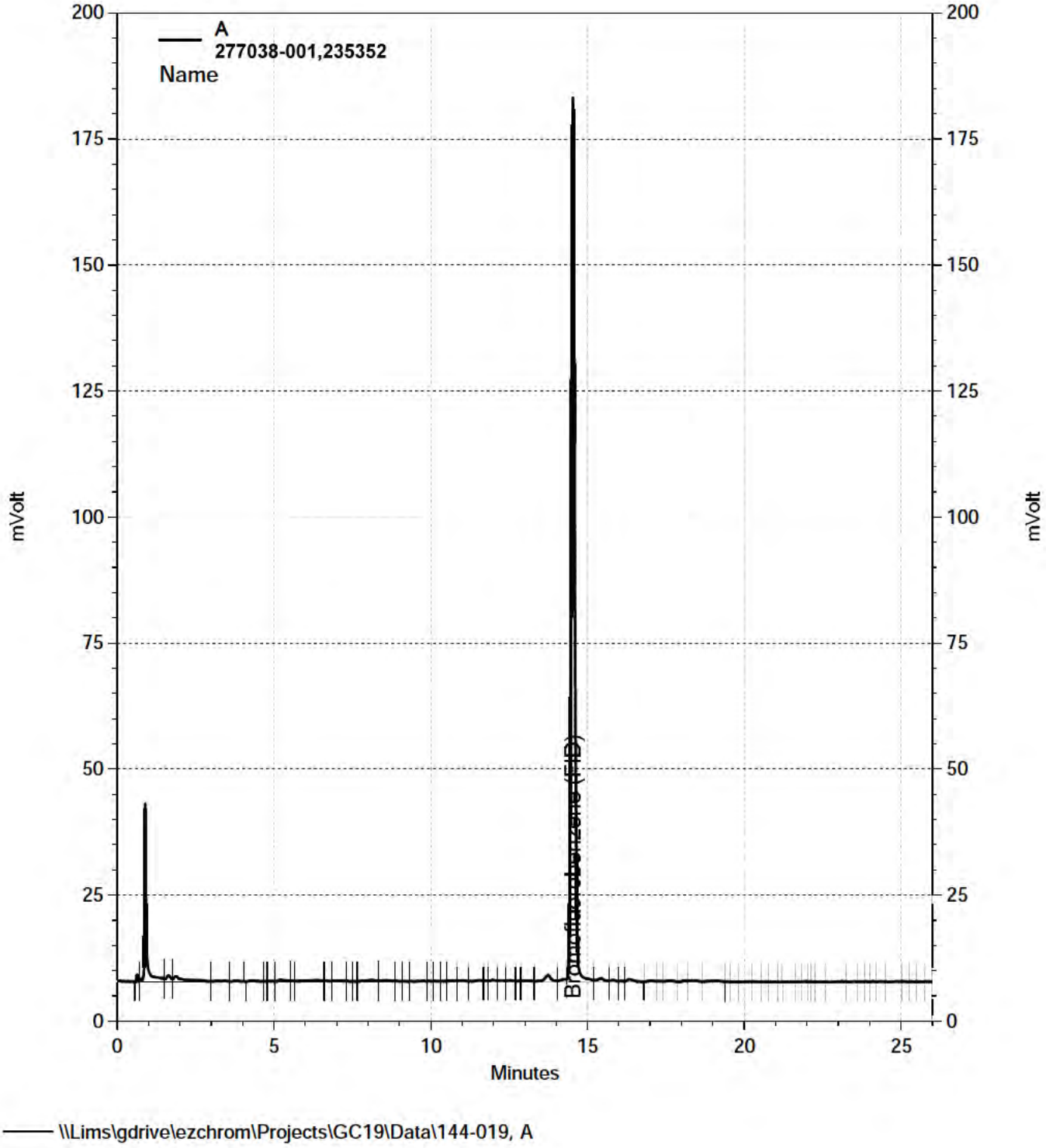
Surrogate	%REC	Limits
Bromofluorobenzene (FID)	120	67-134

Type: MSD Lab ID: QC836654

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	9.259	7.284	77 *	79-122	0	30

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	123	67-134

*= Value outside of QC limits; see narrative
RPD= Relative Percent Difference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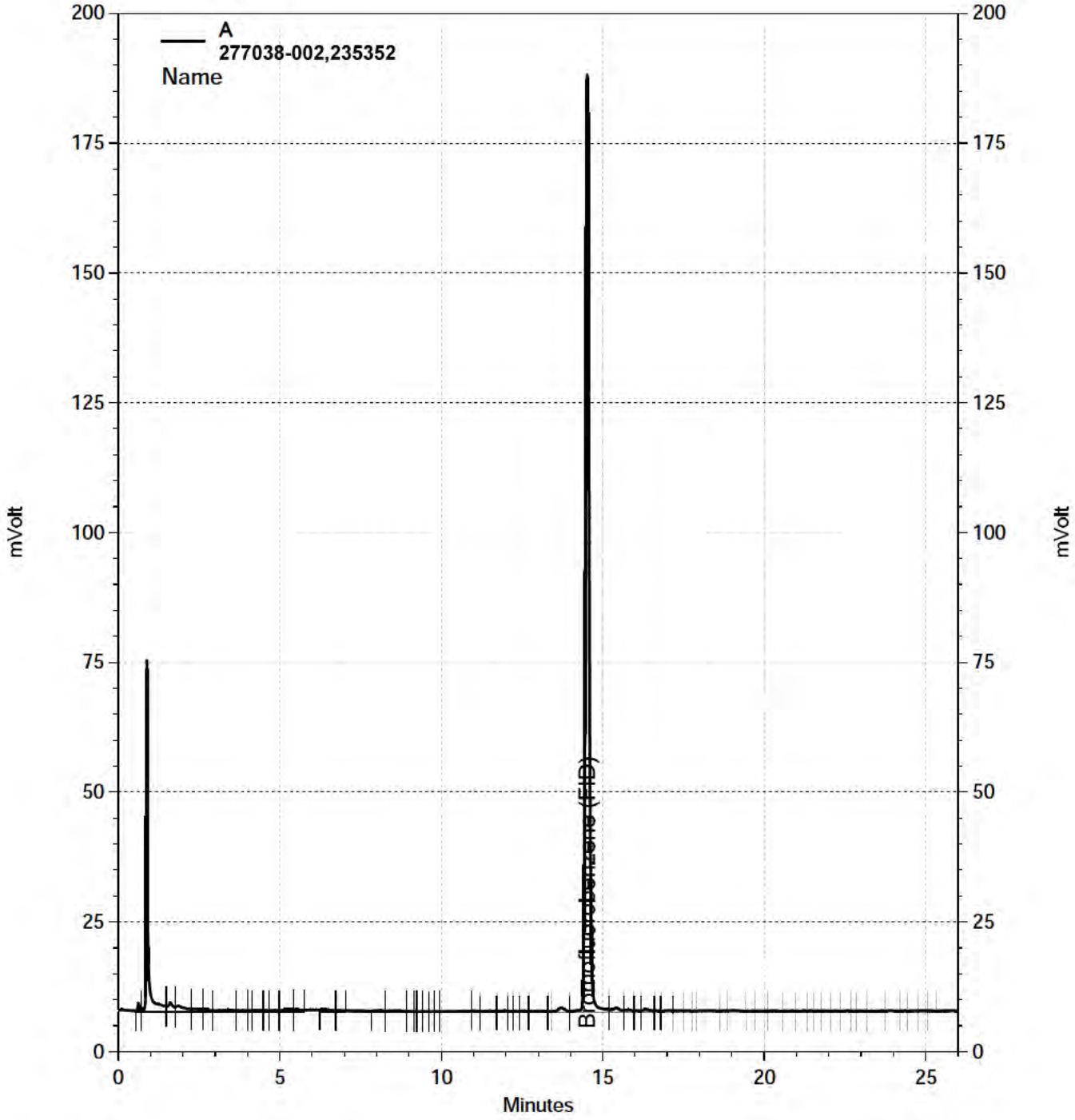
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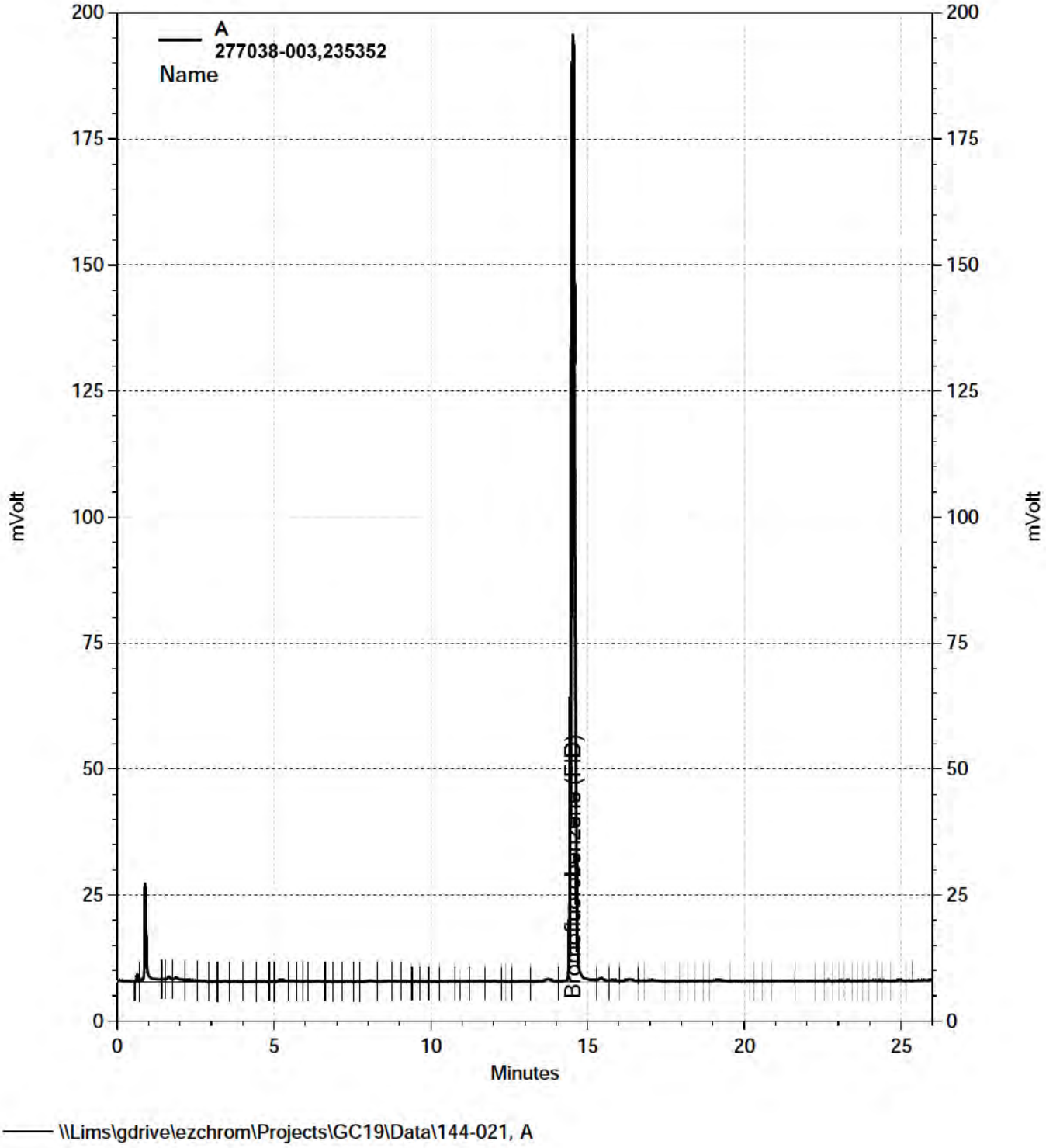
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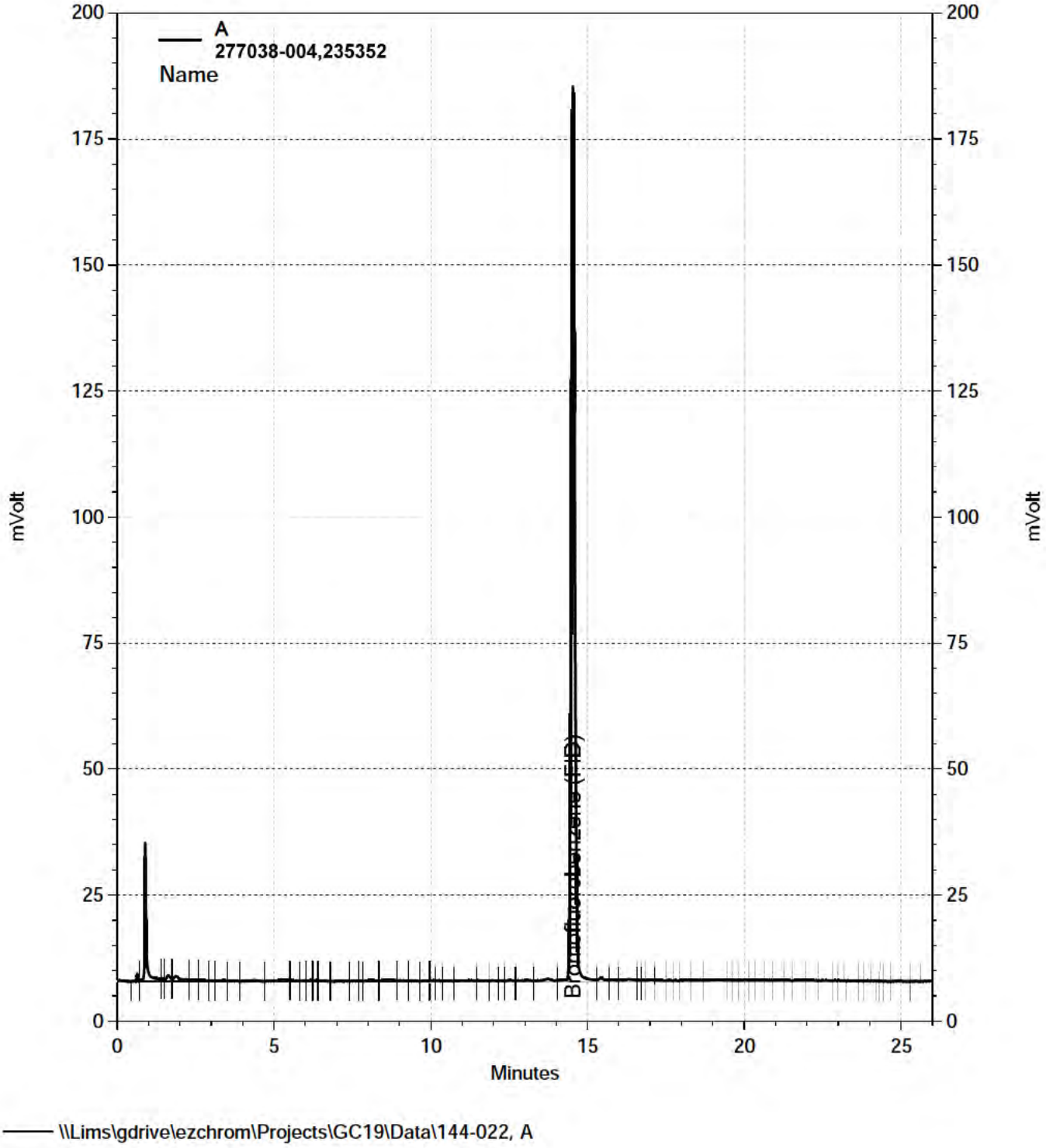
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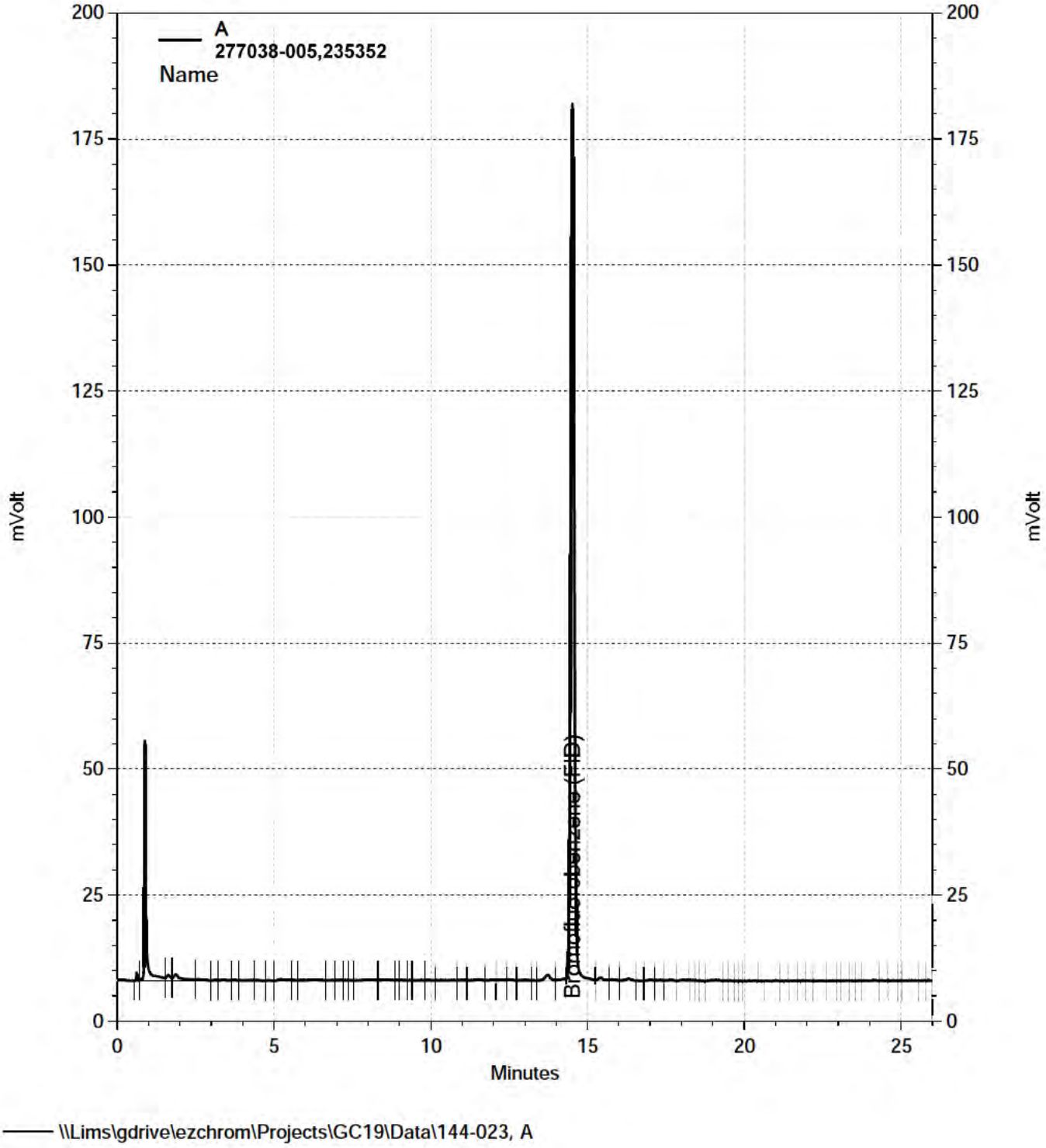

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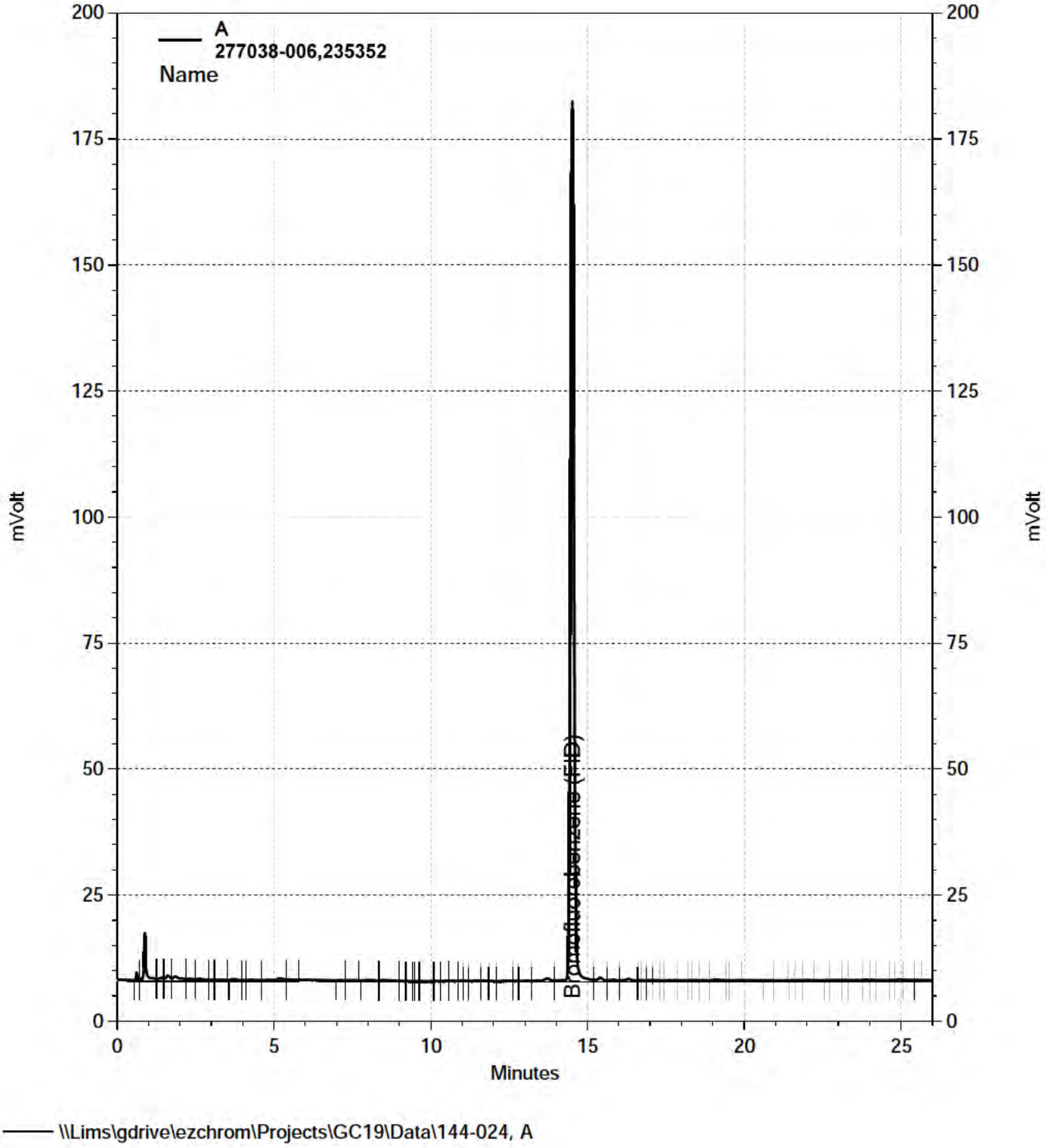
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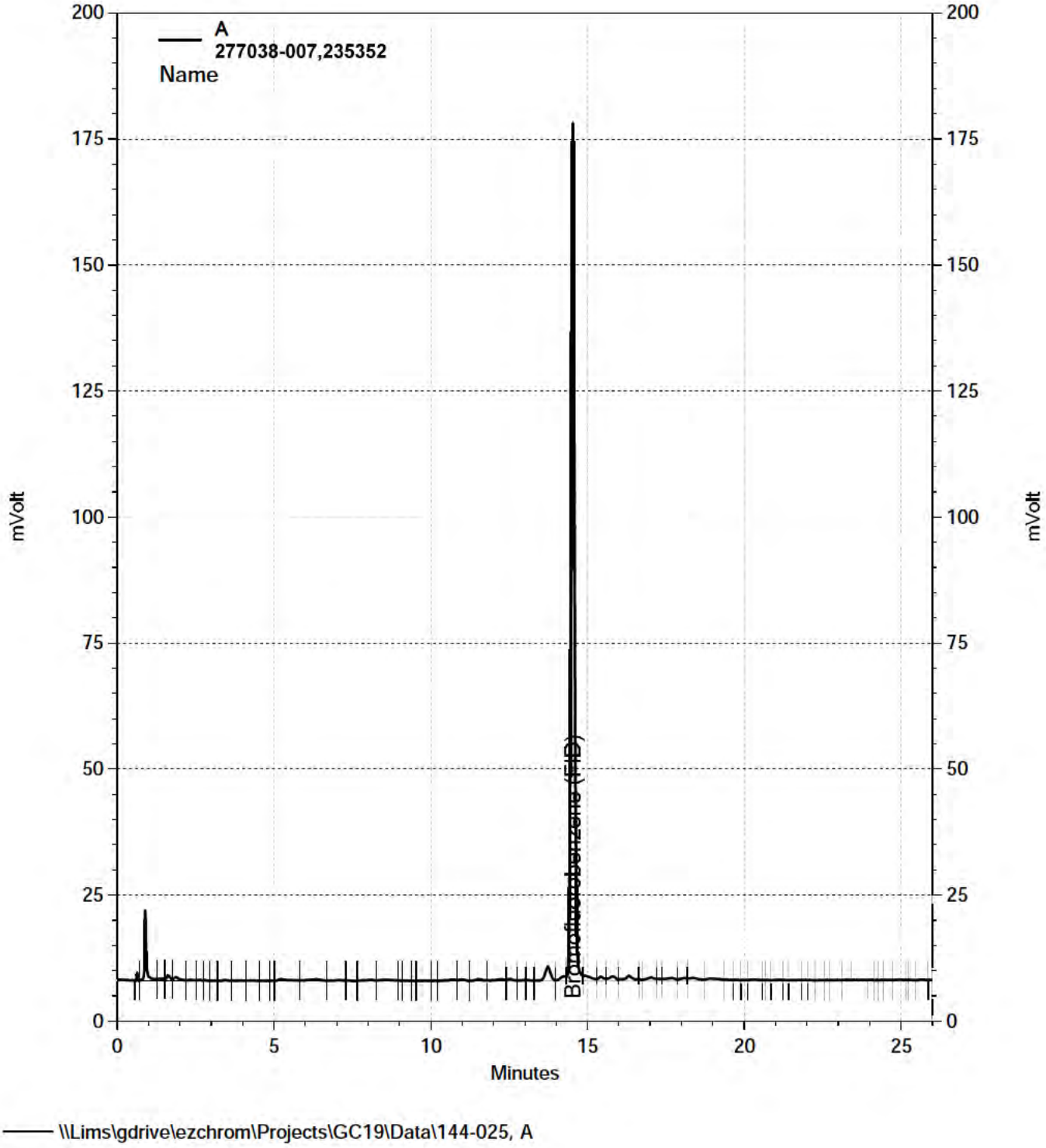
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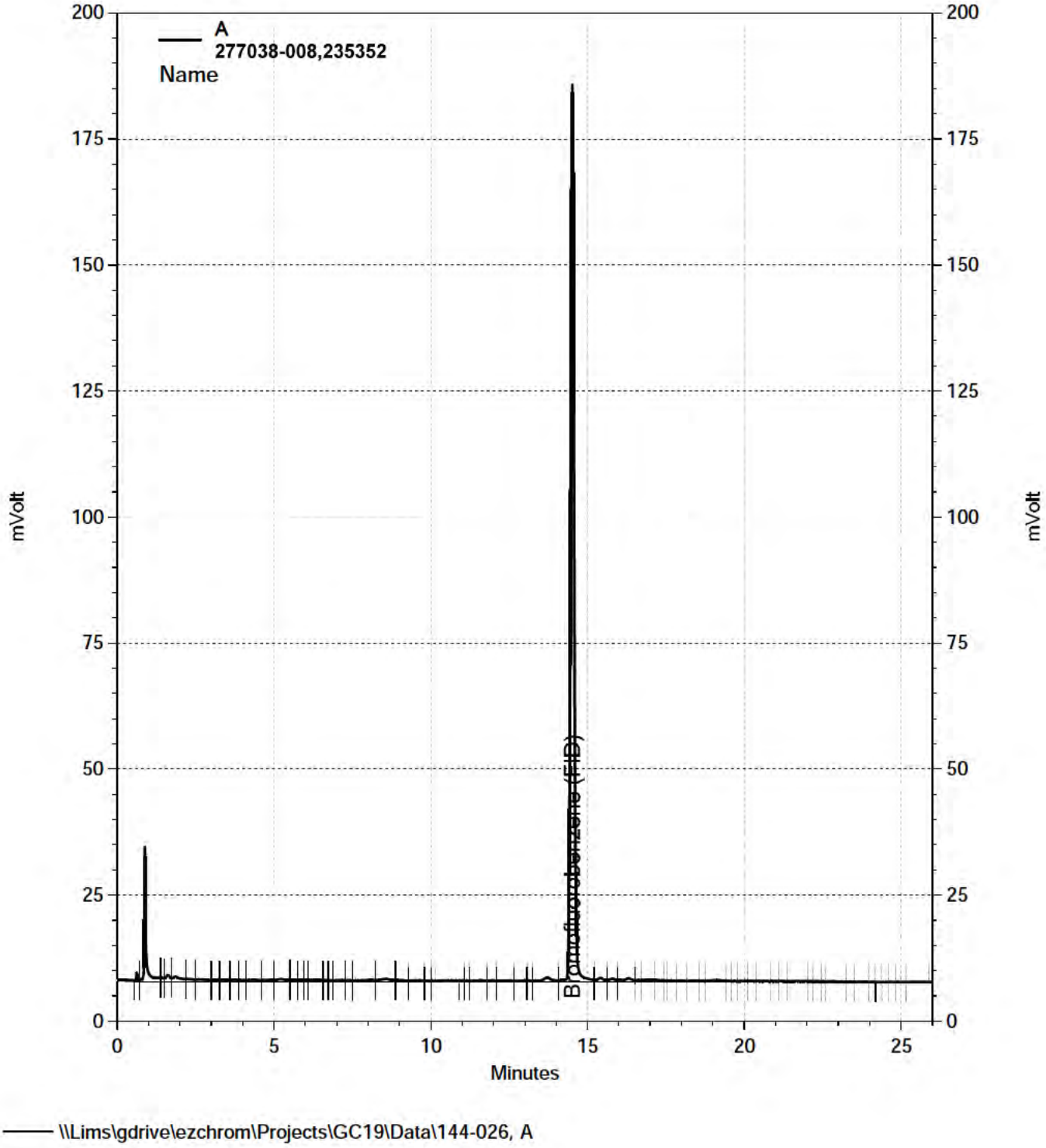
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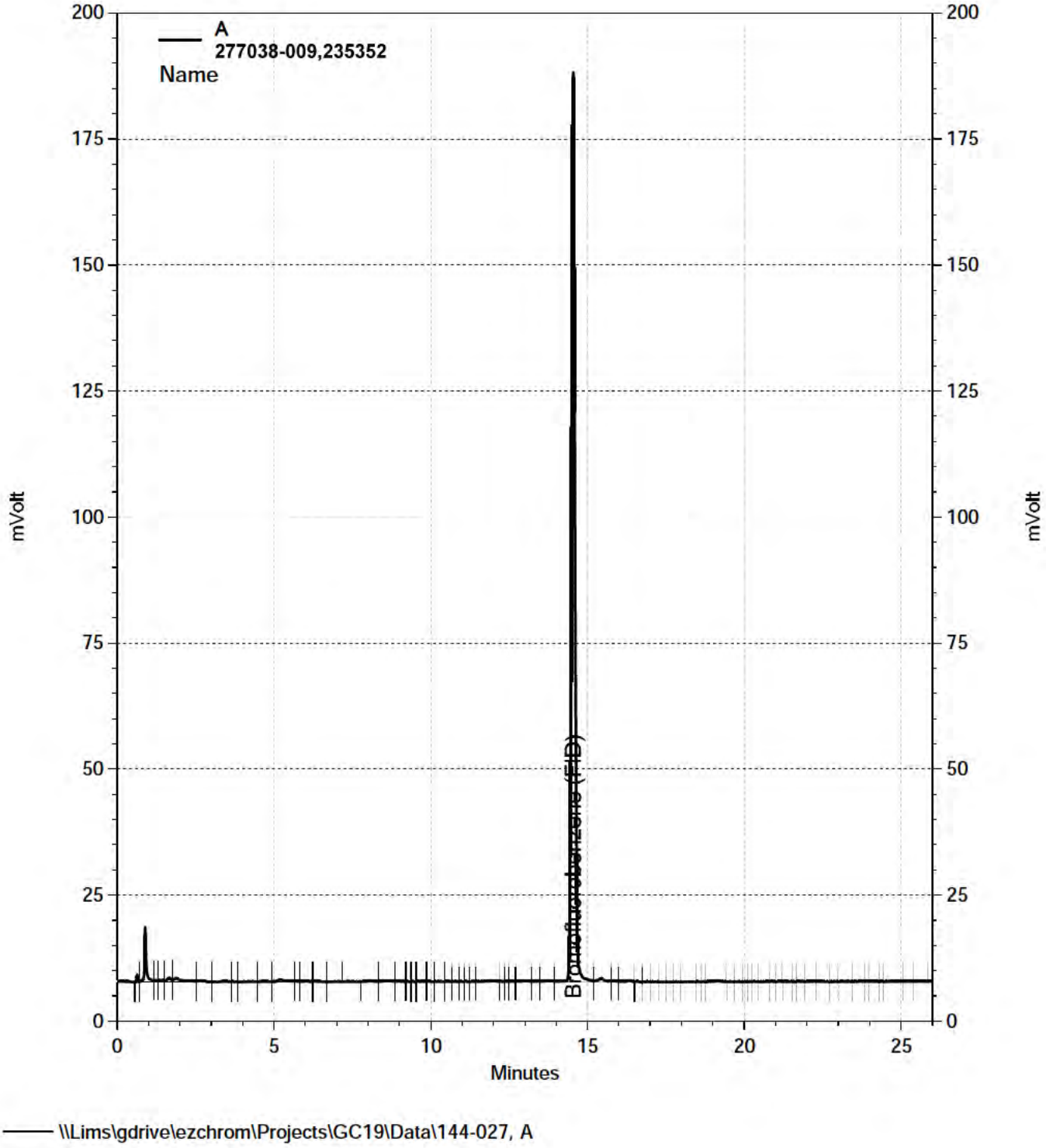
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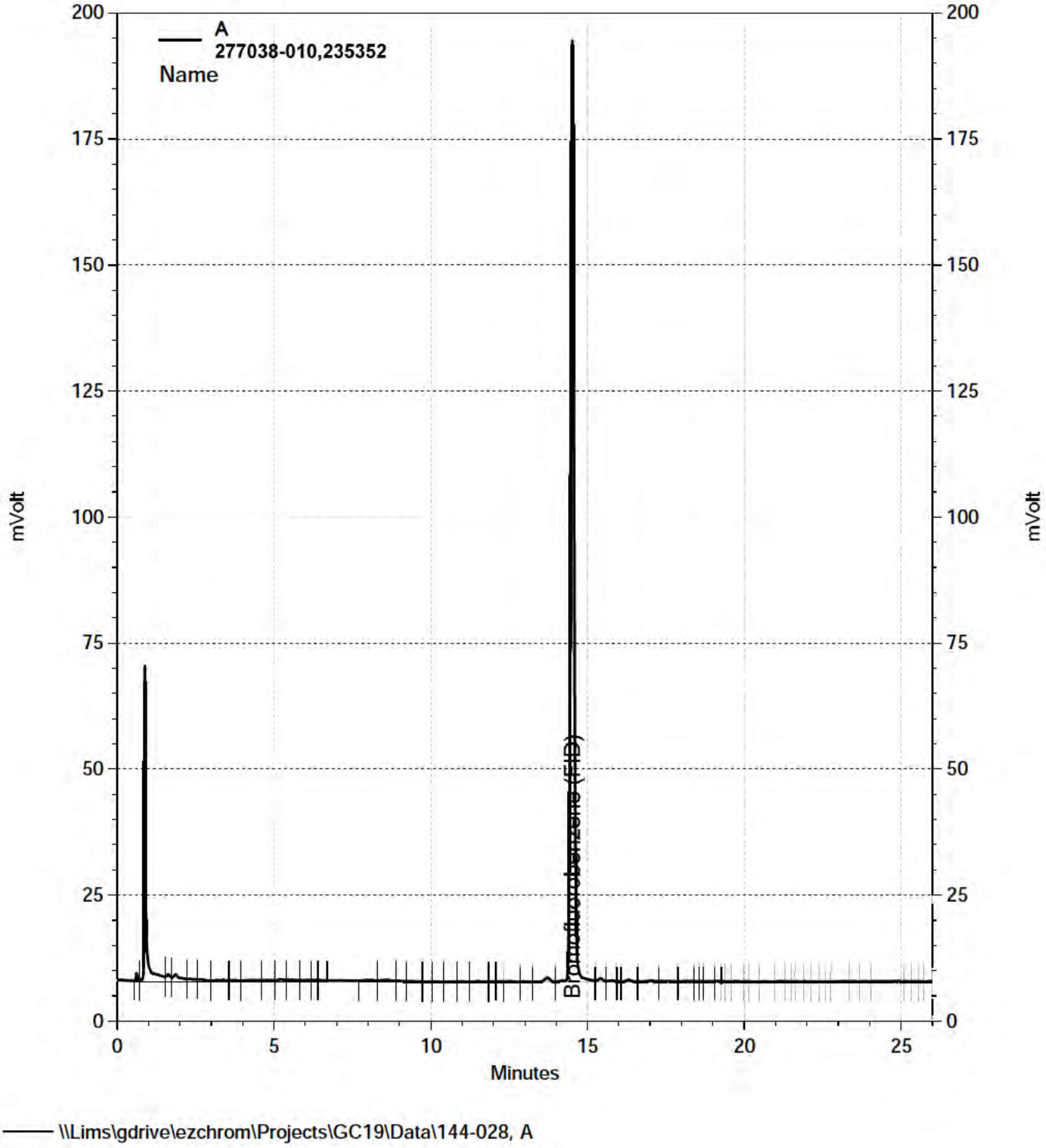
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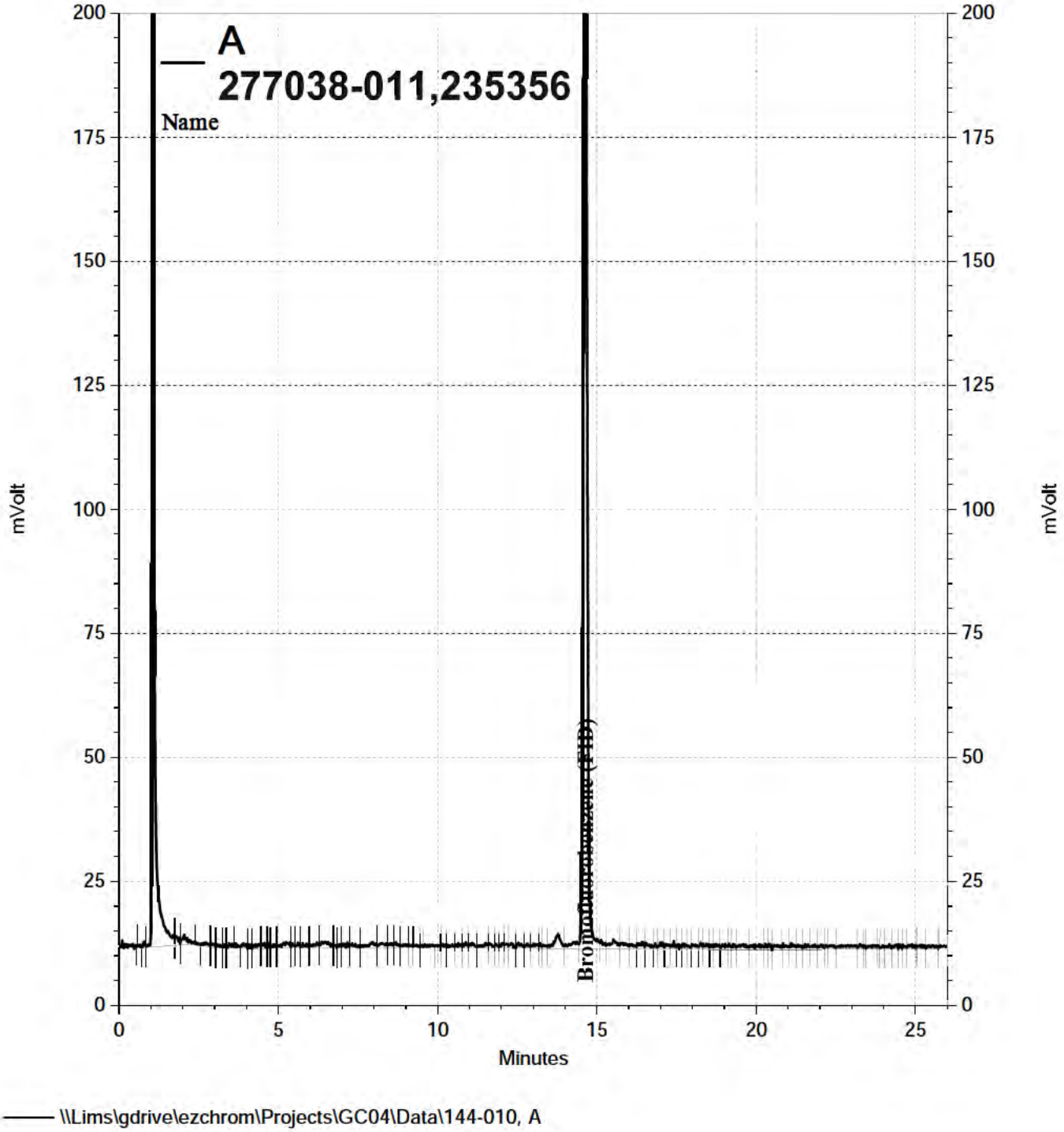
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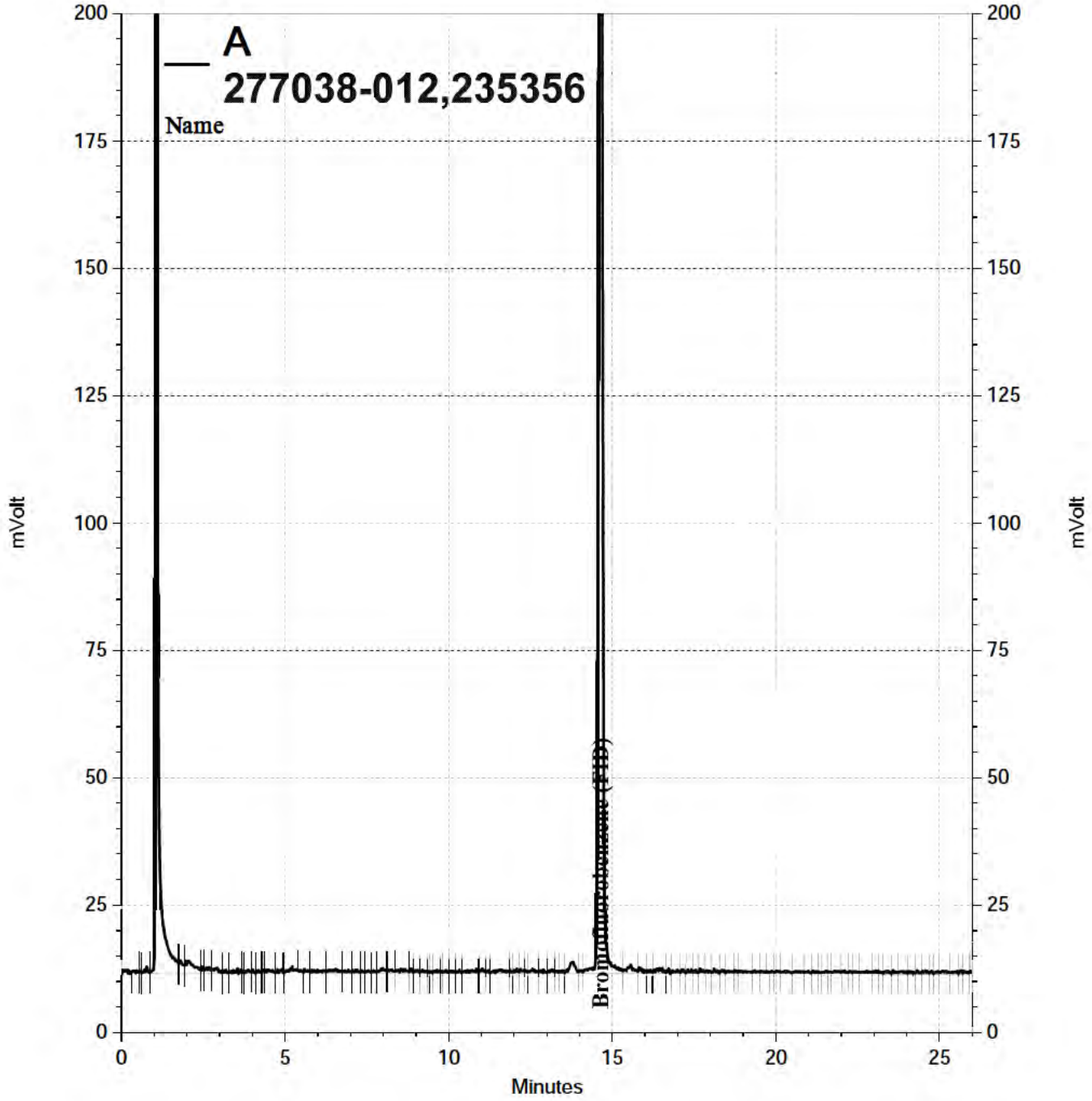
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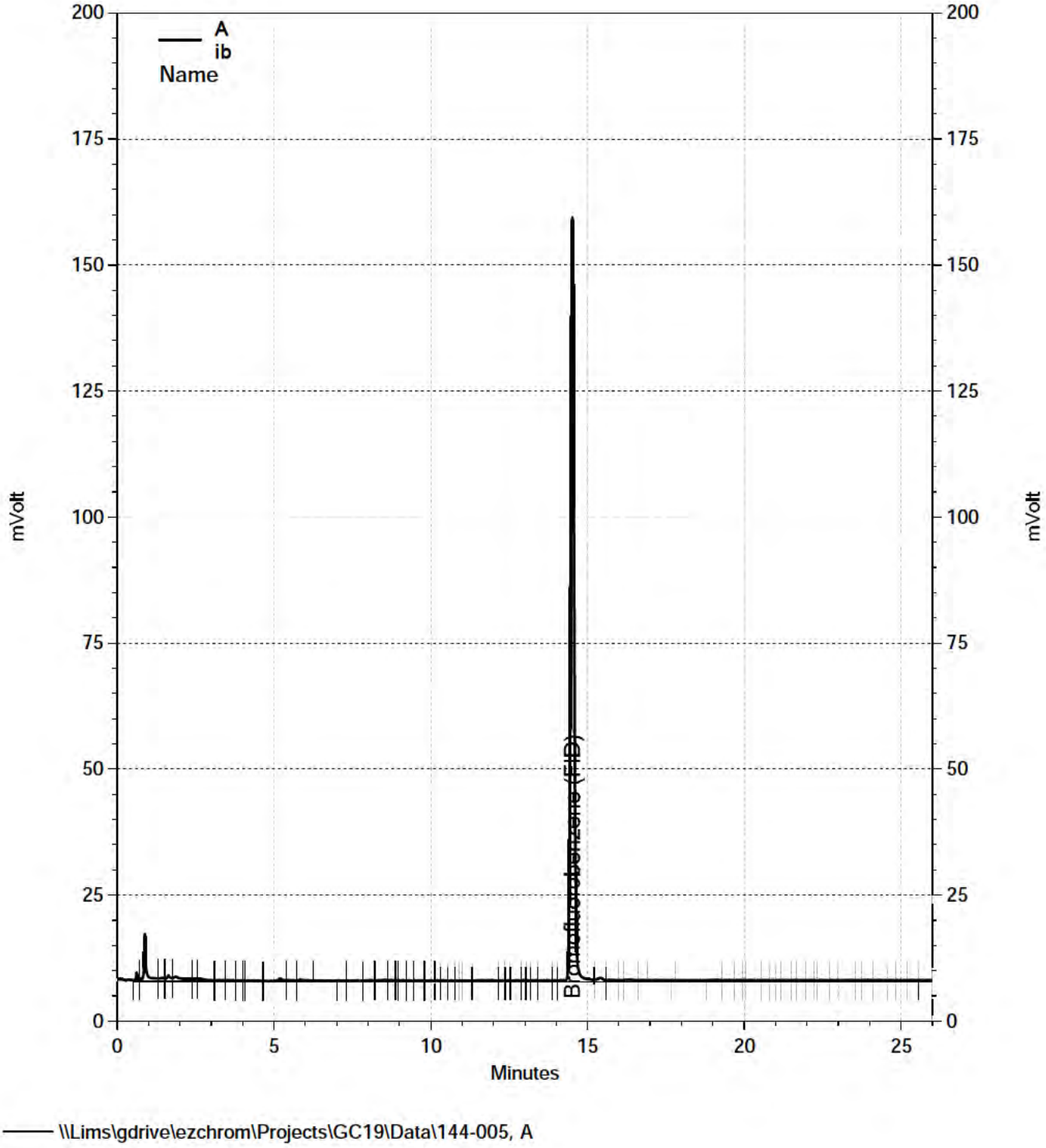

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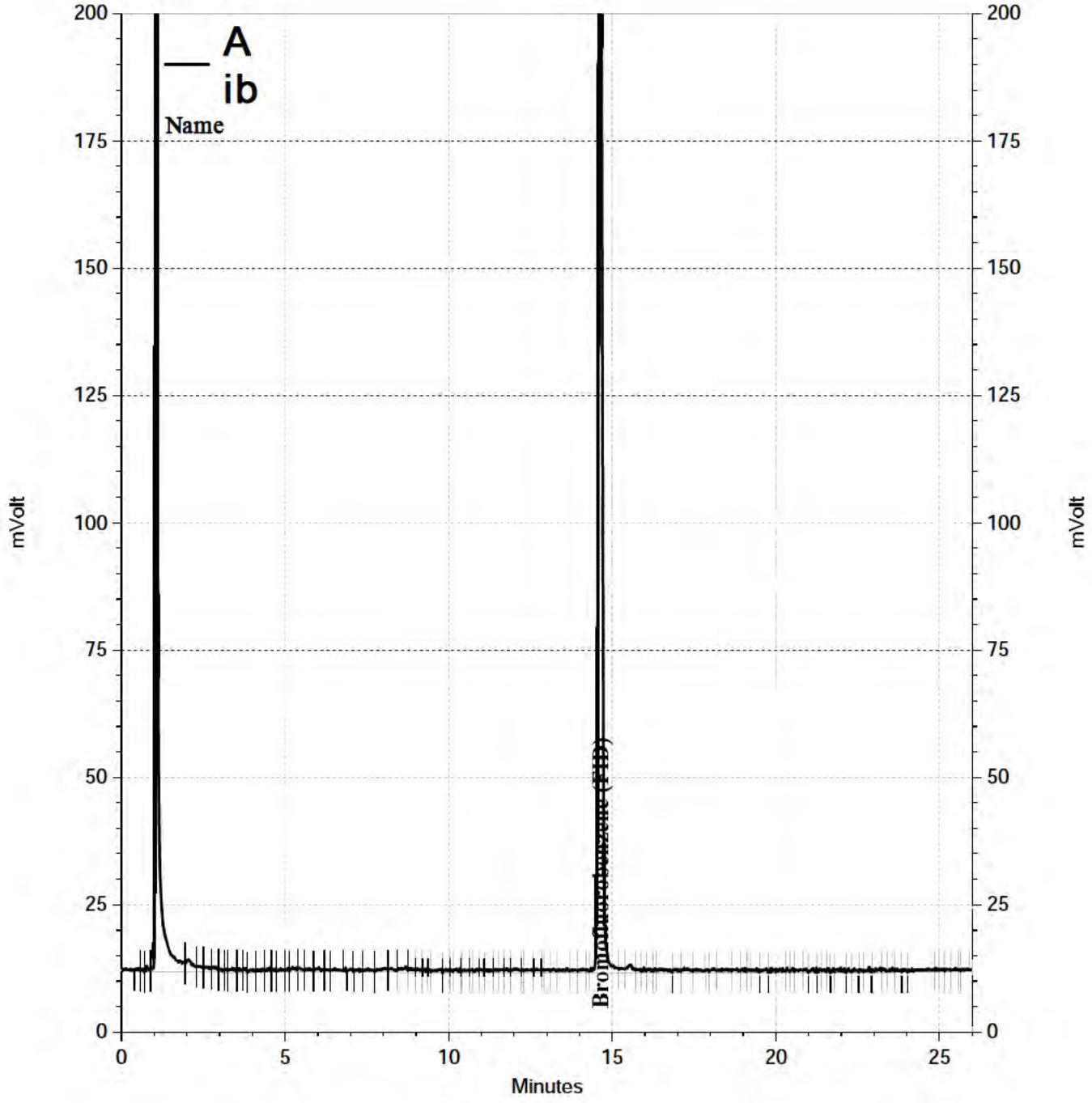
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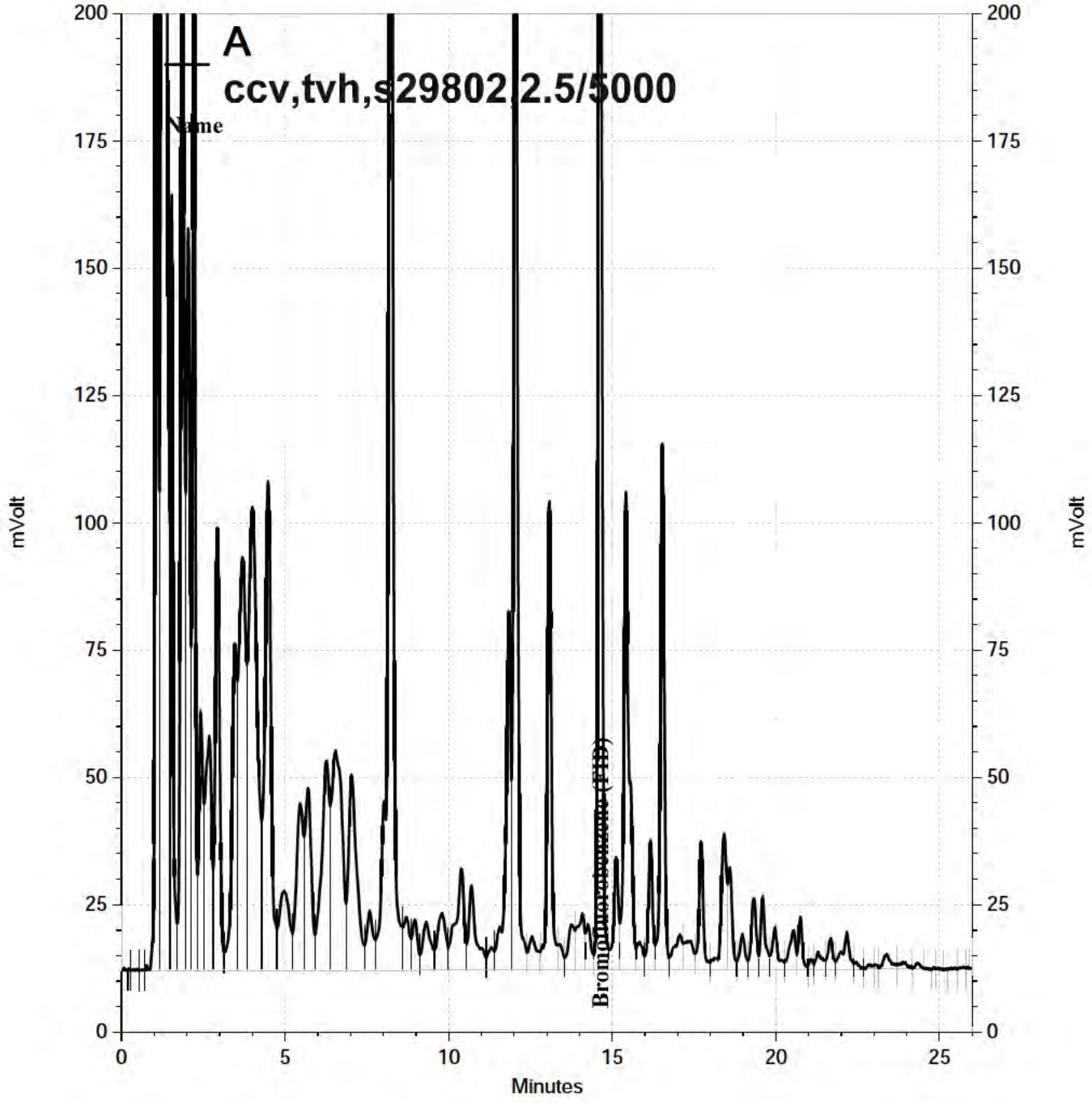
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200
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Initial & Continuing Calibration Data

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 277038 GCVOA Soil: EPA 8015D

Inst : GC04
Calnum : 306109587001
Units : ng

Name : tvhbtxe_078
Date : 16-MAR-2016 04:22
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	076_004	306109587004	TVH_15	16-MAR-2016 04:22	S29176 (1000X), S28998 (5000X)
L2	076_005	306109587005	TVH_16	16-MAR-2016 05:00	S29175 (1000X), S28998 (5000X)
L3	076_006	306109587006	TVH_17	16-MAR-2016 05:38	S29173 (2000X), S28998 (5000X)
L4	076_007	306109587007	TVH_18	16-MAR-2016 06:15	S29173 (1000X), S28998 (5000X)
L5	076_013	306109587013	TVH_14	18-MAR-2016 10:43	S29177 (1000X), S28998 (5000X)

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
Gasoline C7-C12	A	3484.5	3297.7	3108.9	3005.8	4354.1	AVRG		2.90E-4		3450.2	16	0.995	20	
Bromofluorobenzene (FID)	A	2386.7	2535.0	2517.3	2474.5	2084.7	AVRG		4.17E-4		2399.6	8	0.995	20	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Gasoline C7-C12	A	2500.0	1	10000	-4	25000	-10	50000	-13	250.00	**26**
Bromofluorobenzene (FID)	A	900.00	-1	900.00	6	900.00	5	900.00	3	900.00	-13

Analyst: FBJ Date: 03/18/16 Reviewer: EAH Date: 03/18/16

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 277038 GCVOA Soil
EPA 8015D

Inst : GC04 Name : tvhbtxe_078
Calnum : 306109587001 Cal Date : 16-MAR-2016

ICV 306109587010 (076_010 16-MAR-2016) stds: S28640 (1000X), S28998 (5000X)

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Gasoline C7-C12	A	10000	8553	ng	-14	20	

Analyst: FBJ Date: 03/18/16 Reviewer: EAH Date: 03/18/16

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 277038 GCVOA Soil: EPA 8015D

Inst : GC19
Calnum : 345506147001
Units : ng

Name : TVHBTXE_351
Date : 17-DEC-2015 19:57
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	351_014	345506147014	TVH_14	17-DEC-2015 19:57	S28731 (1000X), S28390 (5000X)
L2	351_015	345506147015	TVH_15	17-DEC-2015 20:34	S28719 (1000X), S28390 (5000X)
L3	351_016	345506147016	TVH_16	17-DEC-2015 21:12	S28718 (1000X), S28390 (5000X)
L4	351_017	345506147017	TVH_17	17-DEC-2015 21:49	S28717 (2000X), S28390 (5000X)
L5	351_018	345506147018	TVH_18	17-DEC-2015 22:27	S28717 (1000X), S28390 (5000X)

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
Gasoline C7-C12	A	2129.8	1792.3	1755.8	1721.2	1695.6	AVRG		5.50E-4		1819.0	10	0.995	20	
Bromofluorobenzene (FID)	A	1312.3	1413.7	1503.6	1494.0	1707.9	AVRG		6.73E-4		1486.3	10	0.995	20	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Gasoline C7-C12	A	250.00	17	2500.0	-1	10000	-3	25000	-5	50000	-7
Bromofluorobenzene (FID)	A	900.00	-12	900.00	-5	900.00	1	900.00	1	900.00	15

Analyst: FBJ Date: 12/18/15 Reviewer: EAH Date: 12/18/15

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

345506147001

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 277038 GCVOA Soil
EPA 8015D

Inst : GC19 Name : TVHBTXE_351
Calnum : 345506147001 Cal Date : 17-DEC-2015

ICV 345506147021 (351_021 18-DEC-2015) stds: S28640 (1000X), S28390 (5000X)

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Gasoline C7-C12	A	10000	9353	ng	-6	20	

Analyst: FBJ Date: 12/18/15 Reviewer: EAH Date: 12/18/15

CURTIS & TOMPKINS SPIKE USER REPORT FOR 277038 GCVOA Soil
EPA 8015D

Inst : GC04 Run Name : QC836651 IDF : 1.0
Seqnum : 306207946002.1 File : 144_002 Time : 23-MAY-2016 10:24
Cal : 306109587001 Caldate : 16-MAR-2016
Standards: S29802 (2000X), S29644 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Gasoline C7-C12	A	3450.2	3549.9	5000	5144	ng	3	20	u
Bromofluorobenzene (FID)	A	2399.6	2821.7	900.0	1058	ng	18	20	u

FBJ 05/24/16 : ccv/lcs,qc836651,235356 [general version]

FBJ 05/24/16 [Bromofluorobenzene (FID) A]: Passes control limits. [general version]

Analyst: PAW Date: 05/25/16 Reviewer: TKM Date: 05/26/16

u=use

CURTIS & TOMPKINS SPIKE USER REPORT FOR 277038 GCVOA Soil
EPA 8015D

Inst : GC04 Run Name : QC836705 IDF : 1.0
Seqnum : 306207946014.4 File : 144_014 Time : 23-MAY-2016 18:19
Cal : 306109587001 Caldate : 16-MAR-2016
Standards: S29802 (1000X), S29644 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Gasoline C7-C12	A	3450.2	3306.9	10000	9585	ng	-4	20	u
Bromofluorobenzene (FID)	A	2399.6	2765.8	900.0	1037	ng	15	20	u

FBJ 05/24/16 : ccv/lcs,qc836705,235368 [general version]

Analyst: KKM Date: 05/26/16 Reviewer: TKM Date: 05/26/16

u=use

CURTIS & TOMPKINS SPIKE USER REPORT FOR 277038 GCVOA Soil
EPA 8015D

Inst : GC19 Run Name : QC836637 IDF : 1.0
Seqnum : 346207837003.2 File : 144_003 Time : 23-MAY-2016 09:13
Cal : 345506147001 Caldate : 17-DEC-2015
Standards: S29802 (2000X), S29644 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Gasoline C7-C12	A	1819.0	1817.6	5000	4996	ng	0	20	u
Bromofluorobenzene (FID)	A	1486.3	1432.4	900.0	867.4	ng	-4	20	u

FBJ 05/24/16 : ccv/lcs,qc836637,235352 [general version]

Analyst: PAW Date: 05/25/16 Reviewer: TKM Date: 05/26/16

u=use

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 GCVOA Soil
EPA 8015D

Inst : GC19 Run Name : TVH IDF : 1.0
Seqnum : 346207837016.1 File : 144_016 Time : 23-MAY-2016 18:06
Cal : 345506147001 Caldate : 17-DEC-2015
Standards: S29802 (1000X), S29644 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Gasoline C7-C12	A	1819.0	1772.3	10000	9743	ng	-3	20	
Bromofluorobenzene (FID)	A	1486.3	1542.8	900.0	934.2	ng	4	20	

Analyst: FBJ Date: 05/24/16 Reviewer: TKM Date: 05/26/16

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 GCVOA Soil
EPA 8015D

Inst : GC19 Run Name : TVH IDF : 1.0
Seqnum : 346207837018.1 File : 144_018 Time : 23-MAY-2016 19:21
Cal : 345506147001 Caldate : 17-DEC-2015
Standards: S29802 (1000X), S29644 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Gasoline C7-C12	A	1819.0	1766.9	10000	9714	ng	-3	20	
Bromofluorobenzene (FID)	A	1486.3	1621.3	900.0	981.8	ng	9	20	

Analyst: KKM Date: 05/26/16 Reviewer: TKM Date: 05/26/16

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 GCVOA Soil
EPA 8015D

Inst : GC19 Run Name : TVH IDF : 1.0
Seqnum : 346207837029.1 File : 144_029 Time : 24-MAY-2016 02:14
Cal : 345506147001 Caldate : 17-DEC-2015
Standards: S29802 (666.7X), S29644 (5000X)

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Gasoline C7-C12	A	1819.0	1681.7	15000	13870	ng	-8	20	
Bromofluorobenzene (FID)	A	1486.3	1603.0	900.0	970.7	ng	8	20	

Analyst: KKM Date: 05/26/16 Reviewer: TKM Date: 05/26/16

Logbooks & Sequences

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 306109587

Instrument : GC04 Begun : 03/16/16 02:27
Method : EPA 8015D, EPA 8021B SOP Version : TVH_BTXE_rv22

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	076_001	X	IB			03/16/16 02:27	1.0	1	
002	076_002	IB	CALIB			03/16/16 03:05	1.0	1	
003	076_003	X	TVH_14			03/16/16 03:45	1.0	2 1	
004	076_004	ICAL	TVH_15			03/16/16 04:22	1.0	3 1	
005	076_005	ICAL	TVH_16			03/16/16 05:00	1.0	4 1	
006	076_006	ICAL	TVH_17			03/16/16 05:38	1.0	5 1	
007	076_007	ICAL	TVH_18			03/16/16 06:15	1.0	5 1	
009	076_009	X	ICV			03/16/16 10:54	1.0	6 1	
010	076_010	ICV	TVH			03/16/16 11:32	1.0	6 1	
011	076_011	CMARKER				03/16/16 12:09	1.0	7 1	
012	076_012	X	IB			03/18/16 09:48	1.0	1	
013	076_013	ICAL	TVH_14			03/18/16 10:43	1.0	2 1	

FBJ 03/18/16 : X'd out run 3, lowest ical pt failed high, reprepped & reran in run 13. Run 8 lost-ezchrom stopped accepting runs, see LIMS ticket 11933 (run 8 was an IB).

FBJ 03/18/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 13.

Reviewed by: FBJ Date: 03/18/16

Standards used: 1=S28998 2=S29177 3=S29176 4=S29175 5=S29173 6=S28640 7=S28372

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 306207946

Instrument : GC04 Begun : 05/23/16 09:46
Method : EPA 8015D, EPA 8021B SOP Version : TVH_BTXE_rv22

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used
001	144_001	X	CMARKER			05/23/16 09:46	1.0	1 2
002	144_002	CCV/LCS	QC836651	Soil	235356	05/23/16 10:24	1.0	3 2
003	144_003	BLANK	QC836652	Soil	235356	05/23/16 11:10	1.0	2
004	144_004	MSS	277043-002	Soil	235356	05/23/16 12:03	1.0	2
005	144_005	MS	QC836653	Soil	235356	05/23/16 12:40	1.0	3 2
006	144_006	MSD	QC836654	Soil	235356	05/23/16 13:18	1.0	3 2
007	144_007	SAMPLE	277043-001	Soil	235356	05/23/16 13:56	1.0	2
008	144_008	SAMPLE	277048-005	Soil	235356	05/23/16 14:33	1.0	2
009	144_009	SAMPLE	277034-001	Soil	235356	05/23/16 15:11	1.0	2
010	144_010	SAMPLE	277038-011	Soil	235356	05/23/16 15:49	1.0	2
011	144_011	SAMPLE	277038-012	Soil	235356	05/23/16 16:26	1.0	2
012	144_012	SAMPLE	277081-024	Soil	235356	05/23/16 17:04	1.0	2
013	144_013	SAMPLE	277081-025	Soil	235356	05/23/16 17:41	1.0	2
014	144_014	CCV/LCS	QC836705	Water	235368	05/23/16 18:19	1.0	3 2
015	144_015	X	CMARKER			05/23/16 18:57	1.0	1 2
016	144_016	CCV	TVH			05/23/16 19:34	1.0	3 2
017	144_017	BLANK	QC836706	Water	235368	05/23/16 20:12	1.0	2
018	144_018	SAMPLE	277081-026	Soil	235356	05/23/16 20:50	1.0	2
019	144_019	SAMPLE	277081-027	Soil	235356	05/23/16 21:27	1.0	2
020	144_020	SAMPLE	276956-001	Soil	235356	05/23/16 22:05	1.0	2
021	144_021	SAMPLE	276956-002	Soil	235356	05/23/16 22:42	1.0	2
022	144_022	SAMPLE	276956-007	Soil	235356	05/23/16 23:20	1.0	2
023	144_023	SAMPLE	276956-008	Soil	235356	05/23/16 23:58	1.0	2
024	144_024	SAMPLE	276956-011	Soil	235356	05/24/16 00:35	1.0	2
025	144_025	SAMPLE	276956-013	Soil	235356	05/24/16 01:13	1.0	2
026	144_026	SAMPLE	276956-016	Soil	235356	05/24/16 01:50	1.0	2
027	144_027	SAMPLE	276956-017	Soil	235356	05/24/16 02:28	1.0	2
028	144_028	CCV	TVH			05/24/16 03:06	1.0	3 2
029	144_029	X	CMARKER			05/24/16 03:43	1.0	1 2
030	144_030	CCV	TVH			05/24/16 04:21	1.0	3 2
031	144_031	SAMPLE	277052-004	Water	235368	05/24/16 04:58	1.0	2
032	144_032	SAMPLE	277018-001	Miscell.	235356	05/24/16 05:36	1.0	2
033	144_033	MSS	277081-013	Water	235368	05/24/16 06:13	1.0	2
034	144_034	MS	QC836707	Water	235368	05/24/16 06:51	1.0	3 2
035	144_035	MSD	QC836708	Water	235368	05/24/16 07:29	1.0	3 2
036	144_036	SAMPLE	277081-021	Water	235368	05/24/16 08:06	1.0	2
037	144_037	SAMPLE	277081-022	Water	235368	05/24/16 08:44	1.0	2
038	144_038	SAMPLE	277049-003	Water	235368	05/24/16 09:21	1.0	2
039	144_039	SAMPLE	277052-002	Water	235368	05/24/16 09:59	1.0	2
040	144_040	CCV	TVH			05/24/16 10:36	1.0	3 2
041	144_041	CCV	TVH			05/24/16 11:14	1.0	3 2
042	144_042	X	CMARKER			05/24/16 11:51	1.0	1 2

PAB 05/24/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 42.

Reviewed by: FBJ Date: 05/24/16

Standards used: 1=S29479 2=S29644 3=S29802

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 345506147

Instrument : GC19 Begun : 12/17/15 11:47
Method : EPA 8015D, EPA 8021B SOP Version : TVH_BTXE_rv22

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	351_001	IB	ICALIB			12/17/15 11:47	1.0	1	
002	351_002	ICAL	BTXE_1			12/17/15 12:25	1.0	2 1	
003	351_003	ICAL	MBTXE_2			12/17/15 13:03	1.0	3 1	
004	351_004	ICAL	MBTXE_3			12/17/15 13:40	1.0	3 1	
005	351_005	ICAL	MBTXE_4			12/17/15 14:18	1.0	3 1	
006	351_006	ICAL	MBTXE_5			12/17/15 14:56	1.0	4 1	
007	351_007	ICAL	MBTXE_6			12/17/15 15:33	1.0	4 1	
008	351_008	ICAL	MBTXE_7			12/17/15 16:11	1.0	4 1	
009	351_009	ICAL	MTBE_7			12/17/15 16:48	1.0	5 1	
010	351_010	X	IB			12/17/15 17:26	1.0	1	
011	351_011	ICV	MBTXE			12/17/15 18:04	1.0	6 1	
012	351_012	X	ICV			12/17/15 18:42	1.0	6 1	
013	351_013	IB	CALIB			12/17/15 19:19	1.0	1	
014	351_014	ICAL	TVH_14			12/17/15 19:57	1.0	7 1	
015	351_015	ICAL	TVH_15			12/17/15 20:34	1.0	8 1	
016	351_016	ICAL	TVH_16			12/17/15 21:12	1.0	9 1	
017	351_017	ICAL	TVH_17			12/17/15 21:49	1.0	10 1	
018	351_018	ICAL	TVH_18			12/17/15 22:27	1.0	10 1	
019	351_019	X	IB			12/17/15 23:05	1.0	1	
020	351_020	X	ICV			12/17/15 23:42	1.0	11 1	
021	351_021	ICV	TVH			12/18/15 00:20	1.0	11 1	
022	351_022	CMARKER				12/18/15 00:58	1.0	12 1	

FBJ 12/18/15 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 22.

Reviewed by: FBJ Date: 12/18/15

Standards used: 1=S28390 2=S28037 3=S28036 4=S28035 5=S28038 6=S28199 7=S28731 8=S28719 9=S28718 10=S28717 11=S28640 12=S8372

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 346207837

Instrument : GC19 Begun : 05/23/16 07:57
Method : EPA 8015D, EPA 8021B SOP Version : TVH_BTXE_rv22

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used
001	144_001	X	CMARKER			05/23/16 07:57	1.0	1 2
002	144_002	CCV	BTXE			05/23/16 08:35	1.0	3 2
003	144_003	CCV/LCS	QC836637	Soil	235352	05/23/16 09:13	1.0	4 2
004	144_004	CCV	BTXE			05/23/16 09:50	1.0	3 2
005	144_005	BLANK	QC836638	Soil	235352	05/23/16 10:54	1.0	2
006	144_006	SAMPLE	277036-001	Soil	235352	05/23/16 11:49	1.0	2
007	144_007	SAMPLE	277036-002	Soil	235352	05/23/16 12:27	1.0	2
008	144_008	SAMPLE	277036-003	Soil	235352	05/23/16 13:05	1.0	2
009	144_009	SAMPLE	277036-004	Soil	235352	05/23/16 13:42	1.0	2
010	144_010	SAMPLE	277036-005	Soil	235352	05/23/16 14:20	1.0	2
011	144_011	SAMPLE	277036-006	Soil	235352	05/23/16 14:58	1.0	2
012	144_012	SAMPLE	277036-007	Soil	235352	05/23/16 15:35	1.0	2
013	144_013	SAMPLE	277036-008	Soil	235352	05/23/16 16:13	1.0	2
014	144_014	SAMPLE	277036-009	Soil	235352	05/23/16 16:50	1.0	2
015	144_015	SAMPLE	277036-010	Soil	235352	05/23/16 17:28	1.0	2
016	144_016	CCV	TVH			05/23/16 18:06	1.0	4 2
017	144_017	X	CMARKER			05/23/16 18:43	1.0	1 2
018	144_018	CCV	TVH			05/23/16 19:21	1.0	4 2
019	144_019	SAMPLE	277038-001	Soil	235352	05/23/16 19:58	1.0	2
020	144_020	SAMPLE	277038-002	Soil	235352	05/23/16 20:36	1.0	2
021	144_021	SAMPLE	277038-003	Soil	235352	05/23/16 21:14	1.0	2
022	144_022	SAMPLE	277038-004	Soil	235352	05/23/16 21:51	1.0	2
023	144_023	SAMPLE	277038-005	Soil	235352	05/23/16 22:29	1.0	2
024	144_024	SAMPLE	277038-006	Soil	235352	05/23/16 23:06	1.0	2
025	144_025	SAMPLE	277038-007	Soil	235352	05/23/16 23:44	1.0	2
026	144_026	SAMPLE	277038-008	Soil	235352	05/24/16 00:21	1.0	2
027	144_027	SAMPLE	277038-009	Soil	235352	05/24/16 00:59	1.0	2
028	144_028	SAMPLE	277038-010	Soil	235352	05/24/16 01:37	1.0	2
029	144_029	CCV	TVH			05/24/16 02:14	1.0	4 2
030	144_030	CCV	TVH			05/24/16 02:52	1.0	4 2
031	144_031	X	CMARKER			05/24/16 03:29	1.0	1 2

FBJ 05/23/16 : Increased B & C channel intensity by (1) after run 2

FBJ 05/24/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 31.

FBJ 05/24/16 : Matrix spikes were not performed for this analysis in batch 235352 due to insufficient sample amount.

Reviewed by: FBJ Date: 05/24/16

Standards used: 1=S29479 2=S29644 3=S29741 4=S29802

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	Sample	ID	Weight	Na Soy	Comments
	2769 82-002	A	.98	ND	FB1 5/20/16
	-002MS		1.01		
5	-002MSD		1.03		
	-001		1.04		
	-003		1.11		
	277010-001	A	1.03	ND	FB1 5/20/16
	277011-001		.99		
10	-002		.99		
	-003		.97		
	-004		.98		
	-005		1.02		
	-006		1.00		
15	-007		.99		
	277015-001		1.04	ND	FB1 5/20/16
	277031-001	A	0.97	ND	CAR 5/20/16
	277036-001	B	6.08	ND	FB1 5/23/16
	-002		4.77		
20	-003		5.80		
	-004		5.60		
	-005		6.00		
	-006		5.34		
	-007		5.72		
25	-008		5.82		
	-009		5.92		
	-010		5.89		
	277038-001	B	6.13	ND	FB1 5/23/16
	-002		5.74		
30	-003		5.84		
	-004		5.85		
	-005		5.72		
	-006		6.00		
	-007		5.89		
35	-008		5.45		
	-009		5.76		
	-010		5.87		
	-011		5.16		
	-012		5.28		
40	277043-001		1.05	ND	FB1 5/23/16
	-002		1.07		
	-002MS		1.04		
	-002MSD		1.08		
	277048-005 A (comp 1-4 @ 5 grams)		.98		
45	277034-001 A		.99		

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PROPRIETARY INFORMATION

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Continued from page

Sample	ID	Weight	Na Joy	Comments
276982-002	A	.98	ND	FB1 5/20/16
-002 MS		1.01		
-002 MSD		1.03		
-001		1.04		
-003		1.11		
277010-001	A	1.03	NO	FB1 5/20/16
277011-001		.99		
-002		.99		
-003		.97		
-004		.98		
-005		1.02		
-006		1.00		
-007		.99		
277015-001		1.04	NO	FB1 5/20/16
277031-001	A	0.97	NO	CAR 5/20/16
277036-001	B	6.08	NO	FB1 5/23/16
-002		4.77		
-003		5.80		
-004		5.60		
-005		6.00		
-006		5.34		
-007		5.72		
-008		5.87		
-009		5.92		
-010		5.89		
277038-001	B	6.13	NO	FB1 5/23/16
-002		5.74		
-003		5.84		
-004		5.85		
-005		5.72		
-006		6.00		
-007		5.89		
-008		5.45		
-009		5.76		
-010		5.87		
-011		5.16		
-012		5.28		
277043-001		1.05	NO	FB1 5/23/16
-002		1.07		
-002 MS		1.04		
-002 MSD		1.08		
277048-005	A (comp 1-4 @ 5 each)	.98		
277034-001	A	.98		

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SIGNATURE DATE

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PROPRIETARY INFORMATION

TITLE **PROJECT** **DATE**

Continued from page

Sample	ID	Weight	Nasby	Comments
277081 -001	A	.96	NO	FB1 5/23/16
-002		1.01		
-003		1.00		
-004		1.05		
-005		1.04		
-006		1.03		
-007		1.04		
-008		1.05		
-009		.99		
-010		1.03		
-011		.99		
-012		1.03		
-014		.92		
-015		1.02		
-016		.99		
-017		.95		
-018		1.02		
-019		.96		
-020		1.08		
-023		1.05		
-024		1.01		
-025		1.03		
-026		.96		
-027		.99		
-001 MS	A	1.05		
-001 MSD	↓	.96		
277018 -001	A	.56	NO	FB1 5/23/16 *sample = spanay
277084 -001	A	1.06	NO	FB1 5/24/16
-001 MS		.95		
-001 MSD		.97		
-002		1.08		PAB 5/24/16
-003		1.07		
-004		1.02		
-005		.92		
-006		.95		
-007		.97		
277096 -001	B	.95		
277097 -001	B	1.03		
277098 -001	B	1.06		
277111 -001	A	1.02	NO	PAB 5/24/16
-002		.98		
-003		1.04		
277112 -001		.47		FB1 5/24/16 * sample was filter paper, prepped at 2X b/c viscous.

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PROPRIETARY INFORMATION

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TITLE TVH/BTXE SOIL ALL QUOT PROJECT DATE

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Sample	ID	Weight (g)	NaSO4	Comments
277105-001	A	35.69 - 30.477 - .23 = 4.98	NO	FB) 5/24/16
-002		35.89 - 30.741 - .68 = 4.47		
276956-001	D	.95	NO	FB) 5/24/16 For FB) 5/23/1
-002	B	35.47 - 30.110 - .23 = 5.13		
-007		35.50 - 30.400 - .23 = 4.87		
-008		35.13 - 30.280 - .23 = 4.62		
-011		36.57 - 30.495 - .23 = 5.85		
-013		36.25 - 30.485 - .23 = 5.54		
-016		36.29 - 30.465 - .23 = 5.60		
-017		36.62 - 30.256 - .23 = 6.13		

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PROPRIETARY INFORMATION

Case Narrative Addendum: Manual Integrations for 277038 GCVOA (Soil)

For SAMPLE 277038-001 (GC19 144_019):
Bromofluorobenzene (FID) (Ch. A): Separated from coeluting peak for Ch. A.

For SAMPLE 277038-005 (GC19 144_023):
Bromofluorobenzene (FID) (Ch. A): Separated from coeluting peak for Ch. A.

For SAMPLE 277038-007 (GC19 144_025):
Bromofluorobenzene (FID) (Ch. A): Separated from coeluting peak for Ch. A.

CAS Registry Numbers for 277038 GCVOA Soil
Curtis & Tompkins Laboratories

Analyte	CAS RN
Bromofluorobenzene (FID)	460-00-4
Gasoline C7-C12	8006-61-9

Laboratory Job Number 277038

ANALYTICAL REPORT

TPH-Extractables by GC

Matrix: Soil

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8015D
Matrix:	Soil	Dil'n Fac:	1.000
Units:	mg/Kg	Sampled:	05/19/16
Basis:	dry	Received:	05/20/16

Field ID:	BS-BERNARD-01-051916	Batch#:	235456
Type:	SAMPLE	Prepared:	05/25/16
Lab ID:	277038-001	Analyzed:	05/25/16
Moisture:	9%	Cleanup Method:	EPA 3630C

Analyte	Result	LOQ	DL
Diesel C10-C24	12 Y	1.1	0.34
Motor Oil C24-C36	65	5.5	1.7

Surrogate	%REC	Limits
o-Terphenyl	90	45-130

Field ID:	BS-BERNARD-02-051916	Batch#:	235424
Type:	SAMPLE	Prepared:	05/24/16
Lab ID:	277038-002	Analyzed:	05/26/16
Moisture:	9%	Cleanup Method:	EPA 3630C

Analyte	Result	LOQ	DL
Diesel C10-C24	14 Y	1.1	0.34
Motor Oil C24-C36	57	5.5	1.7

Surrogate	%REC	Limits
o-Terphenyl	95	45-130

Field ID:	BS-BERNARD-03-051916	Batch#:	235424
Type:	SAMPLE	Prepared:	05/24/16
Lab ID:	277038-003	Analyzed:	05/26/16
Moisture:	8%	Cleanup Method:	EPA 3630C

Analyte	Result	LOQ	DL
Diesel C10-C24	26 Y	1.1	0.33
Motor Oil C24-C36	110	5.5	1.7

Surrogate	%REC	Limits
o-Terphenyl	104	45-130

Field ID:	BS-BERNARD-04-051916	Batch#:	235424
Type:	SAMPLE	Prepared:	05/24/16
Lab ID:	277038-004	Analyzed:	05/26/16
Moisture:	9%	Cleanup Method:	EPA 3630C

Analyte	Result	LOQ	DL
Diesel C10-C24	19 Y	1.1	0.34
Motor Oil C24-C36	77	5.5	1.7

Surrogate	%REC	Limits
o-Terphenyl	114	45-130

U= Not Detected at or above DL
Y= Sample exhibits chromatographic pattern which does not resemble standard
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8015D
Matrix:	Soil	Diln Fac:	1.000
Units:	mg/Kg	Sampled:	05/19/16
Basis:	dry	Received:	05/20/16

Field ID:	BS-BERNARD-05-051916	Batch#:	235424
Type:	SAMPLE	Prepared:	05/24/16
Lab ID:	277038-005	Analyzed:	05/26/16
Moisture:	9%	Cleanup Method:	EPA 3630C

Analyte	Result	LOQ	DL
Diesel C10-C24	24 Y	1.1	0.34
Motor Oil C24-C36	170	5.5	1.7

Surrogate	%REC	Limits
o-Terphenyl	101	45-130

Field ID:	BS-BERNARD-06-051916	Batch#:	235456
Type:	SAMPLE	Prepared:	05/25/16
Lab ID:	277038-006	Analyzed:	05/26/16
Moisture:	11%	Cleanup Method:	EPA 3630C

Analyte	Result	LOQ	DL
Diesel C10-C24	5.8 Y	1.1	0.34
Motor Oil C24-C36	28	5.6	1.7

Surrogate	%REC	Limits
o-Terphenyl	93	45-130

Field ID:	BS-BERNARD-07-051916	Batch#:	235456
Type:	SAMPLE	Prepared:	05/25/16
Lab ID:	277038-007	Analyzed:	05/26/16
Moisture:	9%	Cleanup Method:	EPA 3630C

Analyte	Result	LOQ	DL
Diesel C10-C24	8.5 Y	1.1	0.33
Motor Oil C24-C36	31	5.5	1.7

Surrogate	%REC	Limits
o-Terphenyl	88	45-130

Field ID:	BS-BERNARD-08-051916	Batch#:	235456
Type:	SAMPLE	Prepared:	05/25/16
Lab ID:	277038-008	Analyzed:	05/26/16
Moisture:	12%	Cleanup Method:	EPA 3630C

Analyte	Result	LOQ	DL
Diesel C10-C24	6.6 Y	1.1	0.35
Motor Oil C24-C36	34	5.7	1.7

Surrogate	%REC	Limits
o-Terphenyl	100	45-130

U= Not Detected at or above DL
Y= Sample exhibits chromatographic pattern which does not resemble standard
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8015D
Matrix:	Soil	Diln Fac:	1.000
Units:	mg/Kg	Sampled:	05/19/16
Basis:	dry	Received:	05/20/16

Field ID:	BS-BERNARD-09-051916	Batch#:	235456
Type:	SAMPLE	Prepared:	05/25/16
Lab ID:	277038-009	Analyzed:	05/26/16
Moisture:	8%	Cleanup Method:	EPA 3630C

Analyte	Result	LOQ	DL
Diesel C10-C24	19 Y	1.1	0.33
Motor Oil C24-C36	170	5.4	1.6

Surrogate	%REC	Limits
o-Terphenyl	98	45-130

Field ID:	BS-BERNARD-10-051916	Batch#:	235456
Type:	SAMPLE	Prepared:	05/25/16
Lab ID:	277038-010	Analyzed:	05/26/16
Moisture:	9%	Cleanup Method:	EPA 3630C

Analyte	Result	LOQ	DL
Diesel C10-C24	16 Y	1.1	0.34
Motor Oil C24-C36	130	5.5	1.7

Surrogate	%REC	Limits
o-Terphenyl	104	45-130

Field ID:	BS-BERNARD-11-051916	Batch#:	235456
Type:	SAMPLE	Prepared:	05/25/16
Lab ID:	277038-011	Analyzed:	05/26/16
Moisture:	7%	Cleanup Method:	EPA 3630C

Analyte	Result	LOQ	DL
Diesel C10-C24	15 Y	1.1	0.33
Motor Oil C24-C36	110	5.4	1.6

Surrogate	%REC	Limits
o-Terphenyl	96	45-130

Field ID:	BS-BERNARD-12-051916	Batch#:	235456
Type:	SAMPLE	Prepared:	05/25/16
Lab ID:	277038-012	Analyzed:	05/26/16
Moisture:	6%	Cleanup Method:	EPA 3630C

Analyte	Result	LOQ	DL
Diesel C10-C24	14 Y	1.1	0.32
Motor Oil C24-C36	110	5.3	1.6

Surrogate	%REC	Limits
o-Terphenyl	102	45-130

U= Not Detected at or above DL
Y= Sample exhibits chromatographic pattern which does not resemble standard
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8015D
Matrix:	Soil	Dil'n Fac:	1.000
Units:	mg/Kg	Sampled:	05/19/16
Basis:	dry	Received:	05/20/16

Type:	BLANK	Prepared:	05/24/16
Lab ID:	QC836921	Analyzed:	05/25/16
Batch#:	235424	Cleanup Method:	EPA 3630C

Analyte	Result	LOQ	DL
Diesel C10-C24	0.71 U	1.0	0.31
Motor Oil C24-C36	3.2 U	5.0	1.5

Surrogate	%REC	Limits
o-Terphenyl	113	45-130

Type:	BLANK	Prepared:	05/25/16
Lab ID:	QC837040	Analyzed:	05/25/16
Batch#:	235456	Cleanup Method:	EPA 3630C

Analyte	Result	LOQ	DL
Diesel C10-C24	0.70 U	1.0	0.31
Motor Oil C24-C36	3.2 U	5.0	1.5

Surrogate	%REC	Limits
o-Terphenyl	102	45-130

U= Not Detected at or above DL
Y= Sample exhibits chromatographic pattern which does not resemble standard
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8015D
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC836922	Batch#:	235424
Matrix:	Soil	Prepared:	05/24/16
Units:	mg/Kg	Analyzed:	05/25/16

Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	50.38	55.18	110	38-132

Surrogate	%REC	Limits
o-Terphenyl	120	45-130

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8015D
Field ID:	ZZZZZZZZZZ	Batch#:	235424
MSS Lab ID:	277111-001	Sampled:	05/23/16
Matrix:	Soil	Received:	05/24/16
Units:	mg/Kg	Prepared:	05/24/16
Basis:	as received	Analyzed:	05/25/16
Diln Fac:	3.000		

Type: MS Lab ID: QC836923

Analyte	MSS Result	Spiked	Result	%REC	Limits
Diesel C10-C24	88.72	49.82	128.3	79	38-132

Surrogate	%REC	Limits
o-Terphenyl	122	45-130

Type: MSD Lab ID: QC836924

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	49.97	147.0	117	38-132	14	30

Surrogate	%REC	Limits
o-Terphenyl	123	45-130

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8015D
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC837041	Batch#:	235456
Matrix:	Soil	Prepared:	05/25/16
Units:	mg/Kg	Analyzed:	05/25/16

Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	49.99	48.22	96	38-132

Surrogate	%REC	Limits
o-Terphenyl	105	45-130

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8015D
Field ID:	BS-BERNARD-01-051916	Batch#:	235456
MSS Lab ID:	277038-001	Sampled:	05/19/16
Matrix:	Soil	Received:	05/20/16
Units:	mg/Kg	Prepared:	05/25/16
Basis:	dry	Analyzed:	05/25/16
Diln Fac:	1.000		

Type: MS
Lab ID: QC837042
Moisture: 9%
Cleanup Method: EPA 3630C

Analyte	MSS Result	Spiked	Result	%REC	Limits
Diesel C10-C24	11.96	54.76	64.35	96	38-132

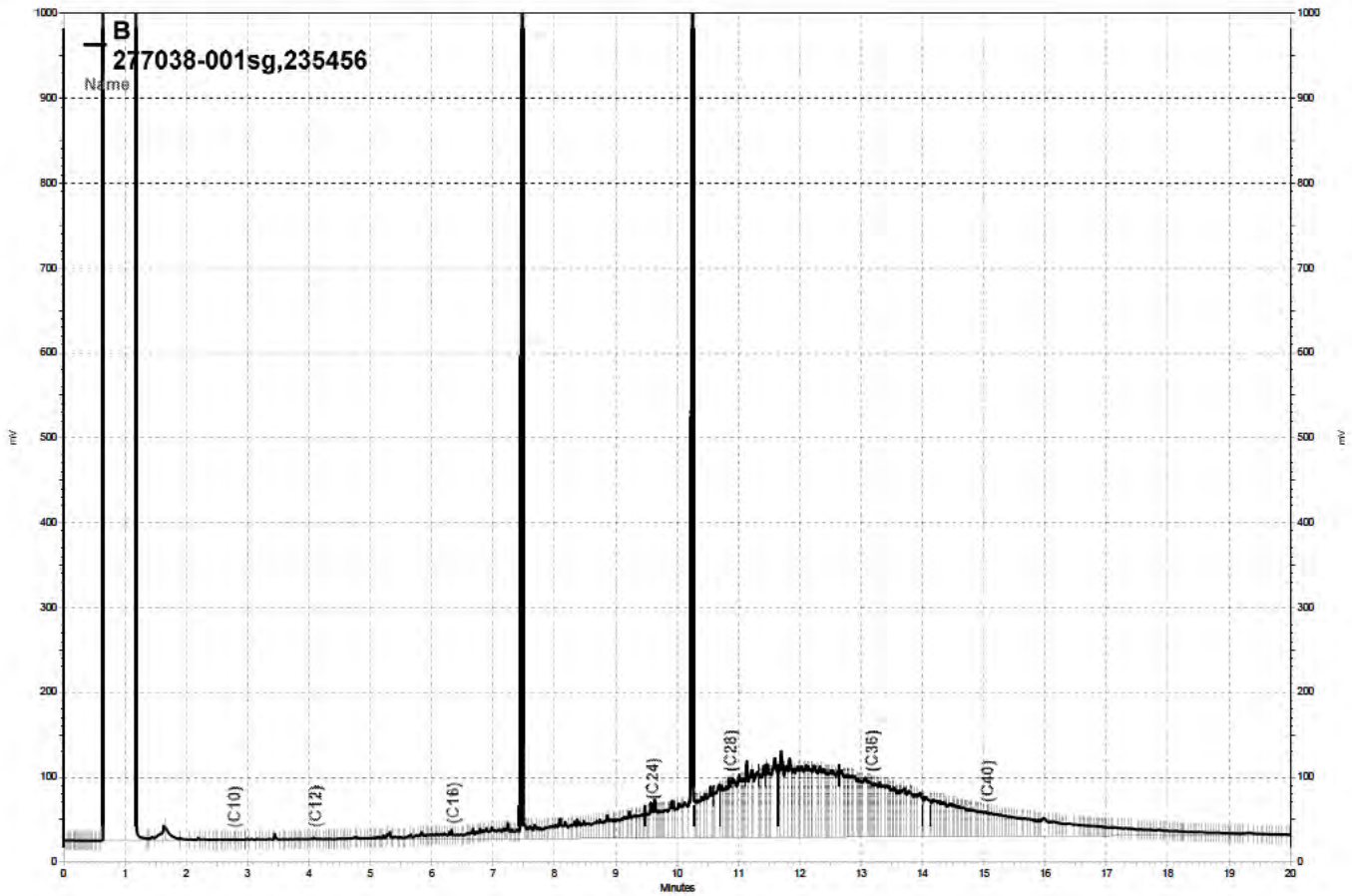
Surrogate	%REC	Limits
o-Terphenyl	98	45-130

Type: MSD
Lab ID: QC837043
Moisture: 9%
Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	54.86	59.19	86	38-132	8	30

Surrogate	%REC	Limits
o-Terphenyl	98	45-130

RPD= Relative Percent Difference



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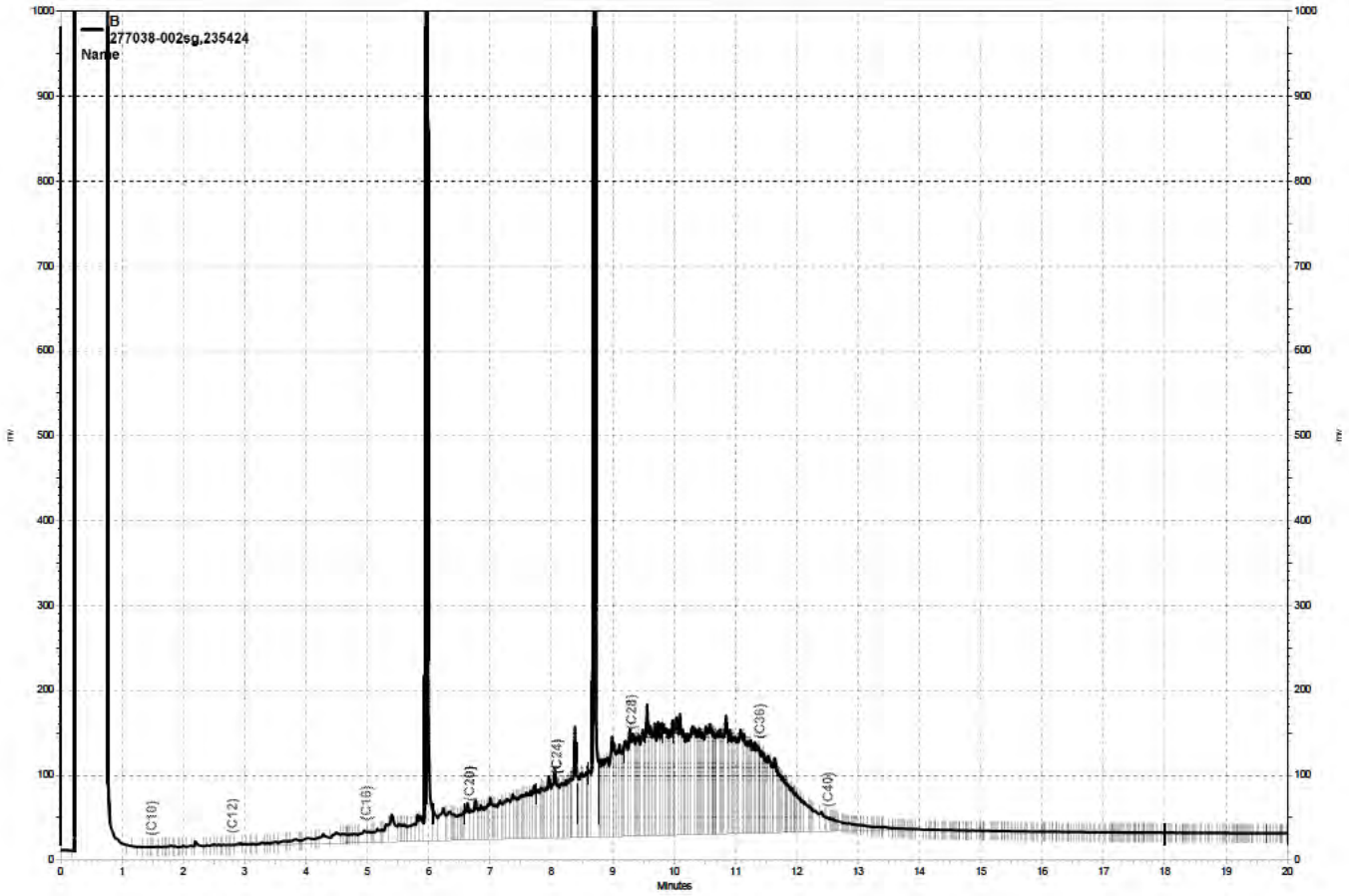

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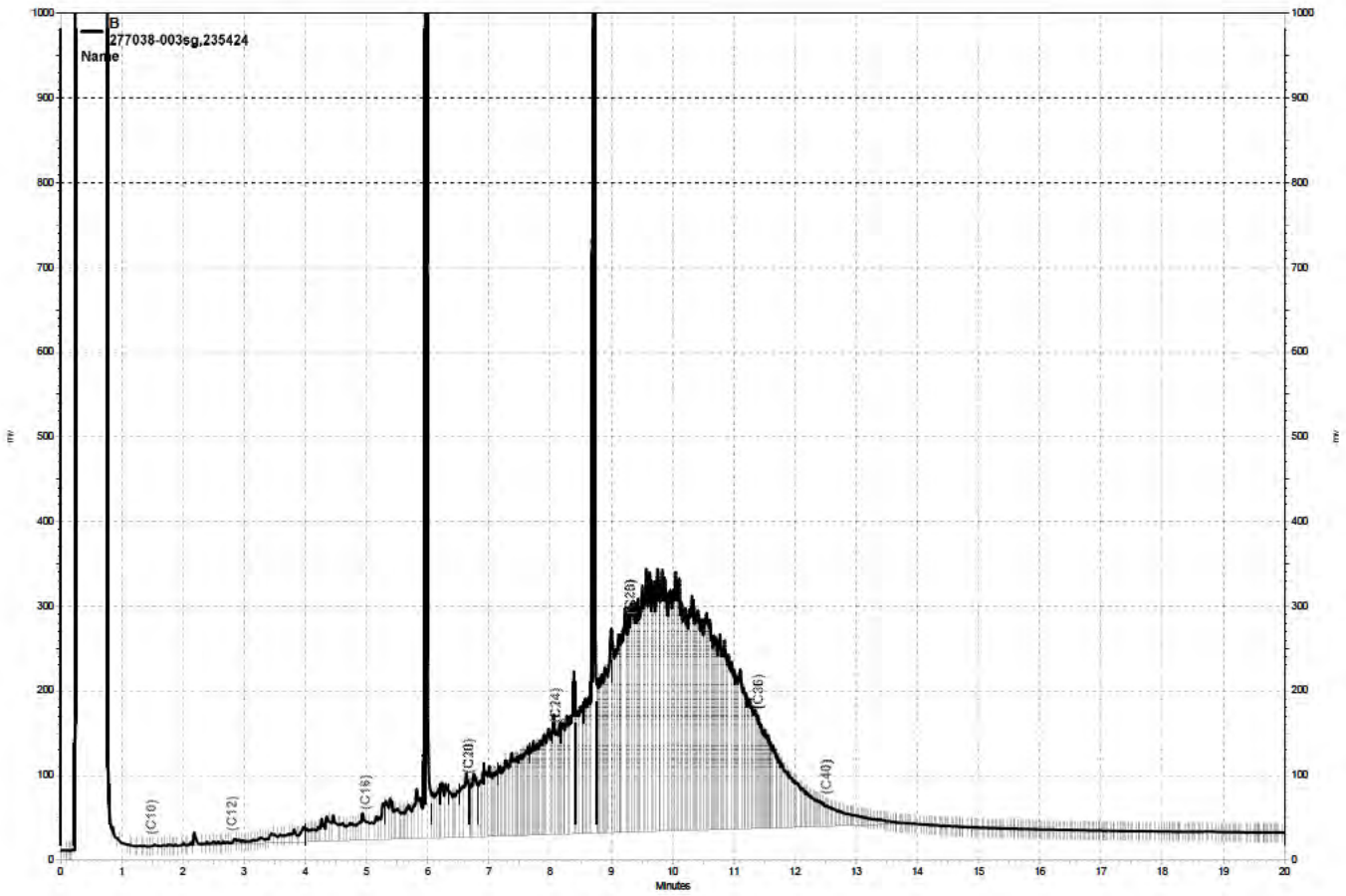

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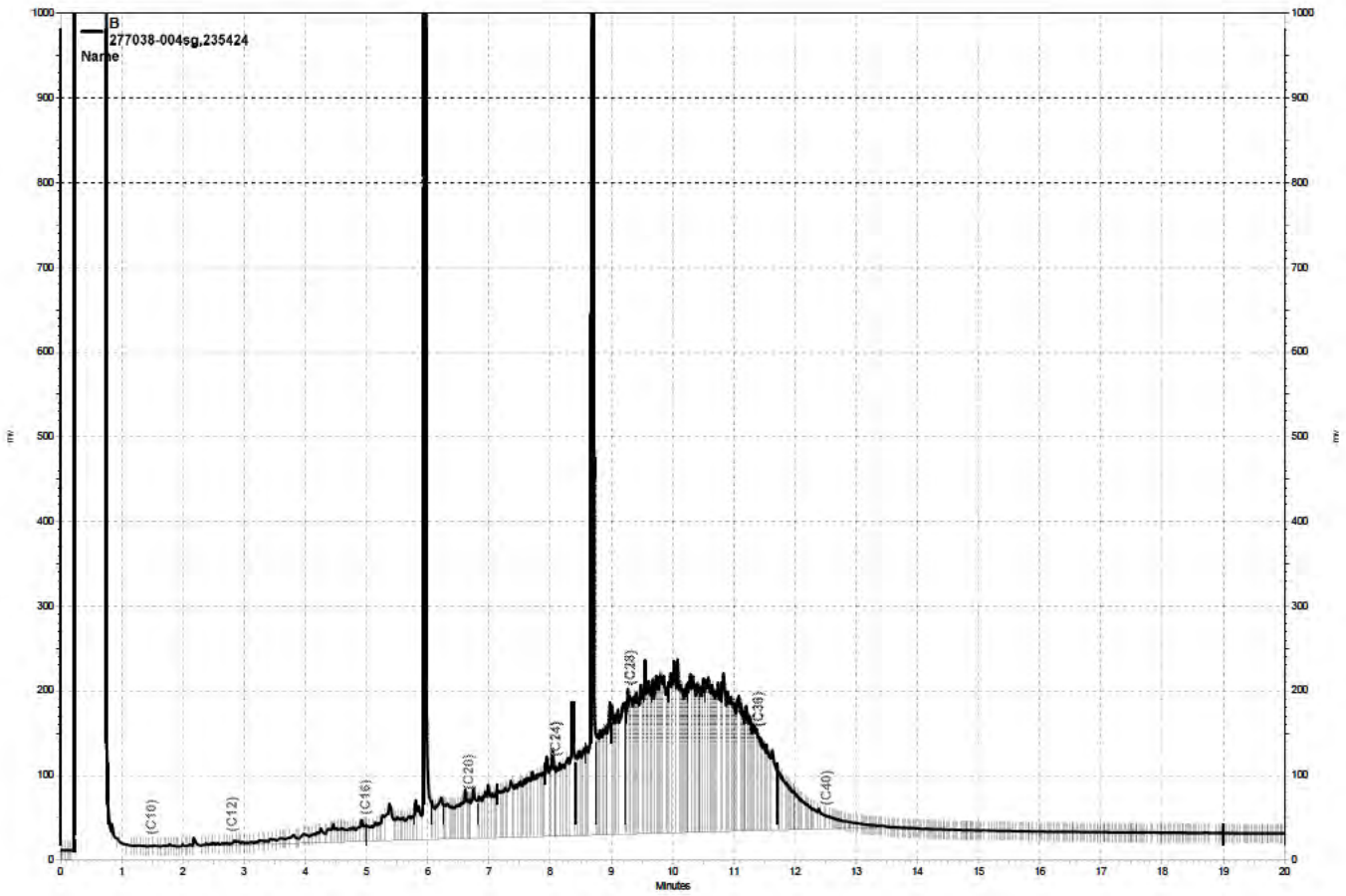

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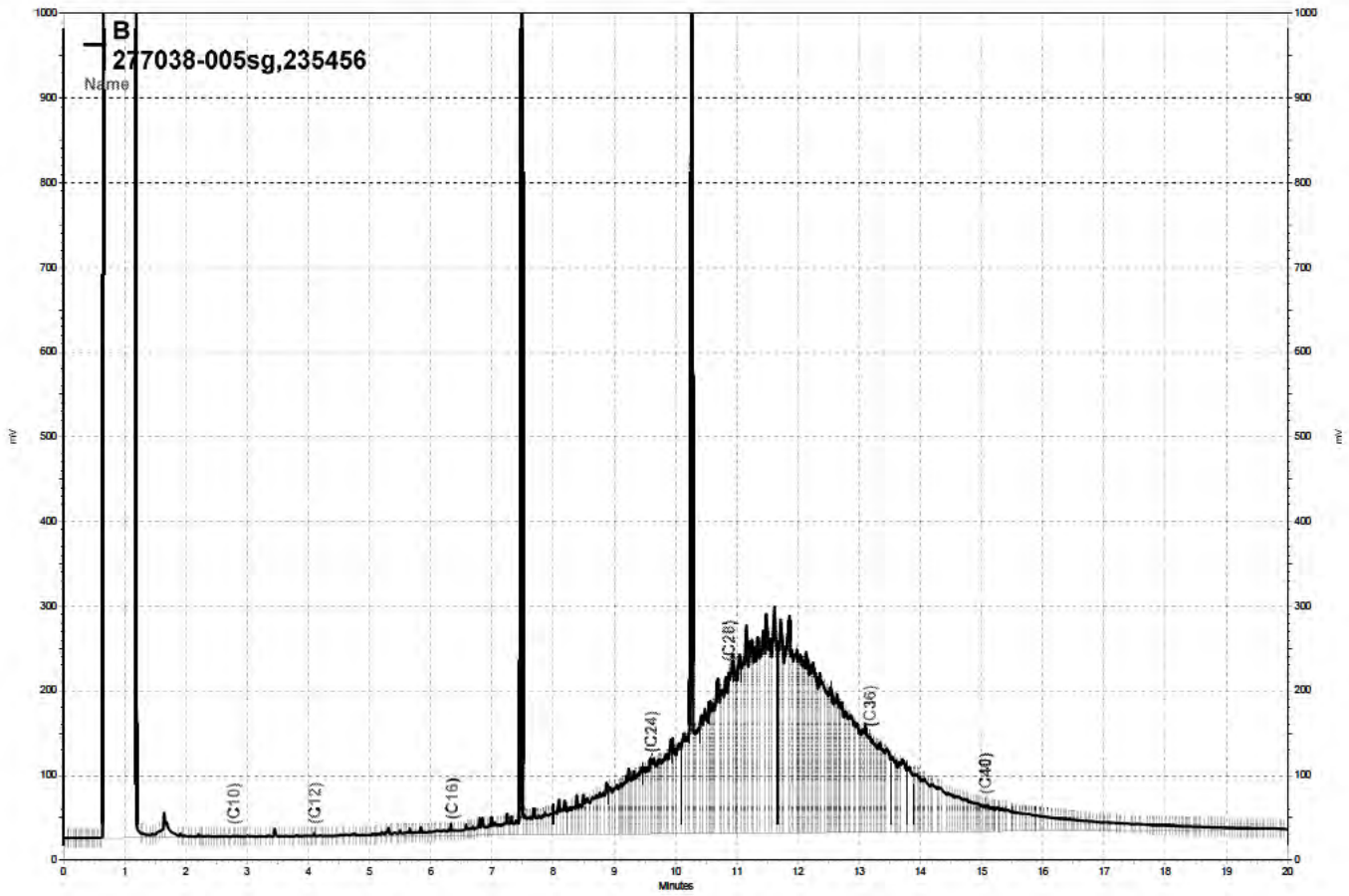

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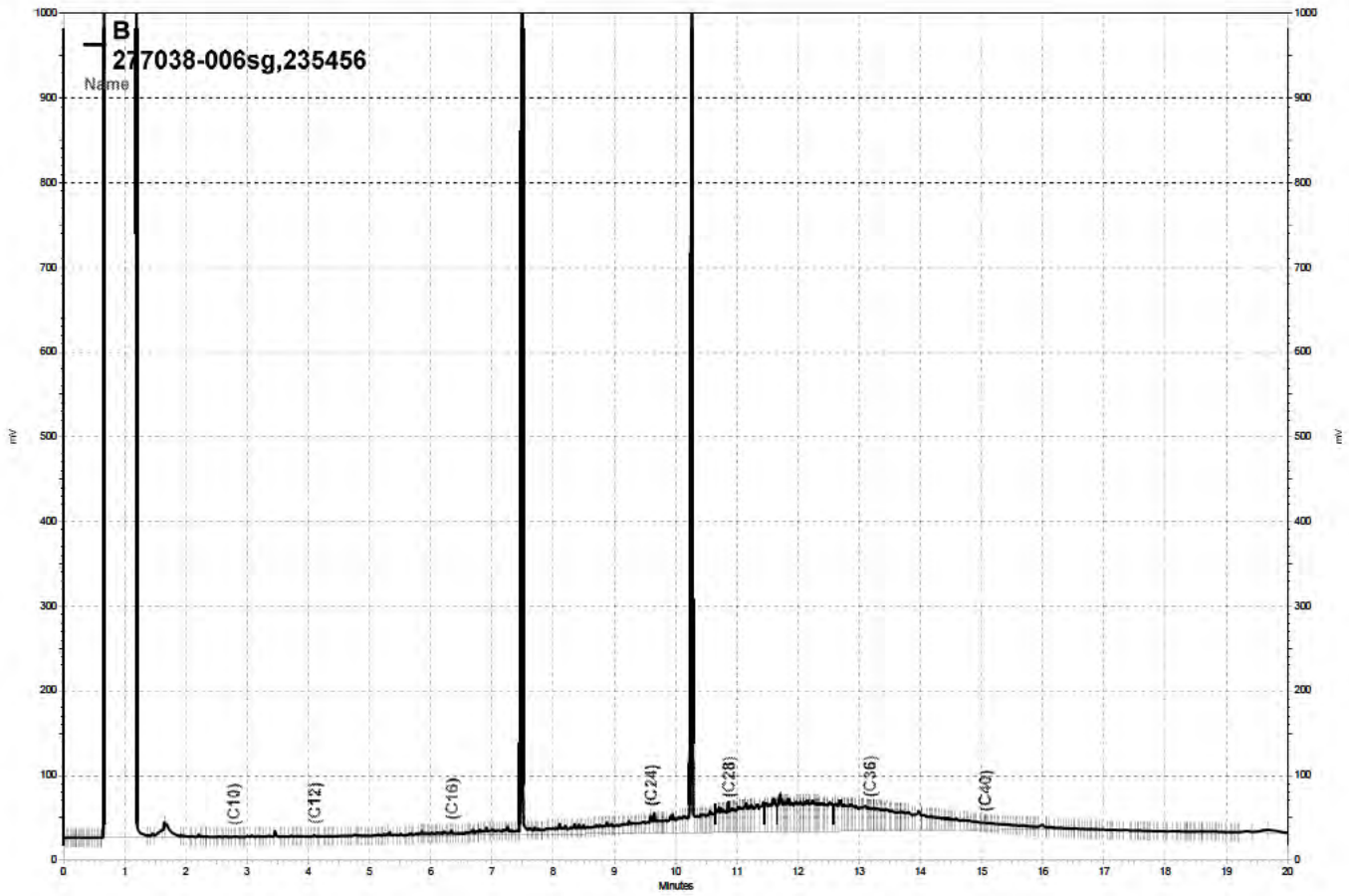

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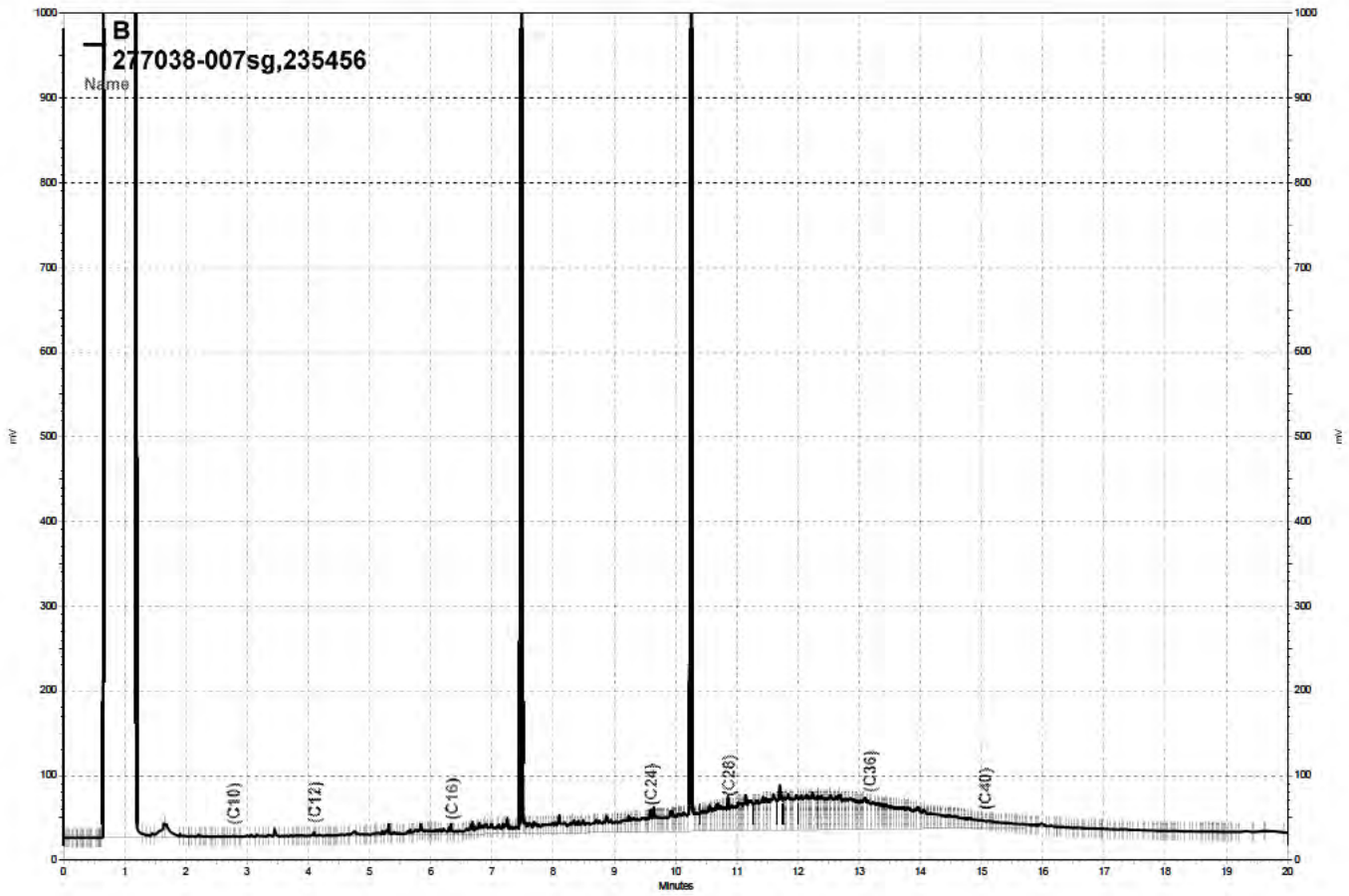

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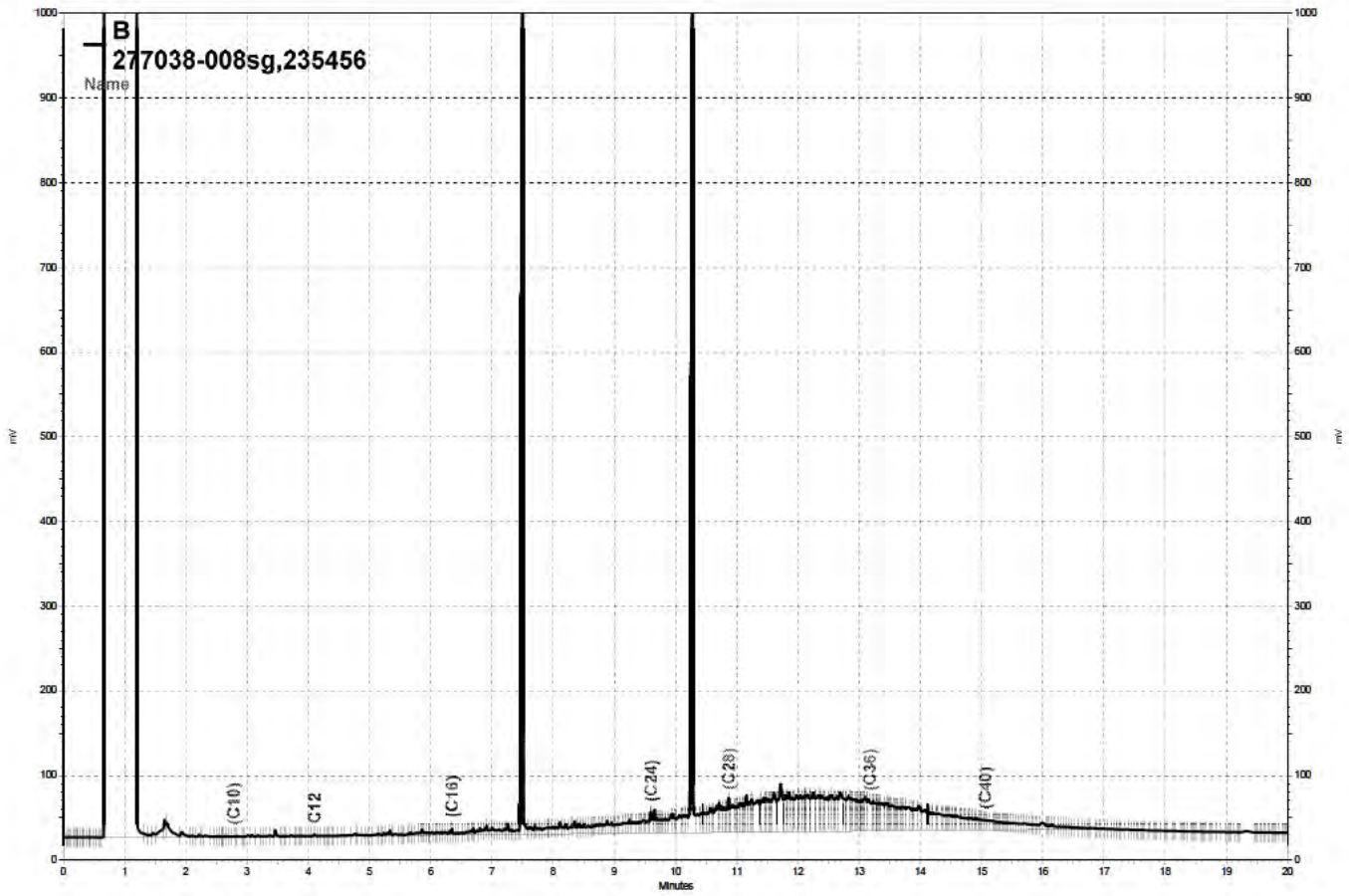

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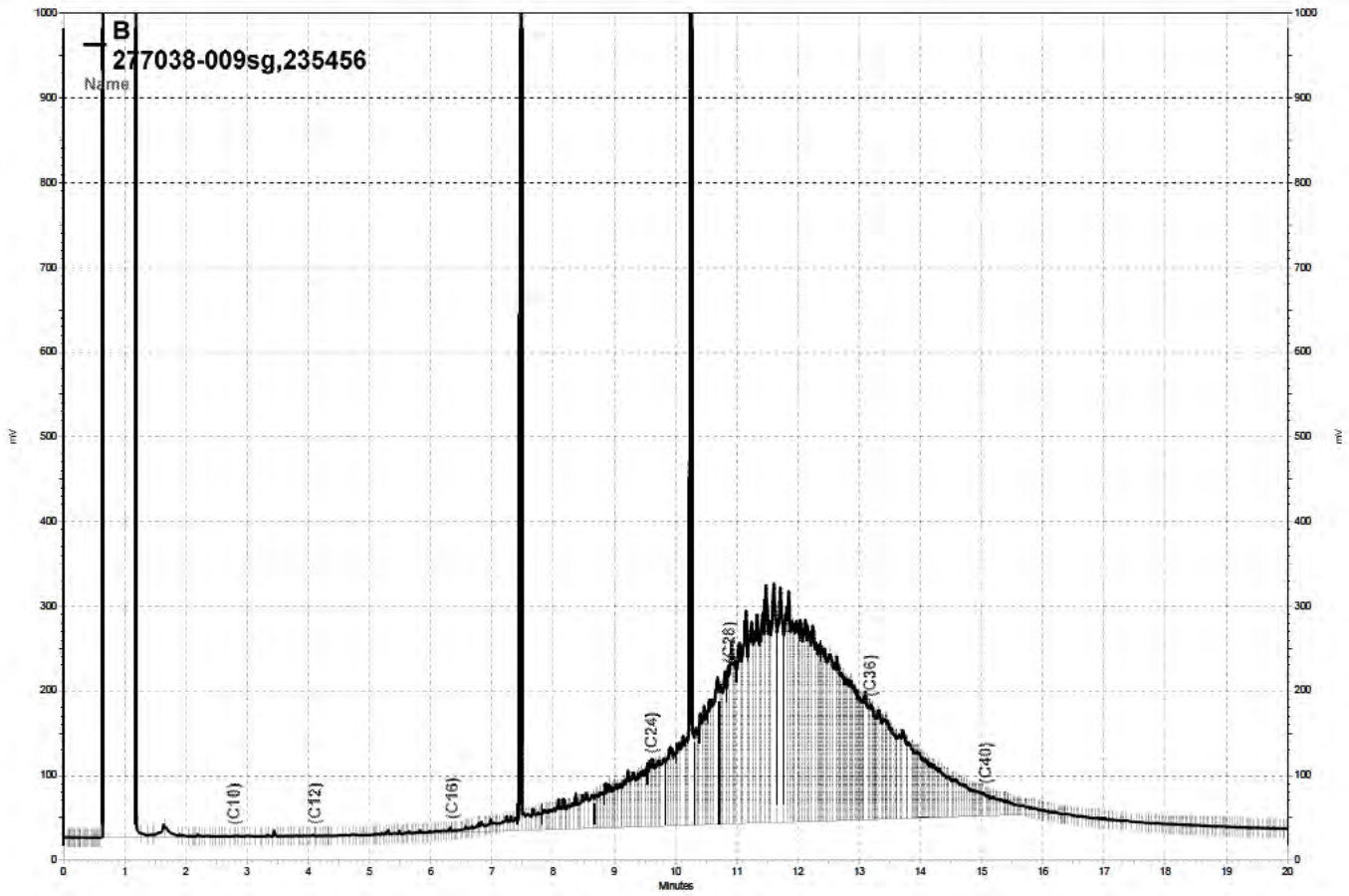

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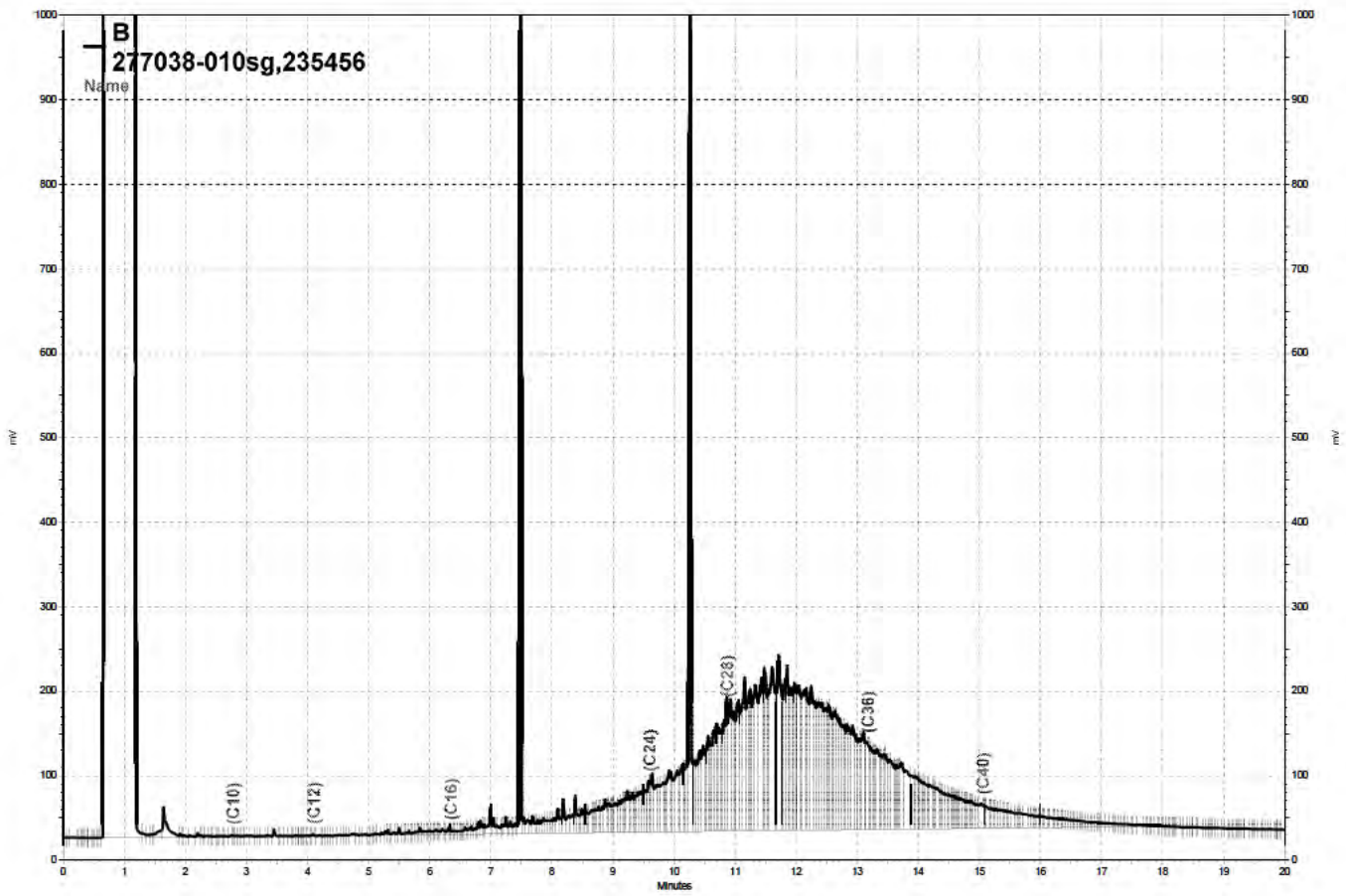

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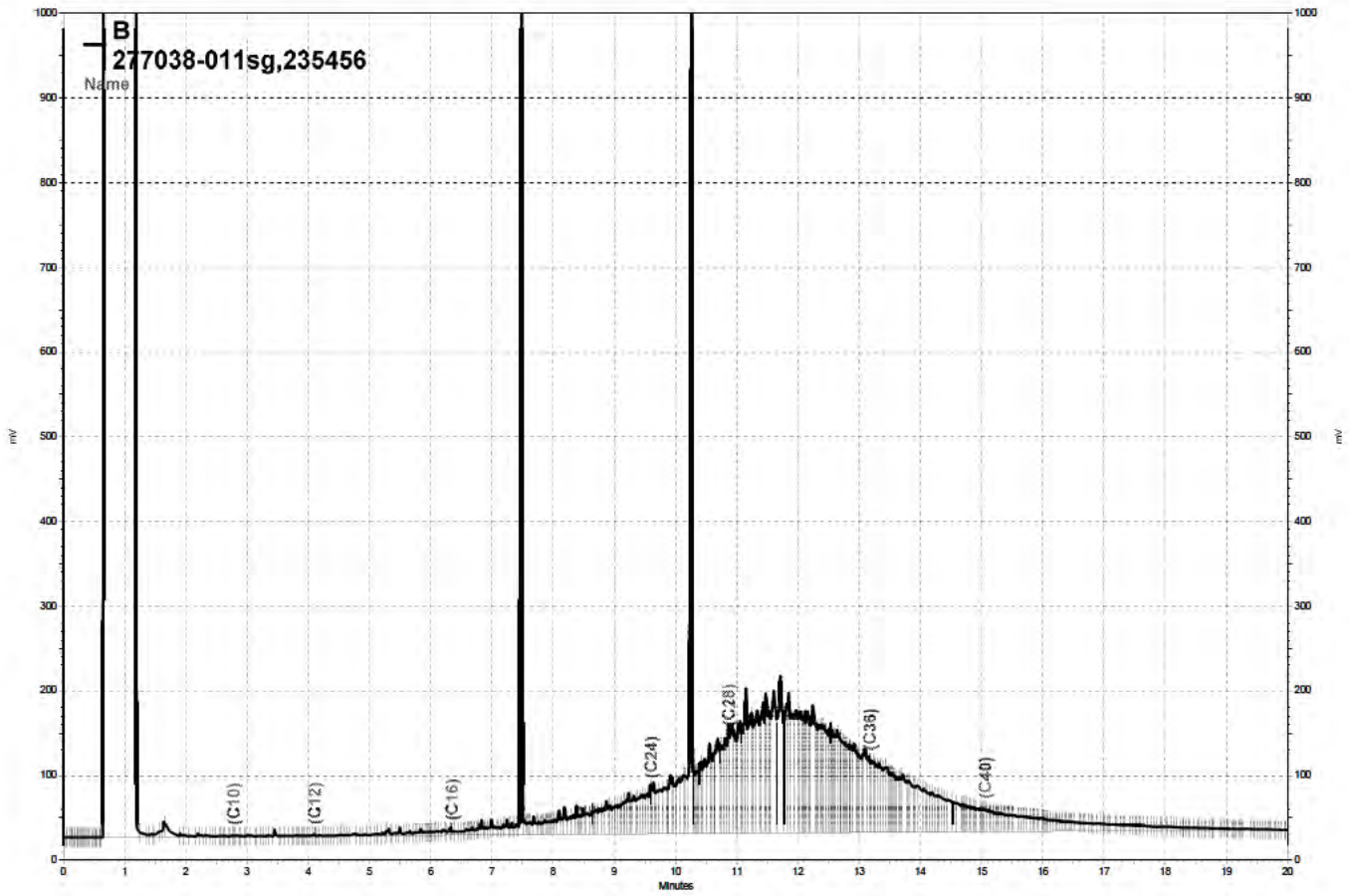
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277038-011sg,235456
Name
mV
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(C10)
(C12)
(C16)
(C24)
(C28)
(C36)
(C40)
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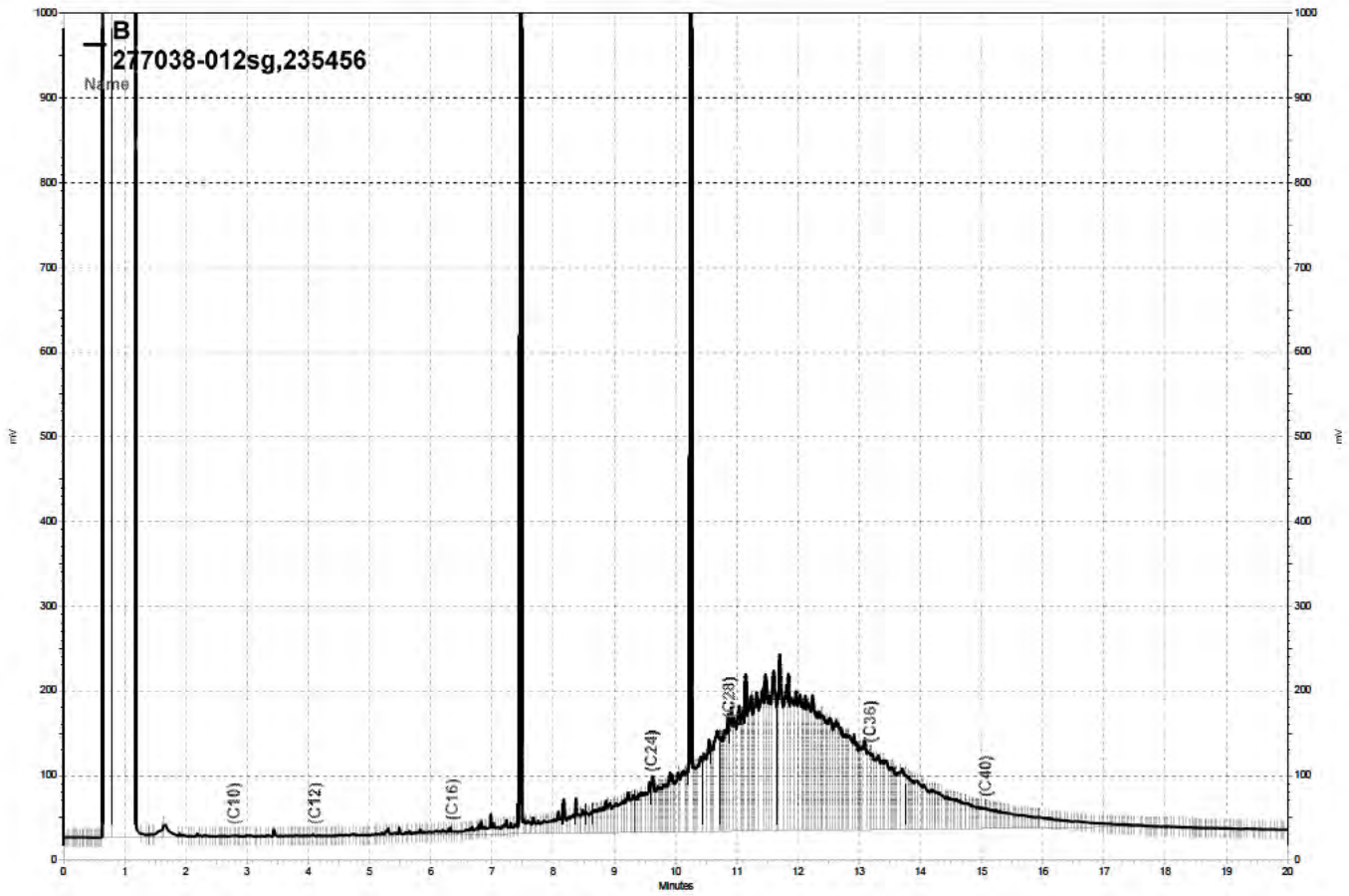

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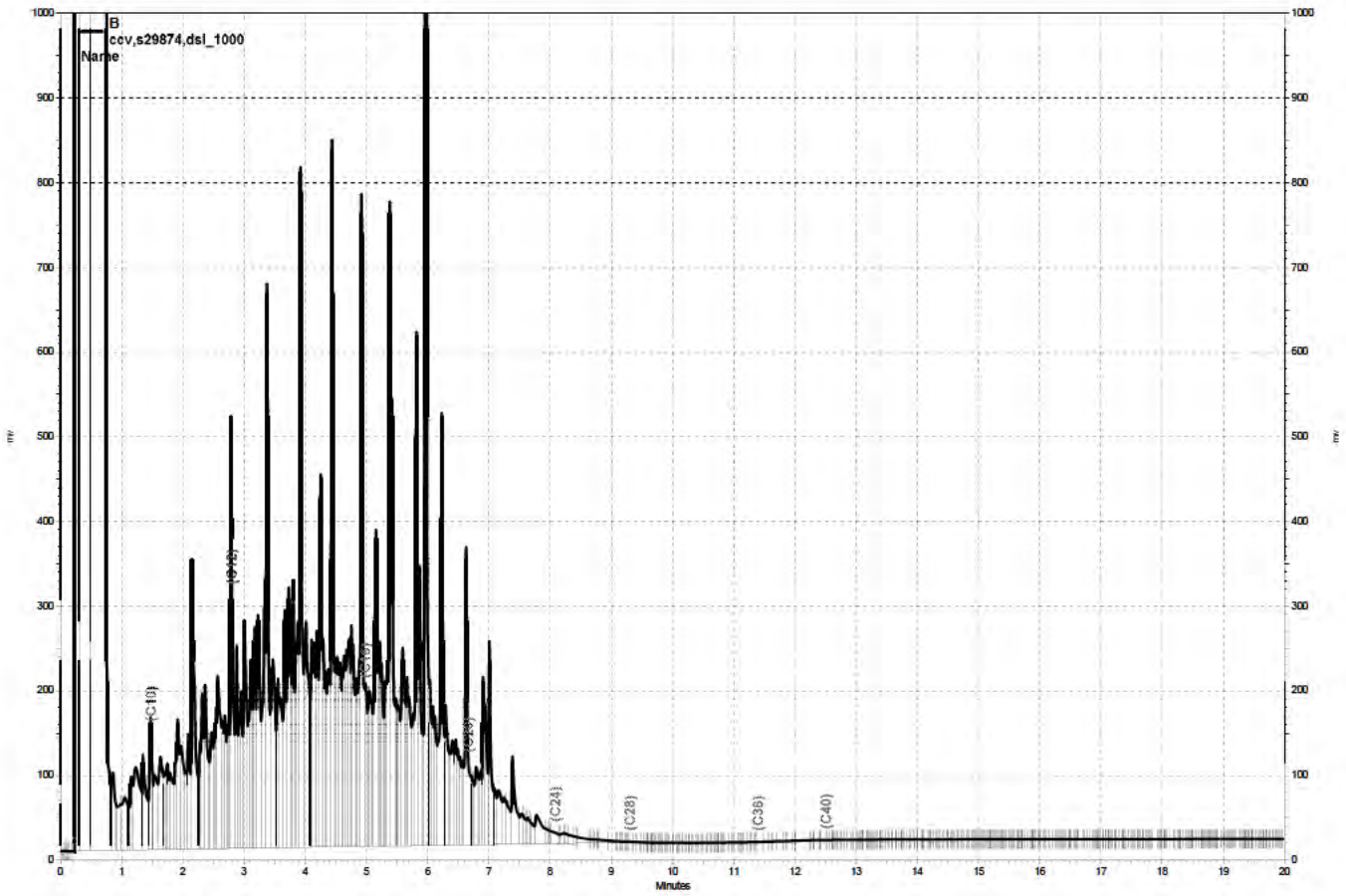

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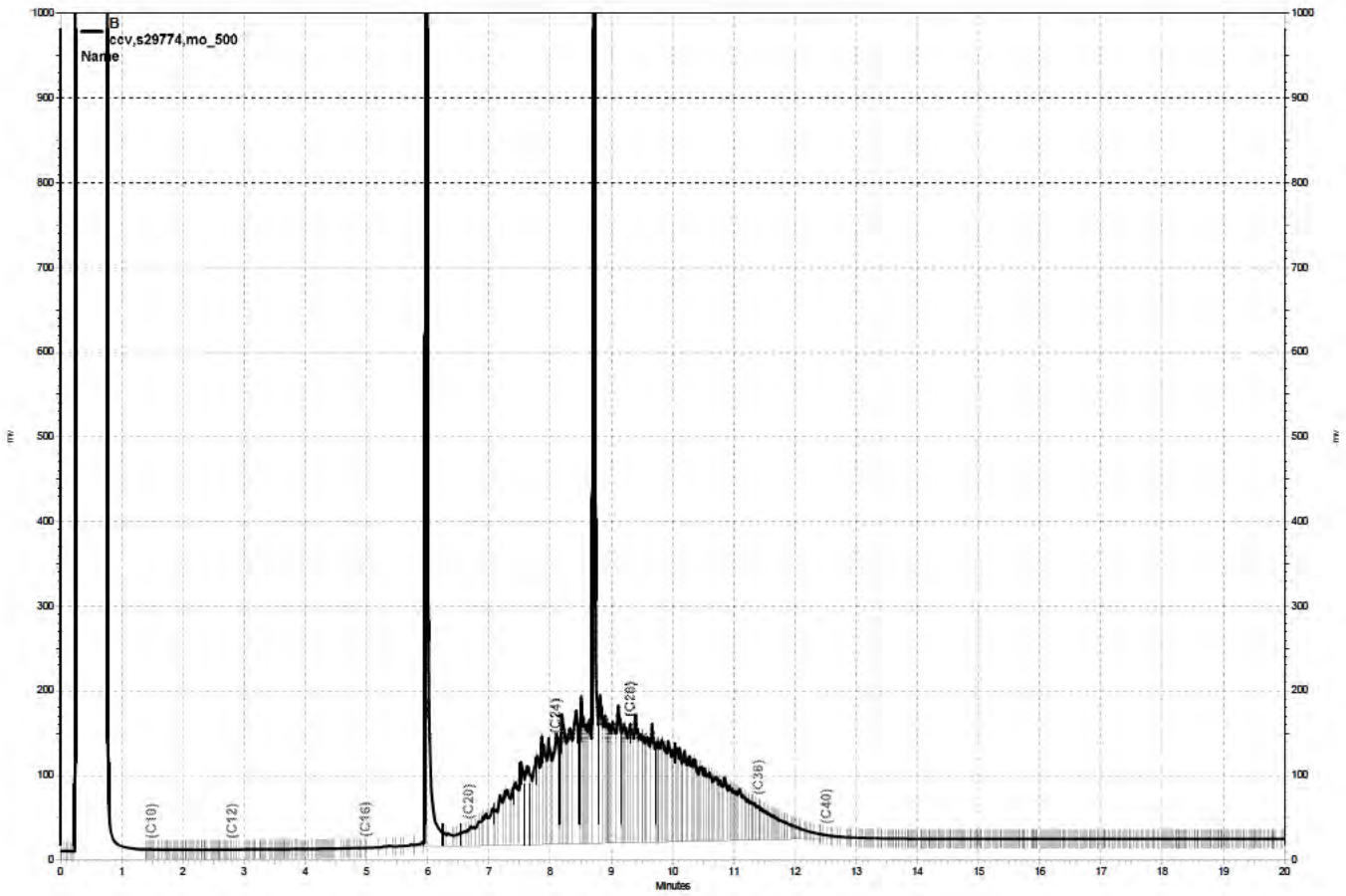

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Initial & Continuing Calibration Data

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 277038 GCSV Soil: EPA 8015D

Inst : GC14B
Calnum : 226202060001
Units : mg/L

Name : OTPHEX140
Date : 19-MAY-2016 22:09
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	140_007	226202060007	HEX OTP_5	19-MAY-2016 22:09	S29899
L2	140_008	226202060008	HEX OTP_10	19-MAY-2016 22:38	S29900
L3	140_009	226202060009	HEX OTP_25	19-MAY-2016 23:06	S29901
L4	140_010	226202060010	HEX OTP_50	19-MAY-2016 23:35	S29902
L5	140_011	226202060011	HEX OTP_100	20-MAY-2016 00:03	S29903
L6	140_012	226202060012	HEX OTP_200	20-MAY-2016 00:31	S29904

Analyte	Ch	L1	L2	L3	L4	L5	L6	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
o-Terphenyl	B	39235	39326	40060	40029	39682	38771	AVRG		2.53E-5		39517	1	0.995	20	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D
o-Terphenyl	B	5.0000	-1	10.000	0	25.000	1	50.000	1	100.00	0	200.00	-2

RDG 05/20/16 : Corrected automatically drawn baseline in multiple levels.

Analyst: RDG Date: 05/20/16 Reviewer: EAH Date: 05/20/16

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 277038 GCSV Soil: EPA 8015D

Inst : GC14B
Calnum : 226202060002
Units : mg/L

Name : dsl_140
Date : 20-MAY-2016 01:28
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	140_014	226202060014	DSL_10	20-MAY-2016 01:28	S29863
L2	140_015	226202060015	DSL_100	20-MAY-2016 01:56	S29864
L3	140_016	226202060016	DSL_500	20-MAY-2016 02:24	S29865
L4	140_017	226202060017	DSL_1000	20-MAY-2016 02:52	S29866
L5	140_018	226202060018	DSL_5000	20-MAY-2016 03:20	S29858

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
Diesel C10-C24	B	27710	30851	32937	35342	35164	AVRG		3.09E-5		32401	10	0.995	20	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Diesel C10-C24	B	10.000	-14	100.00	-5	500.00	2	1000.0	9	5000.0	9

RDG 05/20/16 : Corrected automatically drawn baseline in multiple levels.

Analyst: RDG Date: 05/20/16 Reviewer: EAH Date: 05/20/16

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 277038 GCSV Soil
EPA 8015D

Inst : GC14B Name : dsl_140
Calnum : 226202060002 Cal Date : 20-MAY-2016

ICV 226202060020 (140_020 20-MAY-2016) stds: S29383

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Diesel C10-C24	B	500.0	486.6	mg/L	-3	20	

Analyst: RDG Date: 05/20/16 Reviewer: EAH Date: 05/20/16

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 277038 GCSV Soil: EPA 8015D

Inst : GC14B
Calnum : 226202060003
Units : mg/L

Name : mo_140
Date : 20-MAY-2016 05:41
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	140_023	226202060023	MO_50	20-MAY-2016 05:41	S28918
L2	140_024	226202060024	MO_250	20-MAY-2016 06:09	S28919
L3	140_025	226202060025	MO_500	20-MAY-2016 06:37	S28920
L4	140_026	226202060026	MO_1000	20-MAY-2016 07:05	S28921
L5	140_027	226202060027	MO_2500	20-MAY-2016 07:34	S28917 (2X)
L6	140_028	226202060028	MO_5000	20-MAY-2016 08:02	S28917

Analyte	Ch	L1	L2	L3	L4	L5	L6	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
Motor Oil C24-C36	B	23248	25952	24287	24013	22890	22717	AVRG		4.19E-5		23851	5	0.995	20	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D
Motor Oil C24-C36	B	50.000	-3	250.00	9	500.00	2	1000.0	1	2500.0	-4	5000.0	-5

RDG 05/20/16 : Corrected automatically drawn baseline in multiple levels.

Analyst: RDG Date: 05/20/16 Reviewer: EAH Date: 05/20/16

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 277038 GCSV Soil: EPA 8015D

Inst : GC15B
Calnum : 166179015001
Units : mg/L

Name : OTPHEX_124
Date : 03-MAY-2016 16:04
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	124b013	166179015013	HEXOTP_5	03-MAY-2016 16:04	S28612
L2	124b014	166179015014	HEXOTP_10	03-MAY-2016 16:33	S28613
L3	124b015	166179015015	HEXOTP_25	03-MAY-2016 17:01	S28614
L4	124b016	166179015016	HEXOTP_50	03-MAY-2016 17:29	S28615
L5	124b017	166179015017	HEXOTP_100	03-MAY-2016 17:57	S28616
L6	124b018	166179015018	HEXOTP_200	03-MAY-2016 18:26	S28617

Analyte	L1	L2	L3	L4	L5	L6	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
o-Terphenyl	75633	71270	75895	73268	78527	75074	AVRG		1.33E-5		74945	3	0.995	20	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D
o-Terphenyl	5.0000	1	10.000	-5	25.000	1	50.000	-2	100.00	5	200.00	0

JDG 05/04/16 : Corrected automatically drawn baseline in all levels.

Analyst: JDG Date: 05/04/16 Reviewer: EAH Date: 05/04/16

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

166179015001

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 277038 GCSV Soil: EPA 8015D

Inst : GC15B
Calnum : 166179015004
Units : mg/L

Name : MO_124
Date : 03-MAY-2016 23:33
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	124b029	166179015029	MO_50	03-MAY-2016 23:33	S28918
L2	124b030	166179015030	MO_250	04-MAY-2016 00:01	S28919
L3	124b031	166179015031	MO_500	04-MAY-2016 00:29	S28920
L4	124b032	166179015032	MO_1000	04-MAY-2016 00:57	S28921
L5	124b033	166179015033	MO_2500	04-MAY-2016 01:25	S28917 (2X)
L6	124b034	166179015034	MO_5000	04-MAY-2016 01:53	S28917

Analyte	L1	L2	L3	L4	L5	L6	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
Motor Oil C24-C36	43518	43599	42583	42853	40431	39726	AVRG		2.37E-5		42118	4	0.995	20	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D
Motor Oil C24-C36	50.000	3	250.00	4	500.00	1	1000.0	2	2500.0	-4	5000.0	-6

JDG 05/05/16 : Corrected automatically drawn baseline in multiple levels.

Analyst: JDG Date: 05/05/16 Reviewer: EAH Date: 05/05/16

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 277038 GCSV Soil: EPA 8015D

Inst : GC15B
Calnum : 166180441001
Units : mg/L

Name : DSL_125
Date : 04-MAY-2016 14:56
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	125b007	166180441007	DSL_10	04-MAY-2016 14:56	S28496
L2	125b008	166180441008	DSL_100	04-MAY-2016 15:24	S28497
L3	125b009	166180441009	DSL_500	04-MAY-2016 15:52	S28498
L4	125b010	166180441010	DSL_1000	04-MAY-2016 16:21	S28499
L5	125b011	166180441011	DSL_5000	04-MAY-2016 16:49	S28495

Analyte	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
Diesel C10-C24	58531	60885	60539	49738	59296	AVRG		1.73E-5		57798	8	0.995	20	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Diesel C10-C24	10.000	1	100.00	5	500.00	5	1000.0	-14	5000.0	3

JDG 05/05/16 : Corrected automatically drawn baseline in all levels.

JDG: 05/05/16 * RDG: 05/05/16 EAH: 05/06/16

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

166180441001

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 277038 GCSV Soil
EPA 8015D

Inst : GC15B Name : DSL_125
Calnum : 166180441001 Cal Date : 04-MAY-2016

ICV 166180441013 (125b013 04-MAY-2016) stds: S29383

Analyte	Spiked	Quant	Units	%D	Max	Flags
Diesel C10-C24	500.0	510.1	mg/L	2	20	

JDG: 05/05/16 * RDG: 05/06/16 EAH: 05/06/16

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 277038 GCSV Soil: EPA 8015D

Inst : GC27A
Calnum : 976209483001
Units : mg/L

Name : HEXOTP_145
Date : 24-MAY-2016 16:43
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	145011	976209483011	HEXOTP_5	24-MAY-2016 16:43	S29899
L2	145012	976209483012	HEXOTP_10	24-MAY-2016 17:08	S29900
L3	145013	976209483013	HEXOTP_25	24-MAY-2016 17:32	S29901
L4	145014	976209483014	HEXOTP_50	24-MAY-2016 17:57	S29902
L5	145015	976209483015	HEXOTP_100	24-MAY-2016 18:22	S29903
L6	145016	976209483016	HEXOTP_200	24-MAY-2016 18:47	S29904

Analyte	L1	L2	L3	L4	L5	L6	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
o-Terphenyl	383827	397414	400480	403883	430660	443124	AVRG		2.44E-6		409898	5	0.995	20	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D
o-Terphenyl	5.0000	-6	10.000	-3	25.000	-2	50.000	-1	100.00	5	200.00	8

RDG 05/25/16 : Corrected automatically drawn baseline in multiple levels.

Analyst: RDG Date: 05/25/16 Reviewer: EAH Date: 05/25/16

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 277038 GCSV Soil: EPA 8015D

Inst : GC27A
Calnum : 976209483003
Units : mg/L

Name : dsl_145
Date : 24-MAY-2016 19:36
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	145018	976209483018	DSL_10	24-MAY-2016 19:36	S29863
L2	145019	976209483019	DSL_100	24-MAY-2016 20:01	S29864
L3	145020	976209483020	DSL_500	24-MAY-2016 20:25	S29865
L4	145021	976209483021	DSL_1000	24-MAY-2016 20:50	S29866
L5	145022	976209483022	DSL_5000	24-MAY-2016 21:15	S29858

Analyte	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
Diesel C10-C24	390709	347531	343349	365395	349495	AVRG		2.78E-6		359296	5	0.995	20	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Diesel C10-C24	10.000	9	100.00	-3	500.00	-4	1000.0	2	5000.0	-3

RDG 05/25/16 : Corrected automatically drawn baseline in multiple levels.

Analyst: RDG Date: 05/25/16 Reviewer: EAH Date: 05/25/16

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 277038 GCSV Soil
EPA 8015D

Inst : GC27A Name : dsl_145
Calnum : 976209483003 Cal Date : 24-MAY-2016

ICV 976209483024 (145024 24-MAY-2016) stds: S29383

Analyte	Spiked	Quant	Units	%D	Max	Flags
Diesel C10-C24	500.0	480.1	mg/L	-4	20	

Analyst: RDG Date: 05/25/16 Reviewer: EAH Date: 05/25/16

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 GCSV Soil
EPA 8015D

Inst : GC14B Run Name : MO_500 IDF : 1.0
Seqnum : 226209245067.1 File : 145_067 Time : 25-MAY-2016 15:39
Standards: S29774

Analyte	Ch	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Motor Oil C24-C36	B	226202060003	20-MAY-2016	23851	23410	500.0	490.7	mg/L	-2	20	
o-Terphenyl	B	226202060001	19-MAY-2016	39517	40272	50.00	50.95	mg/L	2	20	

RDG 05/25/16 : Corrected automatically drawn baseline. [general version]

Analyst: RDG Date: 05/25/16 Reviewer: EAH Date: 05/25/16

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 GCSV Soil
EPA 8015D

Inst : GC14B Run Name : DSL_250 IDF : 1.0
Seqnum : 226209245068.3 File : 145_068 Time : 25-MAY-2016 16:08
Standards: S29872

Analyte	Ch	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C10-C24	B	226202060002	20-MAY-2016	32401	31380	250.0	242.1	mg/L	-3	20	
o-Terphenyl	B	226202060001	19-MAY-2016	39517	38920	50.00	49.24	mg/L	-2	20	

RDG 05/25/16 : Corrected automatically drawn baseline. [general version]

Analyst: RDG Date: 05/25/16 Reviewer: EAH Date: 05/25/16 *

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 GCSV Soil
EPA 8015D

Inst : GC14B Run Name : MO_500 IDF : 1.0
Seqnum : 226209245082.1 File : 145_082 Time : 25-MAY-2016 23:55
Standards: S29774

Analyte	Ch	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Motor Oil C24-C36	B	226202060003	20-MAY-2016	23851	22810	500.0	478.2	mg/L	-4	20	
o-Terphenyl	B	226202060001	19-MAY-2016	39517	39574	50.00	50.07	mg/L	0	20	

JDG 05/26/16 : Corrected automatically drawn baseline. [general version]

Analyst: RDG Date: 05/26/16 Reviewer: EAH Date: 05/27/16

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 GCSV Soil
EPA 8015D

Inst : GC14B Run Name : DSL_500 IDF : 1.0
Seqnum : 226209245083.1 File : 145_083 Time : 26-MAY-2016 00:24
Standards: S29383

Analyte	Ch	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C10-C24	B	226202060002	20-MAY-2016	32401	31604	500.0	487.7	mg/L	-2	20	
o-Terphenyl	B	226202060001	19-MAY-2016	39517	40000	50.00	50.61	mg/L	1	20	

JDG 05/26/16 : Corrected automatically drawn baseline. [general version]

Analyst: RDG Date: 05/26/16 Reviewer: EAH Date: 05/27/16

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 GCSV Soil
EPA 8015D

Inst : GC14B Run Name : MO_500 IDF : 1.0
Seqnum : 226209245084.1 File : 145_084 Time : 26-MAY-2016 00:52
Standards: S29774

Analyte	Ch	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Motor Oil C24-C36	B	226202060003	20-MAY-2016	23851	22400	500.0	469.6	mg/L	-6	20	
o-Terphenyl	B	226202060001	19-MAY-2016	39517	38340	50.00	48.51	mg/L	-3	20	

JDG 05/27/16 : Corrected automatically drawn baseline.

Analyst: JDG Date: 05/27/16 Reviewer: EAH Date: 05/27/16

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 GCSV Soil
EPA 8015D

Inst : GC14B Run Name : DSL_500 IDF : 1.0
Seqnum : 226209245085.1 File : 145_085 Time : 26-MAY-2016 01:20
Standards: S29383

Analyte	Ch	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C10-C24	B	226202060002	20-MAY-2016	32401	31948	500.0	493.0	mg/L	-1	20	
o-Terphenyl	B	226202060001	19-MAY-2016	39517	40515	50.00	51.26	mg/L	3	20	

JDG 05/27/16 : Corrected automatically drawn baseline.

Analyst: JDG Date: 05/27/16 Reviewer: EAH Date: 05/27/16

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 GCSV Soil
EPA 8015D

Inst : GC14B Run Name : MO_500 IDF : 1.0
Seqnum : 226209245097.1 File : 145_097 Time : 26-MAY-2016 06:57
Standards: S29774

Analyte	Ch	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Motor Oil C24-C36	B	226202060003	20-MAY-2016	23851	23337	500.0	489.2	mg/L	-2	20	
o-Terphenyl	B	226202060001	19-MAY-2016	39517	40316	50.00	51.01	mg/L	2	20	

JDG 05/26/16 : Corrected automatically drawn baseline. [general version]

Analyst: RDG Date: 05/26/16 Reviewer: EAH Date: 05/27/16

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 GCSV Soil
EPA 8015D

Inst : GC14B Run Name : DSL_250 IDF : 1.0
Seqnum : 226209245098.1 File : 145_098 Time : 26-MAY-2016 07:25
Standards: S29872

Analyte	Ch	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C10-C24	B	226202060002	20-MAY-2016	32401	31991	250.0	246.8	mg/L	-1	20	
o-Terphenyl	B	226202060001	19-MAY-2016	39517	40118	50.00	50.76	mg/L	2	20	

JDG 05/26/16 : Separated from coeluting peak. [general version]

Analyst: RDG Date: 05/26/16 Reviewer: EAH Date: 05/27/16

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 GCSV Soil
EPA 8015D

Inst : GC15B Run Name : MO_500 IDF : 1.0
Seqnum : 166210687003.1 File : 146b003 Time : 25-MAY-2016 08:22
Standards: S29774

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Motor Oil C24-C36	166179015004	03-MAY-2016	42118	43586	500.0	517.4	mg/L	3	20	
o-Terphenyl	166179015001	03-MAY-2016	74945	72455	50.00	48.34	mg/L	-3	20	

Analyst: RDG Date: 05/26/16 Reviewer: JDG Date: 05/27/16

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 GCSV Soil
EPA 8015D

Inst : GC15B Run Name : DSL_1000 IDF : 1.0
Seqnum : 166210687004.1 File : 146b004 Time : 25-MAY-2016 08:50
Standards: S29874

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C10-C24	166180441001	04-MAY-2016	57798	63839	1000	1105	mg/L	10	20	
o-Terphenyl	166179015001	03-MAY-2016	74945	77608	50.00	51.78	mg/L	4	20	

JDG 05/25/16 : Corrected automatically drawn baseline. [general version]

Analyst: RDG Date: 05/26/16 Reviewer: JDG Date: 05/27/16

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 GCSV Soil
EPA 8015D

Inst : GC15B Run Name : MO_500 IDF : 1.0
Seqnum : 166210687017.1 File : 146b017 Time : 25-MAY-2016 15:17
Standards: S29774

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Motor Oil C24-C36	166179015004	03-MAY-2016	42118	42831	500.0	508.5	mg/L	2	20	
o-Terphenyl	166179015001	03-MAY-2016	74945	71305	50.00	47.57	mg/L	-5	20	

JDG 05/25/16 : Corrected automatically drawn baseline. [general version]

Analyst: RDG Date: 05/26/16 Reviewer: JDG Date: 05/27/16

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 GCSV Soil
EPA 8015D

Inst : GC15B Run Name : DSL_500 IDF : 1.0
Seqnum : 166210687018.1 File : 146b018 Time : 25-MAY-2016 15:45
Standards: S29873

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C10-C24	166180441001	04-MAY-2016	57798	58709	500.0	507.9	mg/L	2	20	
o-Terphenyl	166179015001	03-MAY-2016	74945	71489	50.00	47.69	mg/L	-5	20	

JDG 05/25/16 : Corrected automatically drawn baseline. [general version]

Analyst: RDG Date: 05/26/16 Reviewer: JDG Date: 05/27/16

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 GCSV Soil
EPA 8015D

Inst : GC15B Run Name : MO_500 IDF : 1.0
Seqnum : 166210687031.1 File : 146b031 Time : 25-MAY-2016 21:59
Standards: S29774

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Motor Oil C24-C36	166179015004	03-MAY-2016	42118	43772	500.0	519.6	mg/L	4	20	
o-Terphenyl	166179015001	03-MAY-2016	74945	72349	50.00	48.27	mg/L	-3	20	

JDG 05/26/16 : Corrected automatically drawn baseline. [general version]

Analyst: RDG Date: 05/26/16 Reviewer: JDG Date: 05/27/16

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 GCSV Soil
EPA 8015D

Inst : GC15B Run Name : MO_500 IDF : 1.0
Seqnum : 166210687033.1 File : 146b033 Time : 25-MAY-2016 22:55
Standards: S29774

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Motor Oil C24-C36	166179015004	03-MAY-2016	42118	43717	500.0	519.0	mg/L	4	20	
o-Terphenyl	166179015001	03-MAY-2016	74945	72871	50.00	48.62	mg/L	-3	20	

JDG 05/26/16 : Corrected automatically drawn baseline. [general version]

Analyst: RDG Date: 05/26/16 Reviewer: JDG Date: 05/27/16

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 GCSV Soil
EPA 8015D

Inst : GC15B Run Name : DSL_1000 IDF : 1.0
Seqnum : 166210687034.1 File : 146b034 Time : 25-MAY-2016 23:23
Standards: S29874

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C10-C24	166180441001	04-MAY-2016	57798	64669	1000	1119	mg/L	12	20	
o-Terphenyl	166179015001	03-MAY-2016	74945	80120	50.00	53.45	mg/L	7	20	

JDG 05/26/16 : Corrected automatically drawn baseline. [general version]

Analyst: RDG Date: 05/26/16 Reviewer: JDG Date: 05/27/16

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 GCSV Soil
EPA 8015D

Inst : GC15B Run Name : MO_500 IDF : 1.0
Seqnum : 166210687045.1 File : 146b045 Time : 26-MAY-2016 04:27
Standards: S29774

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Motor Oil C24-C36	166179015004	03-MAY-2016	42118	43800	500.0	520.0	mg/L	4	20	
o-Terphenyl	166179015001	03-MAY-2016	74945	75588	50.00	50.43	mg/L	1	20	

JDG 05/26/16 : Corrected automatically drawn baseline. [general version]

Analyst: RDG Date: 05/26/16 Reviewer: JDG Date: 05/27/16

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 GCSV Soil
EPA 8015D

Inst : GC15B Run Name : DSL_500 IDF : 1.0
Seqnum : 166210687046.1 File : 146b046 Time : 26-MAY-2016 04:54
Standards: S29873

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C10-C24	166180441001	04-MAY-2016	57798	60036	500.0	519.4	mg/L	4	20	
o-Terphenyl	166179015001	03-MAY-2016	74945	74910	50.00	49.98	mg/L	0	20	

JDG 05/26/16 : Corrected automatically drawn baseline. [general version]

Analyst: RDG Date: 05/26/16 Reviewer: JDG Date: 05/27/16

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 GCSV Soil
EPA 8015D

Inst : GC27A Run Name : MO_500 IDF : 1.0
Seqnum : 976210691024.1 File : 146a024 Time : 25-MAY-2016 20:16
Standards: S29923

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Motor Oil C24-C36	976209483004	24-MAY-2016	216458	228393	500.0	527.6	mg/L	6	20	
o-Terphenyl	976209483001	24-MAY-2016	409898	405346	50.00	49.44	mg/L	-1	20	

RDG 05/26/16 : Corrected automatically drawn baseline. [general version]

Analyst: RDG Date: 05/26/16 Reviewer: JDG Date: 05/27/16

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 GCSV Soil
EPA 8015D

Inst : GC27A Run Name : DSL_250 IDF : 1.0
Seqnum : 976210691025.1 File : 146a025 Time : 25-MAY-2016 20:41
Standards: S29872

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C10-C24	976209483003	24-MAY-2016	359296	332405	250.0	231.3	mg/L	-7	20	
o-Terphenyl	976209483001	24-MAY-2016	409898	405733	50.00	49.49	mg/L	-1	20	

RDG 05/26/16 : Corrected automatically drawn baseline. [general version]

Analyst: RDG Date: 05/26/16 Reviewer: JDG Date: 05/27/16

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 GCSV Soil
EPA 8015D

Inst : GC27A Run Name : MO_500 IDF : 1.0
Seqnum : 976210691044.1 File : 146a044 Time : 26-MAY-2016 04:26
Standards: S29923

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Motor Oil C24-C36	976209483004	24-MAY-2016	216458	223143	500.0	515.4	mg/L	3	20	
o-Terphenyl	976209483001	24-MAY-2016	409898	414078	50.00	50.51	mg/L	1	20	

RDG 05/26/16 : Corrected automatically drawn baseline. [general version]

Analyst: RDG Date: 05/26/16 Reviewer: JDG Date: 05/27/16

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 GCSV Soil
EPA 8015D

Inst : GC27A Run Name : DSL_500 IDF : 1.0
Seqnum : 976210691045.1 File : 146a045 Time : 26-MAY-2016 04:50
Standards: S29873

Analyte	Cal	Caldate	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Diesel C10-C24	976209483003	24-MAY-2016	359296	341217	500.0	474.8	mg/L	-5	20	
o-Terphenyl	976209483001	24-MAY-2016	409898	419182	50.00	51.13	mg/L	2	20	

RDG 05/26/16 : Corrected automatically drawn baseline. [general version]

Analyst: RDG Date: 05/26/16 Reviewer: JDG Date: 05/27/16

Logbooks & Sequences

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 166179015

Instrument : GC15B
Method : EPA 8015D
Begun : 05/03/16 07:35
SOP Version : TEH_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	124b001	X	IB			05/03/16 07:35	1.0		
002	124b002	X	CMARKER			05/03/16 08:03	1.0	1	
003	124b003	X	MO_500			05/03/16 08:31	1.0	2	
004	124b004	X	DSL_250			05/03/16 08:59	1.0	3	
005	124b005	X	CMARKER			05/03/16 09:27	1.0	1	
006	124b006	X	IB			05/03/16 12:08	1.0		
007	124b007	X	C8-C50			05/03/16 12:36	1.0	1	
008	124b008	X	MO_500			05/03/16 13:04	1.0	2	
009	124b009	X	DSL_250			05/03/16 13:31	1.0	3	
010	124b010	X	MO_500			05/03/16 14:22	1.0	2	
011	124b011	X	IB			05/03/16 15:08	1.0		
012	124b012	IB	CALIB			05/03/16 15:36	1.0		
013	124b013	ICAL	HEXOTP_5			05/03/16 16:04	1.0	4	
014	124b014	ICAL	HEXOTP_10			05/03/16 16:33	1.0	5	
015	124b015	ICAL	HEXOTP_25			05/03/16 17:01	1.0	6	
016	124b016	ICAL	HEXOTP_50			05/03/16 17:29	1.0	7	
017	124b017	ICAL	HEXOTP_100			05/03/16 17:57	1.0	8	
018	124b018	ICAL	HEXOTP_200			05/03/16 18:26	1.0	9	
019	124b019	IB	CALIB			05/03/16 18:54	1.0		
020	124b020	X	DSL_10			05/03/16 19:22	1.0	10	
021	124b021	ICAL	DSL_1000			05/03/16 19:50	1.0	11	
022	124b022	ICAL	DSL_5000			05/03/16 20:18	1.0	12	
023	124b023	ICAL	DSL_1000			05/03/16 20:46	1.0	13	
024	124b024	ICAL	DSL_5000			05/03/16 21:14	1.0	14	
025	124b025	IB	CALIB			05/03/16 21:42	1.0		
026	124b026	ICV	DSL_500			05/03/16 22:09	1.0	15	
027	124b027	X	ICV			05/03/16 22:37	1.0	15	
028	124b028	IB	CALIB			05/03/16 23:05	1.0		
029	124b029	ICAL	MO_50			05/03/16 23:33	1.0	16	
030	124b030	ICAL	MO_250			05/04/16 00:01	1.0	17	
031	124b031	ICAL	MO_500			05/04/16 00:29	1.0	18	
032	124b032	ICAL	MO_1000			05/04/16 00:57	1.0	19	
033	124b033	ICAL	MO_2500			05/04/16 01:25	1.0	20	
034	124b034	ICAL	MO_5000			05/04/16 01:53	1.0	20	
035	124b035	IB	CALIB			05/04/16 02:21	1.0		
036	124b036	CMARKER	C8-50			05/04/16 02:49	1.0	1	
037	124b037	IB	CALIB			05/04/16 11:55	1.0		
038	124b038	ICAL	DSL_10			05/04/16 12:22	1.0	10	

JDG 05/04/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 38.

Standards used: 1=S29702 2=S29670 3=S29379 4=S28612 5=S28613 6=S28614 7=S28615 8=S28616 9=S28617 10=S28496 11=S28497 12=S28498 13=S28499 14=S28495 15=S29383 16=S28918 17=S28919 18=S28920 19=S28921 20=S28917

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 166180441

Instrument : GC15B
Method : EPA 8015D

Begun : 05/04/16 07:21
SOP Version : TEH_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	125b001	X	IB			05/04/16 07:21	1.0		
002	125b002	X	CMARKER			05/04/16 07:49	1.0	1	
003	125b003	X	CCV			05/04/16 08:17	1.0	2	
004	125b004	X	CCV			05/04/16 08:45	1.0	3	
005	125b005	X	CCV			05/04/16 09:13	1.0	4	
006	125b006	IB	CALIB			05/04/16 14:29	1.0		
007	125b007	ICAL	DSL_10			05/04/16 14:56	1.0	5	
008	125b008	ICAL	DSL_100			05/04/16 15:24	1.0	6	
009	125b009	ICAL	DSL_500			05/04/16 15:52	1.0	7	
010	125b010	ICAL	DSL_1000			05/04/16 16:21	1.0	8	
011	125b011	ICAL	DSL_5000			05/04/16 16:49	1.0	9	
012	125b012	IB	CALIB			05/04/16 17:17	1.0		
013	125b013	ICV	DSL_500			05/04/16 17:45	1.0	10	
014	125b014	X	ICV			05/04/16 18:13	1.0	10	
016	125b016	CMARKER	C8-C50			05/04/16 19:10	1.0	1	
017	125b017	IB	CALIB			05/04/16 19:38	1.0		

JDG 05/05/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 14.

JDG 05/05/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 14.

Standards used: 1=S29702 2=S29670 3=S29379 4=S28639 5=S28496 6=S28497 7=S28498 8=S28499 9=S28495 10=S29383

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 166210687

Instrument : GC15B
Method : EPA 8015D

Begun : 05/25/16 07:27
SOP Version : TEH_rv18

#	File	Type	Sample ID	P	Matrix	Batch	Analyzed	IDF	Stds Used	
001	146b001	X	IB				05/25/16 07:27	1.0		
002	146b002	X	CMARKER				05/25/16 07:54	1.0	1	
003	146b003	CCV	MO_500				05/25/16 08:22	1.0	2	
004	146b004	CCV	DSL_1000				05/25/16 08:50	1.0	3	
005	146b005	BLANK	QC836921	S	Soil	235424	05/25/16 09:43	1.0		
006	146b006	BLANK	QC836921		Soil	235424	05/25/16 10:11	1.0		
007	146b007	LCS	QC836922	S	Soil	235424	05/25/16 10:39	1.0		
008	146b008	BLANK	QC836855		Water	235408	05/25/16 11:07	1.0		
009	146b009	LCS	QC836856		Water	235408	05/25/16 11:35	1.0		
010	146b010	SAMPLE	277093-005		Water	235408	05/25/16 12:03	1.0		
011	146b011	SAMPLE	276793-001	S	Water	235071	05/25/16 12:31	1.0		
012	146b012	SAMPLE	276793-002	S	Water	235071	05/25/16 12:59	1.0		
013	146b013	SAMPLE	277131-002		Soil	235456	05/25/16 13:27	1.0		
014	146b014	SAMPLE	277131-001		Soil	235456	05/25/16 13:54	2.0		
015	146b015	BSD	QC836524	S	Water	235323	05/25/16 14:22	1.0		
016	146b016	SAMPLE	275856-033	S	Water	234215	05/25/16 14:49	1.0		
017	146b017	CCV	MO_500				05/25/16 15:17	1.0	2	
018	146b018	CCV	DSL_500				05/25/16 15:45	1.0	4	
019	146b019	SAMPLE	277085-002	S	Soil	235402	05/25/16 16:14	1.0		
020	146b020	SAMPLE	277142-007		Soil	235456	05/25/16 16:51	1.0		
021	146b021	SAMPLE	277142-008		Soil	235456	05/25/16 17:19	1.0		
022	146b022	SAMPLE	277142-009		Soil	235456	05/25/16 17:47	20.0		
023	146b023	SAMPLE	277142-007	S	Soil	235456	05/25/16 18:15	1.0		
024	146b024	SAMPLE	277142-008	S	Soil	235456	05/25/16 18:43	1.0		
025	146b025	SAMPLE	277142-009	S	Soil	235456	05/25/16 19:11	3.0		
026	146b026	SAMPLE	277036-003	S	Soil	235424	05/25/16 19:39	1.0		
027	146b027	SAMPLE	277036-004	S	Soil	235424	05/25/16 20:07	1.0		
028	146b028	SAMPLE	277036-005	S	Soil	235424	05/25/16 20:35	3.0		
029	146b029	X	IB				05/25/16 21:04	1.0		
030	146b030	X	CMARKER				05/25/16 21:31	1.0	1	
031	146b031	CCV	MO_500				05/25/16 21:59	1.0	2	
032	146b032	CCV	DSL_1000				05/25/16 22:27	1.0	3	
033	146b033	CCV	MO_500				05/25/16 22:55	1.0	2	
034	146b034	CCV	DSL_1000				05/25/16 23:23	1.0	3	
035	146b035	SAMPLE	277048-005		Soil	235402	05/25/16 23:51	1.0		
036	146b036	SAMPLE	277036-006	S	Soil	235424	05/26/16 00:19	3.0		
037	146b037	SAMPLE	277036-007	S	Soil	235424	05/26/16 00:47	3.0		
038	146b038	SAMPLE	277036-008	S	Soil	235424	05/26/16 01:14	3.0		
039	146b039	SAMPLE	277036-009	S	Soil	235424	05/26/16 01:42	1.0		
040	146b040	SAMPLE	277036-010	S	Soil	235424	05/26/16 02:09	1.0		
041	146b041	SAMPLE	277038-002	S	Soil	235424	05/26/16 02:37	1.0		
042	146b042	SAMPLE	277038-003	S	Soil	235424	05/26/16 03:04	1.0		
043	146b043	SAMPLE	277038-004	S	Soil	235424	05/26/16 03:32	1.0		
044	146b044	SAMPLE	276751-003		Water	235071	05/26/16 04:00	1.0		
045	146b045	CCV	MO_500				05/26/16 04:27	1.0	2	
046	146b046	CCV	DSL_500				05/26/16 04:54	1.0	4	
047	146b047	CCV	BUNK_500				05/26/16 05:22	1.0	5	
048	146b048	CCV	MO_500				05/26/16 05:49	1.0	2	
049	146b049	CCV	DSL_500				05/26/16 06:17	1.0	4	
050	146b050	X	BUNK_500				05/26/16 06:44	1.0	5	
051	146b051	X	CMARKER				05/26/16 07:12	1.0	1	
052	146b052	SAMPLE	276995-001		Soil	235351	05/26/16 07:40	10.0		sh

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 166210687

Instrument : GC15B
Method : EPA 8015D
Begun : 05/25/16 07:27
SOP Version : TEH_rv18

#	File	Type	Sample ID	P	Matrix	Batch	Analyzed	IDF	Stds Used	
053	146b053	SAMPLE	276995-002		Soil	235351	05/26/16 08:08	1.0		sh
054	146b054	SAMPLE	276995-003		Soil	235351	05/26/16 08:36	1.0		sh
055	146b055	SAMPLE	276995-004		Soil	235351	05/26/16 09:03	1.0		sh
056	146b056	CCV	MO_500				05/26/16 09:31	1.0	2	
057	146b057	CCV	DSL_250				05/26/16 09:59	1.0	6	
058	146b058	CCV	BUNK_500				05/26/16 10:27	1.0	5	
059	146b059	X	CMARKER				05/26/16 10:55	1.0	1	
060	146b060	BLANK	QC837060		Miscell.	235462	05/26/16 12:12	1.0		
061	146b061	BS	QC837061		Miscell.	235462	05/26/16 12:40	1.0		
062	146b062	BSD	QC837062		Miscell.	235462	05/26/16 13:08	1.0		
063	146b063	SAMPLE	277134-001		Miscell.	235462	05/26/16 13:36	1.0		9:BUNKC:10-40=72000
064	146b064	SAMPLE	277134-001		Miscell.	235462	05/26/16 14:12	50.0		
065	146b065	CCV	MO_500				05/26/16 14:40	1.0	2	
066	146b066	CCV	DSL_500				05/26/16 15:09	1.0	4	
067	146b067	X	CMARKER				05/26/16 15:37	1.0	1	
068	146b068	BLANK	QC837217	S	Soil	235503	05/26/16 16:05	1.0		
069	146b069	LCS	QC837218	S	Soil	235503	05/26/16 16:33	1.0		
070	146b070	MSS	277116-001		Soil	235503	05/26/16 17:02	1.0		
071	146b071	MS	QC837219		Soil	235503	05/26/16 17:30	1.0		
072	146b072	MSD	QC837220		Soil	235503	05/26/16 17:58	1.0		
073	146b073	SAMPLE	277125-001		Soil	235503	05/26/16 18:27	1.0		
074	146b074	SAMPLE	277125-002		Soil	235503	05/26/16 18:55	1.0		
075	146b075	SAMPLE	277125-003		Soil	235503	05/26/16 19:23	3.0		
076	146b076	SAMPLE	277126-001		Soil	235503	05/26/16 19:52	50.0		
077	146b077	SAMPLE	277127-001		Soil	235503	05/26/16 20:20	2.0		
078	146b078	SAMPLE	277178-001		Soil	235503	05/26/16 20:48	1.0		
079	146b079	SAMPLE	277178-002		Soil	235503	05/26/16 21:16	1.0		
080	146b080	CCV	MO_500				05/26/16 21:44	1.0	2	
081	146b081	CCV	DSL_250				05/26/16 22:12	1.0	6	
082	146b082	X	CCV				05/26/16 22:40	1.0	2	
083	146b083	X	CCV				05/26/16 23:08	1.0	6	
084	146b084	X	CMARKER				05/26/16 23:36	1.0	1	
085	146b085	SAMPLE	277178-003		Soil	235503	05/27/16 00:04	1.0		
086	146b086	SAMPLE	277178-004		Soil	235503	05/27/16 00:32	1.0		
087	146b087	SAMPLE	277178-005		Soil	235503	05/27/16 00:59	1.0		
088	146b088	SAMPLE	277178-006		Soil	235503	05/27/16 01:27	2.0		
089	146b089	SAMPLE	277036-001	S	Soil	235402	05/27/16 01:55	2.0		
090	146b090	X	IB				05/27/16 02:22	1.0		
091	146b091	SAMPLE	277036-002	S	Soil	235402	05/27/16 02:50	1.0		
092	146b092	SAMPLE	277020-001		Water	235480	05/27/16 03:18	1.0		
093	146b093	SAMPLE	277020-002		Water	235480	05/27/16 03:45	1.0		
094	146b094	SAMPLE	277019-001		Filtrate	235408	05/27/16 04:13	1.0		
095	146b095	SAMPLE	277019-002		Filtrate	235408	05/27/16 04:40	1.0		
096	146b096	CCV	MO_500				05/27/16 05:08	1.0	2	
097	146b097	CCV	DSL_500				05/27/16 05:36	1.0	4	
098	146b098	X	CCV				05/27/16 06:04	1.0	2	
099	146b099	X	CCV				05/27/16 06:32	1.0	4	
100	146b100	X	CMARKER				05/27/16 06:59	1.0	1	
101	146b101	BLANK	QC837321		Soil	235529	05/27/16 07:27	1.0		
102	146b102	LCS	QC837322		Soil	235529	05/27/16 07:55	1.0		
103	146b103	SAMPLE	277181-029		Soil	235529	05/27/16 08:23	10.0		
104	146b104	SAMPLE	277181-030		Soil	235529	05/27/16 08:51	10.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 166210687

Instrument : GC15B
Method : EPA 8015D
Begun : 05/25/16 07:27
SOP Version : TEH_rv18

#	File	Type	Sample ID	P	Matrix	Batch	Analyzed	IDF	Stds Used	
105	146b105	MSS	277181-031		Soil	235529	05/27/16 09:19	10.0		
106	146b106	X	IB				05/27/16 09:47	1.0		
107	146b107	SAMPLE	277181-032		Soil	235529	05/27/16 10:14	10.0		
108	146b108	SAMPLE	277181-033		Soil	235529	05/27/16 10:42	10.0		
109	146b109	SAMPLE	277181-034		Soil	235529	05/27/16 11:10	10.0		

JDG 05/25/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 18.

RDG 05/25/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 19 through 25.

JDG 05/26/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 26 through 58.

RDG 05/26/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 59 through 74.

JDG 05/27/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 75 through 106.

Standards used: 1=S29702 2=S29774 3=S29874 4=S29873 5=S28639 6=S29872
Flags used: sh=out of sample hold

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 226202060

Instrument : GC14B
Method : EPA 8015D
Begun : 05/19/16 07:40
SOP Version : TEH_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	140_001	X	IB			05/19/16 07:40	1.0		
002	140_002	X	IB			05/19/16 12:15	1.0		
003	140_003	X	IB			05/19/16 14:08	1.0		
004	140_004	X	IB			05/19/16 15:10	1.0		
005	140_005	X	IB			05/19/16 17:07	1.0		
006	140_006	IB	CALIB			05/19/16 21:40	1.0		
007	140_007	ICAL	HEX OTP_5			05/19/16 22:09	1.0	1	
008	140_008	ICAL	HEX OTP_10			05/19/16 22:38	1.0	2	
009	140_009	ICAL	HEX OTP_25			05/19/16 23:06	1.0	3	
010	140_010	ICAL	HEX OTP_50			05/19/16 23:35	1.0	4	
011	140_011	ICAL	HEX OTP_100			05/20/16 00:03	1.0	5	
012	140_012	ICAL	HEX OTP_200			05/20/16 00:31	1.0	6	
013	140_013	IB	CALIB			05/20/16 01:00	1.0		
014	140_014	ICAL	DSL_10			05/20/16 01:28	1.0	7	
015	140_015	ICAL	DSL_100			05/20/16 01:56	1.0	8	
016	140_016	ICAL	DSL_500			05/20/16 02:24	1.0	9	
017	140_017	ICAL	DSL_1000			05/20/16 02:52	1.0	10	
018	140_018	ICAL	DSL_5000			05/20/16 03:20	1.0	11	
019	140_019	IB	CALIB			05/20/16 03:48	1.0		
020	140_020	ICV	DSL_500			05/20/16 04:16	1.0	12	
021	140_021	X	ICV			05/20/16 04:44	1.0	12	
022	140_022	IB	CALIB			05/20/16 05:13	1.0		
023	140_023	ICAL	MO_50			05/20/16 05:41	1.0	13	
024	140_024	ICAL	MO_250			05/20/16 06:09	1.0	14	
025	140_025	ICAL	MO_500			05/20/16 06:37	1.0	15	
026	140_026	ICAL	MO_1000			05/20/16 07:05	1.0	16	
027	140_027	ICAL	MO_2500			05/20/16 07:34	1.0	17	
028	140_028	ICAL	MO_5000			05/20/16 08:02	1.0	17	
029	140_029	IB	CALIB			05/20/16 08:30	1.0		
030	140_030	CMARKER	C8-C50			05/20/16 08:59	1.0	18	
031	140_031	IB	CALIB			05/20/16 09:27	1.0		

RDG 05/20/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 31.

Standards used: 1=S29899 2=S29900 3=S29901 4=S29902 5=S29903 6=S29904 7=S29863 8=S29864 9=S29865 10=S29866 11=S29858 12=S29383 13=S28918 14=S28919 15=S28920 16=S28921 17=S28917 18=S29702

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 226209245

Instrument : GC14B
Method : EPA 8015D

Begun : 05/24/16 07:25
SOP Version : TEH_rv18

#	File	Type	Sample ID	P	Matrix	Batch	Analyzed	IDF	Stds Used	
001	145_001	X	IB				05/24/16 07:25	1.0		
002	145_002	X	CMARKER				05/24/16 07:53	1.0	1	
003	145_003	CCV	MO_500				05/24/16 08:21	1.0	2	
004	145_004	CCV	DSL_250				05/24/16 08:50	1.0	3	
005	145_005	X	CCV				05/24/16 09:19	1.0	4	
006	145_006	CCV	JET_250				05/24/16 09:54	1.0	4	
007	145_007	BLANK	QC836744		Soil	235378	05/24/16 10:22	1.0		
008	145_008	LCS	QC836745		Soil	235378	05/24/16 10:51	1.0		
009	145_009	SAMPLE	277081-010		Soil	235378	05/24/16 11:19	1.0		
010	145_010	SAMPLE	277081-011		Soil	235378	05/24/16 11:47	1.0		
011	145_011	SAMPLE	277081-012		Soil	235378	05/24/16 12:15	1.0		
012	145_012	SAMPLE	277081-014		Soil	235378	05/24/16 12:44	1.0		
013	145_013	SAMPLE	277081-016		Soil	235378	05/24/16 13:12	1.0		
014	145_014	SAMPLE	277081-020		Soil	235378	05/24/16 13:40	1.0		
015	145_015	SAMPLE	277081-023		Soil	235378	05/24/16 14:09	1.0		
016	145_016	SAMPLE	277081-024		Soil	235378	05/24/16 14:37	1.0		
017	145_017	SAMPLE	277081-025		Soil	235378	05/24/16 15:06	1.0		
018	145_018	SAMPLE	277081-015		Soil	235378	05/24/16 15:34	1.0		
019	145_019	CCV	MO_500				05/24/16 16:03	1.0	2	
020	145_020	CCV	DSL_500				05/24/16 16:32	1.0	5	
021	145_021	CCV	JET_250				05/24/16 17:00	1.0	4	
022	145_022	LCS	QC836031		Soil	235208	05/24/16 18:21	1.0		
023	145_023	X	CMARKER				05/24/16 18:53	1.0	1	
024	145_024	BLANK	QC836834		Soil	235402	05/24/16 19:21	1.0		
025	145_025	LCS	QC836835		Soil	235402	05/24/16 19:50	1.0		
026	145_026	BLANK	QC836834	S	Soil	235402	05/24/16 20:19	1.0		
027	145_027	LCS	QC836835	S	Soil	235402	05/24/16 20:47	1.0		
028	145_028	SAMPLE	277093-001		Soil	235402	05/24/16 21:16	2.0		2:BUNKC:10-40=5800
029	145_029	SAMPLE	277093-002		Soil	235402	05/24/16 21:44	1.0		2:BUNKC:10-40=7700
030	145_030	SAMPLE	277093-003		Soil	235402	05/24/16 22:12	1.0		
031	145_031	SAMPLE	277093-004		Soil	235402	05/24/16 22:41	1.0		
032	145_032	SAMPLE	277085-002		Soil	235402	05/24/16 23:09	1.0		
033	145_033	SAMPLE	277081-006		Soil	235402	05/24/16 23:37	1.0		
034	145_034	SAMPLE	277081-007		Soil	235402	05/25/16 00:06	1.0		
035	145_035	SAMPLE	277081-008		Soil	235402	05/25/16 00:34	1.0		2:BUNKC:10-40=10000
036	145_036	SAMPLE	277081-009		Soil	235402	05/25/16 01:02	1.0		
037	145_037	SAMPLE	277096-001		Soil	235402	05/25/16 01:31	1.0		
038	145_038	CCV	MO_500				05/25/16 01:59	1.0	2	
039	145_039	CCV	DSL_250				05/25/16 02:27	1.0	3	
040	145_040	CCV	JET_250				05/25/16 02:55	1.0	4	
041	145_041	X	CCV				05/25/16 03:23	1.0	2	
042	145_042	X	CCV				05/25/16 03:52	1.0	3	
043	145_043	X	CCV				05/25/16 04:20	1.0	4	
044	145_044	X	CMARKER				05/25/16 04:48	1.0	1	
045	145_045	MSS	277081-002		Soil	235378	05/25/16 05:16	1.0		
046	145_046	MS	QC836746		Soil	235378	05/25/16 05:44	1.0		
047	145_047	MSD	QC836747		Soil	235378	05/25/16 06:12	1.0		
048	145_048	SAMPLE	277081-001		Soil	235378	05/25/16 06:40	1.0		
049	145_049	SAMPLE	277081-003		Soil	235378	05/25/16 07:09	1.0		
050	145_050	SAMPLE	277081-004		Soil	235378	05/25/16 07:37	1.0		
051	145_051	SAMPLE	277081-005		Soil	235378	05/25/16 08:05	1.0		
052	145_052	SAMPLE	277081-017		Soil	235378	05/25/16 08:34	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 226209245

Instrument : GC14B
Method : EPA 8015D
Begun : 05/24/16 07:25
SOP Version : TEH_rv18

#	File	Type	Sample ID	P	Matrix	Batch	Analyzed	IDF	Stds Used	
053	145_053	SAMPLE	277081-018		Soil	235378	05/25/16 09:02	1.0		
054	145_054	SAMPLE	277081-019		Soil	235378	05/25/16 09:31	1.0		
055	145_055	CCV	MO_500				05/25/16 09:59	1.0	2	
056	145_056	CCV	DSL_500				05/25/16 10:27	1.0	5	
057	145_057	CCV	JET_250				05/25/16 10:56	1.0	4	
058	145_058	X	CMARKER				05/25/16 11:24	1.0	1	
059	145_059	BS	QC836523	S	Water	235323	05/25/16 11:53	1.0		
060	145_060	X	QC836524	S	Water	235323	05/25/16 12:21	1.0		
061	145_061	SAMPLE	276950-001		Water	235284	05/25/16 12:49	1.0		
062	145_062	SAMPLE	276950-002		Water	235284	05/25/16 13:18	1.0		
063	145_063	SAMPLE	276950-003		Water	235284	05/25/16 13:46	1.0		
064	145_064	SAMPLE	276950-004		Water	235284	05/25/16 14:15	1.0		
065	145_065	MS	QC836635		Soil	235351	05/25/16 14:43	1.0		
066	145_066	MSD	QC836636		Soil	235351	05/25/16 15:11	1.0		
067	145_067	CCV	MO_500				05/25/16 15:39	1.0	2	
068	145_068	CCV	DSL_250				05/25/16 16:08	1.0	3	
069	145_069	MSS	276958-001		Soil	235351	05/25/16 17:20	1.0		
070	145_070	X	CMARKER				05/25/16 18:12	1.0	1	
071	145_071	BLANK	QC837040	S	Soil	235456	05/25/16 18:40	1.0		
072	145_072	LCS	QC837041	S	Soil	235456	05/25/16 19:09	1.0		
073	145_073	MSS	277038-001	S	Soil	235456	05/25/16 19:38	1.0		
074	145_074	MS	QC837042	S	Soil	235456	05/25/16 20:07	1.0		
075	145_075	MSD	QC837043	S	Soil	235456	05/25/16 20:36	1.0		
076	145_076	SAMPLE	277134-002		Soil	235456	05/25/16 21:04	2.0		12:BUNKC:10-40=390000
077	145_077	SAMPLE	277134-003		Soil	235456	05/25/16 21:33	1.0		10:BUNKC:10-40=120000
078	145_078	SAMPLE	277134-004		Soil	235456	05/25/16 22:01	1.0		
079	145_079	SAMPLE	277134-005		Soil	235456	05/25/16 22:30	1.0		
080	145_080	SAMPLE	277134-006		Soil	235456	05/25/16 22:58	1.0		
081	145_081	SAMPLE	277134-007		Soil	235456	05/25/16 23:27	1.0		
082	145_082	CCV	MO_500				05/25/16 23:55	1.0	2	
083	145_083	CCV	DSL_500				05/26/16 00:24	1.0	5	
084	145_084	CCV	MO_500				05/26/16 00:52	1.0	2	
085	145_085	CCV	DSL_500				05/26/16 01:20	1.0	5	
086	145_086	X	CMARKER				05/26/16 01:48	1.0	1	
087	145_087	SAMPLE	277011-001		Soil	235351	05/26/16 02:17	2.0		
088	145_088	SAMPLE	277011-002		Soil	235351	05/26/16 02:45	2.0		
089	145_089	SAMPLE	277038-006	S	Soil	235456	05/26/16 03:13	1.0		
090	145_090	SAMPLE	277038-007	S	Soil	235456	05/26/16 03:41	1.0		
091	145_091	SAMPLE	277038-008	S	Soil	235456	05/26/16 04:09	1.0		
092	145_092	SAMPLE	277038-009	S	Soil	235456	05/26/16 04:37	1.0		
093	145_093	SAMPLE	277038-010	S	Soil	235456	05/26/16 05:05	1.0		
094	145_094	SAMPLE	277038-011	S	Soil	235456	05/26/16 05:33	1.0		
095	145_095	SAMPLE	277038-012	S	Soil	235456	05/26/16 06:01	1.0		
096	145_096	SAMPLE	277038-005	S	Soil	235424	05/26/16 06:29	1.0		
097	145_097	CCV	MO_500				05/26/16 06:57	1.0	2	
098	145_098	CCV	DSL_250				05/26/16 07:25	1.0	3	
099	145_099	X	CMARKER				05/26/16 07:54	1.0	1	
100	145_100	SAMPLE	276672-015		Soil	235063	05/26/16 08:35	1.0		
101	145_101	SAMPLE	276672-014		Soil	235063	05/26/16 09:03	1.0		
102	145_102	SAMPLE	276672-013		Soil	235063	05/26/16 09:32	1.0		
103	145_103	SAMPLE	276672-012		Soil	235063	05/26/16 10:01	1.0		
104	145_104	SAMPLE	277134-003		Soil	235456	05/26/16 10:29	50.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 226209245

Instrument : GC14B
Method : EPA 8015D
Begun : 05/24/16 07:25
SOP Version : TEH_rv18

#	File	Type	Sample ID	P	Matrix	Batch	Analyzed	IDF	Stds Used	
105	145_105	SAMPLE	277134-002		Soil	235456	05/26/16 10:57	200.0		
106	145_106	X	IB				05/26/16 11:33	1.0		
107	145_107	SAMPLE	277113-001		Soil	235503	05/26/16 12:07	3.0		
108	145_108	BLANK	QC837132		Water	235480	05/26/16 12:41	1.0		
109	145_109	BS	QC837133		Water	235480	05/26/16 13:10	1.0		
110	145_110	BSD	QC837134		Water	235480	05/26/16 13:39	1.0		
111	145_111	SAMPLE	277132-001		Water	235480	05/26/16 14:07	50.0		
112	145_112	CCV	MO_500				05/26/16 14:54	1.0	2	
113	145_113	CCV	DSL_500				05/26/16 15:23	1.0	5	
114	145_114	X	CMARKER				05/26/16 15:51	1.0	1	
115	145_115	PREPBLK	QC836872		Filtrate	235408	05/26/16 16:20	1.0		
116	145_116	BLANK	QC836855	S	Water	235408	05/26/16 16:49	1.0		
117	145_117	LCS	QC836856	S	Water	235408	05/26/16 17:18	1.0		
118	145_118	SAMPLE	276672-001		Soil	235063	05/26/16 17:47	2.0		
119	145_119	SAMPLE	276672-002		Soil	235063	05/26/16 18:16	1.0		
120	145_120	SAMPLE	276672-003		Soil	235063	05/26/16 18:45	1.0		
121	145_121	SAMPLE	276672-004		Soil	235063	05/26/16 19:14	1.0		
122	145_122	SAMPLE	276672-005		Soil	235063	05/26/16 19:43	1.0		
123	145_123	SAMPLE	276672-006		Soil	235063	05/26/16 20:12	1.0		
124	145_124	SAMPLE	276672-007		Soil	235063	05/26/16 20:41	1.0		
125	145_125	SAMPLE	276672-008		Soil	235063	05/26/16 21:09	5.0		
126	145_126	SAMPLE	276672-010		Soil	235063	05/26/16 21:38	1.0		
127	145_127	SAMPLE	277049-003	S	Water	235408	05/26/16 22:06	1.0		
128	145_128	CCV	MO_500				05/26/16 22:35	1.0	2	
129	145_129	CCV	DSL_250				05/26/16 23:03	1.0	3	
130	145_130	X	CCV				05/26/16 23:32	1.0	2	
131	145_131	X	CCV				05/27/16 00:00	1.0	3	
132	145_132	X	CMARKER				05/27/16 00:29	1.0	1	
133	145_133	MSS	277052-002		Water	235408	05/27/16 00:57	1.0		
134	145_134	MS	QC836857		Water	235408	05/27/16 01:25	1.0		
135	145_135	MSD	QC836858		Water	235408	05/27/16 01:53	1.0		
136	145_136	SAMPLE	276675-001		Soil	235063	05/27/16 02:22	1.0		
137	145_137	SAMPLE	276675-002		Soil	235063	05/27/16 02:50	1.0		
138	145_138	SAMPLE	276675-003		Soil	235063	05/27/16 03:18	1.0		
139	145_139	SAMPLE	277105-003		Water	235408	05/27/16 03:46	1.0		
140	145_140	SAMPLE	277105-003	S	Water	235408	05/27/16 04:14	1.0		
141	145_141	SAMPLE	277043-001	S	Soil	235402	05/27/16 04:42	1.0		
142	145_142	SAMPLE	277043-002	S	Soil	235402	05/27/16 05:11	1.0		3:BUNKC:12-40=9900
143	145_143	X	IB				05/27/16 05:39	1.0		
144	145_144	CCV	MO_500				05/27/16 06:07	1.0	2	
145	145_145	CCV	DSL_500				05/27/16 06:35	1.0	5	
146	145_146	X	CCV				05/27/16 07:03	1.0	2	
147	145_147	X	CCV				05/27/16 07:32	1.0	5	
148	145_148	X	CMARKER				05/27/16 08:00	1.0	1	

JDG 05/24/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 6.

RDG 05/24/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 7 through 22.

JDG 05/25/16 : I verified that the vials loaded on the instrument matched the

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 226209245

Instrument : GC14B
Method : EPA 8015D
Begun : 05/24/16 07:25
SOP Version : TEH_rv18

sequence data entry, for runs 23 through 57.

RDG 05/25/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 58 through 72.

JDG 05/26/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 73 through 101.

RDG 05/26/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 102 through 113.

JDG 05/27/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 114 through 148.

Standards used: 1=S29702 2=S29774 3=S29872 4=S29271 5=S29383

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 976209483

Instrument : GC27A
Method : EPA 8015D

Begun : 05/24/16 11:23
SOP Version : TEH_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	145001	X	IB			05/24/16 11:23	1.0		
002	145002	X	IB			05/24/16 12:24	1.0		
003	145003	X	C8-C50			05/24/16 12:55	1.0	1	
004	145004	X	MO_500			05/24/16 13:20	1.0	2	1:HXCS=360
005	145005	X	DSL_250			05/24/16 13:44	1.0	3	
006	145006	X	MO_500			05/24/16 14:36	1.0	2	1:HXCS=370
007	145007	X	DSL_250			05/24/16 15:00	1.0	3	
008	145008	X	MO_500			05/24/16 15:26	1.0	2	1:HXCS=380
009	145009	X	IB			05/24/16 15:53	1.0		
010	145010	IB	CALIB			05/24/16 16:18	1.0		
011	145011	ICAL	HEXOTP_5			05/24/16 16:43	1.0	4	
012	145012	ICAL	HEXOTP_10			05/24/16 17:08	1.0	5	
013	145013	ICAL	HEXOTP_25			05/24/16 17:32	1.0	6	
014	145014	ICAL	HEXOTP_50			05/24/16 17:57	1.0	7	
015	145015	ICAL	HEXOTP_100			05/24/16 18:22	1.0	8	
016	145016	ICAL	HEXOTP_200			05/24/16 18:47	1.0	9	
017	145017	IB	CALIB			05/24/16 19:11	1.0		
018	145018	ICAL	DSL_10			05/24/16 19:36	1.0	10	
019	145019	ICAL	DSL_100			05/24/16 20:01	1.0	11	
020	145020	ICAL	DSL_500			05/24/16 20:25	1.0	12	
021	145021	ICAL	DSL_1000			05/24/16 20:50	1.0	13	
022	145022	ICAL	DSL_5000			05/24/16 21:15	1.0	14	
023	145023	IB	CALIB			05/24/16 21:39	1.0		
024	145024	ICV	DSL_500			05/24/16 22:04	1.0	15	
025	145025	X	ICV			05/24/16 22:28	1.0	15	
026	145026	IB	CALIB			05/24/16 22:53	1.0		
027	145027	ICAL	MO_50			05/24/16 23:17	1.0	16	
028	145028	ICAL	MO_250			05/24/16 23:42	1.0	17	
029	145029	ICAL	MO_500			05/25/16 00:06	1.0	18	
030	145030	ICAL	MO_1000			05/25/16 00:31	1.0	19	
031	145031	ICAL	MO_2500			05/25/16 00:55	1.0	20	
032	145032	ICAL	MO_5000			05/25/16 01:20	1.0	20	
033	145033	IB	CALIB			05/25/16 01:44	1.0		
034	145034	CMARKER	C8-C50			05/25/16 02:09	1.0	1	
035	145035	IB	CALIB			05/25/16 02:33	1.0		

JDG 05/24/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 5.

RDG 05/25/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 6 through 35.

Standards used: 1=S29702 2=S29774 3=S29872 4=S29899 5=S29900 6=S29901 7=S29902 8=S29903 9=S29904 10=S29863 11=S29864 12=S29865 13=S29866 14=S29858 15=S29383 16=S28918 17=S28919 18=S28920 19=S28921 20=S28917

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 976210691

Instrument : GC27A
Method : EPA 8015D
Begun : 05/25/16 07:31
SOP Version : TEH_rv18

#	File	Type	Sample ID	P	Matrix	Batch	Analyzed	IDF	Stds Used	
001	146a001	X	IB				05/25/16 07:31	1.0		
002	146a002	X	CMARKER				05/25/16 07:55	1.0	1	
003	146a003	CCV	MO_500				05/25/16 08:20	1.0	2	
004	146a004	CCV	DSL_1000				05/25/16 08:44	1.0	3	
005	146a005	MSS	277011-003		Soil	235402	05/25/16 12:19	5.0		
006	146a006	MS	QC836836		Soil	235402	05/25/16 12:44	5.0		
007	146a007	MSD	QC836837		Soil	235402	05/25/16 13:08	5.0		
008	146a008	BLANK	QC837040		Soil	235456	05/25/16 13:33	1.0		
009	146a009	LCS	QC837041		Soil	235456	05/25/16 13:57	1.0		
010	146a010	SAMPLE	277131-003		Soil	235456	05/25/16 14:21	5.0		
011	146a011	CCV	MO_500				05/25/16 14:47	1.0	2	
012	146a012	CCV	DSL_250				05/25/16 15:11	1.0	4	
013	146a013	X	CMARKER				05/25/16 15:43	1.0	1	
014	146a014	SAMPLE	277012-002	S	Water	235375	05/25/16 16:08	1.0		
015	146a015	SAMPLE	277012-003	S	Water	235375	05/25/16 16:34	1.0		
016	146a016	SAMPLE	277012-004	S	Water	235375	05/25/16 16:58	1.0		
017	146a017	SAMPLE	277012-005	S	Water	235375	05/25/16 17:23	1.0		
018	146a018	SAMPLE	277012-008	S	Water	235375	05/25/16 17:48	1.0		
019	146a019	SAMPLE	276720-001		Water	235204	05/25/16 18:13	1.0		sh
020	146a020	SAMPLE	276720-002		Water	235204	05/25/16 18:37	1.0		sh
021	146a021	SAMPLE	276720-003		Water	235204	05/25/16 19:02	1.0		sh
022	146a022	SAMPLE	276720-004		Water	235204	05/25/16 19:27	1.0		sh
023	146a023	SAMPLE	277034-001		Soil	235424	05/25/16 19:51	2.0		
024	146a024	CCV	MO_500				05/25/16 20:16	1.0	2	
025	146a025	CCV	DSL_250				05/25/16 20:41	1.0	5	
026	146a026	X	CCV				05/25/16 21:05	1.0	2	
027	146a027	X	CCV				05/25/16 21:30	1.0	5	
028	146a028	X	CMARKER				05/25/16 21:54	1.0	1	
029	146a029	BLANK	QC835739		Soil	235142	05/25/16 22:19	1.0		
030	146a030	LCS	QC835740		Soil	235142	05/25/16 22:44	1.0		
031	146a031	MSS	277111-001		Soil	235424	05/25/16 23:08	3.0		
032	146a032	MS	QC836923		Soil	235424	05/25/16 23:33	3.0		
033	146a033	MSD	QC836924		Soil	235424	05/25/16 23:57	3.0		
034	146a034	SAMPLE	277111-002		Soil	235424	05/26/16 00:22	5.0		
035	146a035	X	IB				05/26/16 00:46	1.0		
036	146a036	SAMPLE	277111-003		Soil	235424	05/26/16 01:11	5.0		1:BUNKC:12-40=5100
037	146a037	SAMPLE	277105-001		Soil	235424	05/26/16 01:35	20.0		
038	146a038	SAMPLE	277105-002		Soil	235424	05/26/16 02:00	20.0		
039	146a039	X	IB				05/26/16 02:24	1.0		
040	146a040	SAMPLE	277098-001		Soil	235424	05/26/16 02:48	2.0		
041	146a041	SAMPLE	277097-001		Soil	235424	05/26/16 03:13	1.0		
042	146a042	X	IB				05/26/16 03:37	1.0		
043	146a043	SAMPLE	276943-001	S	Soil	235351	05/26/16 04:01	1.0		2:BUNKC:12-40=6600
044	146a044	CCV	MO_500				05/26/16 04:26	1.0	2	
045	146a045	CCV	DSL_500				05/26/16 04:50	1.0	4	
046	146a046	X	CCV				05/26/16 05:14	1.0	2	
047	146a047	X	CCV				05/26/16 05:38	1.0	4	
048	146a048	X	CMARKER				05/26/16 06:03	1.0	1	

RDG 05/25/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 22.

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 976210691

Instrument : GC27A
Method : EPA 8015D
Begun : 05/25/16 07:31
SOP Version : TEH_rv18

JDG 05/26/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 23 through 48.

Standards used: 1=S29702 2=S29923 3=S29874 4=S29873 5=S29872

Flags used: sh=out of sample hold

SAMPLE PREPARATION SUMMARY

Batch # : 235424
Started By : BOY
Method : 3550B
Spike #1 ID : S29925
Prep Date : 24-MAY-2016 13:45
Spike #2 ID : S29632
Analysis : TEH
Finished By : BOY
Units : g

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
277034-001		Soil	49.73	5	1	0.1005		1				TEHM	
277036-003		Soil	50.12	5	1	0.09976		1			3630C	TEHM	
277036-004		Soil	49.91	5	1	0.1002		1			3630C	TEHM	
277036-005		Soil	49.55	5	1	0.1009		1			3630C	TEHM	
277036-006		Soil	49.76	5	1	0.1005		1			3630C	TEHM	
277036-007		Soil	49.57	5	1	0.1009		1			3630C	TEHM	
277036-008		Soil	49.56	5	1	0.1009		1			3630C	TEHM	
277036-009		Soil	50.5	5	1	0.09901		1			3630C	TEHM	
277036-010		Soil	49.98	5	1	0.1000		1			3630C	TEHM	
277038-002		Soil	49.83	5	1	0.1003		1			3630C	TEHM	
277038-003		Soil	49.83	5	1	0.1003		1			3630C	TEHM	
277038-004		Soil	49.86	5	1	0.1003		1			3630C	TEHM	
277038-005		Soil	49.59	5	1	0.1008		1			3630C	TEHM	
277097-001		Soil	50.36	5	1	0.09929		1				TEHM	
277098-001		Soil	50.08	5	1	0.09984		1				TEHM	
277105-001		Soil	50.15	10	1	0.1994		1				TEHM	sample is thick and viscous
277105-002		Soil	49.69	10	1	0.2012		1				TEHM	sample is thick and viscous
277111-001		Soil	50.4	5	1	0.09921		1				TEHM	
277111-002		Soil	50.47	5	1	0.09907		1				TEHM	
277111-003		Soil	49.72	5	1	0.1006		1				TEHM	
QC836921	BLANK	Soil	49.58	5	1	0.1008		1			3630C		
QC836922	LCS	Soil	49.62	5	1	0.1008		1	1		3630C		
QC836923	MS	Soil	50.18	5	1	0.09964		1	1				
QC836924	MSD	Soil	50.03	5	1	0.09994		1	1				

Analyst: JDG Date: 05/26/16 Reviewer: TKM Date: 05/26/16

TEH (8015) Soil Prep Log

Curtis & Tompkins, Ltd.

BK 3835 Page 60

LIMS Batch No: 235424
LIMS Analysis TEHM
Date Extracted: 5/24/16

Extraction Method:
☑ EPA 3550 Sonication
☐ _____

Cleanup Method (if necessary):
☑ EPA 3630 Silica Gel

	Sample #	Container ID	Weight of Sample (g)	Final Volume (mL)	Cleanup (x if needed)	Comments
	277034-001	C	49.73	☑ 5.0 ☐ ___		rocky
	277036-003	G	50.12	☑ 5.0 ☐ ___	X	
	4		49.91	☑ 5.0 ☐ ___	X	
	5		49.55	☑ 5.0 ☐ ___	X	
5	6		49.76	☑ 5.0 ☐ ___	X	
	7		49.57	☑ 5.0 ☐ ___	X	
	8		49.56	☑ 5.0 ☐ ___	X	
	9		50.50	☑ 5.0 ☐ ___	X	
	10		49.98	☑ 5.0 ☐ ___	X	
10	277038-002		49.83	☑ 5.0 ☐ ___	X	
	3		49.83	☑ 5.0 ☐ ___	X	
	4		49.86	☑ 5.0 ☐ ___	X	
	5		49.59	☑ 5.0 ☐ ___	X	
	277097-001	E	50.36	☑ 5.0 ☐ ___		
15	277098-001		50.05	☑ 5.0 ☐ ___		rocky
	277105-001	H	50.15	☐ 5.0 ☑ 10		sample thick + viscous
	2		49.69	☐ 5.0 ☑ 10		contains organic matter
	277111-001	D	36.40	☑ 5.0 ☐ ___		MSS rocky
	2		50.47	☑ 5.0 ☐ ___		
20	3		49.72	☑ 5.0 ☐ ___		
	MB QC836921	NA	49.58	☑ 5.0 ☐ ___	X	granular not completely dried
	LCS 2		49.62	☑ 5.0 ☐ ___	X	
	MS 3		50.18	☑ 5.0 ☐ ___		rocky
	MSD 4		50.03	☑ 5.0 ☐ ___		
				~~☐ 5.0~~ ☐ ___		APG 5/25/16

☐ MS/MSD not included due to: ☐ insufficient volume, or ☐ other (reason) _____

☑ Balance ID: wetchem Has been calibrated? ☑ Yes ☐ No

	Mfg & Lot # / LIMS # / Time	Date/Initials
Baked, solvent-rinsed granular Na2SO4 weighed out for QC samples	EMY616L	5/24/16 BOY
Samples were dried with CH2Cl2-rinsed powdered Na2SO4	EM0835C506	
1.0 mL of Surrogate solution was added to all samples	529925	
1.0 mL of Spike solution was added to all spikes	S296325	
1:1 CH_2Cl_2 (lot# FC158292):Acetone(lot# FS158967) was added to all	✓	
Solvent added at (time)	1345	
Sonicated 3 times w/ ≥100mL 1:1 DCM:Acetone	✓	
Extracts filtered through baked, rinsed powdered Na_2SO_4	EM0835C506	
Concentrated to final volume in boiling H2O bath	1600	
Relinquished to TEH Department	✓	

5/24/16
Extraction Chemist / Date

Continued from page 1
Continued on page _____

5/24/16
Reviewed by / Date

Curtis & Tompkins, Ltd. **Silica Gel Cleanup** **EPA 3630c**

Prep Chemist: BOY
Cleanup Date: 5/24/16

Benchbook # **BK 3892**
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Sample #	Extraction Batch#	Initial Volume (mL)	Final Volume (mL)	Comments
277036-001	235402	☑ 1.0 ☐	☑ 1.0 ☐	
2	↓	☐ 1.0 ☐	☑ 1.0 ☐	
3	235424	☑ 1.0 ☐	☑ 1.0 ☐	
4		☑ 1.0 ☐	☑ 1.0 ☐	
5		☑ 1.0 ☐	☑ 1.0 ☐	
6		☑ 1.0 ☐	☑ 1.0 ☐	
7		☑ 1.0 ☐	☑ 1.0 ☐	*
8		☑ 1.0 ☐	☑ 1.0 ☐	
9		☑ 1.0 ☐	☑ 1.0 ☐	
10		☑ 1.0 ☐	☑ 1.0 ☐	
277036-002		☑ 1.0 ☐	☑ 1.0 ☐	
3		☑ 1.0 ☐	☑ 1.0 ☐	
4		☑ 1.0 ☐	☑ 1.0 ☐	
5		☑ 1.0 ☐	☑ 1.0 ☐	
MB QC836921		☑ 1.0 ☐	☑ 1.0 ☐	
LCS ↓ 2	↓	☑ 1.0 ☐	☑ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	AMG 5/25/16

☑ Extracts were cleaned up using C&T assembled 10 g columns
☐ Extracts were cleaned up using — g cartridges
Extracts were eluted with 4.0 mL CH_2Cl_2
Concentrated to volumes as noted above

Mfg & Lot # / Time / Program	Initials / Date
Y14A041	BOY 5/24/16
N/A	↓
FC158292	
✓	

BOY 5/24/16
Extraction Chemist / Date

Continued from page /
Continued on page /

AMG 5/25/16
Reviewed by / Date

SAMPLE PREPARATION SUMMARY

Batch # : 235456
Started By : BL1
Prep Date : 25-MAY-2016 10:12
Method : 3550B
Spike #1 ID : S29925
Spike #2 ID : S29632
Analysis : TEH
Finished By : BL1
Units : g

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
277038-001		Soil	50.07	5	1	0.09986		1			3630C	TEHM	
277038-006		Soil	50.01	5	1	0.09998		1			3630C	TEHM	
277038-007		Soil	50.33	5	1	0.09934		1			3630C	TEHM	
277038-008		Soil	50.19	5	1	0.09962		1			3630C	TEHM	
277038-009		Soil	50.14	5	1	0.09972		1			3630C	TEHM	
277038-010		Soil	50.09	5	1	0.09982		1			3630C	TEHM	
277038-011		Soil	50.09	5	1	0.09982		1			3630C	TEHM	
277038-012		Soil	50.14	5	1	0.09972		1			3630C	TEHM	
277131-001		Soil	50.01	5	1	0.09998		1				TEH	
277131-002		Soil	50.04	5	1	0.09992		1				TEH	
277131-003		Soil	50.14	5	1	0.09972		1				TEH	
277134-002		Soil	49.81	5	1	0.1004		1				TEHM	
277134-003		Soil	50.03	5	1	0.09994		1				TEHM	
277134-004		Soil	50.23	5	1	0.09954		1				TEHM	
277134-005		Soil	49.91	5	1	0.1002		1				TEHM	
277134-006		Soil	49.89	5	1	0.1002		1				TEHM	
277134-007		Soil	49.97	5	1	0.1001		1				TEHM	
277142-007		Soil	50	5	1	0.1000		1			3630C	TEHM	
277142-008		Soil	50.14	5	1	0.09972		1			3630C	TEHM	
277142-009		Soil	50.13	5	1	0.09974		1			3630C	TEHM	
QC837040	BLANK	Soil	50.06	5	1	0.09988		1			3630C	TEHM	
QC837041	LCS	Soil	50.01	5	1	0.09998		1	1		3630C	TEHM	
QC837042	MS	Soil	50.17	5	1	0.09966		1	1		3630C	TEHM	
QC837043	MSD	Soil	50.08	5	1	0.09984		1	1		3630C	TEHM	

Analyst: JDG Date: 05/26/16 Reviewer: TKM Date: 05/26/16

Curtis & Tompkins, Ltd. **Silica Gel Cleanup** **EPA 3630c**

Prep Chemist: BL2
Cleanup Date: 5/25/16

Benchbook # **BK 3892**
Page 27

Sample #	Extraction Batch#	Initial Volume (mL)	Final Volume (mL)	Comments
277038-001	235456	☒1.0 ☐___	☐1.0 ☐___	
6		☒1.0 ☐___	☒1.0 ☐___	
7		☒1.0 ☐___	☒1.0 ☐___	
8		☒1.0 ☐___	☐1.0 ☐___	
9		☒1.0 ☐___	☒1.0 ☐___	
10		☐1.0 ☐___	☒1.0 ☐___	
11		☒1.0 ☐___	☒1.0 ☐___	
12		☒1.0 ☐___	☒1.0 ☐___	
277142-009		☒1.0 ☐___	☒1.0 ☐___	
7		☒1.0 ☐___	☒1.0 ☐___	
8		☒1.0 ☐___	☒1.0 ☐___	
MB QC837040		☒1.0 ☐___	☒1.0 ☐___	
LCS 1		☒1.0 ☐___	☒1.0 ☐___	
MS 2		☒1.0 ☐___	☒1.0 ☐___	
MSD 3		☒1.0 ☐___	☒1.0 ☐___	
		☐ 1.0 ☐___	☐ 1.0 ☐___	
		☐ 1.0 ☐___	☐ 1.0 ☐___	
		☐ 1.0 ☐___	☐ 1.0 ☐___	
		☐ 1.0 ☐___	☐ 1.0 ☐___	
		☐ 1.0 ☐___	☐ 1.0 ☐___	
		☐ 1.0 ☐___	☐ 1.0 ☐___	
		☐ 1.0 ☐___	☐ 1.0 ☐___	
		☐ 1.0 ☐___	☐ 1.0 ☐___	
		☐ 1.0 ☐___	☐ 1.0 ☐___	
		☐ 1.0 ☐___	☐ 1.0 ☐___	
		☐ 1.0 ☐___	☐ 1.0 ☐___	
		☐ 1.0 ☐___	☐ 1.0 ☐___	
		☐ 1.0 ☐___	☐ 1.0 ☐___	
		☐ 1.0 ☐___	☐ 1.0 ☐___	
		☐ 1.0 ☐___	☐ 1.0 ☐___	
		☐ 1.0 ☐___	☐ 1.0 ☐___	
		☐ 1.0 ☐___	☐ 1.0 ☐___	
		☐ 1.0 ☐___	☐ 1.0 ☐___	
		☐ 1.0 ☐___	☐ 1.0 ☐___	AMG 5/25/16

	Mfg & Lot # / Time / Program	Initials / Date
☒ Extracts were cleaned up using C&T assembled 1.0 g columns	Y14A041	BL 5/25/16
☐ Extracts were cleaned up using ___ g cartridges	n/a	1
Extracts were eluted with 4.0 mL CH_2Cl_2	EC158292	
Concentrated to volumes as noted above		

5/25/16
Extraction Chemist / Date

Continued from page ___
Continued on page 1

5/25/16
Reviewed by / Date

TEH (8015) Soil Prep Log

Curtis & Tompkins, Ltd.

BK 3835 Page 61

LIMS Batch No: 235456
LIMS Analysis TEHM
Date Extracted: 5/25/16

Extraction Method:
☑ EPA 3550 Sonication
☐ _____

Cleanup Method (if necessary):
☑ EPA 3630 Silica Gel

Sample #	Container ID	Weight of Sample (g)	Final Volume (mL)	Cleanup (x if needed)	Comments
277038-001	G	50.07	~~5.0~~ ☐___	X	MSS
6		50.01	~~5.0~~ ☐___	X	
7		50.33	~~5.0~~ ☐___	X	
8		50.19	~~5.0~~ ☐___	X	
9		50.14	~~5.0~~ ☐___	X	
10		50.09	~~5.0~~ ☐___	X	
11		50.09	~~5.0~~ ☐___	X	
12		50.14	~~5.0~~ ☐___	X	
277131-001	C	50.01	~~5.0~~ ☐___		
2		50.04	~~5.0~~ ☐___		
3		~~50.14~~	~~5.0~~ ☐___		50.14
277134-002	A	~~49.81~~	~~5.0~~ ☐___		49.81
3		50.03	~~5.0~~ ☐___		wet sample *
4		50.23	~~5.0~~ ☐___		
5		49.91	~~5.0~~ ☐___		
6		49.89	~~5.0~~ ☐___		
7		49.97	~~5.0~~ ☐___		
277142-009		50.13	~~5.0~~ ☐___	X	
7		50.009	~~5.0~~ ☐___	X	
8		50.14g	~~5.0~~ ☐___	X	
MB QC837040	n/a	50.06	~~5.0~~ ☐___	X	
LCS 1		50.01	~~5.0~~ ☐___	X	
MS 2	G	50.17	~~5.0~~ ☐___	X	
MSD 3		50.08	~~5.0~~ ☐___	X	
			~~5.0~~ ☐___		AM 5/25/16

☐ MS/MSD not included due to: ☐ insufficent volume, or ☐ other (reason) _____

☑ Balance ID: Dish 1 Has been calibrated? ☑ Yes ☐ No

	Mfg & Lot # / LIMS # / Time	Date/Initials
Baked, solvent-rinsed granular Na2SO4 weighed out for QC samples	FMY8161	BL 5/25/16
Samples were dried with CH2Cl2-rinsed powdered Na2SO4	EM0835C506 / EMY8161*	
1.0 mL of Surrogate solution was added to all samples	S29925 1	
1.0 mL of Spike solution was added to all spikes	S29632E	
1:1 CH_2Cl_2 (lot# EM5534) : Acetone (lot# FC15645) was added to all	✓	
Solvent added at (time)	10:12	
Sonicated 3 times w/ ≥100mL 1:1 DCM:Acetone	✓	
Extracts filtered through baked, rinsed powdered Na_2SO_4	EM0835C506	
Concentrated to final volume in boiling H2O bath	109	
Relinquished to TEH Department		

5/25/16
Extraction Chemist / Date

Continued from page ___
Continued on page ___

5/25/16
Reviewed by / Date

Dilutions for 277038 GCSV Soil
Curtis & Tompkins Laboratories

Type	Sample ID	IDFs
MS	QC836923	3X
MSD	QC836924	3X

Case Narrative Addendum: Manual Integrations for 277038 GCSV (Soil)

For MSS 277038-001 (GC14B 145_073):
Corrected automatically drawn baseline.

For SAMPLE 277038-002 (GC15B 146b041):
Corrected automatically drawn baseline.

For SAMPLE 277038-004 (GC15B 146b043):
Corrected automatically drawn baseline.

For SAMPLE 277038-006 (GC14B 145_089):
Separated from coeluting peak.

For SAMPLE 277038-007 (GC14B 145_090):
Corrected automatically drawn baseline.

For SAMPLE 277038-008 (GC14B 145_091):
Separated from coeluting peak.

For SAMPLE 277038-009 (GC14B 145_092):
Corrected automatically drawn baseline.

For SAMPLE 277038-010 (GC14B 145_093):
Corrected automatically drawn baseline.

For SAMPLE 277038-012 (GC14B 145_095):
Corrected automatically drawn baseline.

For CCV DSL_1000 (GC15B 146b004):
Corrected automatically drawn baseline.

For CCV DSL_1000 (GC15B 146b034):
Corrected automatically drawn baseline.

For CCV DSL_250 (GC27A 146a025):
Corrected automatically drawn baseline.

For CCV DSL_250 (GC14B 145_098):
Separated from coeluting peak.

For CCV DSL_250 (GC14B 145_068):
Corrected automatically drawn baseline.

For CCV DSL_500 (GC15B 146b018):
Corrected automatically drawn baseline.

For CCV DSL_500 (GC15B 146b046):
Corrected automatically drawn baseline.

For CCV DSL_500 (GC14B 145_083):
Corrected automatically drawn baseline.

For CCV DSL_500 (GC14B 145_085):
Corrected automatically drawn baseline.

For CCV DSL_500 (GC27A 146a045):
Corrected automatically drawn baseline.

For CCV MO_500 (GC14B 145_067):
Corrected automatically drawn baseline.

For CCV MO_500 (GC14B 145_097):
Corrected automatically drawn baseline.

For CCV MO_500 (GC27A 146a044):
Corrected automatically drawn baseline.

For CCV MO_500 (GC15B 146b031):
Corrected automatically drawn baseline.

For CCV MO_500 (GC14B 145_082):
Corrected automatically drawn baseline.

For CCV MO_500 (GC15B 146b033):
Corrected automatically drawn baseline.

For CCV MO_500 (GC15B 146b045):
Corrected automatically drawn baseline.

For CCV MO_500 (GC14B 145_084):
Corrected automatically drawn baseline.

For CCV MO_500 (GC27A 146a024):
Corrected automatically drawn baseline.

For CCV MO_500 (GC15B 146b017):
Corrected automatically drawn baseline.

For BLANK QC836921 (GC15B 146b005):
Corrected automatically drawn baseline.

For LCS QC836922 (GC15B 146b007):
Corrected automatically drawn baseline.

For MSD QC836924 (GC27A 146a033):
Corrected automatically drawn baseline for spike & dup.

For BLANK QC837040 (GC14B 145_071):
Corrected automatically drawn baseline.

For LCS QC837041 (GC14B 145_072):
Corrected automatically drawn baseline.

For MSD QC837043 (GC14B 145_075):
Separated from coeluting peak for spike & dup.
Corrected automatically drawn baseline for dup.

For Calibration GC15B (166179015001):
Corrected automatically drawn baseline in all levels.

For Calibration GC15B (166179015004):
Corrected automatically drawn baseline in multiple levels.

For Calibration GC15B (166180441001):
Corrected automatically drawn baseline in all levels.

For ICV DSL_500 (GC15B 125b013):
Corrected automatically drawn baseline.

For Calibration GC14B (226202060001):
Corrected automatically drawn baseline in multiple levels.

For Calibration GC14B (226202060002):
Corrected automatically drawn baseline in multiple levels.

For ICV DSL_500 (GC14B 140_020):
Corrected automatically drawn baseline.

For Calibration GC14B (226202060003):
Corrected automatically drawn baseline in multiple levels.

For Calibration GC27A (976209483001):
Corrected automatically drawn baseline in multiple levels.

For Calibration GC27A (976209483003):
Corrected automatically drawn baseline in multiple levels.

For ICV DSL_500 (GC27A 145024):
Corrected automatically drawn baseline.

CAS Registry Numbers for 277038 GCSV Soil
Curtis & Tompkins Laboratories

Analyte	CAS RN
Diesel C10-C24	68334-30-5
Motor Oil C24-C36	MO
o-Terphenyl	84-15-1

Laboratory Job Number 277038

ANALYTICAL REPORT

Volatile Organics by GC/MS

Matrix: Soil

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 5035
Project#:	149831	Analysis:	EPA 8260C
Field ID:	BS-BERNARD-01-051916	Diln Fac:	0.8052
Lab ID:	277038-001	Batch#:	235404
Matrix:	Soil	Sampled:	05/19/16
Units:	ug/Kg	Received:	05/20/16
Basis:	dry	Analyzed:	05/24/16

Moisture: 9%

Analyte	Result	LOQ	DL
Freon 12	0.88 U	8.8	0.41
Chloromethane	1.8 U	8.8	0.45
Vinyl Chloride	0.44 U	8.8	0.41
Bromomethane	1.8 U	8.8	0.94
Chloroethane	1.8 U	8.8	0.66
Trichlorofluoromethane	0.44 U	4.4	0.23
Acetone	3.5 U	18	2.9
Freon 113	0.44 U	4.4	0.40
1,1-Dichloroethene	0.88 U	4.4	0.39
Methylene Chloride	0.44 U	18	0.40
Carbon Disulfide	0.88 U	4.4	0.42
MTBE	0.44 U	4.4	0.14
trans-1,2-Dichloroethene	0.88 U	4.4	0.55
Vinyl Acetate	1.8 U	44	0.66
1,1-Dichloroethane	0.44 U	4.4	0.33
2-Butanone	3.5 U	8.8	1.3
cis-1,2-Dichloroethene	0.44 U	4.4	0.26
2,2-Dichloropropane	0.88 U	4.4	0.32
Chloroform	0.44 U	4.4	0.27
Bromochloromethane	0.88 U	4.4	0.47
1,1,1-Trichloroethane	0.44 U	4.4	0.36
1,1-Dichloropropene	0.44 U	4.4	0.22
Carbon Tetrachloride	0.44 U	4.4	0.43
1,2-Dichloroethane	0.44 U	4.4	0.30
Benzene	0.44 U	4.4	0.39
Trichloroethene	0.44 U	4.4	0.37
1,2-Dichloropropane	0.44 U	4.4	0.20
Bromodichloromethane	0.44 U	4.4	0.22
Dibromomethane	0.88 U	4.4	0.58
4-Methyl-2-Pentanone	0.88 U	8.8	0.43
cis-1,3-Dichloropropene	0.44 U	4.4	0.25
Toluene	0.44 U	4.4	0.28
trans-1,3-Dichloropropene	0.44 U	4.4	0.21
1,1,2-Trichloroethane	0.88 U	4.4	0.33
2-Hexanone	1.8 U	8.8	0.98
1,3-Dichloropropane	0.44 U	4.4	0.19
Tetrachloroethene	0.44 U	4.4	0.21
Dibromochloromethane	0.44 U	4.4	0.25
1,2-Dibromoethane	0.44 U	4.4	0.19
Chlorobenzene	0.44 U	4.4	0.35
1,1,1,2-Tetrachloroethane	0.44 U	4.4	0.24
Ethylbenzene	0.44 U	4.4	0.34
m,p-Xylenes	0.88 U	4.4	0.80
o-Xylene	0.44 U	4.4	0.24
Styrene	0.44 U	4.4	0.26
Bromoform	0.88 U	4.4	0.42
Isopropylbenzene	0.44 U	4.4	0.26
1,1,2,2-Tetrachloroethane	0.44 U	4.4	0.38
1,2,3-Trichloropropane	0.88 U	4.4	0.22
Propylbenzene	0.44 U	4.4	0.28
Bromobenzene	0.44 U	4.4	0.38

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 5035
Project#:	149831	Analysis:	EPA 8260C
Field ID:	BS-BERNARD-01-051916	Dil'n Fac:	0.8052
Lab ID:	277038-001	Batch#:	235404
Matrix:	Soil	Sampled:	05/19/16
Units:	ug/Kg	Received:	05/20/16
Basis:	dry	Analyzed:	05/24/16

Analyte	Result	LOQ	DL
1,3,5-Trimethylbenzene	0.44 U	4.4	0.28
2-Chlorotoluene	0.44 U	4.4	0.34
4-Chlorotoluene	0.44 U	4.4	0.41
tert-Butylbenzene	0.44 U	4.4	0.34
1,2,4-Trimethylbenzene	0.44 U	4.4	0.25
sec-Butylbenzene	0.44 U	4.4	0.22
para-Isopropyl Toluene	0.44 U	4.4	0.31
1,3-Dichlorobenzene	0.44 U	4.4	0.38
1,4-Dichlorobenzene	0.44 U	4.4	0.35
n-Butylbenzene	0.44 U	4.4	0.32
1,2-Dichlorobenzene	0.44 U	4.4	0.25
1,2-Dibromo-3-Chloropropane	1.8 U	4.4	0.90
1,2,4-Trichlorobenzene	0.44 U	4.4	0.42
Hexachlorobutadiene	0.88 U	4.4	0.58
Naphthalene	1.8 U	4.4	0.94
1,2,3-Trichlorobenzene	0.44 U	4.4	0.29

Surrogate	%REC	Limits
Dibromofluoromethane	117	78-119
1,2-Dichloroethane-d4	119	71-136
Toluene-d8	101	85-116
Bromofluorobenzene	101	79-119

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 5035
Project#:	149831	Analysis:	EPA 8260C
Field ID:	BS-BERNARD-02-051916	Diln Fac:	0.9452
Lab ID:	277038-002	Batch#:	235335
Matrix:	Soil	Sampled:	05/19/16
Units:	ug/Kg	Received:	05/20/16
Basis:	dry	Analyzed:	05/22/16

Moisture: 9%

Analyte	Result	LOQ	DL
Freon 12	1.0 U	10	0.48
Chloromethane	2.1 U	10	0.52
Vinyl Chloride	0.52 U	10	0.48
Bromomethane	2.1 U	10	1.1
Chloroethane	2.1 U	10	0.78
Trichlorofluoromethane	0.52 U	5.2	0.27
Acetone	4.2 U	21	3.4
Freon 113	0.52 U	5.2	0.47
1,1-Dichloroethene	1.0 U	5.2	0.46
Methylene Chloride	0.52 U	21	0.47
Carbon Disulfide	1.0 U	5.2	0.49
MTBE	0.52 U	5.2	0.16
trans-1,2-Dichloroethene	1.0 U	5.2	0.65
Vinyl Acetate	2.1 U	52	0.77
1,1-Dichloroethane	0.52 U	5.2	0.38
2-Butanone	4.2 U	10	1.5
cis-1,2-Dichloroethene	0.52 U	5.2	0.31
2,2-Dichloropropane	1.0 U	5.2	0.37
Chloroform	0.52 U	5.2	0.32
Bromochloromethane	1.0 U	5.2	0.55
1,1,1-Trichloroethane	0.52 U	5.2	0.42
1,1-Dichloropropene	0.52 U	5.2	0.26
Carbon Tetrachloride	0.52 U	5.2	0.50
1,2-Dichloroethane	0.52 U	5.2	0.36
Benzene	0.52 U	5.2	0.45
Trichloroethene	0.52 U	5.2	0.44
1,2-Dichloropropane	0.52 U	5.2	0.24
Bromodichloromethane	0.52 U	5.2	0.25
Dibromomethane	1.0 U	5.2	0.68
4-Methyl-2-Pentanone	1.0 U	10	0.50
cis-1,3-Dichloropropene	0.52 U	5.2	0.30
Toluene	0.52 U	5.2	0.33
trans-1,3-Dichloropropene	0.52 U	5.2	0.25
1,1,2-Trichloroethane	1.0 U	5.2	0.39
2-Hexanone	2.1 U	10	1.2
1,3-Dichloropropane	0.52 U	5.2	0.23
Tetrachloroethene	0.52 U	5.2	0.25
Dibromochloromethane	0.52 U	5.2	0.29
1,2-Dibromoethane	0.52 U	5.2	0.22
Chlorobenzene	0.52 U	5.2	0.41
1,1,1,2-Tetrachloroethane	0.52 U	5.2	0.28
Ethylbenzene	0.52 U	5.2	0.39
m,p-Xylenes	1.0 U	5.2	0.94
o-Xylene	0.52 U	5.2	0.28
Styrene	0.52 U	5.2	0.30
Bromoform	1.0 U	5.2	0.49
Isopropylbenzene	0.52 U	5.2	0.31
1,1,2,2-Tetrachloroethane	0.52 U	5.2	0.45
1,2,3-Trichloropropane	1.0 U	5.2	0.26
Propylbenzene	0.52 U	5.2	0.32
Bromobenzene	0.52 U	5.2	0.44

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 5035
Project#:	149831	Analysis:	EPA 8260C
Field ID:	BS-BERNARD-02-051916	Dil'n Fac:	0.9452
Lab ID:	277038-002	Batch#:	235335
Matrix:	Soil	Sampled:	05/19/16
Units:	ug/Kg	Received:	05/20/16
Basis:	dry	Analyzed:	05/22/16

Analyte	Result	LOQ	DL
1,3,5-Trimethylbenzene	0.52 U	5.2	0.33
2-Chlorotoluene	0.52 U	5.2	0.40
4-Chlorotoluene	0.52 U	5.2	0.48
tert-Butylbenzene	0.52 U	5.2	0.40
1,2,4-Trimethylbenzene	0.52 U	5.2	0.29
sec-Butylbenzene	0.52 U	5.2	0.26
para-Isopropyl Toluene	0.52 U	5.2	0.36
1,3-Dichlorobenzene	0.52 U	5.2	0.44
1,4-Dichlorobenzene	0.52 U	5.2	0.41
n-Butylbenzene	0.52 U	5.2	0.38
1,2-Dichlorobenzene	0.52 U	5.2	0.29
1,2-Dibromo-3-Chloropropane	2.1 U	5.2	1.1
1,2,4-Trichlorobenzene	0.52 U	5.2	0.50
Hexachlorobutadiene	1.0 U	5.2	0.69
Naphthalene	2.1 U	5.2	1.1
1,2,3-Trichlorobenzene	0.52 U	5.2	0.35

Surrogate	%REC	Limits
Dibromofluoromethane	117	78-119
1,2-Dichloroethane-d4	122	71-136
Toluene-d8	100	85-116
Bromofluorobenzene	103	79-119

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 5035
Project#:	149831	Analysis:	EPA 8260C
Field ID:	BS-BERNARD-03-051916	Diln Fac:	0.8091
Lab ID:	277038-003	Batch#:	235335
Matrix:	Soil	Sampled:	05/19/16
Units:	ug/Kg	Received:	05/20/16
Basis:	dry	Analyzed:	05/22/16

Moisture: 8%

Analyte	Result	LOQ	DL
Freon 12	0.88 U	8.8	0.41
Chloromethane	1.8 U	8.8	0.44
Vinyl Chloride	0.44 U	8.8	0.41
Bromomethane	1.8 U	8.8	0.93
Chloroethane	1.8 U	8.8	0.66
Trichlorofluoromethane	0.44 U	4.4	0.23
Acetone	3.5 U	18	2.9
Freon 113	0.44 U	4.4	0.40
1,1-Dichloroethene	0.88 U	4.4	0.39
Methylene Chloride	0.44 U	18	0.40
Carbon Disulfide	0.88 U	4.4	0.42
MTBE	0.44 U	4.4	0.14
trans-1,2-Dichloroethene	0.88 U	4.4	0.55
Vinyl Acetate	1.8 U	44	0.65
1,1-Dichloroethane	0.44 U	4.4	0.33
2-Butanone	3.5 U	8.8	1.3
cis-1,2-Dichloroethene	0.44 U	4.4	0.26
2,2-Dichloropropane	0.88 U	4.4	0.32
Chloroform	0.44 U	4.4	0.27
Bromochloromethane	0.88 U	4.4	0.47
1,1,1-Trichloroethane	0.44 U	4.4	0.35
1,1-Dichloropropene	0.44 U	4.4	0.22
Carbon Tetrachloride	0.44 U	4.4	0.43
1,2-Dichloroethane	0.44 U	4.4	0.30
Benzene	0.44 U	4.4	0.38
Trichloroethene	0.44 U	4.4	0.37
1,2-Dichloropropane	0.44 U	4.4	0.20
Bromodichloromethane	0.44 U	4.4	0.21
Dibromomethane	0.88 U	4.4	0.57
4-Methyl-2-Pentanone	0.88 U	8.8	0.42
cis-1,3-Dichloropropene	0.44 U	4.4	0.25
Toluene	0.44 U	4.4	0.28
trans-1,3-Dichloropropene	0.44 U	4.4	0.21
1,1,2-Trichloroethane	0.88 U	4.4	0.33
2-Hexanone	1.8 U	8.8	0.98
1,3-Dichloropropane	0.44 U	4.4	0.19
Tetrachloroethene	0.44 U	4.4	0.21
Dibromochloromethane	0.44 U	4.4	0.25
1,2-Dibromoethane	0.44 U	4.4	0.19
Chlorobenzene	0.44 U	4.4	0.35
1,1,1,2-Tetrachloroethane	0.44 U	4.4	0.24
Ethylbenzene	0.44 U	4.4	0.33
m,p-Xylenes	0.88 U	4.4	0.80
o-Xylene	0.44 U	4.4	0.24
Styrene	0.44 U	4.4	0.25
Bromoform	0.88 U	4.4	0.41
Isopropylbenzene	0.44 U	4.4	0.26
1,1,2,2-Tetrachloroethane	0.44 U	4.4	0.38
1,2,3-Trichloropropane	0.88 U	4.4	0.22
Propylbenzene	0.44 U	4.4	0.27
Bromobenzene	0.44 U	4.4	0.38

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 5035
Project#:	149831	Analysis:	EPA 8260C
Field ID:	BS-BERNARD-03-051916	Dil'n Fac:	0.8091
Lab ID:	277038-003	Batch#:	235335
Matrix:	Soil	Sampled:	05/19/16
Units:	ug/Kg	Received:	05/20/16
Basis:	dry	Analyzed:	05/22/16

Analyte	Result	LOQ	DL
1,3,5-Trimethylbenzene	0.44 U	4.4	0.28
2-Chlorotoluene	0.44 U	4.4	0.34
4-Chlorotoluene	0.44 U	4.4	0.41
tert-Butylbenzene	0.44 U	4.4	0.34
1,2,4-Trimethylbenzene	0.44 U	4.4	0.25
sec-Butylbenzene	0.44 U	4.4	0.22
para-Isopropyl Toluene	0.44 U	4.4	0.31
1,3-Dichlorobenzene	0.44 U	4.4	0.37
1,4-Dichlorobenzene	0.44 U	4.4	0.35
n-Butylbenzene	0.44 U	4.4	0.32
1,2-Dichlorobenzene	0.44 U	4.4	0.25
1,2-Dibromo-3-Chloropropane	1.8 U	4.4	0.90
1,2,4-Trichlorobenzene	0.44 U	4.4	0.42
Hexachlorobutadiene	0.88 U	4.4	0.58
Naphthalene	1.8 U	4.4	0.93
1,2,3-Trichlorobenzene	0.44 U	4.4	0.29

Surrogate	%REC	Limits
Dibromofluoromethane	118	78-119
1,2-Dichloroethane-d4	117	71-136
Toluene-d8	103	85-116
Bromofluorobenzene	108	79-119

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 5035
Project#:	149831	Analysis:	EPA 8260C
Field ID:	BS-BERNARD-04-051916	Diln Fac:	0.8117
Lab ID:	277038-004	Batch#:	235335
Matrix:	Soil	Sampled:	05/19/16
Units:	ug/Kg	Received:	05/20/16
Basis:	dry	Analyzed:	05/22/16

Moisture: 9%

Analyte	Result	LOQ	DL
Freon 12	0.89 U	8.9	0.41
Chloromethane	1.8 U	8.9	0.45
Vinyl Chloride	0.45 U	8.9	0.42
Bromomethane	1.8 U	8.9	0.95
Chloroethane	1.8 U	8.9	0.67
Trichlorofluoromethane	0.45 U	4.5	0.23
Acetone	3.6 U	18	2.9
Freon 113	0.45 U	4.5	0.40
1,1-Dichloroethene	0.89 U	4.5	0.39
Methylene Chloride	0.45 U	18	0.40
Carbon Disulfide	0.89 U	4.5	0.42
MTBE	0.45 U	4.5	0.14
trans-1,2-Dichloroethene	0.89 U	4.5	0.55
Vinyl Acetate	1.8 U	45	0.66
1,1-Dichloroethane	0.45 U	4.5	0.33
2-Butanone	3.6 U	8.9	1.3
cis-1,2-Dichloroethene	0.45 U	4.5	0.27
2,2-Dichloropropane	0.89 U	4.5	0.32
Chloroform	0.45 U	4.5	0.27
Bromochloromethane	0.89 U	4.5	0.48
1,1,1-Trichloroethane	0.45 U	4.5	0.36
1,1-Dichloropropene	0.45 U	4.5	0.23
Carbon Tetrachloride	0.45 U	4.5	0.43
1,2-Dichloroethane	0.45 U	4.5	0.31
Benzene	0.45 U	4.5	0.39
Trichloroethene	0.45 U	4.5	0.37
1,2-Dichloropropane	0.45 U	4.5	0.21
Bromodichloromethane	0.45 U	4.5	0.22
Dibromomethane	0.89 U	4.5	0.58
4-Methyl-2-Pentanone	0.89 U	8.9	0.43
cis-1,3-Dichloropropene	0.45 U	4.5	0.25
Toluene	0.45 U	4.5	0.28
trans-1,3-Dichloropropene	0.45 U	4.5	0.21
1,1,2-Trichloroethane	0.89 U	4.5	0.33
2-Hexanone	1.8 U	8.9	0.99
1,3-Dichloropropane	0.45 U	4.5	0.20
Tetrachloroethene	0.45 U	4.5	0.21
Dibromochloromethane	0.45 U	4.5	0.25
1,2-Dibromoethane	0.45 U	4.5	0.19
Chlorobenzene	0.45 U	4.5	0.35
1,1,1,2-Tetrachloroethane	0.45 U	4.5	0.24
Ethylbenzene	0.45 U	4.5	0.34
m,p-Xylenes	0.89 U	4.5	0.81
o-Xylene	0.45 U	4.5	0.24
Styrene	0.45 U	4.5	0.26
Bromoform	0.89 U	4.5	0.42
Isopropylbenzene	0.45 U	4.5	0.26
1,1,2,2-Tetrachloroethane	0.45 U	4.5	0.38
1,2,3-Trichloropropane	0.89 U	4.5	0.22
Propylbenzene	0.45 U	4.5	0.28
Bromobenzene	0.45 U	4.5	0.38

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 5035
Project#:	149831	Analysis:	EPA 8260C
Field ID:	BS-BERNARD-04-051916	Dil'n Fac:	0.8117
Lab ID:	277038-004	Batch#:	235335
Matrix:	Soil	Sampled:	05/19/16
Units:	ug/Kg	Received:	05/20/16
Basis:	dry	Analyzed:	05/22/16

Analyte	Result	LOQ	DL
1,3,5-Trimethylbenzene	0.45 U	4.5	0.29
2-Chlorotoluene	0.45 U	4.5	0.34
4-Chlorotoluene	0.45 U	4.5	0.41
tert-Butylbenzene	0.45 U	4.5	0.34
1,2,4-Trimethylbenzene	0.45 U	4.5	0.25
sec-Butylbenzene	0.45 U	4.5	0.23
para-Isopropyl Toluene	0.45 U	4.5	0.31
1,3-Dichlorobenzene	0.45 U	4.5	0.38
1,4-Dichlorobenzene	0.45 U	4.5	0.35
n-Butylbenzene	0.45 U	4.5	0.33
1,2-Dichlorobenzene	0.45 U	4.5	0.25
1,2-Dibromo-3-Chloropropane	1.8 U	4.5	0.91
1,2,4-Trichlorobenzene	0.45 U	4.5	0.43
Hexachlorobutadiene	0.89 U	4.5	0.59
Naphthalene	1.8 U	4.5	0.95
1,2,3-Trichlorobenzene	0.45 U	4.5	0.30

Surrogate	%REC	Limits
Dibromofluoromethane	118	78-119
1,2-Dichloroethane-d4	119	71-136
Toluene-d8	100	85-116
Bromofluorobenzene	100	79-119

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 5035
Project#:	149831	Analysis:	EPA 8260C
Field ID:	BS-BERNARD-05-051916	Diln Fac:	0.8591
Lab ID:	277038-005	Batch#:	235335
Matrix:	Soil	Sampled:	05/19/16
Units:	ug/Kg	Received:	05/20/16
Basis:	dry	Analyzed:	05/22/16

Moisture: 9%

Analyte	Result	LOQ	DL
Freon 12	0.94 U	9.4	0.44
Chloromethane	1.9 U	9.4	0.48
Vinyl Chloride	0.47 U	9.4	0.44
Bromomethane	1.9 U	9.4	1.0
Chloroethane	1.9 U	9.4	0.71
Trichlorofluoromethane	0.47 U	4.7	0.24
Acetone	3.8 U	19	3.1
Freon 113	0.47 U	4.7	0.43
1,1-Dichloroethene	0.94 U	4.7	0.42
Methylene Chloride	0.47 U	19	0.42
Carbon Disulfide	0.94 U	4.7	0.45
MTBE	0.47 U	4.7	0.15
trans-1,2-Dichloroethene	0.94 U	4.7	0.59
Vinyl Acetate	1.9 U	47	0.70
1,1-Dichloroethane	0.47 U	4.7	0.35
2-Butanone	3.8 U	9.4	1.3
cis-1,2-Dichloroethene	0.47 U	4.7	0.28
2,2-Dichloropropane	0.94 U	4.7	0.34
Chloroform	0.47 U	4.7	0.29
Bromochloromethane	0.94 U	4.7	0.50
1,1,1-Trichloroethane	0.47 U	4.7	0.38
1,1-Dichloropropene	0.47 U	4.7	0.24
Carbon Tetrachloride	0.47 U	4.7	0.46
1,2-Dichloroethane	0.47 U	4.7	0.32
Benzene	0.47 U	4.7	0.41
Trichloroethene	0.47 U	4.7	0.40
1,2-Dichloropropane	0.47 U	4.7	0.22
Bromodichloromethane	0.47 U	4.7	0.23
Dibromomethane	0.94 U	4.7	0.61
4-Methyl-2-Pentanone	0.94 U	9.4	0.46
cis-1,3-Dichloropropene	0.47 U	4.7	0.27
Toluene	0.47 U	4.7	0.30
trans-1,3-Dichloropropene	0.47 U	4.7	0.23
1,1,2-Trichloroethane	0.94 U	4.7	0.35
2-Hexanone	1.9 U	9.4	1.1
1,3-Dichloropropane	0.47 U	4.7	0.21
Tetrachloroethene	0.47 U	4.7	0.23
Dibromochloromethane	0.47 U	4.7	0.26
1,2-Dibromoethane	0.47 U	4.7	0.20
Chlorobenzene	0.47 U	4.7	0.37
1,1,1,2-Tetrachloroethane	0.47 U	4.7	0.26
Ethylbenzene	0.47 U	4.7	0.36
m,p-Xylenes	0.94 U	4.7	0.86
o-Xylene	0.47 U	4.7	0.26
Styrene	0.47 U	4.7	0.27
Bromoform	0.94 U	4.7	0.44
Isopropylbenzene	0.47 U	4.7	0.28
1,1,2,2-Tetrachloroethane	0.47 U	4.7	0.41
1,2,3-Trichloropropane	0.94 U	4.7	0.24
Propylbenzene	0.47 U	4.7	0.29
Bromobenzene	0.47 U	4.7	0.40

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 5035
Project#:	149831	Analysis:	EPA 8260C
Field ID:	BS-BERNARD-05-051916	Dil'n Fac:	0.8591
Lab ID:	277038-005	Batch#:	235335
Matrix:	Soil	Sampled:	05/19/16
Units:	ug/Kg	Received:	05/20/16
Basis:	dry	Analyzed:	05/22/16

Analyte	Result	LOQ	DL
1,3,5-Trimethylbenzene	0.47 U	4.7	0.30
2-Chlorotoluene	0.47 U	4.7	0.37
4-Chlorotoluene	0.47 U	4.7	0.44
tert-Butylbenzene	0.47 U	4.7	0.36
1,2,4-Trimethylbenzene	0.47 U	4.7	0.27
sec-Butylbenzene	0.47 U	4.7	0.24
para-Isopropyl Toluene	0.47 U	4.7	0.33
1,3-Dichlorobenzene	0.47 U	4.7	0.40
1,4-Dichlorobenzene	0.47 U	4.7	0.37
n-Butylbenzene	0.47 U	4.7	0.35
1,2-Dichlorobenzene	0.47 U	4.7	0.27
1,2-Dibromo-3-Chloropropane	1.9 U	4.7	0.97
1,2,4-Trichlorobenzene	0.47 U	4.7	0.45
Hexachlorobutadiene	0.94 U	4.7	0.62
Naphthalene	1.9 U	4.7	1.0
1,2,3-Trichlorobenzene	0.47 U	4.7	0.31

Surrogate	%REC	Limits
Dibromofluoromethane	117	78-119
1,2-Dichloroethane-d4	116	71-136
Toluene-d8	103	85-116
Bromofluorobenzene	106	79-119

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 5035
Project#:	149831	Analysis:	EPA 8260C
Field ID:	BS-BERNARD-06-051916	Dil'n Fac:	0.7205
Lab ID:	277038-006	Batch#:	235335
Matrix:	Soil	Sampled:	05/19/16
Units:	ug/Kg	Received:	05/20/16
Basis:	dry	Analyzed:	05/22/16

Moisture: 11%

Analyte	Result	LOQ	DL
Freon 12	0.81 U	8.1	0.37
Chloromethane	1.6 U	8.1	0.41
Vinyl Chloride	0.40 U	8.1	0.38
Bromomethane	1.6 U	8.1	0.86
Chloroethane	1.6 U	8.1	0.61
Trichlorofluoromethane	0.40 U	4.0	0.21
Acetone	3.2 U	16	2.7
Freon 113	0.40 U	4.0	0.36
1,1-Dichloroethene	0.81 U	4.0	0.36
Methylene Chloride	0.40 U	16	0.36
Carbon Disulfide	0.81 U	4.0	0.39
MTBE	0.40 U	4.0	0.12
trans-1,2-Dichloroethene	0.81 U	4.0	0.50
Vinyl Acetate	1.6 U	40	0.60
1,1-Dichloroethane	0.40 U	4.0	0.30
2-Butanone	3.2 U	8.1	1.2
cis-1,2-Dichloroethene	0.40 U	4.0	0.24
2,2-Dichloropropane	0.81 U	4.0	0.29
Chloroform	0.40 U	4.0	0.25
Bromochloromethane	0.81 U	4.0	0.43
1,1,1-Trichloroethane	0.40 U	4.0	0.32
1,1-Dichloropropene	0.40 U	4.0	0.20
Carbon Tetrachloride	0.40 U	4.0	0.39
1,2-Dichloroethane	0.40 U	4.0	0.28
Benzene	0.40 U	4.0	0.35
Trichloroethene	0.40 U	4.0	0.34
1,2-Dichloropropane	0.40 U	4.0	0.19
Bromodichloromethane	0.40 U	4.0	0.20
Dibromomethane	0.81 U	4.0	0.53
4-Methyl-2-Pentanone	0.81 U	8.1	0.39
cis-1,3-Dichloropropene	0.40 U	4.0	0.23
Toluene	0.40 U	4.0	0.26
trans-1,3-Dichloropropene	0.40 U	4.0	0.19
1,1,2-Trichloroethane	0.81 U	4.0	0.30
2-Hexanone	1.6 U	8.1	0.90
1,3-Dichloropropane	0.40 U	4.0	0.18
Tetrachloroethene	0.40 U	4.0	0.20
Dibromochloromethane	0.40 U	4.0	0.23
1,2-Dibromoethane	0.40 U	4.0	0.17
Chlorobenzene	0.40 U	4.0	0.32
1,1,1,2-Tetrachloroethane	0.40 U	4.0	0.22
Ethylbenzene	0.40 U	4.0	0.31
m,p-Xylenes	0.81 U	4.0	0.73
o-Xylene	0.40 U	4.0	0.22
Styrene	0.40 U	4.0	0.23
Bromoform	0.81 U	4.0	0.38
Isopropylbenzene	0.40 U	4.0	0.24
1,1,2,2-Tetrachloroethane	0.40 U	4.0	0.35
1,2,3-Trichloropropane	0.81 U	4.0	0.20
Propylbenzene	0.40 U	4.0	0.25

*= Value outside of QC limits; see narrative
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 5035
Project#:	149831	Analysis:	EPA 8260C
Field ID:	BS-BERNARD-06-051916	Dln Fac:	0.7205
Lab ID:	277038-006	Batch#:	235335
Matrix:	Soil	Sampled:	05/19/16
Units:	ug/Kg	Received:	05/20/16
Basis:	dry	Analyzed:	05/22/16

Analyte	Result	LOQ	DL
Bromobenzene	0.40 U	4.0	0.35
1,3,5-Trimethylbenzene	0.40 U	4.0	0.26
2-Chlorotoluene	0.40 U	4.0	0.31
4-Chlorotoluene	0.40 U	4.0	0.37
tert-Butylbenzene	0.40 U	4.0	0.31
1,2,4-Trimethylbenzene	0.40 U	4.0	0.23
sec-Butylbenzene	0.40 U	4.0	0.20
para-Isopropyl Toluene	0.40 U	4.0	0.28
1,3-Dichlorobenzene	0.40 U	4.0	0.35
1,4-Dichlorobenzene	0.40 U	4.0	0.32
n-Butylbenzene	0.40 U	4.0	0.30
1,2-Dichlorobenzene	0.40 U	4.0	0.23
1,2-Dibromo-3-Chloropropane	1.6 U	4.0	0.83
1,2,4-Trichlorobenzene	0.40 U	4.0	0.39
Hexachlorobutadiene	0.81 U	4.0	0.53
Naphthalene	1.6 U	4.0	0.86
1,2,3-Trichlorobenzene	0.40 U	4.0	0.27

Surrogate	%REC	Limits
Dibromofluoromethane	123 *	78-119
1,2-Dichloroethane-d4	125	71-136
Toluene-d8	100	85-116
Bromofluorobenzene	100	79-119

*= Value outside of QC limits; see narrative
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 5035
Project#:	149831	Analysis:	EPA 8260C
Field ID:	BS-BERNARD-07-051916	Diln Fac:	0.8143
Lab ID:	277038-007	Batch#:	235335
Matrix:	Soil	Sampled:	05/19/16
Units:	ug/Kg	Received:	05/20/16
Basis:	dry	Analyzed:	05/22/16

Moisture: 9%

Analyte	Result	LOQ	DL
Freon 12	0.89 U	8.9	0.41
Chloromethane	1.8 U	8.9	0.45
Vinyl Chloride	0.45 U	8.9	0.42
Bromomethane	1.8 U	8.9	0.95
Chloroethane	1.8 U	8.9	0.67
Trichlorofluoromethane	0.45 U	4.5	0.23
Acetone	3.6 U	18	3.0
Freon 113	0.45 U	4.5	0.40
1,1-Dichloroethene	0.89 U	4.5	0.39
Methylene Chloride	0.45 U	18	0.40
Carbon Disulfide	0.89 U	4.5	0.43
MTBE	0.45 U	4.5	0.14
trans-1,2-Dichloroethene	0.89 U	4.5	0.56
Vinyl Acetate	1.8 U	45	0.66
1,1-Dichloroethane	0.45 U	4.5	0.33
2-Butanone	3.6 U	8.9	1.3
cis-1,2-Dichloroethene	0.45 U	4.5	0.27
2,2-Dichloropropane	0.89 U	4.5	0.32
Chloroform	0.45 U	4.5	0.28
Bromochloromethane	0.89 U	4.5	0.48
1,1,1-Trichloroethane	0.45 U	4.5	0.36
1,1-Dichloropropene	0.45 U	4.5	0.23
Carbon Tetrachloride	0.45 U	4.5	0.43
1,2-Dichloroethane	0.45 U	4.5	0.31
Benzene	0.45 U	4.5	0.39
Trichloroethene	0.45 U	4.5	0.38
1,2-Dichloropropane	0.45 U	4.5	0.21
Bromodichloromethane	0.45 U	4.5	0.22
Dibromomethane	0.89 U	4.5	0.58
4-Methyl-2-Pentanone	0.89 U	8.9	0.43
cis-1,3-Dichloropropene	0.45 U	4.5	0.25
Toluene	0.45 U	4.5	0.28
trans-1,3-Dichloropropene	0.45 U	4.5	0.21
1,1,2-Trichloroethane	0.89 U	4.5	0.33
2-Hexanone	1.8 U	8.9	1.0
1,3-Dichloropropane	0.45 U	4.5	0.20
Tetrachloroethene	0.45 U	4.5	0.22
Dibromochloromethane	0.45 U	4.5	0.25
1,2-Dibromoethane	0.45 U	4.5	0.19
Chlorobenzene	0.45 U	4.5	0.35
1,1,1,2-Tetrachloroethane	0.45 U	4.5	0.24
Ethylbenzene	0.45 U	4.5	0.34
m,p-Xylenes	0.89 U	4.5	0.81
o-Xylene	0.45 U	4.5	0.24
Styrene	0.45 U	4.5	0.26
Bromoform	0.89 U	4.5	0.42
Isopropylbenzene	0.45 U	4.5	0.26
1,1,2,2-Tetrachloroethane	0.45 U	4.5	0.38
1,2,3-Trichloropropane	0.89 U	4.5	0.22
Propylbenzene	0.45 U	4.5	0.28

*= Value outside of QC limits; see narrative
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 5035
Project#:	149831	Analysis:	EPA 8260C
Field ID:	BS-BERNARD-07-051916	Dln Fac:	0.8143
Lab ID:	277038-007	Batch#:	235335
Matrix:	Soil	Sampled:	05/19/16
Units:	ug/Kg	Received:	05/20/16
Basis:	dry	Analyzed:	05/22/16

Analyte	Result	LOQ	DL
Bromobenzene	0.45 U	4.5	0.38
1,3,5-Trimethylbenzene	0.45 U	4.5	0.29
2-Chlorotoluene	0.45 U	4.5	0.35
4-Chlorotoluene	0.45 U	4.5	0.41
tert-Butylbenzene	0.45 U	4.5	0.34
1,2,4-Trimethylbenzene	0.45 U	4.5	0.25
sec-Butylbenzene	0.45 U	4.5	0.23
para-Isopropyl Toluene	0.45 U	4.5	0.31
1,3-Dichlorobenzene	0.45 U	4.5	0.38
1,4-Dichlorobenzene	0.45 U	4.5	0.35
n-Butylbenzene	0.45 U	4.5	0.33
1,2-Dichlorobenzene	0.45 U	4.5	0.25
1,2-Dibromo-3-Chloropropane	1.8 U	4.5	0.92
1,2,4-Trichlorobenzene	0.45 U	4.5	0.43
Hexachlorobutadiene	0.89 U	4.5	0.59
Naphthalene	1.8 U	4.5	0.95
1,2,3-Trichlorobenzene	0.45 U	4.5	0.30

Surrogate	%REC	Limits
Dibromofluoromethane	120 *	78-119
1,2-Dichloroethane-d4	119	71-136
Toluene-d8	101	85-116
Bromofluorobenzene	98	79-119

*= Value outside of QC limits; see narrative
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 5035
Project#:	149831	Analysis:	EPA 8260C
Field ID:	BS-BERNARD-08-051916	Diln Fac:	0.9785
Lab ID:	277038-008	Batch#:	235335
Matrix:	Soil	Sampled:	05/19/16
Units:	ug/Kg	Received:	05/20/16
Basis:	dry	Analyzed:	05/22/16

Moisture: 12%

Analyte	Result	LOQ	DL
Freon 12	1.1 U	11	0.52
Chloromethane	2.2 U	11	0.56
Vinyl Chloride	0.56 U	11	0.52
Bromomethane	2.2 U	11	1.2
Chloroethane	2.2 U	11	0.83
Trichlorofluoromethane	0.56 U	5.6	0.29
Acetone	4.4 U	22	3.7
Freon 113	0.56 U	5.6	0.50
1,1-Dichloroethene	1.1 U	5.6	0.49
Methylene Chloride	0.56 U	22	0.50
Carbon Disulfide	1.1 U	5.6	0.53
MTBE	0.56 U	5.6	0.17
trans-1,2-Dichloroethene	1.1 U	5.6	0.69
Vinyl Acetate	2.2 U	56	0.82
1,1-Dichloroethane	0.56 U	5.6	0.41
2-Butanone	4.4 U	11	1.6
cis-1,2-Dichloroethene	0.56 U	5.6	0.33
2,2-Dichloropropane	1.1 U	5.6	0.40
Chloroform	0.56 U	5.6	0.34
Bromochloromethane	1.1 U	5.6	0.59
1,1,1-Trichloroethane	0.56 U	5.6	0.45
1,1-Dichloropropene	0.56 U	5.6	0.28
Carbon Tetrachloride	0.56 U	5.6	0.54
1,2-Dichloroethane	0.56 U	5.6	0.38
Benzene	0.56 U	5.6	0.49
Trichloroethene	0.56 U	5.6	0.47
1,2-Dichloropropane	0.56 U	5.6	0.26
Bromodichloromethane	0.56 U	5.6	0.27
Dibromomethane	1.1 U	5.6	0.72
4-Methyl-2-Pentanone	1.1 U	11	0.54
cis-1,3-Dichloropropene	0.56 U	5.6	0.32
Toluene	0.56 U	5.6	0.35
trans-1,3-Dichloropropene	0.56 U	5.6	0.27
1,1,2-Trichloroethane	1.1 U	5.6	0.41
2-Hexanone	2.2 U	11	1.2
1,3-Dichloropropane	0.56 U	5.6	0.24
Tetrachloroethene	0.56 U	5.6	0.27
Dibromochloromethane	0.56 U	5.6	0.31
1,2-Dibromoethane	0.56 U	5.6	0.24
Chlorobenzene	0.56 U	5.6	0.44
1,1,1,2-Tetrachloroethane	0.56 U	5.6	0.30
Ethylbenzene	0.56 U	5.6	0.42
m,p-Xylenes	1.1 U	5.6	1.0
o-Xylene	0.56 U	5.6	0.30
Styrene	0.56 U	5.6	0.32
Bromoform	1.1 U	5.6	0.52
Isopropylbenzene	0.56 U	5.6	0.33
1,1,2,2-Tetrachloroethane	0.56 U	5.6	0.48
1,2,3-Trichloropropane	1.1 U	5.6	0.28
Propylbenzene	0.56 U	5.6	0.35

*= Value outside of QC limits; see narrative
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 5035
Project#:	149831	Analysis:	EPA 8260C
Field ID:	BS-BERNARD-08-051916	Dil'n Fac:	0.9785
Lab ID:	277038-008	Batch#:	235335
Matrix:	Soil	Sampled:	05/19/16
Units:	ug/Kg	Received:	05/20/16
Basis:	dry	Analyzed:	05/22/16

Analyte	Result	LOQ	DL
Bromobenzene	0.56 U	5.6	0.48
1,3,5-Trimethylbenzene	0.56 U	5.6	0.36
2-Chlorotoluene	0.56 U	5.6	0.43
4-Chlorotoluene	0.56 U	5.6	0.51
tert-Butylbenzene	0.56 U	5.6	0.43
1,2,4-Trimethylbenzene	0.56 U	5.6	0.31
sec-Butylbenzene	0.56 U	5.6	0.28
para-Isopropyl Toluene	0.56 U	5.6	0.39
1,3-Dichlorobenzene	0.56 U	5.6	0.47
1,4-Dichlorobenzene	0.56 U	5.6	0.44
n-Butylbenzene	0.56 U	5.6	0.41
1,2-Dichlorobenzene	0.56 U	5.6	0.31
1,2-Dibromo-3-Chloropropane	2.2 U	5.6	1.1
1,2,4-Trichlorobenzene	0.56 U	5.6	0.53
Hexachlorobutadiene	1.1 U	5.6	0.73
Naphthalene	2.2 U	5.6	1.2
1,2,3-Trichlorobenzene	0.56 U	5.6	0.37

Surrogate	%REC	Limits
Dibromofluoromethane	123 *	78-119
1,2-Dichloroethane-d4	116	71-136
Toluene-d8	102	85-116
Bromofluorobenzene	99	79-119

*= Value outside of QC limits; see narrative
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 5035
Project#:	149831	Analysis:	EPA 8260C
Field ID:	BS-BERNARD-09-051916	Diln Fac:	0.9091
Lab ID:	277038-009	Batch#:	235404
Matrix:	Soil	Sampled:	05/19/16
Units:	ug/Kg	Received:	05/20/16
Basis:	dry	Analyzed:	05/24/16

Moisture: 8%

Analyte	Result	LOQ	DL
Freon 12	0.99 U	9.9	0.46
Chloromethane	2.0 U	9.9	0.50
Vinyl Chloride	0.49 U	9.9	0.46
Bromomethane	2.0 U	9.9	1.1
Chloroethane	2.0 U	9.9	0.74
Trichlorofluoromethane	0.49 U	4.9	0.25
Acetone	4.0 U	20	3.3
Freon 113	0.49 U	4.9	0.45
1,1-Dichloroethene	0.99 U	4.9	0.43
Methylene Chloride	0.49 U	20	0.44
Carbon Disulfide	0.99 U	4.9	0.47
MTBE	0.49 U	4.9	0.15
trans-1,2-Dichloroethene	0.99 U	4.9	0.61
Vinyl Acetate	2.0 U	49	0.73
1,1-Dichloroethane	0.49 U	4.9	0.37
2-Butanone	4.0 U	9.9	1.4
cis-1,2-Dichloroethene	0.49 U	4.9	0.30
2,2-Dichloropropane	0.99 U	4.9	0.36
Chloroform	0.49 U	4.9	0.30
Bromochloromethane	0.99 U	4.9	0.53
1,1,1-Trichloroethane	0.49 U	4.9	0.40
1,1-Dichloropropene	0.49 U	4.9	0.25
Carbon Tetrachloride	0.49 U	4.9	0.48
1,2-Dichloroethane	0.49 U	4.9	0.34
Benzene	0.49 U	4.9	0.43
Trichloroethene	0.49 U	4.9	0.41
1,2-Dichloropropane	0.49 U	4.9	0.23
Bromodichloromethane	0.49 U	4.9	0.24
Dibromomethane	0.99 U	4.9	0.64
4-Methyl-2-Pentanone	0.99 U	9.9	0.48
cis-1,3-Dichloropropene	0.49 U	4.9	0.28
Toluene	0.49 U	4.9	0.31
trans-1,3-Dichloropropene	0.49 U	4.9	0.24
1,1,2-Trichloroethane	0.99 U	4.9	0.37
2-Hexanone	2.0 U	9.9	1.1
1,3-Dichloropropane	0.49 U	4.9	0.22
Tetrachloroethene	0.49 U	4.9	0.24
Dibromochloromethane	0.49 U	4.9	0.28
1,2-Dibromoethane	0.49 U	4.9	0.21
Chlorobenzene	0.49 U	4.9	0.39
1,1,1,2-Tetrachloroethane	0.49 U	4.9	0.27
Ethylbenzene	0.49 U	4.9	0.37
m,p-Xylenes	0.99 U	4.9	0.90
o-Xylene	0.49 U	4.9	0.27
Styrene	0.49 U	4.9	0.29
Bromoform	0.99 U	4.9	0.46
Isopropylbenzene	0.49 U	4.9	0.29
1,1,2,2-Tetrachloroethane	0.49 U	4.9	0.42
1,2,3-Trichloropropane	0.99 U	4.9	0.25
Propylbenzene	0.49 U	4.9	0.31

*= Value outside of QC limits; see narrative
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 5035
Project#:	149831	Analysis:	EPA 8260C
Field ID:	BS-BERNARD-09-051916	Diln Fac:	0.9091
Lab ID:	277038-009	Batch#:	235404
Matrix:	Soil	Sampled:	05/19/16
Units:	ug/Kg	Received:	05/20/16
Basis:	dry	Analyzed:	05/24/16

Analyte	Result	LOQ	DL
Bromobenzene	0.49 U	4.9	0.42
1,3,5-Trimethylbenzene	0.49 U	4.9	0.32
2-Chlorotoluene	0.49 U	4.9	0.38
4-Chlorotoluene	0.49 U	4.9	0.46
tert-Butylbenzene	0.49 U	4.9	0.38
1,2,4-Trimethylbenzene	0.49 U	4.9	0.28
sec-Butylbenzene	0.49 U	4.9	0.25
para-Isopropyl Toluene	0.49 U	4.9	0.35
1,3-Dichlorobenzene	0.49 U	4.9	0.42
1,4-Dichlorobenzene	0.49 U	4.9	0.39
n-Butylbenzene	0.49 U	4.9	0.36
1,2-Dichlorobenzene	0.49 U	4.9	0.28
1,2-Dibromo-3-Chloropropane	2.0 U	4.9	1.0
1,2,4-Trichlorobenzene	0.49 U	4.9	0.47
Hexachlorobutadiene	0.99 U	4.9	0.65
Naphthalene	2.0 U	4.9	1.0
1,2,3-Trichlorobenzene	0.49 U	4.9	0.33

Surrogate	%REC	Limits
Dibromofluoromethane	126 *	78-119
1,2-Dichloroethane-d4	124	71-136
Toluene-d8	101	85-116
Bromofluorobenzene	102	79-119

*= Value outside of QC limits; see narrative
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 5035
Project#:	149831	Analysis:	EPA 8260C
Field ID:	BS-BERNARD-10-051916	Diln Fac:	0.9416
Lab ID:	277038-010	Batch#:	235335
Matrix:	Soil	Sampled:	05/19/16
Units:	ug/Kg	Received:	05/20/16
Basis:	dry	Analyzed:	05/22/16

Moisture: 9%

Analyte	Result	LOQ	DL
Freon 12	1.0 U	10	0.48
Chloromethane	2.1 U	10	0.52
Vinyl Chloride	0.52 U	10	0.48
Bromomethane	2.1 U	10	1.1
Chloroethane	2.1 U	10	0.78
Trichlorofluoromethane	0.52 U	5.2	0.27
Acetone	4.1 U	21	3.4
Freon 113	0.52 U	5.2	0.47
1,1-Dichloroethene	1.0 U	5.2	0.46
Methylene Chloride	0.52 U	21	0.46
Carbon Disulfide	1.0 U	5.2	0.49
MTBE	0.52 U	5.2	0.16
trans-1,2-Dichloroethene	1.0 U	5.2	0.64
Vinyl Acetate	2.1 U	52	0.77
1,1-Dichloroethane	0.52 U	5.2	0.38
2-Butanone	4.1 U	10	1.5
cis-1,2-Dichloroethene	0.52 U	5.2	0.31
2,2-Dichloropropane	1.0 U	5.2	0.37
Chloroform	0.52 U	5.2	0.32
Bromochloromethane	1.0 U	5.2	0.55
1,1,1-Trichloroethane	0.52 U	5.2	0.42
1,1-Dichloropropene	0.52 U	5.2	0.26
Carbon Tetrachloride	0.52 U	5.2	0.50
1,2-Dichloroethane	0.52 U	5.2	0.36
Benzene	0.52 U	5.2	0.45
Trichloroethene	0.52 U	5.2	0.43
1,2-Dichloropropane	0.52 U	5.2	0.24
Bromodichloromethane	0.52 U	5.2	0.25
Dibromomethane	1.0 U	5.2	0.67
4-Methyl-2-Pentanone	1.0 U	10	0.50
cis-1,3-Dichloropropene	0.52 U	5.2	0.29
Toluene	0.52 U	5.2	0.33
trans-1,3-Dichloropropene	0.52 U	5.2	0.25
1,1,2-Trichloroethane	1.0 U	5.2	0.38
2-Hexanone	2.1 U	10	1.2
1,3-Dichloropropane	0.52 U	5.2	0.23
Tetrachloroethene	0.52 U	5.2	0.25
Dibromochloromethane	0.52 U	5.2	0.29
1,2-Dibromoethane	0.52 U	5.2	0.22
Chlorobenzene	0.52 U	5.2	0.41
1,1,1,2-Tetrachloroethane	0.52 U	5.2	0.28
Ethylbenzene	0.52 U	5.2	0.39
m,p-Xylenes	1.0 U	5.2	0.94
o-Xylene	0.52 U	5.2	0.28
Styrene	0.52 U	5.2	0.30
Bromoform	1.0 U	5.2	0.49
Isopropylbenzene	0.52 U	5.2	0.31
1,1,2,2-Tetrachloroethane	0.52 U	5.2	0.44
1,2,3-Trichloropropane	1.0 U	5.2	0.26
Propylbenzene	0.52 U	5.2	0.32

*= Value outside of QC limits; see narrative
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 5035
Project#:	149831	Analysis:	EPA 8260C
Field ID:	BS-BERNARD-10-051916	Dil'n Fac:	0.9416
Lab ID:	277038-010	Batch#:	235335
Matrix:	Soil	Sampled:	05/19/16
Units:	ug/Kg	Received:	05/20/16
Basis:	dry	Analyzed:	05/22/16

Analyte	Result	LOQ	DL
Bromobenzene	0.52 U	5.2	0.44
1,3,5-Trimethylbenzene	0.52 U	5.2	0.33
2-Chlorotoluene	0.52 U	5.2	0.40
4-Chlorotoluene	0.52 U	5.2	0.48
tert-Butylbenzene	0.52 U	5.2	0.40
1,2,4-Trimethylbenzene	0.52 U	5.2	0.29
sec-Butylbenzene	0.52 U	5.2	0.26
para-Isopropyl Toluene	0.52 U	5.2	0.36
1,3-Dichlorobenzene	0.52 U	5.2	0.44
1,4-Dichlorobenzene	0.52 U	5.2	0.41
n-Butylbenzene	0.52 U	5.2	0.38
1,2-Dichlorobenzene	0.52 U	5.2	0.29
1,2-Dibromo-3-Chloropropane	2.1 U	5.2	1.1
1,2,4-Trichlorobenzene	0.52 U	5.2	0.49
Hexachlorobutadiene	1.0 U	5.2	0.68
Naphthalene	2.1 U	5.2	1.1
1,2,3-Trichlorobenzene	0.52 U	5.2	0.34

Surrogate	%REC	Limits
Dibromofluoromethane	127 *	78-119
1,2-Dichloroethane-d4	128	71-136
Toluene-d8	99	85-116
Bromofluorobenzene	100	79-119

*= Value outside of QC limits; see narrative
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 5035
Project#:	149831	Analysis:	EPA 8260C
Field ID:	BS-BERNARD-11-051916	Diln Fac:	0.8993
Lab ID:	277038-011	Batch#:	235335
Matrix:	Soil	Sampled:	05/19/16
Units:	ug/Kg	Received:	05/20/16
Basis:	dry	Analyzed:	05/23/16

Moisture: 7%

Analyte	Result	LOQ	DL
Freon 12	0.97 U	9.7	0.45
Chloromethane	1.9 U	9.7	0.49
Vinyl Chloride	0.48 U	9.7	0.45
Bromomethane	1.9 U	9.7	1.0
Chloroethane	1.9 U	9.7	0.73
Trichlorofluoromethane	0.48 U	4.8	0.25
Acetone	3.9 U	19	3.2
Freon 113	0.48 U	4.8	0.44
1,1-Dichloroethene	0.97 U	4.8	0.43
Methylene Chloride	0.48 U	19	0.43
Carbon Disulfide	0.97 U	4.8	0.46
MTBE	0.48 U	4.8	0.15
trans-1,2-Dichloroethene	0.97 U	4.8	0.60
Vinyl Acetate	1.9 U	48	0.72
1,1-Dichloroethane	0.48 U	4.8	0.36
2-Butanone	3.9 U	9.7	1.4
cis-1,2-Dichloroethene	0.48 U	4.8	0.29
2,2-Dichloropropane	0.97 U	4.8	0.35
Chloroform	0.48 U	4.8	0.30
Bromochloromethane	0.97 U	4.8	0.52
1,1,1-Trichloroethane	0.48 U	4.8	0.39
1,1-Dichloropropene	0.48 U	4.8	0.24
Carbon Tetrachloride	0.48 U	4.8	0.47
1,2-Dichloroethane	0.48 U	4.8	0.33
Benzene	0.48 U	4.8	0.42
Trichloroethene	0.48 U	4.8	0.41
1,2-Dichloropropane	0.48 U	4.8	0.22
Bromodichloromethane	0.48 U	4.8	0.24
Dibromomethane	0.97 U	4.8	0.63
4-Methyl-2-Pentanone	0.97 U	9.7	0.47
cis-1,3-Dichloropropene	0.48 U	4.8	0.28
Toluene	0.48 U	4.8	0.31
trans-1,3-Dichloropropene	0.48 U	4.8	0.23
1,1,2-Trichloroethane	0.97 U	4.8	0.36
2-Hexanone	1.9 U	9.7	1.1
1,3-Dichloropropane	0.48 U	4.8	0.21
Tetrachloroethene	0.48 U	4.8	0.23
Dibromochloromethane	0.48 U	4.8	0.27
1,2-Dibromoethane	0.48 U	4.8	0.21
Chlorobenzene	0.48 U	4.8	0.38
1,1,1,2-Tetrachloroethane	0.48 U	4.8	0.26
Ethylbenzene	0.48 U	4.8	0.37
m,p-Xylenes	0.97 U	4.8	0.88
o-Xylene	0.48 U	4.8	0.26
Styrene	0.48 U	4.8	0.28
Bromoform	0.97 U	4.8	0.45
Isopropylbenzene	0.48 U	4.8	0.29
1,1,2,2-Tetrachloroethane	0.48 U	4.8	0.42
1,2,3-Trichloropropane	0.97 U	4.8	0.24
Propylbenzene	0.48 U	4.8	0.30

*= Value outside of QC limits; see narrative
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 5035
Project#:	149831	Analysis:	EPA 8260C
Field ID:	BS-BERNARD-11-051916	Dln Fac:	0.8993
Lab ID:	277038-011	Batch#:	235335
Matrix:	Soil	Sampled:	05/19/16
Units:	ug/Kg	Received:	05/20/16
Basis:	dry	Analyzed:	05/23/16

Analyte	Result	LOQ	DL
Bromobenzene	0.48 U	4.8	0.41
1,3,5-Trimethylbenzene	0.48 U	4.8	0.31
2-Chlorotoluene	0.48 U	4.8	0.37
4-Chlorotoluene	0.48 U	4.8	0.45
tert-Butylbenzene	0.48 U	4.8	0.37
1,2,4-Trimethylbenzene	0.48 U	4.8	0.27
sec-Butylbenzene	0.48 U	4.8	0.24
para-Isopropyl Toluene	0.48 U	4.8	0.34
1,3-Dichlorobenzene	0.48 U	4.8	0.41
1,4-Dichlorobenzene	0.48 U	4.8	0.38
n-Butylbenzene	0.48 U	4.8	0.35
1,2-Dichlorobenzene	0.48 U	4.8	0.27
1,2-Dibromo-3-Chloropropane	1.9 U	4.8	0.99
1,2,4-Trichlorobenzene	0.48 U	4.8	0.46
Hexachlorobutadiene	0.97 U	4.8	0.64
Naphthalene	1.9 U	4.8	1.0
1,2,3-Trichlorobenzene	0.48 U	4.8	0.32

Surrogate	%REC	Limits
Dibromofluoromethane	121 *	78-119
1,2-Dichloroethane-d4	123	71-136
Toluene-d8	103	85-116
Bromofluorobenzene	105	79-119

*= Value outside of QC limits; see narrative
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 5035
Project#:	149831	Analysis:	EPA 8260C
Field ID:	BS-BERNARD-12-051916	Diln Fac:	0.9398
Lab ID:	277038-012	Batch#:	235335
Matrix:	Soil	Sampled:	05/19/16
Units:	ug/Kg	Received:	05/20/16
Basis:	dry	Analyzed:	05/23/16

Moisture: 6%

Analyte	Result	LOQ	DL
Freon 12	1.0 U	10	0.46
Chloromethane	2.0 U	10	0.50
Vinyl Chloride	0.50 U	10	0.47
Bromomethane	2.0 U	10	1.1
Chloroethane	2.0 U	10	0.75
Trichlorofluoromethane	0.50 U	5.0	0.26
Acetone	4.0 U	20	3.3
Freon 113	0.50 U	5.0	0.45
1,1-Dichloroethene	1.0 U	5.0	0.44
Methylene Chloride	0.50 U	20	0.45
Carbon Disulfide	1.0 U	5.0	0.48
MTBE	0.50 U	5.0	0.15
trans-1,2-Dichloroethene	1.0 U	5.0	0.62
Vinyl Acetate	2.0 U	50	0.74
1,1-Dichloroethane	0.50 U	5.0	0.37
2-Butanone	4.0 U	10	1.4
cis-1,2-Dichloroethene	0.50 U	5.0	0.30
2,2-Dichloropropane	1.0 U	5.0	0.36
Chloroform	0.50 U	5.0	0.31
Bromochloromethane	1.0 U	5.0	0.53
1,1,1-Trichloroethane	0.50 U	5.0	0.40
1,1-Dichloropropene	0.50 U	5.0	0.25
Carbon Tetrachloride	0.50 U	5.0	0.49
1,2-Dichloroethane	0.50 U	5.0	0.34
Benzene	0.50 U	5.0	0.44
Trichloroethene	0.50 U	5.0	0.42
1,2-Dichloropropane	0.50 U	5.0	0.23
Bromodichloromethane	0.50 U	5.0	0.24
Dibromomethane	1.0 U	5.0	0.65
4-Methyl-2-Pentanone	1.0 U	10	0.48
cis-1,3-Dichloropropene	0.50 U	5.0	0.28
Toluene	0.50 U	5.0	0.32
trans-1,3-Dichloropropene	0.50 U	5.0	0.24
1,1,2-Trichloroethane	1.0 U	5.0	0.37
2-Hexanone	2.0 U	10	1.1
1,3-Dichloropropane	0.50 U	5.0	0.22
Tetrachloroethene	0.50 U	5.0	0.24
Dibromochloromethane	0.50 U	5.0	0.28
1,2-Dibromoethane	0.50 U	5.0	0.21
Chlorobenzene	0.50 U	5.0	0.40
1,1,1,2-Tetrachloroethane	0.50 U	5.0	0.27
Ethylbenzene	0.50 U	5.0	0.38
m,p-Xylenes	1.0 U	5.0	0.91
o-Xylene	0.50 U	5.0	0.27
Styrene	0.50 U	5.0	0.29
Bromoform	1.0 U	5.0	0.47
Isopropylbenzene	0.50 U	5.0	0.30
1,1,2,2-Tetrachloroethane	0.50 U	5.0	0.43
1,2,3-Trichloropropane	1.0 U	5.0	0.25
Propylbenzene	0.50 U	5.0	0.31

*= Value outside of QC limits; see narrative
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 5035
Project#:	149831	Analysis:	EPA 8260C
Field ID:	BS-BERNARD-12-051916	Dil'n Fac:	0.9398
Lab ID:	277038-012	Batch#:	235335
Matrix:	Soil	Sampled:	05/19/16
Units:	ug/Kg	Received:	05/20/16
Basis:	dry	Analyzed:	05/23/16

Analyte	Result	LOQ	DL
Bromobenzene	0.50 U	5.0	0.43
1,3,5-Trimethylbenzene	0.50 U	5.0	0.32
2-Chlorotoluene	0.50 U	5.0	0.39
4-Chlorotoluene	0.50 U	5.0	0.46
tert-Butylbenzene	0.50 U	5.0	0.38
1,2,4-Trimethylbenzene	0.50 U	5.0	0.28
sec-Butylbenzene	0.50 U	5.0	0.25
para-Isopropyl Toluene	0.50 U	5.0	0.35
1,3-Dichlorobenzene	0.50 U	5.0	0.43
1,4-Dichlorobenzene	0.50 U	5.0	0.40
n-Butylbenzene	0.50 U	5.0	0.37
1,2-Dichlorobenzene	0.50 U	5.0	0.28
1,2-Dibromo-3-Chloropropane	2.0 U	5.0	1.0
1,2,4-Trichlorobenzene	0.50 U	5.0	0.48
Hexachlorobutadiene	1.0 U	5.0	0.66
Naphthalene	2.0 U	5.0	1.1
1,2,3-Trichlorobenzene	0.50 U	5.0	0.33

Surrogate	%REC	Limits
Dibromofluoromethane	120 *	78-119
1,2-Dichloroethane-d4	121	71-136
Toluene-d8	104	85-116
Bromofluorobenzene	111	79-119

*= Value outside of QC limits; see narrative
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 5035
Project#:	149831	Analysis:	EPA 8260C
Matrix:	Soil	Batch#:	235335
Units:	ug/Kg	Analyzed:	05/22/16
Diln Fac:	1.000		

Type: BS Lab ID: QC836566

Analyte	Spiked	Result	%REC	Limits
Freon 12	20.00	19.98	100	29-149
Chloromethane	20.00	21.41	107	50-136
Vinyl Chloride	20.00	21.67	108	56-135
Bromomethane	20.00	19.94 b	100	53-143
Chloroethane	20.00	20.84	104	59-139
Trichlorofluoromethane	20.00	19.92	100	62-140
Acetone	25.00	31.49 b	126	36-164
Freon 113	25.00	25.84	103	66-136
1,1-Dichloroethene	25.00	24.52	98	70-131
Methylene Chloride	25.00	25.25	101	70-128
Carbon Disulfide	25.00	24.41	98	63-132
MTBE	25.00	25.34	101	73-125
trans-1,2-Dichloroethene	25.00	23.77	95	74-125
Vinyl Acetate	25.00	26.19	105	50-151
1,1-Dichloroethane	25.00	24.81	99	76-125
2-Butanone	25.00	28.94	116	51-148
cis-1,2-Dichloroethene	25.00	26.45	106	77-123
2,2-Dichloropropane	25.00	25.66	103	67-133
Chloroform	25.00	25.54	102	78-123
Bromochloromethane	25.00	25.53	102	78-125
1,1,1-Trichloroethane	25.00	26.15	105	43-130
1,1-Dichloropropene	25.00	25.61	102	76-125
Carbon Tetrachloride	25.00	27.03	108	70-135
1,2-Dichloroethane	25.00	26.56	106	73-128
Benzene	25.00	26.54	106	77-121
Trichloroethene	25.00	26.26	105	77-123
1,2-Dichloropropane	25.00	26.16	105	76-123
Bromodichloromethane	25.00	26.02	104	75-127
Dibromomethane	25.00	26.85	107	78-125
4-Methyl-2-Pentanone	25.00	25.35	101	65-135
cis-1,3-Dichloropropene	25.00	27.51	110	74-126
Toluene	25.00	27.65	111	77-121
trans-1,3-Dichloropropene	25.00	28.21	113	71-130
1,1,2-Trichloroethane	25.00	28.34	113	78-121
2-Hexanone	25.00	31.07 b	124	53-145
1,3-Dichloropropane	25.00	29.34	117	77-121
Tetrachloroethene	25.00	28.01	112	73-128
Dibromochloromethane	25.00	27.93	112	74-126
1,2-Dibromoethane	25.00	28.49	114	78-122
Chlorobenzene	25.00	27.85	111	79-120
1,1,1,2-Tetrachloroethane	25.00	27.81	111	78-125
Ethylbenzene	25.00	27.74	111	75-122
m,p-Xylenes	50.00	54.44	109	77-124
o-Xylene	25.00	27.44	110	77-123
Styrene	25.00	27.56	110	76-124
Bromoform	25.00	27.44	110	67-132
Isopropylbenzene	25.00	28.19	113	68-134
1,1,2,2-Tetrachloroethane	25.00	30.09	120	70-124
1,2,3-Trichloropropane	25.00	29.68	119	73-125
Propylbenzene	25.00	28.43	114	73-125
Bromobenzene	25.00	28.93	116	78-121

b= See narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 5035
Project#:	149831	Analysis:	EPA 8260C
Matrix:	Soil	Batch#:	235335
Units:	ug/Kg	Analyzed:	05/22/16
Diln Fac:	1.000		

Analyte	Spiked	Result	%REC	Limits
1,3,5-Trimethylbenzene	25.00	28.12	112	73-124
2-Chlorotoluene	25.00	28.81	115	75-122
4-Chlorotoluene	25.00	29.31	117	72-124
tert-Butylbenzene	25.00	28.42	114	73-125
1,2,4-Trimethylbenzene	25.00	27.73	111	75-123
sec-Butylbenzene	25.00	28.33	113	73-126
para-Isopropyl Toluene	25.00	29.00	116	73-127
1,3-Dichlorobenzene	25.00	29.70	119	77-121
1,4-Dichlorobenzene	25.00	29.91	120	75-120
n-Butylbenzene	25.00	29.83	119	70-128
1,2-Dichlorobenzene	25.00	29.25	117	78-121
1,2-Dibromo-3-Chloropropane	25.00	28.17	113	61-132
1,2,4-Trichlorobenzene	25.00	31.24 b	125	67-129
Hexachlorobutadiene	25.00	30.34 b	121	61-135
Naphthalene	25.00	29.69	119	62-129
1,2,3-Trichlorobenzene	25.00	31.23 b	125	66-130

Surrogate	%REC	Limits
Dibromofluoromethane	100	78-119
1,2-Dichloroethane-d4	102	71-136
Toluene-d8	105	85-116
Bromofluorobenzene	101	79-119

b= See narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 5035
Project#:	149831	Analysis:	EPA 8260C
Matrix:	Soil	Batch#:	235335
Units:	ug/Kg	Analyzed:	05/22/16
Diln Fac:	1.000		

Type: BSD Lab ID: QC836567

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Freon 12	20.00	19.20	96	29-149	4	20
Chloromethane	20.00	20.53	103	50-136	4	20
Vinyl Chloride	20.00	20.26	101	56-135	7	20
Bromomethane	20.00	19.29 b	96	53-143	3	20
Chloroethane	20.00	20.29	101	59-139	3	20
Trichlorofluoromethane	20.00	19.21	96	62-140	4	20
Acetone	25.00	28.82 b	115	36-164	9	20
Freon 113	25.00	23.95	96	66-136	8	20
1,1-Dichloroethene	25.00	23.36	93	70-131	5	20
Methylene Chloride	25.00	24.55	98	70-128	3	20
Carbon Disulfide	25.00	23.20	93	63-132	5	20
MTBE	25.00	24.58	98	73-125	3	20
trans-1,2-Dichloroethene	25.00	22.91	92	74-125	4	20
Vinyl Acetate	25.00	26.10	104	50-151	0	20
1,1-Dichloroethane	25.00	24.14	97	76-125	3	20
2-Butanone	25.00	26.56	106	51-148	9	20
cis-1,2-Dichloroethene	25.00	25.26	101	77-123	5	20
2,2-Dichloropropane	25.00	24.93	100	67-133	3	20
Chloroform	25.00	25.06	100	78-123	2	20
Bromochloromethane	25.00	24.77	99	78-125	3	20
1,1,1-Trichloroethane	25.00	25.70	103	43-130	2	20
1,1-Dichloropropene	25.00	23.97	96	76-125	7	20
Carbon Tetrachloride	25.00	26.04	104	70-135	4	20
1,2-Dichloroethane	25.00	25.57	102	73-128	4	20
Benzene	25.00	25.56	102	77-121	4	20
Trichloroethene	25.00	25.31	101	77-123	4	20
1,2-Dichloropropane	25.00	25.15	101	76-123	4	20
Bromodichloromethane	25.00	25.06	100	75-127	4	20
Dibromomethane	25.00	25.75	103	78-125	4	20
4-Methyl-2-Pentanone	25.00	24.57	98	65-135	3	20
cis-1,3-Dichloropropene	25.00	26.98	108	74-126	2	20
Toluene	25.00	25.96	104	77-121	6	20
trans-1,3-Dichloropropene	25.00	25.67	103	71-130	9	20
1,1,2-Trichloroethane	25.00	27.60	110	78-121	3	20
2-Hexanone	25.00	28.35 b	113	53-145	9	20
1,3-Dichloropropane	25.00	27.35	109	77-121	7	20
Tetrachloroethene	25.00	26.29	105	73-128	6	20
Dibromochloromethane	25.00	26.45	106	74-126	5	20
1,2-Dibromoethane	25.00	26.17	105	78-122	8	20
Chlorobenzene	25.00	26.04	104	79-120	7	20
1,1,1,2-Tetrachloroethane	25.00	26.42	106	78-125	5	20
Ethylbenzene	25.00	25.93	104	75-122	7	20
m,p-Xylenes	50.00	51.03	102	77-124	6	20
o-Xylene	25.00	25.31	101	77-123	8	20
Styrene	25.00	25.83	103	76-124	6	20
Bromoform	25.00	25.80	103	67-132	6	20
Isopropylbenzene	25.00	26.44	106	68-134	6	20
1,1,2,2-Tetrachloroethane	25.00	28.13	113	70-124	7	20
1,2,3-Trichloropropane	25.00	27.53	110	73-125	7	20
Propylbenzene	25.00	26.43	106	73-125	7	20
Bromobenzene	25.00	27.29	109	78-121	6	20

b= See narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 5035
Project#:	149831	Analysis:	EPA 8260C
Matrix:	Soil	Batch#:	235335
Units:	ug/Kg	Analyzed:	05/22/16
Diln Fac:	1.000		

Analyte	Spiked	Result		%REC	Limits	RPD	Lim
1,3,5-Trimethylbenzene	25.00	26.45		106	73-124	6	20
2-Chlorotoluene	25.00	26.81		107	75-122	7	20
4-Chlorotoluene	25.00	27.42		110	72-124	7	20
tert-Butylbenzene	25.00	26.33		105	73-125	8	20
1,2,4-Trimethylbenzene	25.00	25.90		104	75-123	7	20
sec-Butylbenzene	25.00	26.21		105	73-126	8	20
para-Isopropyl Toluene	25.00	26.94		108	73-127	7	20
1,3-Dichlorobenzene	25.00	27.57		110	77-121	7	20
1,4-Dichlorobenzene	25.00	28.03		112	75-120	6	20
n-Butylbenzene	25.00	27.61		110	70-128	8	20
1,2-Dichlorobenzene	25.00	27.05		108	78-121	8	20
1,2-Dibromo-3-Chloropropane	25.00	25.58		102	61-132	10	20
1,2,4-Trichlorobenzene	25.00	28.40	b	114	67-129	10	20
Hexachlorobutadiene	25.00	27.82	b	111	61-135	9	20
Naphthalene	25.00	27.38		110	62-129	8	20
1,2,3-Trichlorobenzene	25.00	28.38	b	114	66-130	10	20

Surrogate	%REC	Limits
Dibromofluoromethane	102	78-119
1,2-Dichloroethane-d4	102	71-136
Toluene-d8	105	85-116
Bromofluorobenzene	101	79-119

b= See narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 5035
Project#:	149831	Analysis:	EPA 8260C
Type:	BLANK	Dil'n Fac:	1.000
Lab ID:	QC836568	Batch#:	235335
Matrix:	Soil	Analyzed:	05/22/16
Units:	ug/Kg		

Analyte	Result	LOQ	DL
Freon 12	1.0 U	10	0.46
Chloromethane	2.0 U	10	0.50
Vinyl Chloride	0.50 U	10	0.47
Bromomethane	2.0 U b	10	1.1
Chloroethane	2.0 U	10	0.75
Trichlorofluoromethane	0.50 U	5.0	0.26
Acetone	3.3 J b	20	3.3
Freon 113	0.50 U	5.0	0.45
1,1-Dichloroethene	1.0 U	5.0	0.44
Methylene Chloride	0.50 U	20	0.45
Carbon Disulfide	1.0 U	5.0	0.48
MTBE	0.50 U	5.0	0.15
trans-1,2-Dichloroethene	1.0 U	5.0	0.62
Vinyl Acetate	2.0 U	50	0.74
1,1-Dichloroethane	0.50 U	5.0	0.37
2-Butanone	4.0 U	10	1.4
cis-1,2-Dichloroethene	0.50 U	5.0	0.30
2,2-Dichloropropane	1.0 U	5.0	0.36
Chloroform	0.50 U	5.0	0.31
Bromochloromethane	1.0 U	5.0	0.53
1,1,1-Trichloroethane	0.50 U	5.0	0.40
1,1-Dichloropropene	0.50 U	5.0	0.25
Carbon Tetrachloride	0.50 U	5.0	0.49
1,2-Dichloroethane	0.50 U	5.0	0.34
Benzene	0.50 U	5.0	0.44
Trichloroethene	0.50 U	5.0	0.42
1,2-Dichloropropane	0.50 U	5.0	0.23
Bromodichloromethane	0.50 U	5.0	0.24
Dibromomethane	1.0 U	5.0	0.65
4-Methyl-2-Pentanone	1.0 U	10	0.48
cis-1,3-Dichloropropene	0.50 U	5.0	0.28
Toluene	0.50 U	5.0	0.32
trans-1,3-Dichloropropene	0.50 U	5.0	0.24
1,1,2-Trichloroethane	1.0 U	5.0	0.37
2-Hexanone	2.0 U	10	1.1
1,3-Dichloropropane	0.50 U	5.0	0.22
Tetrachloroethene	0.50 U	5.0	0.24
Dibromochloromethane	0.50 U	5.0	0.28
1,2-Dibromoethane	0.50 U	5.0	0.21
Chlorobenzene	0.50 U	5.0	0.40
1,1,1,2-Tetrachloroethane	0.50 U	5.0	0.27
Ethylbenzene	0.50 U	5.0	0.38
m,p-Xylenes	1.0 U	5.0	0.91
o-Xylene	0.50 U	5.0	0.27
Styrene	0.50 U	5.0	0.29
Bromoform	1.0 U	5.0	0.47
Isopropylbenzene	0.50 U	5.0	0.30
1,1,2,2-Tetrachloroethane	0.50 U	5.0	0.43
1,2,3-Trichloropropane	1.0 U	5.0	0.25
Propylbenzene	0.50 U	5.0	0.31
Bromobenzene	0.50 U	5.0	0.43

J= Estimated value
U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 5035
Project#:	149831	Analysis:	EPA 8260C
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC836568	Batch#:	235335
Matrix:	Soil	Analyzed:	05/22/16
Units:	ug/Kg		

Analyte	Result	LOQ	DL
1,3,5-Trimethylbenzene	0.50 U	5.0	0.32
2-Chlorotoluene	0.50 U	5.0	0.39
4-Chlorotoluene	0.50 U	5.0	0.46
tert-Butylbenzene	0.50 U	5.0	0.38
1,2,4-Trimethylbenzene	0.50 U	5.0	0.28
sec-Butylbenzene	0.50 U	5.0	0.25
para-Isopropyl Toluene	0.50 U	5.0	0.35
1,3-Dichlorobenzene	0.50 U	5.0	0.43
1,4-Dichlorobenzene	0.50 U	5.0	0.40
n-Butylbenzene	0.50 U	5.0	0.37
1,2-Dichlorobenzene	0.50 U	5.0	0.28
1,2-Dibromo-3-Chloropropane	2.0 U	5.0	1.0
1,2,4-Trichlorobenzene	0.50 U	5.0	0.48
Hexachlorobutadiene	1.0 U	5.0	0.66
Naphthalene	2.0 U	5.0	1.1
1,2,3-Trichlorobenzene	0.50 U	5.0	0.33

Surrogate	%REC	Limits
Dibromofluoromethane	107	78-119
1,2-Dichloroethane-d4	108	71-136
Toluene-d8	103	85-116
Bromofluorobenzene	100	79-119

J= Estimated value
U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 5035
Project#:	149831	Analysis:	EPA 8260C
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC836841	Batch#:	235404
Matrix:	Soil	Analyzed:	05/24/16
Units:	ug/Kg		

Analyte	Spiked	Result	%REC	Limits
Freon 12	20.00	21.84 b	109	29-149
Chloromethane	20.00	22.05 b	110	50-136
Vinyl Chloride	20.00	22.76	114	56-135
Bromomethane	20.00	21.39 b	107	53-143
Chloroethane	20.00	21.95	110	59-139
Trichlorofluoromethane	20.00	22.53	113	62-140
Acetone	25.00	26.78	107	36-164
Freon 113	25.00	25.18	101	66-136
1,1-Dichloroethene	25.00	24.28	97	70-131
Methylene Chloride	25.00	24.99	100	70-128
Carbon Disulfide	25.00	24.16	97	63-132
MTBE	25.00	24.60	98	73-125
trans-1,2-Dichloroethene	25.00	23.50	94	74-125
Vinyl Acetate	25.00	23.97	96	50-151
1,1-Dichloroethane	25.00	25.35	101	76-125
2-Butanone	25.00	27.03	108	51-148
cis-1,2-Dichloroethene	25.00	25.93	104	77-123
2,2-Dichloropropane	25.00	26.99	108	67-133
Chloroform	25.00	25.82	103	78-123
Bromochloromethane	25.00	25.34	101	78-125
1,1,1-Trichloroethane	25.00	27.15	109	43-130
1,1-Dichloropropene	25.00	24.78	99	76-125
Carbon Tetrachloride	25.00	26.80	107	70-135
1,2-Dichloroethane	25.00	26.50	106	73-128
Benzene	25.00	26.05	104	77-121
Trichloroethene	25.00	25.37	101	77-123
1,2-Dichloropropane	25.00	24.98	100	76-123
Bromodichloromethane	25.00	25.35	101	75-127
Dibromomethane	25.00	25.77	103	78-125
4-Methyl-2-Pentanone	25.00	24.94	100	65-135
cis-1,3-Dichloropropene	25.00	26.76	107	74-126
Toluene	25.00	26.15	105	77-121
trans-1,3-Dichloropropene	25.00	26.19	105	71-130
1,1,2-Trichloroethane	25.00	26.50	106	78-121
2-Hexanone	25.00	27.20	109	53-145
1,3-Dichloropropane	25.00	27.51	110	77-121
Tetrachloroethene	25.00	25.32	101	73-128
Dibromochloromethane	25.00	25.37	101	74-126

b= See narrative

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 5035
Project#:	149831	Analysis:	EPA 8260C
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC836841	Batch#:	235404
Matrix:	Soil	Analyzed:	05/24/16
Units:	ug/Kg		

Analyte	Spiked	Result	%REC	Limits
1,2-Dibromoethane	25.00	25.97	104	78-122
Chlorobenzene	25.00	25.91	104	79-120
1,1,1,2-Tetrachloroethane	25.00	26.27	105	78-125
Ethylbenzene	25.00	26.00	104	75-122
m,p-Xylenes	50.00	51.34	103	77-124
o-Xylene	25.00	24.80	99	77-123
Styrene	25.00	25.70	103	76-124
Bromoform	25.00	24.60	98	67-132
Isopropylbenzene	25.00	25.57	102	68-134
1,1,2,2-Tetrachloroethane	25.00	27.75	111	70-124
1,2,3-Trichloropropane	25.00	27.59	110	73-125
Propylbenzene	25.00	25.96	104	73-125
Bromobenzene	25.00	26.06	104	78-121
1,3,5-Trimethylbenzene	25.00	25.74	103	73-124
2-Chlorotoluene	25.00	26.58	106	75-122
4-Chlorotoluene	25.00	27.03	108	72-124
tert-Butylbenzene	25.00	25.54	102	73-125
1,2,4-Trimethylbenzene	25.00	25.55	102	75-123
sec-Butylbenzene	25.00	25.90	104	73-126
para-Isopropyl Toluene	25.00	26.65	107	73-127
1,3-Dichlorobenzene	25.00	27.10	108	77-121
1,4-Dichlorobenzene	25.00	27.46	110	75-120
n-Butylbenzene	25.00	27.87	111	70-128
1,2-Dichlorobenzene	25.00	26.42	106	78-121
1,2-Dibromo-3-Chloropropane	25.00	25.56	102	61-132
1,2,4-Trichlorobenzene	25.00	28.11	112	67-129
Hexachlorobutadiene	25.00	27.18	109	61-135
Naphthalene	25.00	26.53	106	62-129
1,2,3-Trichlorobenzene	25.00	28.06	112	66-130

Surrogate	%REC	Limits
Dibromofluoromethane	107	78-119
1,2-Dichloroethane-d4	108	71-136
Toluene-d8	104	85-116
Bromofluorobenzene	101	79-119

b= See narrative

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 5035
Project#:	149831	Analysis:	EPA 8260C
Type:	BLANK	Dil'n Fac:	1.000
Lab ID:	QC836843	Batch#:	235404
Matrix:	Soil	Analyzed:	05/24/16
Units:	ug/Kg		

Analyte	Result	LOQ	DL
Freon 12	1.0 U	10	0.46
Chloromethane	2.0 U	10	0.50
Vinyl Chloride	0.50 U	10	0.47
Bromomethane	2.0 U b	10	1.1
Chloroethane	2.0 U	10	0.75
Trichlorofluoromethane	0.50 U	5.0	0.26
Acetone	4.0 U	20	3.3
Freon 113	0.50 U	5.0	0.45
1,1-Dichloroethene	1.0 U	5.0	0.44
Methylene Chloride	0.50 U	20	0.45
Carbon Disulfide	1.0 U	5.0	0.48
MTBE	0.50 U	5.0	0.15
trans-1,2-Dichloroethene	1.0 U	5.0	0.62
Vinyl Acetate	2.0 U	50	0.74
1,1-Dichloroethane	0.50 U	5.0	0.37
2-Butanone	4.0 U	10	1.4
cis-1,2-Dichloroethene	0.50 U	5.0	0.30
2,2-Dichloropropane	1.0 U	5.0	0.36
Chloroform	0.50 U	5.0	0.31
Bromochloromethane	1.0 U	5.0	0.53
1,1,1-Trichloroethane	0.50 U	5.0	0.40
1,1-Dichloropropene	0.50 U	5.0	0.25
Carbon Tetrachloride	0.50 U	5.0	0.49
1,2-Dichloroethane	0.50 U	5.0	0.34
Benzene	0.50 U	5.0	0.44
Trichloroethene	0.50 U	5.0	0.42
1,2-Dichloropropane	0.50 U	5.0	0.23
Bromodichloromethane	0.50 U	5.0	0.24
Dibromomethane	1.0 U	5.0	0.65
4-Methyl-2-Pentanone	1.0 U	10	0.48
cis-1,3-Dichloropropene	0.50 U	5.0	0.28
Toluene	0.50 U	5.0	0.32
trans-1,3-Dichloropropene	0.50 U	5.0	0.24
1,1,2-Trichloroethane	1.0 U	5.0	0.37
2-Hexanone	2.0 U	10	1.1
1,3-Dichloropropane	0.50 U	5.0	0.22
Tetrachloroethene	0.50 U	5.0	0.24
Dibromochloromethane	0.50 U	5.0	0.28
1,2-Dibromoethane	0.50 U	5.0	0.21
Chlorobenzene	0.50 U	5.0	0.40
1,1,1,2-Tetrachloroethane	0.50 U	5.0	0.27
Ethylbenzene	0.50 U	5.0	0.38
m,p-Xylenes	1.0 U	5.0	0.91
o-Xylene	0.50 U	5.0	0.27
Styrene	0.50 U	5.0	0.29
Bromoform	1.0 U	5.0	0.47
Isopropylbenzene	0.50 U	5.0	0.30
1,1,2,2-Tetrachloroethane	0.50 U	5.0	0.43
1,2,3-Trichloropropane	1.0 U	5.0	0.25
Propylbenzene	0.50 U	5.0	0.31
Bromobenzene	0.50 U	5.0	0.43
1,3,5-Trimethylbenzene	0.50 U	5.0	0.32

U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 5035
Project#:	149831	Analysis:	EPA 8260C
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC836843	Batch#:	235404
Matrix:	Soil	Analyzed:	05/24/16
Units:	ug/Kg		

Analyte	Result	LOQ	DL
2-Chlorotoluene	0.50 U	5.0	0.39
4-Chlorotoluene	0.50 U	5.0	0.46
tert-Butylbenzene	0.50 U	5.0	0.38
1,2,4-Trimethylbenzene	0.50 U	5.0	0.28
sec-Butylbenzene	0.50 U	5.0	0.25
para-Isopropyl Toluene	0.50 U	5.0	0.35
1,3-Dichlorobenzene	0.50 U	5.0	0.43
1,4-Dichlorobenzene	0.50 U	5.0	0.40
n-Butylbenzene	0.50 U	5.0	0.37
1,2-Dichlorobenzene	0.50 U	5.0	0.28
1,2-Dibromo-3-Chloropropane	2.0 U	5.0	1.0
1,2,4-Trichlorobenzene	0.50 U	5.0	0.48
Hexachlorobutadiene	1.0 U	5.0	0.66
Naphthalene	2.0 U	5.0	1.1
1,2,3-Trichlorobenzene	0.50 U	5.0	0.33

Surrogate	%REC	Limits
Dibromofluoromethane	116	78-119
1,2-Dichloroethane-d4	111	71-136
Toluene-d8	103	85-116
Bromofluorobenzene	100	79-119

U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 5030C
Project#:	149831	Analysis:	EPA 8260C
Field ID:	ZZZZZZZZZZ	Batch#:	235404
MSS Lab ID:	277111-001	Sampled:	05/23/16
Matrix:	Soil	Received:	05/24/16
Units:	ug/Kg	Analyzed:	05/24/16
Basis:	as received		

Type: MS
Lab ID: QC836930

Diln Fac: 0.9524

Analyte	MSS Result	Spiked	Result	%REC	Limits
Freon 12	<0.4514	38.10	43.64 b	115	29-149
Chloromethane	<0.4908	38.10	43.89 b	115	50-136
Vinyl Chloride	<0.4537	38.10	47.11	124	56-135
Bromomethane	<1.036	38.10	38.60 b	101	53-143
Chloroethane	<0.7309	38.10	44.27	116	59-139
Trichlorofluoromethane	<0.2499	38.10	46.06	121	62-140
Acetone	<3.216	47.62	89.74	188 *	36-164
Freon 113	<0.4393	47.62	54.46	114	66-136
1,1-Dichloroethene	<0.4289	47.62	52.43	110	70-131
Methylene Chloride	0.4606	47.62	56.10	117	70-128
Carbon Disulfide	<0.4637	47.62	52.79	111	63-132
MTBE	<0.1497	47.62	59.81	126 *	73-125
trans-1,2-Dichloroethene	<0.6060	47.62	51.74	109	74-125
Vinyl Acetate	<0.7217	47.62	26.09	55	50-151
1,1-Dichloroethane	<0.3603	47.62	56.45	119	76-125
2-Butanone	<1.387	47.62	76.52	161 *	51-148
cis-1,2-Dichloroethene	<0.2911	47.62	56.89	119	77-123
2,2-Dichloropropane	<0.3511	47.62	59.77	126	67-133
Chloroform	<0.2999	47.62	57.12	120	78-123
Bromochloromethane	<0.5199	47.62	56.35	118	78-125
1,1,1-Trichloroethane	<0.3911	47.62	59.59	125	43-130
1,1-Dichloropropene	<0.2459	47.62	52.18	110	76-125
Carbon Tetrachloride	<0.4729	47.62	55.03	116	70-135
1,2-Dichloroethane	<0.3348	47.62	54.73	115	73-128
Benzene	<0.4252	47.62	54.10	114	77-121
Trichloroethene	<0.4085	47.62	53.01	111	77-123
1,2-Dichloropropane	<0.2250	47.62	53.16	112	76-123
Bromodichloromethane	<0.2369	47.62	53.22	112	75-127
Dibromomethane	<0.6344	47.62	54.64	115	78-125
4-Methyl-2-Pentanone	<0.4707	47.62	63.47	133	65-135
cis-1,3-Dichloropropene	<0.2776	47.62	55.76	117	74-126
Toluene	<0.3089	47.62	50.32	106	77-121
trans-1,3-Dichloropropene	<0.2328	47.62	51.78	109	71-130
1,1,2-Trichloroethane	<0.3618	47.62	54.20	114	78-121
2-Hexanone	<1.085	47.62	64.72	136	53-145
1,3-Dichloropropane	<0.2135	47.62	56.20	118	77-121
Tetrachloroethene	<0.2348	47.62	47.56	100	73-128
Dibromochloromethane	<0.2728	47.62	51.61	108	74-126
1,2-Dibromoethane	<0.2071	47.62	54.11	114	78-122
Chlorobenzene	<0.3852	47.62	48.89	103	79-120
1,1,1,2-Tetrachloroethane	<0.2642	47.62	51.74	109	78-125
Ethylbenzene	<0.3696	47.62	49.79	105	75-122
m,p-Xylenes	<0.8831	95.24	95.92	101	77-124
o-Xylene	<0.2639	47.62	47.64	100	77-123
Styrene	<0.2826	47.62	48.68	102	76-124
Bromoform	<0.4582	47.62	51.24	108	67-132
Isopropylbenzene	<0.2880	47.62	46.64	98	68-134

*= Value outside of QC limits; see narrative
b= See narrative
RPD= Relative Percent Difference

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 5030C
Project#:	149831	Analysis:	EPA 8260C
Field ID:	ZZZZZZZZZZ	Batch#:	235404
MSS Lab ID:	277111-001	Sampled:	05/23/16
Matrix:	Soil	Received:	05/24/16
Units:	ug/Kg	Analyzed:	05/24/16
Basis:	as received		

Analyte	MSS Result	Spiked	Result	%REC	Limits
1,1,2,2-Tetrachloroethane	<0.4190	47.62	57.49	121	70-124
1,2,3-Trichloropropane	<0.2440	47.62	56.74	119	73-125
Propylbenzene	<0.3036	47.62	45.92	96	73-125
Bromobenzene	<0.4171	47.62	46.61	98	78-121
1,3,5-Trimethylbenzene	<0.3121	47.62	45.77	96	73-124
2-Chlorotoluene	<0.3768	47.62	46.59	98	75-122
4-Chlorotoluene	<0.4495	47.62	46.31	97	72-124
tert-Butylbenzene	<0.3738	47.62	45.74	96	73-125
1,2,4-Trimethylbenzene	<0.2741	47.62	45.08	95	75-123
sec-Butylbenzene	<0.2467	47.62	44.87	94	73-126
para-Isopropyl Toluene	<0.3414	47.62	44.65	94	73-127
1,3-Dichlorobenzene	<0.4155	47.62	44.74	94	77-121
1,4-Dichlorobenzene	<0.3857	47.62	45.30	95	75-120
n-Butylbenzene	<0.3566	47.62	44.28	93	70-128
1,2-Dichlorobenzene	<0.2739	47.62	44.38	93	78-121
1,2-Dibromo-3-Chloropropane	<0.9969	47.62	52.73	111	61-132
1,2,4-Trichlorobenzene	<0.4647	47.62	38.64	81	67-129
Hexachlorobutadiene	<0.6428	47.62	38.20	80	61-135
Naphthalene	<1.033	47.62	43.45	91	62-129
1,2,3-Trichlorobenzene	<0.3239	47.62	37.75	79	66-130

Surrogate	%REC	Limits
Dibromofluoromethane	116	78-119
1,2-Dichloroethane-d4	122	71-136
Toluene-d8	99	85-116
Bromofluorobenzene	100	79-119

*= Value outside of QC limits; see narrative
b= See narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 5030C
Project#:	149831	Analysis:	EPA 8260C
Field ID:	ZZZZZZZZZZ	Batch#:	235404
MSS Lab ID:	277111-001	Sampled:	05/23/16
Matrix:	Soil	Received:	05/24/16
Units:	ug/Kg	Analyzed:	05/24/16
Basis:	as received		

Type: MSD
Lab ID: QC836931

Diln Fac: 0.9747

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Freon 12	38.99	46.07 b	118	29-149	3	20
Chloromethane	38.99	45.03 b	115	50-136	0	20
Vinyl Chloride	38.99	49.21	126	56-135	2	20
Bromomethane	38.99	39.41 b	101	53-143	0	20
Chloroethane	38.99	45.63	117	59-139	1	20
Trichlorofluoromethane	38.99	48.29	124	62-140	2	20
Acetone	48.73	95.71	196 *	36-164	4	20
Freon 113	48.73	53.37	110	66-136	4	20
1,1-Dichloroethene	48.73	51.01	105	70-131	5	20
Methylene Chloride	48.73	53.50	109	70-128	7	20
Carbon Disulfide	48.73	50.25	103	63-132	7	20
MTBE	48.73	55.93	115	73-125	9	20
trans-1,2-Dichloroethene	48.73	49.04	101	74-125	8	20
Vinyl Acetate	48.73	13.83	28 *	50-151	63 *	20
1,1-Dichloroethane	48.73	53.46	110	76-125	8	20
2-Butanone	48.73	64.79	133	51-148	19	20
cis-1,2-Dichloroethene	48.73	55.22	113	77-123	5	20
2,2-Dichloropropane	48.73	56.50	116	67-133	8	20
Chloroform	48.73	54.17	111	78-123	8	20
Bromochloromethane	48.73	52.40	108	78-125	10	20
1,1,1-Trichloroethane	48.73	56.75	116	43-130	7	20
1,1-Dichloropropene	48.73	51.19	105	76-125	4	20
Carbon Tetrachloride	48.73	55.17	113	70-135	2	20
1,2-Dichloroethane	48.73	54.22	111	73-128	3	20
Benzene	48.73	53.35	109	77-121	4	20
Trichloroethene	48.73	52.46	108	77-123	3	20
1,2-Dichloropropane	48.73	52.23	107	76-123	4	20
Bromodichloromethane	48.73	51.92	107	75-127	5	20
Dibromomethane	48.73	52.83	108	78-125	6	20
4-Methyl-2-Pentanone	48.73	56.89	117	65-135	13	20
cis-1,3-Dichloropropene	48.73	54.73	112	74-126	4	20
Toluene	48.73	51.54	106	77-121	0	20
trans-1,3-Dichloropropene	48.73	51.76	106	71-130	2	20
1,1,2-Trichloroethane	48.73	55.53	114	78-121	0	20
2-Hexanone	48.73	57.99	119	53-145	13	20
1,3-Dichloropropane	48.73	56.12	115	77-121	2	20
Tetrachloroethene	48.73	49.33	101	73-128	1	20
Dibromochloromethane	48.73	52.44	108	74-126	1	20
1,2-Dibromoethane	48.73	52.98	109	78-122	4	20
Chlorobenzene	48.73	49.83	102	79-120	0	20
1,1,1,2-Tetrachloroethane	48.73	52.25	107	78-125	1	20
Ethylbenzene	48.73	50.25	103	75-122	1	20
m,p-Xylenes	97.47	97.73	100	77-124	0	20
o-Xylene	48.73	48.78	100	77-123	0	20
Styrene	48.73	48.78	100	76-124	2	20
Bromoform	48.73	51.49	106	67-132	2	20
Isopropylbenzene	48.73	47.52	98	68-134	0	20

*= Value outside of QC limits; see narrative
b= See narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 5030C
Project#:	149831	Analysis:	EPA 8260C
Field ID:	ZZZZZZZZZZ	Batch#:	235404
MSS Lab ID:	277111-001	Sampled:	05/23/16
Matrix:	Soil	Received:	05/24/16
Units:	ug/Kg	Analyzed:	05/24/16
Basis:	as received		

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1,2,2-Tetrachloroethane	48.73	55.38	114	70-124	6	20
1,2,3-Trichloropropane	48.73	54.52	112	73-125	6	20
Propylbenzene	48.73	45.54	93	73-125	3	20
Bromobenzene	48.73	46.93	96	78-121	2	20
1,3,5-Trimethylbenzene	48.73	45.65	94	73-124	3	20
2-Chlorotoluene	48.73	46.47	95	75-122	3	20
4-Chlorotoluene	48.73	46.50	95	72-124	2	20
tert-Butylbenzene	48.73	45.51	93	73-125	3	20
1,2,4-Trimethylbenzene	48.73	44.28	91	75-123	4	20
sec-Butylbenzene	48.73	43.82	90	73-126	5	20
para-Isopropyl Toluene	48.73	44.42	91	73-127	3	20
1,3-Dichlorobenzene	48.73	44.13	91	77-121	4	20
1,4-Dichlorobenzene	48.73	44.74	92	75-120	4	20
n-Butylbenzene	48.73	42.74	88	70-128	6	20
1,2-Dichlorobenzene	48.73	43.89	90	78-121	3	20
1,2-Dibromo-3-Chloropropane	48.73	49.81	102	61-132	8	20
1,2,4-Trichlorobenzene	48.73	36.22	74	67-129	9	20
Hexachlorobutadiene	48.73	36.41	75	61-135	7	20
Naphthalene	48.73	40.28	83	62-129	10	20
1,2,3-Trichlorobenzene	48.73	35.78	73	66-130	8	20

Surrogate	%REC	Limits
Dibromofluoromethane	111	78-119
1,2-Dichloroethane-d4	112	71-136
Toluene-d8	101	85-116
Bromofluorobenzene	99	79-119

*= Value outside of QC limits; see narrative
b= See narrative
RPD= Relative Percent Difference

Initial & Continuing Calibration Data

CURTIS & TOMPKINS BFB TUNE FOR 277038 MSVOA Soil
EPA 8260C

Inst : MSVOA12 Run Name : BFB IDF : 1.0
Seqnum : 886162307003 File : ldl03 Time : 21-APR-2016 17:47

Standards: S29058

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
50	15% - 40% of mass 95	2706	15.60	
75	30% - 60% of mass 95	7342	42.32	
95		17347	100.00	
96	5% - 9% of mass 95	1236	7.13	
173	< 2% of mass 174	129	0.84	
174	> 50% and < 100% of mass 95	15405	88.80	
175	5% - 9% of mass 174	1097	7.12	
176	> 95% and < 101% of mass 174	15337	99.56	
177	5% - 9% of mass 176	1095	7.14	

Analyst: NJT Date: 04/22/16 Reviewer: LW Date: 04/25/16

CURTIS & TOMPKINS BFB TUNE FOR 277038 MSVOA Soil
EPA 8260C

Inst : MSVOA12 Run Name : BFB IDF : 1.0
Seqnum : 886206779002 File : lem02 Time : 22-MAY-2016 14:58

Standards: S29058

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
50	15% - 40% of mass 95	1714	15.45	
75	30% - 60% of mass 95	4767	42.97	
95		11095	100.00	
96	5% - 9% of mass 95	727	6.55	
173	< 2% of mass 174	54	0.57	
174	> 50% and < 100% of mass 95	9471	85.36	
175	5% - 9% of mass 174	706	7.45	
176	> 95% and < 101% of mass 174	9013	95.16	
177	5% - 9% of mass 176	678	7.52	

Analyst: DAR Date: 05/23/16 Reviewer: LW Date: 05/23/16

CURTIS & TOMPKINS BFB TUNE FOR 277038 MSVOA Soil
EPA 8260C

Inst : MSVOA12 Run Name : BFB IDF : 1.0
Seqnum : 886209461002 File : leo02 Time : 24-MAY-2016 11:52

Standards: S29058

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
50	15% - 40% of mass 95	2876	18.09	
75	30% - 60% of mass 95	7014	44.13	
95		15895	100.00	
96	5% - 9% of mass 95	1076	6.77	
173	< 2% of mass 174	109	0.83	
174	> 50% and < 100% of mass 95	13062	82.18	
175	5% - 9% of mass 174	1159	8.87	
176	> 95% and < 101% of mass 174	12681	97.08	
177	5% - 9% of mass 176	860	6.78	

Analyst: NJT Date: 05/25/16 Reviewer: LW Date: 05/25/16

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 277038 MSVOA Soil: EPA 8260C

Inst : MSVOA12 Name : 8260GX12
Calnum : 886162307001 Date : 21-APR-2016 21:50 Type : SOIL
Units : ug/L X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	ldl10	886162307010	.25PPB	21-APR-2016 21:50	S29427 (200000X), S29559 (200000X), S28142 (200000X), S29263 (5000X)
L2	ldl11	886162307011	5PPB	21-APR-2016 22:22	S29427 (100000X), S29559 (100000X), S28142 (100000X), S29263 (5000X)
L3	ldl12	886162307012	10PPB	21-APR-2016 22:55	S29427 (50000X), S29559 (50000X), S28142 (50000X), S29263 (5000X)
L4	ldl13	886162307013	20PPB	21-APR-2016 23:28	S29427 (25000X), S29559 (25000X), S28142 (25000X), S29263 (5000X)
L5	ldl14	886162307014	50PPB	22-APR-2016 00:01	S29427 (10000X), S29559 (10000X), S28142 (10000X), S29263 (5000X)
L6	ldl15	886162307015	60PPB	22-APR-2016 00:34	S29427 (8333X), S29559 (8333X), S28142 (8333X), S29263 (5000X)
L7	ldl16	886162307016	75PPB	22-APR-2016 01:06	S29427 (6667X), S29559 (6667X), S28142 (6667X), S29263 (5000X)
L8	ldl17	886162307017	100PPB	22-APR-2016 01:39	S29427 (5000X), S29559 (5000X), S28142 (5000X), S29263 (5000X)
L9	ldl18	886162307018	200PPB	22-APR-2016 02:12	S29427 (2500X), S29559 (2500X), S28142 (2500X), S29263 (5000X)

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Freon 12		1.0025m	1.0018	1.0288	1.0593	0.9297	1.0043	1.1108	1.0754	AVRG		0.97412		1.0266	5	15	0.100	0.99	
Chloromethane		1.2149	1.1355	1.1422	1.2028	1.0459	1.1495	1.2428	1.2354	AVRG		0.85388		1.1711	6	15	0.100	0.99	
Vinyl Chloride		1.0654	1.0333	1.0383	1.0752	0.9394	1.0035	1.0859	1.0587	AVRG		0.96389		1.0375	5	15	0.100	0.99	
Bromomethane		0.5375m	0.5378m	0.5743	0.6281	0.5559	0.6041	0.6558	0.6525	AVRG		1.68556		0.5933	8	15	0.100	0.99	
Chloroethane		0.5610	0.5364	0.5426	0.5750	0.4956	0.5329	0.5889	0.5708	AVRG		1.81686		0.5504	5	15	0.100	0.99	
Trichlorofluoromethane		0.9563	0.9421	0.9685	1.0092	0.8946	0.9693	1.0895	1.1459	AVRG		1.00310		0.9969	8	15	0.100	0.99	
Acetone			0.2182	0.2406	0.2187	0.2107	0.2159	0.2363	0.2394	AVRG		4.43114		0.2257	6	15	0.100	0.99	
Freon 113		0.6017	0.5845	0.5960	0.6114	0.5391	0.5720	0.6414	0.6292	AVRG		1.67533		0.5969	5	15	0.100	0.99	
1,1-Dichloroethene		0.6526	0.5813	0.5920	0.5877	0.5173	0.5463	0.6107	0.5984	AVRG		1.70710		0.5858	7	15	0.100	0.99	
Methylene Chloride		0.7652	0.7293	0.7332	0.7316	0.6696	0.6979	0.7651	0.7347	AVRG		1.37303		0.7283	4	15	0.100	0.99	
Carbon Disulfide		2.3883	2.2479	2.3175	2.3198	2.0961	2.1987	2.4475	2.3612	AVRG		0.43533		2.2971	5	15	0.100	0.99	
MTBE		1.6306	1.6811	1.7306	1.7694	1.6734	1.7201	1.8669	1.8447	AVRG		0.57484		1.7396	5	15	0.100	0.99	
trans-1,2-Dichloroethene		0.7305	0.6461	0.6556	0.6394	0.5844	0.6019	0.6740	0.6502	AVRG		1.54382		0.6477	7	15	0.100	0.99	
Vinyl Acetate		1.0429	1.1046	1.2010	1.3266	1.2841	1.2817	1.4064	1.3591	AVRG		0.79948		1.2508	10	15	0.05	0.99	
1,1-Dichloroethane		1.2384	1.1610	1.1802	1.1750	1.0573	1.1103	1.2244	1.1532	AVRG		0.86022		1.1625	5	15	0.200	0.99	
2-Butanone		0.3117	0.3116	0.3158	0.3252	0.3147	0.3175	0.3449	0.3678	AVRG		3.06603		0.3262	6	15	0.100	0.99	
2,2-Dichloropropane		0.9739	0.9112	0.9338	0.9214	0.8371	0.8691	0.9692	0.9379	AVRG		1.08790		0.9192	5	15	0.05	0.99	
cis-1,2-Dichloroethene		0.7682	0.7322	0.7269	0.7250	0.6608	0.6902	0.7583	0.7419	AVRG		1.37847		0.7254	5	15	0.100	0.99	
Chloroform		1.1243	1.0946	1.0821	1.0837	0.9857	1.0389	1.1486	1.1071	AVRG		0.92325		1.0831	5	15	0.200	0.99	
Bromochloromethane		0.3424	0.3390	0.3431	0.3497	0.3228	0.3336	0.3608	0.3515	AVRG		2.91648		0.3429	3	15	0.05	0.99	
1,1,1-Trichloroethane		0.9293	0.9279	0.9237	0.9413	0.8431	0.8735	0.9845	0.9578	AVRG		1.08386		0.9226	5	15	0.100	0.99	
1,1-Dichloropropene		0.5521	0.5555	0.5607	0.5712	0.5100	0.5402	0.6134	0.5787	AVRG		1.78503		0.5602	5	15	0.05	0.99	
Carbon Tetrachloride		0.5319	0.5229	0.5233	0.5144	0.4534	0.4852	0.5486	0.5283	AVRG		1.94742		0.5135	6	15	0.100	0.99	
1,2-Dichloroethane		0.4894	0.4769	0.4663	0.4518	0.4077	0.4394	0.4781	0.4539	AVRG		2.18373		0.4579	6	15	0.100	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Benzene		1.7186	1.7022	1.7071	1.7121	1.5321	1.6507	1.8364	1.7388	AVRG		0.58832		1.6998	5	15	0.500	0.99	
Trichloroethene		0.4087	0.4114	0.4203	0.4238	0.3781	0.4074	0.4568	0.4355	AVRG		2.39387		0.4177	5	15	0.200	0.99	
1,2-Dichloropropane		0.4445	0.4311	0.4355	0.4372	0.3957	0.4274	0.4703	0.4398	AVRG		2.29776		0.4352	5	15	0.100	0.99	
Bromodichloromethane		0.5394	0.5247	0.5271	0.5201	0.4718	0.5051	0.5566	0.5338	AVRG		1.91452		0.5223	5	15	0.200	0.99	
Dibromomethane		0.2440	0.2359	0.2437	0.2326	0.2135	0.2301	0.2500	0.2416	AVRG		4.22970		0.2364	5	15	0.05	0.99	
4-Methyl-2-Pentanone		0.4212	0.4408	0.4331	0.4350	0.4143	0.4304	0.4671	0.4740	AVRG		2.27538		0.4395	5	15	0.100	0.99	
cis-1,3-Dichloropropene		0.6462	0.6560	0.6773	0.6822	0.6324	0.6713	0.7403	0.7080	AVRG		1.47770		0.6767	5	15	0.200	0.99	
Toluene		1.9302	1.8593	1.8958	1.8461	1.5982	1.8076	2.0109	1.8564	AVRG		0.54037		1.8506	6	15	0.400	0.99	
trans-1,3-Dichloropropene		0.5644	0.5725	0.5909	0.5978	0.5291	0.6001	0.6606	0.6076	AVRG		1.69386		0.5904	6	15	0.100	0.99	
1,1,2-Trichloroethane		0.1826	0.1944	0.1914	0.1934	0.1725	0.1955	0.2155	0.2002	AVRG		5.17621		0.1932	6	15	0.100	0.99	
2-Hexanone		0.3343	0.3381	0.3341	0.3211	0.2917	0.3131	0.3436	0.3313	AVRG		3.06848		0.3259	5	15	0.100	0.99	
1,3-Dichloropropane		0.5990	0.6031	0.6222	0.6213	0.5497	0.6246	0.6841	0.6318	AVRG		1.62086		0.6170	6	15	0.05	0.99	
Tetrachloroethene		0.4779	0.4720	0.4786	0.4680	0.4033	0.4563	0.5164	0.4843	AVRG		2.12954		0.4696	7	15	0.200	0.99	
Dibromochloromethane		0.4005	0.4206	0.4302	0.4281	0.3840	0.4347	0.4785	0.4531	AVRG		2.33256		0.4287	7	15	0.100	0.99	
1,2-Dibromoethane		0.3557	0.3714	0.3758	0.3796	0.3416	0.3853	0.4215	0.4022	AVRG		2.63761		0.3791	7	15	0.100	0.99	
Chlorobenzene		1.2834	1.2159	1.2397	1.2020	1.0530	1.1866	1.3197	1.2351	AVRG		0.82173		1.2169	7	15	0.500	0.99	
1,1,1,2-Tetrachloroethane		0.3852	0.3891	0.4014	0.4034	0.3632	0.4116	0.4606	0.4449	AVRG		2.45438		0.4074	8	15	0.05	0.99	
Ethylbenzene		2.2606	2.1707	2.1773	2.1019	1.8055	2.0596	2.3005	2.1502	AVRG		0.46986		2.1283	7	15	0.100	0.99	
m,p-Xylenes	1.0491	0.8819	0.8494	0.8511	0.8327	0.7130	0.8071	0.9038	0.8487	AVRG		1.16327		0.8596	10	15	0.100	0.99	
o-Xylene		0.8478	0.8474	0.8572	0.8280	0.7225	0.8165	0.9145	0.8637	AVRG		1.19445		0.8372	7	15	0.300	0.99	
Styrene		1.4229	1.4105	1.4316	1.4023	1.2215	1.3808	1.5400	1.4597	AVRG		0.70991		1.4086	6	15	0.300	0.99	
Bromoform		0.3119	0.3212	0.3233	0.3284	0.2965	0.3394	0.3727	0.3715	AVRG		3.00203		0.3331	8	15	0.100	0.99	
Isopropylbenzene		3.5107	3.4037	3.4699	3.3807	2.8400	3.2968	3.7272	3.4827	AVRG		0.29508		3.3889	8	15	0.100	0.99	
1,1,2,2-Tetrachloroethane		0.7856	0.8258	0.8342	0.8128	0.7301	0.8250	0.9137	0.8803	AVRG		1.21076		0.8259	7	15	0.300	0.99	
1,2,3-Trichloropropane		0.7714	0.7599	0.7646	0.7424	0.6646	0.7465	0.8197	0.7948	AVRG		1.31926		0.7580	6	15	0.05	0.99	
Propylbenzene		4.3793	4.1910	4.3018	4.1273	3.4743	4.0013	4.5460	4.2070	AVRG		0.24076		4.1535	8	15	0.05	0.99	
Bromobenzene		0.8870	0.8751	0.8778	0.8448	0.7263	0.8380	0.9286	0.8775	AVRG		1.16700		0.8569	7	15	0.05	0.99	
1,3,5-Trimethylbenzene		3.1873	3.0607	3.0694	2.9606	2.5101	2.9187	3.2871	3.0235	AVRG		0.33309		3.0022	8	15	0.05	0.99	
2-Chlorotoluene		2.8604	2.6778	2.7061	2.5903	2.1898	2.5443	2.8463	2.6271	AVRG		0.38019		2.6303	8	15	0.05	0.99	
4-Chlorotoluene		2.6460	2.5249	2.5320	2.4243	2.0415	2.3652	2.6489	2.4354	AVRG		0.40778		2.4523	8	15	0.05	0.99	
tert-Butylbenzene		2.8317	2.7327	2.7919	2.7405	2.3164	2.6988	3.0683	2.9017	AVRG		0.36229		2.7603	8	15	0.05	0.99	
1,2,4-Trimethylbenzene		3.3826	3.2661	3.3081	3.1773	2.6713	3.1076	3.4855	3.1918	AVRG		0.31262		3.1988	8	15	0.05	0.99	
sec-Butylbenzene		4.2332	4.1825	4.2026	4.1634	3.4752	4.0810	4.6749	4.3268	AVRG		0.23995		4.1674	8	15	0.05	0.99	
para-Isopropyl Toluene		3.7509	3.5920	3.6599	3.5749	3.0080	3.5073	3.9780	3.6551	AVRG		0.27849		3.5908	8	15	0.05	0.99	
1,3-Dichlorobenzene		1.8503	1.7935	1.7787	1.7157	1.4570	1.6985	1.9017	1.7583	AVRG		0.57332		1.7442	8	15	0.600	0.99	
1,4-Dichlorobenzene		1.8252	1.7746	1.8183	1.7281	1.4894	1.7131	1.9147	1.7660	AVRG		0.57023		1.7537	7	15	0.500	0.99	
n-Butylbenzene		3.7008	3.5418	3.5537	3.4509	2.8610	3.3211	3.7580	3.3333	AVRG		0.29069		3.4401	8	15	0.05	0.99	
1,2-Dichlorobenzene		1.7874	1.7487	1.7788	1.6918	1.4626	1.7057	1.8863	1.7431	AVRG		0.57952		1.7256	7	15	0.400	0.99	
1,2-Dibromo-3-Chloropropane		0.2489	0.2372	0.2339	0.2190	0.1921	0.2142	0.2311	0.2081	AVRG		4.48319		0.2231	8	15	0.050	0.99	
1,2,4-Trichlorobenzene		1.5973	1.5534	1.5461	1.4575	1.2206	1.4069	1.5255	1.3230	AVRG		0.68786		1.4538	9	15	0.200	0.99	
Hexachlorobutadiene		0.8614	0.8370	0.8500	0.8368	0.6953	0.7930	0.8897	0.7903	AVRG		1.22071		0.8192	7	15	0.05	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Naphthalene		4.3761	4.3297	4.3947	4.1363	3.5748	4.0503	4.3785	3.8974	AVRG		0.24142		4.1422	7	15	0.05	0.99	
1,2,3-Trichlorobenzene		1.5954	1.5255	1.5322	1.4395	1.2247	1.3949	1.5067	1.3133	AVRG		0.69371		1.4415	9	15	0.05	0.99	
Dibromofluoromethane	0.4770	0.4860	0.4646	0.4610	0.4789	0.4681	0.4580	0.4529	0.4684	AVRG		2.13528		0.4683	2	15	0.05	0.99	
1,2-Dichloroethane-d4	0.2964	0.3082	0.2913	0.2896	0.2928	0.2895	0.2878	0.2798	0.2876	AVRG		3.43111		0.2915	3	15	0.05	0.99	
Trifluorotoluene		0.7472	0.7358	0.7314	0.7363	0.6545	0.6949	0.7903	0.7693	AVRG		1.36526		0.7325	6	15	0.05	0.99	
Toluene-d8	1.2091	1.2136	1.2196	1.2355	1.2199	1.1612	1.2290	1.2301	1.1808	AVRG		0.82578		1.2110	2	15	0.05	0.99	
Bromofluorobenzene	0.7992	0.8159	0.8177	0.8135	0.7966	0.7890	0.7923	0.7897	0.7814	AVRG		1.25082		0.7995	2	15	0.05	0.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
Freon 12			5.0000	-2	10.000	-2	20.000	0	50.000	3	60.000	-9	75.000	-2	100.00	8	200.00	5
Chloromethane			5.0000	4	10.000	-3	20.000	-2	50.000	3	60.000	-11	75.000	-2	100.00	6	200.00	5
Vinyl Chloride			5.0000	3	10.000	0	20.000	0	50.000	4	60.000	-9	75.000	-3	100.00	5	200.00	2
Bromomethane			5.0000	-9	10.000	-9	20.000	-3	50.000	6	60.000	-6	75.000	2	100.00	11	200.00	10
Chloroethane			5.0000	2	10.000	-3	20.000	-1	50.000	4	60.000	-10	75.000	-3	100.00	7	200.00	4
Trichlorofluoromethane			5.0000	-4	10.000	-5	20.000	-3	50.000	1	60.000	-10	75.000	-3	100.00	9	200.00	15
Acetone					10.000	-3	20.000	7	50.000	-3	60.000	-7	75.000	-4	100.00	5	200.00	6
Freon 113			5.0000	1	10.000	-2	20.000	0	50.000	2	60.000	-10	75.000	-4	100.00	7	200.00	5
1,1-Dichloroethene			5.0000	11	10.000	-1	20.000	1	50.000	0	60.000	-12	75.000	-7	100.00	4	200.00	2
Methylene Chloride			5.0000	5	10.000	0	20.000	1	50.000	0	60.000	-8	75.000	-4	100.00	5	200.00	1
Carbon Disulfide			5.0000	4	10.000	-2	20.000	1	50.000	1	60.000	-9	75.000	-4	100.00	7	200.00	3
MTBE			5.0000	-6	10.000	-3	20.000	-1	50.000	2	60.000	-4	75.000	-1	100.00	7	200.00	6
trans-1,2-Dichloroethene			5.0000	13	10.000	0	20.000	1	50.000	-1	60.000	-10	75.000	-7	100.00	4	200.00	0
Vinyl Acetate			5.0000	-17	10.000	-12	20.000	-4	50.000	6	60.000	3	75.000	2	100.00	12	200.00	9
1,1-Dichloroethane			5.0000	7	10.000	0	20.000	2	50.000	1	60.000	-9	75.000	-4	100.00	5	200.00	-1
2-Butanone			5.0000	-4	10.000	-4	20.000	-3	50.000	0	60.000	-4	75.000	-3	100.00	6	200.00	13
2,2-Dichloropropane			5.0000	6	10.000	-1	20.000	2	50.000	0	60.000	-9	75.000	-5	100.00	5	200.00	2
cis-1,2-Dichloroethene			5.0000	6	10.000	1	20.000	0	50.000	0	60.000	-9	75.000	-5	100.00	5	200.00	2
Chloroform			5.0000	4	10.000	1	20.000	0	50.000	0	60.000	-9	75.000	-4	100.00	6	200.00	2
Bromochloromethane			5.0000	0	10.000	-1	20.000	0	50.000	2	60.000	-6	75.000	-3	100.00	5	200.00	3
1,1,1-Trichloroethane			5.0000	1	10.000	1	20.000	0	50.000	2	60.000	-9	75.000	-5	100.00	7	200.00	4
1,1-Dichloropropene			5.0000	-1	10.000	-1	20.000	0	50.000	2	60.000	-9	75.000	-4	100.00	9	200.00	3
Carbon Tetrachloride			5.0000	4	10.000	2	20.000	2	50.000	0	60.000	-12	75.000	-6	100.00	7	200.00	3
1,2-Dichloroethane			5.0000	7	10.000	4	20.000	2	50.000	-1	60.000	-11	75.000	-4	100.00	4	200.00	-1
Benzene			5.0000	1	10.000	0	20.000	0	50.000	1	60.000	-10	75.000	-3	100.00	8	200.00	2
Trichloroethene			5.0000	-2	10.000	-2	20.000	1	50.000	1	60.000	-9	75.000	-2	100.00	9	200.00	4
1,2-Dichloropropane			5.0000	2	10.000	-1	20.000	0	50.000	0	60.000	-9	75.000	-2	100.00	8	200.00	1
Bromodichloromethane			5.0000	3	10.000	0	20.000	1	50.000	0	60.000	-10	75.000	-3	100.00	7	200.00	2
Dibromomethane			5.0000	3	10.000	0	20.000	3	50.000	-2	60.000	-10	75.000	-3	100.00	6	200.00	2
4-Methyl-2-Pentanone			5.0000	-4	10.000	0	20.000	-1	50.000	-1	60.000	-6	75.000	-2	100.00	6	200.00	8
cis-1,3-Dichloropropene			5.0000	-5	10.000	-3	20.000	0	50.000	1	60.000	-7	75.000	-1	100.00	9	200.00	5
Toluene			5.0000	4	10.000	0	20.000	2	50.000	0	60.000	-14	75.000	-2	100.00	9	200.00	0
trans-1,3-Dichloropropene			5.0000	-4	10.000	-3	20.000	0	50.000	1	60.000	-10	75.000	2	100.00	12	200.00	3
1,1,2-Trichloroethane			5.0000	-5	10.000	1	20.000	-1	50.000	0	60.000	-11	75.000	1	100.00	12	200.00	4
2-Hexanone			5.0000	3	10.000	4	20.000	3	50.000	-1	60.000	-10	75.000	-4	100.00	5	200.00	2
1,3-Dichloropropane			5.0000	-3	10.000	-2	20.000	1	50.000	1	60.000	-11	75.000	1	100.00	11	200.00	2
Tetrachloroethene			5.0000	2	10.000	1	20.000	2	50.000	0	60.000	-14	75.000	-3	100.00	10	200.00	3
Dibromochloromethane			5.0000	-7	10.000	-2	20.000	0	50.000	0	60.000	-10	75.000	1	100.00	12	200.00	6
1,2-Dibromoethane			5.0000	-6	10.000	-2	20.000	-1	50.000	0	60.000	-10	75.000	2	100.00	11	200.00	6
Chlorobenzene			5.0000	5	10.000	0	20.000	2	50.000	-1	60.000	-13	75.000	-2	100.00	8	200.00	1
1,1,1,2-Tetrachloroethane			5.0000	-5	10.000	-4	20.000	-1	50.000	-1	60.000	-11	75.000	1	100.00	13	200.00	9
Ethylbenzene			5.0000	6	10.000	2	20.000	2	50.000	-1	60.000	-15	75.000	-3	100.00	8	200.00	1

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
m,p-Xylenes	5.0000	**22**	10.000	3	20.000	-1	40.000	-1	100.00	-3	120.00	-17	150.00	-6	200.00	5	400.00	-1
o-Xylene			5.0000	1	10.000	1	20.000	2	50.000	-1	60.000	-14	75.000	-2	100.00	9	200.00	3
Styrene			5.0000	1	10.000	0	20.000	2	50.000	0	60.000	-13	75.000	-2	100.00	9	200.00	4
Bromoform			5.0000	-6	10.000	-4	20.000	-3	50.000	-1	60.000	-11	75.000	2	100.00	12	200.00	12
Isopropylbenzene			5.0000	4	10.000	0	20.000	2	50.000	0	60.000	-16	75.000	-3	100.00	10	200.00	3
1,1,2,2-Tetrachloroethane			5.0000	-5	10.000	0	20.000	1	50.000	-2	60.000	-12	75.000	0	100.00	11	200.00	7
1,2,3-Trichloropropane			5.0000	2	10.000	0	20.000	1	50.000	-2	60.000	-12	75.000	-2	100.00	8	200.00	5
Propylbenzene			5.0000	5	10.000	1	20.000	4	50.000	-1	60.000	-16	75.000	-4	100.00	9	200.00	1
Bromobenzene			5.0000	4	10.000	2	20.000	2	50.000	-1	60.000	-15	75.000	-2	100.00	8	200.00	2
1,3,5-Trimethylbenzene			5.0000	6	10.000	2	20.000	2	50.000	-1	60.000	-16	75.000	-3	100.00	9	200.00	1
2-Chlorotoluene			5.0000	9	10.000	2	20.000	3	50.000	-2	60.000	-17	75.000	-3	100.00	8	200.00	0
4-Chlorotoluene			5.0000	8	10.000	3	20.000	3	50.000	-1	60.000	-17	75.000	-4	100.00	8	200.00	-1
tert-Butylbenzene			5.0000	3	10.000	-1	20.000	1	50.000	-1	60.000	-16	75.000	-2	100.00	11	200.00	5
1,2,4-Trimethylbenzene			5.0000	6	10.000	2	20.000	3	50.000	-1	60.000	-16	75.000	-3	100.00	9	200.00	0
sec-Butylbenzene			5.0000	2	10.000	0	20.000	1	50.000	0	60.000	-17	75.000	-2	100.00	12	200.00	4
para-Isopropyl Toluene			5.0000	4	10.000	0	20.000	2	50.000	0	60.000	-16	75.000	-2	100.00	11	200.00	2
1,3-Dichlorobenzene			5.0000	6	10.000	3	20.000	2	50.000	-2	60.000	-16	75.000	-3	100.00	9	200.00	1
1,4-Dichlorobenzene			5.0000	4	10.000	1	20.000	4	50.000	-1	60.000	-15	75.000	-2	100.00	9	200.00	1
n-Butylbenzene			5.0000	8	10.000	3	20.000	3	50.000	0	60.000	-17	75.000	-3	100.00	9	200.00	-3
1,2-Dichlorobenzene			5.0000	4	10.000	1	20.000	3	50.000	-2	60.000	-15	75.000	-1	100.00	9	200.00	1
1,2-Dibromo-3-Chloropropane			5.0000	12	10.000	6	20.000	5	50.000	-2	60.000	-14	75.000	-4	100.00	4	200.00	-7
1,2,4-Trichlorobenzene			5.0000	10	10.000	7	20.000	6	50.000	0	60.000	-16	75.000	-3	100.00	5	200.00	-9
Hexachlorobutadiene			5.0000	5	10.000	2	20.000	4	50.000	2	60.000	-15	75.000	-3	100.00	9	200.00	-4
Naphthalene			5.0000	6	10.000	5	20.000	6	50.000	0	60.000	-14	75.000	-2	100.00	6	200.00	-6
1,2,3-Trichlorobenzene			5.0000	11	10.000	6	20.000	6	50.000	0	60.000	-15	75.000	-3	100.00	5	200.00	-9
Dibromofluoromethane	50.000	2	50.000	4	50.000	-1	50.000	-2	50.000	2	50.000	0	50.000	-2	50.000	-3	50.000	0
1,2-Dichloroethane-d4	50.000	2	50.000	6	50.000	0	50.000	-1	50.000	0	50.000	-1	50.000	-1	50.000	-4	50.000	-1
Trifluorotoluene			5.0000	2	10.000	0	20.000	0	50.000	1	60.000	-11	75.000	-5	100.00	8	200.00	5
Toluene-d8	50.000	0	50.000	0	50.000	1	50.000	2	50.000	1	50.000	-4	50.000	1	50.000	2	50.000	-2
Bromofluorobenzene	50.000	0	50.000	2	50.000	2	50.000	2	50.000	0	50.000	-1	50.000	-1	50.000	-1	50.000	-2

NJT 04/22/16 [Bromomethane]: Corrected fronting or tailing peak integration in multiple levels.

NJT 04/22/16 [Chloromethane]: Combined split peak in .25PPB (ldl10).

NJT 04/22/16 [Freon 12]: Corrected fronting or tailing peak integration in 5PPB (ldl11).

NJT 04/22/16 [Acetone]: Combined split peak in 5PPB (ldl11).

Analyst: NJT Date: 04/23/16 Reviewer: LW Date: 04/25/16

m=manual integration

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

886162307001

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 277038 MSVOA Soil
EPA 8260C

Inst : MSVOA12 Name : 8260GX12
Calnum : 886162307001 Cal Date : 21-APR-2016 Type : SOIL

ICV 886162307019 (ldl19 22-APR-2016) stds: S29299 (10000X), S29263 (5000X)
ICV 886162307020 (ldl20 22-APR-2016) stds: S29448 (10000X), S29564 (10000X), S29290 (10000X), S29263 (5000X)

Analyte	ICV Seqnum	Spiked	Quant	Units	%D	Max	Flags
Freon 12	886162307019	20.00	17.50	ug/L	-12	20	
Chloromethane	886162307019	20.00	17.48	ug/L	-13	20	
Vinyl Chloride	886162307019	20.00	19.67	ug/L	-2	20	
Bromomethane	886162307019	20.00	14.15	ug/L	**-29**	20	v- *** m
Chloroethane	886162307019	20.00	19.80	ug/L	-1	20	
Trichlorofluoromethane	886162307019	20.00	18.72	ug/L	-6	20	
Acetone	886162307020	25.00	26.54	ug/L	6	20	
Freon 113	886162307020	25.00	23.98	ug/L	-4	20	
1,1-Dichloroethene	886162307020	25.00	27.09	ug/L	8	20	
Methylene Chloride	886162307020	25.00	28.45	ug/L	14	20	
Carbon Disulfide	886162307020	25.00	28.03	ug/L	12	20	
MTBE	886162307020	25.00	25.91	ug/L	4	20	
trans-1,2-Dichloroethene	886162307020	25.00	25.06	ug/L	0	20	
Vinyl Acetate	886162307020	25.00	21.20	ug/L	-15	20	
1,1-Dichloroethane	886162307020	25.00	28.44	ug/L	14	20	
2-Butanone	886162307020	25.00	23.81	ug/L	-5	20	
2,2-Dichloropropane	886162307020	25.00	28.07	ug/L	12	20	
cis-1,2-Dichloroethene	886162307020	25.00	29.37	ug/L	17	20	
Chloroform	886162307020	25.00	27.84	ug/L	11	20	
Bromochloromethane	886162307020	25.00	28.27	ug/L	13	20	
1,1,1-Trichloroethane	886162307020	25.00	27.93	ug/L	12	20	
1,1-Dichloropropene	886162307020	25.00	25.05	ug/L	0	20	
Carbon Tetrachloride	886162307020	25.00	28.01	ug/L	12	20	
1,2-Dichloroethane	886162307020	25.00	27.84	ug/L	11	20	
Benzene	886162307020	25.00	28.02	ug/L	12	20	
Trichloroethene	886162307020	25.00	27.25	ug/L	9	20	
1,2-Dichloropropane	886162307020	25.00	28.04	ug/L	12	20	
Bromodichloromethane	886162307020	25.00	27.13	ug/L	9	20	
Dibromomethane	886162307020	25.00	28.83	ug/L	15	20	
4-Methyl-2-Pentanone	886162307020	25.00	26.19	ug/L	5	20	
cis-1,3-Dichloropropene	886162307020	25.00	27.98	ug/L	12	20	
Toluene	886162307020	25.00	27.27	ug/L	9	20	
trans-1,3-Dichloropropene	886162307020	25.00	26.07	ug/L	4	20	
1,1,2-Trichloroethane	886162307020	25.00	27.30	ug/L	9	20	
2-Hexanone	886162307020	25.00	26.14	ug/L	5	20	
1,3-Dichloropropane	886162307020	25.00	28.22	ug/L	13	20	
Tetrachloroethene	886162307020	25.00	25.92	ug/L	4	20	
Dibromochloromethane	886162307020	25.00	26.19	ug/L	5	20	
1,2-Dibromoethane	886162307020	25.00	26.48	ug/L	6	20	
Chlorobenzene	886162307020	25.00	26.85	ug/L	7	20	
1,1,1,2-Tetrachloroethane	886162307020	25.00	25.91	ug/L	4	20	
Ethylbenzene	886162307020	25.00	26.72	ug/L	7	20	
m,p-Xylenes	886162307020	50.00	52.06	ug/L	4	20	
o-Xylene	886162307020	25.00	26.47	ug/L	6	20	
Styrene	886162307020	25.00	26.48	ug/L	6	20	
Bromoform	886162307020	25.00	25.55	ug/L	2	20	
Isopropylbenzene	886162307020	25.00	26.85	ug/L	7	20	

Analyte	ICV Seqnum	Spiked	Quant	Units	%D	Max	Flags
1,1,2,2-Tetrachloroethane	886162307020	25.00	26.99	ug/L	8	20	
1,2,3-Trichloropropane	886162307020	25.00	27.18	ug/L	9	20	
Propylbenzene	886162307020	25.00	25.68	ug/L	3	20	
Bromobenzene	886162307020	25.00	27.66	ug/L	11	20	
1,3,5-Trimethylbenzene	886162307020	25.00	26.92	ug/L	8	20	
2-Chlorotoluene	886162307020	25.00	26.66	ug/L	7	20	
4-Chlorotoluene	886162307020	25.00	26.34	ug/L	5	20	
tert-Butylbenzene	886162307020	25.00	26.51	ug/L	6	20	
1,2,4-Trimethylbenzene	886162307020	25.00	25.49	ug/L	2	20	
sec-Butylbenzene	886162307020	25.00	25.74	ug/L	3	20	
para-Isopropyl Toluene	886162307020	25.00	25.42	ug/L	2	20	
1,3-Dichlorobenzene	886162307020	25.00	26.09	ug/L	4	20	
1,4-Dichlorobenzene	886162307020	25.00	26.00	ug/L	4	20	
n-Butylbenzene	886162307020	25.00	24.51	ug/L	-2	20	
1,2-Dichlorobenzene	886162307020	25.00	26.71	ug/L	7	20	
1,2-Dibromo-3-Chloropropane	886162307020	25.00	25.91	ug/L	4	20	
1,2,4-Trichlorobenzene	886162307020	25.00	24.61	ug/L	-2	20	
Hexachlorobutadiene	886162307020	25.00	25.31	ug/L	1	20	
Naphthalene	886162307020	25.00	25.66	ug/L	3	20	
1,2,3-Trichlorobenzene	886162307020	25.00	26.23	ug/L	5	20	

886162307019: Analyst: NJT Date: 04/23/16 Reviewer: LW Date: 04/25/16
886162307020: Analyst: NJT Date: 04/23/16 Reviewer: LW Date: 04/25/16

-=low bias m=manual integration v=ICV

CURTIS & TOMPKINS SPIKE USER REPORT FOR 277038 MSVOA Soil
EPA 8260C

Inst : MSVOA12 Run Name : QC836566 IDF : 1.0
Seqnum : 886206779004.1 File : lem04 Time : 22-MAY-2016 15:57
Cal : 886162307001 Caldate : 21-APR-2016 Caltype : SOIL
Standards: S29697 (10000X), S29918 (10000X), S29690 (10000X), S29299 (10000X), S29529 (5000X)

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Max Closing %D	Min RF	Flags
Freon 12	1.0266	1.0256	20.00	19.98	ug/L	0	20	50	0.1000	m u
Chloromethane	1.1711	1.2537	20.00	21.41	ug/L	7	20	50	0.1000	u
Vinyl Chloride	1.0375	1.1238	20.00	21.67	ug/L	8	20	50	0.1000	u
Bromomethane	0.5933	0.5916	20.00	19.94	ug/L	0	20	50	0.1000	u v- ***
Chloroethane	0.5504	0.5736	20.00	20.84	ug/L	4	20	50	0.1000	u
Trichlorofluoromethane	0.9969	0.9928	20.00	19.92	ug/L	0	20	50	0.1000	u
Acetone	0.2257	0.2843	25.00	31.49	ug/L	**26**	20	50	0.1000	c+ u ***
Freon 113	0.5969	0.6169	25.00	25.84	ug/L	3	20	50	0.1000	u
1,1-Dichloroethene	0.5858	0.5745	25.00	24.52	ug/L	-2	20	50	0.1000	u
Methylene Chloride	0.7283	0.7357	25.00	25.25	ug/L	1	20	50	0.1000	u
Carbon Disulfide	2.2971	2.2425	25.00	24.41	ug/L	-2	20	50	0.1000	u
MTBE	1.7396	1.7633	25.00	25.34	ug/L	1	20	50	0.1000	u
trans-1,2-Dichloroethene	0.6477	0.6158	25.00	23.77	ug/L	-5	20	50	0.1000	u
Vinyl Acetate	1.2508	1.3106	25.00	26.19	ug/L	5	20	50	0.0500	u
1,1-Dichloroethane	1.1625	1.1536	25.00	24.81	ug/L	-1	20	50	0.2000	u
2-Butanone	0.3262	0.3776	25.00	28.94	ug/L	16	20	50	0.1000	u
cis-1,2-Dichloroethene	0.7254	0.7675	25.00	26.45	ug/L	6	20	50	0.1000	u
2,2-Dichloropropane	0.9192	0.9435	25.00	25.66	ug/L	3	20	50	0.0500	u
Chloroform	1.0831	1.1066	25.00	25.54	ug/L	2	20	50	0.2000	u
Bromochloromethane	0.3429	0.3501	25.00	25.53	ug/L	2	20	50	0.0500	u
1,1,1-Trichloroethane	0.9226	0.9650	25.00	26.15	ug/L	5	20	50	0.1000	u
1,1-Dichloropropene	0.5602	0.5738	25.00	25.61	ug/L	2	20	50	0.0500	u
Carbon Tetrachloride	0.5135	0.5553	25.00	27.03	ug/L	8	20	50	0.1000	u
1,2-Dichloroethane	0.4579	0.4865	25.00	26.56	ug/L	6	20	50	0.1000	u
Benzene	1.6998	1.8042	25.00	26.54	ug/L	6	20	50	0.5000	u
Trichloroethene	0.4177	0.4388	25.00	26.26	ug/L	5	20	50	0.2000	u
1,2-Dichloropropane	0.4352	0.4555	25.00	26.16	ug/L	5	20	50	0.1000	u
Bromodichloromethane	0.5223	0.5436	25.00	26.02	ug/L	4	20	50	0.2000	u
Dibromomethane	0.2364	0.2539	25.00	26.85	ug/L	7	20	50	0.0500	u
4-Methyl-2-Pentanone	0.4395	0.4457	25.00	25.35	ug/L	1	20	50	0.1000	u
cis-1,3-Dichloropropene	0.6767	0.7447	25.00	27.51	ug/L	10	20	50	0.2000	u
Toluene	1.8506	2.0470	25.00	27.65	ug/L	11	20	50	0.4000	u
trans-1,3-Dichloropropene	0.5904	0.6662	25.00	28.21	ug/L	13	20	50	0.1000	u
1,1,2-Trichloroethane	0.1932	0.2190	25.00	28.34	ug/L	13	20	50	0.1000	u
2-Hexanone	0.3259	0.4050	25.00	31.07	ug/L	**24**	20	50	0.1000	c+ u ***
1,3-Dichloropropane	0.6170	0.7240	25.00	29.34	ug/L	17	20	50	0.0500	u
Tetrachloroethene	0.4696	0.5261	25.00	28.01	ug/L	12	20	50	0.2000	u
Dibromochloromethane	0.4287	0.4789	25.00	27.93	ug/L	12	20	50	0.1000	u
1,2-Dibromoethane	0.3791	0.4321	25.00	28.49	ug/L	14	20	50	0.1000	u
Chlorobenzene	1.2169	1.3558	25.00	27.85	ug/L	11	20	50	0.5000	u
1,1,1,2-Tetrachloroethane	0.4074	0.4532	25.00	27.81	ug/L	11	20	50	0.0500	u
Ethylbenzene	2.1283	2.3619	25.00	27.74	ug/L	11	20	50	0.1000	u
m,p-Xylenes	0.8596	0.9359	50.00	54.44	ug/L	9	20	50	0.1000	u
o-Xylene	0.8372	0.9189	25.00	27.44	ug/L	10	20	50	0.3000	u
Styrene	1.4086	1.5530	25.00	27.56	ug/L	10	20	50	0.3000	u
Bromoform	0.3331	0.3656	25.00	27.44	ug/L	10	20	50	0.1000	u
Isopropylbenzene	3.3889	3.8213	25.00	28.19	ug/L	13	20	50	0.1000	u

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Max Closing %D	Min RF	Flags
1,1,2,2-Tetrachloroethane	0.8259	0.9939	25.00	30.09	ug/L	20	20	50	0.3000	u
1,2,3-Trichloropropane	0.7580	0.8997	25.00	29.68	ug/L	19	20	50	0.0500	u
Propylbenzene	4.1535	4.7231	25.00	28.43	ug/L	14	20	50	0.0500	u
Bromobenzene	0.8569	0.9917	25.00	28.93	ug/L	16	20	50	0.0500	u
1,3,5-Trimethylbenzene	3.0022	3.3763	25.00	28.12	ug/L	12	20	50	0.0500	u
2-Chlorotoluene	2.6303	3.0316	25.00	28.81	ug/L	15	20	50	0.0500	u
4-Chlorotoluene	2.4523	2.8755	25.00	29.31	ug/L	17	20	50	0.0500	u
tert-Butylbenzene	2.7603	3.1380	25.00	28.42	ug/L	14	20	50	0.0500	u
1,2,4-Trimethylbenzene	3.1988	3.5478	25.00	27.73	ug/L	11	20	50	0.0500	u
sec-Butylbenzene	4.1674	4.7234	25.00	28.33	ug/L	13	20	50	0.0500	u
para-Isopropyl Toluene	3.5908	4.1646	25.00	29.00	ug/L	16	20	50	0.0500	u
1,3-Dichlorobenzene	1.7442	2.0719	25.00	29.70	ug/L	19	20	50	0.6000	u
1,4-Dichlorobenzene	1.7537	2.0978	25.00	29.91	ug/L	20	20	50	0.5000	u
n-Butylbenzene	3.4401	4.1042	25.00	29.83	ug/L	19	20	50	0.0500	u
1,2-Dichlorobenzene	1.7256	2.0187	25.00	29.25	ug/L	17	20	50	0.4000	u
1,2-Dibromo-3-Chloropropane	0.2231	0.2514	25.00	28.17	ug/L	13	20	50	0.0500	u
1,2,4-Trichlorobenzene	1.4538	1.8166	25.00	31.24	ug/L	**25**	20	50	0.2000	c+ u ***
Hexachlorobutadiene	0.8192	0.9942	25.00	30.34	ug/L	**21**	20	50	0.0500	c+ u ***
Naphthalene	4.1422	4.9200	25.00	29.69	ug/L	19	20	50	0.0500	u
1,2,3-Trichlorobenzene	1.4415	1.8005	25.00	31.23	ug/L	**25**	20	50	0.0500	c+ u ***
Dibromofluoromethane	0.4683	0.4693	50.00	50.10	ug/L	0	20	50	0.0500	u
1,2-Dichloroethane-d4	0.2915	0.2974	50.00	51.02	ug/L	2	20	50	0.0500	u
Toluene-d8	1.2110	1.2757	50.00	52.67	ug/L	5	20	50	0.0500	u
Bromofluorobenzene	0.7995	0.8061	50.00	50.41	ug/L	1	20	50	0.0500	u

ISTD (ICAL ldl14)	ICAL Area	Area	%Drift	ICAL RT	RT	Drift
Pentafluorobenzene	170382	164304	-3.57	10.67	10.66	-0.01
1,4-Difluorobenzene	270971	253401	-6.48	11.53	11.52	-0.01
Chlorobenzene-d5	275959	241645	-12.43	14.42	14.41	-0.01
1,4-Dichlorobenzene-d4	179423	150347	-16.21	16.56	16.55	-0.01

Analyst: KKM Date: 05/25/16 Reviewer: LW Date: 05/26/16

+=high bias -=low bias c=CCV m=manual integration u=use v=ICV

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 MSVOA Soil
EPA 8260C

Inst : MSVOA12 Run Name : 25PPB IDF : 1.0
Seqnum : 886206779020.1 File : lem20 Time : 23-MAY-2016 01:17
Cal : 886162307001 Caldate : 21-APR-2016 Caltype : SOIL
Standards: S29760 (20000X), S29559 (20000X), S28143 (20000X), S29529 (5000X)

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Max Closing %D	Min RF	Flags
Freon 12	1.0266	1.0866	25.00	26.46	ug/L	6	20	50	0.1000	
Chloromethane	1.1711	1.3118	25.00	28.00	ug/L	12	20	50	0.1000	
Vinyl Chloride	1.0375	1.0431	25.00	25.14	ug/L	1	20	50	0.1000	
Bromomethane	0.5933	0.5654	25.00	23.82	ug/L	-5	20	50	0.1000	v- ***
Chloroethane	0.5504	0.5625	25.00	25.55	ug/L	2	20	50	0.1000	
Trichlorofluoromethane	0.9969	1.0006	25.00	25.09	ug/L	0	20	50	0.1000	
Acetone	0.2257	0.2314	25.00	25.64	ug/L	3	20	50	0.1000	
Freon 113	0.5969	0.5459	25.00	22.86	ug/L	-9	20	50	0.1000	
1,1-Dichloroethene	0.5858	0.5277	25.00	22.52	ug/L	-10	20	50	0.1000	
Methylene Chloride	0.7283	0.7017	25.00	24.09	ug/L	-4	20	50	0.1000	
Carbon Disulfide	2.2971	1.9750	25.00	21.49	ug/L	-14	20	50	0.1000	
MTBE	1.7396	1.6868	25.00	24.24	ug/L	-3	20	50	0.1000	
trans-1,2-Dichloroethene	0.6477	0.5809	25.00	22.42	ug/L	-10	20	50	0.1000	
Vinyl Acetate	1.2508	0.8704	25.00	17.40	ug/L	**-30**	20	50	0.0500	c- ***
1,1-Dichloroethane	1.1625	1.1253	25.00	24.20	ug/L	-3	20	50	0.2000	
2-Butanone	0.3262	0.3068	25.00	23.51	ug/L	-6	20	50	0.1000	
2,2-Dichloropropane	0.9192	0.8654	25.00	23.54	ug/L	-6	20	50	0.0500	
cis-1,2-Dichloroethene	0.7254	0.6839	25.00	23.57	ug/L	-6	20	50	0.1000	
Chloroform	1.0831	1.0696	25.00	24.69	ug/L	-1	20	50	0.2000	
Bromochloromethane	0.3429	0.3314	25.00	24.16	ug/L	-3	20	50	0.0500	
1,1,1-Trichloroethane	0.9226	0.8917	25.00	24.16	ug/L	-3	20	50	0.1000	
1,1-Dichloropropene	0.5602	0.5087	25.00	22.70	ug/L	-9	20	50	0.0500	
Carbon Tetrachloride	0.5135	0.4958	25.00	24.14	ug/L	-3	20	50	0.1000	
1,2-Dichloroethane	0.4579	0.4589	25.00	25.05	ug/L	0	20	50	0.1000	
Benzene	1.6998	1.6103	25.00	23.68	ug/L	-5	20	50	0.5000	
Trichloroethene	0.4177	0.3792	25.00	22.70	ug/L	-9	20	50	0.2000	
1,2-Dichloropropane	0.4352	0.4176	25.00	23.99	ug/L	-4	20	50	0.1000	
Bromodichloromethane	0.5223	0.5134	25.00	24.57	ug/L	-2	20	50	0.2000	
Dibromomethane	0.2364	0.2365	25.00	25.01	ug/L	0	20	50	0.0500	
4-Methyl-2-Pentanone	0.4395	0.4157	25.00	23.65	ug/L	-5	20	50	0.1000	
cis-1,3-Dichloropropene	0.6767	0.6418	25.00	23.71	ug/L	-5	20	50	0.2000	
Toluene	1.8506	1.7201	25.00	23.24	ug/L	-7	20	50	0.4000	
trans-1,3-Dichloropropene	0.5904	0.5546	25.00	23.49	ug/L	-6	20	50	0.1000	
1,1,2-Trichloroethane	0.1932	0.1936	25.00	25.05	ug/L	0	20	50	0.1000	
2-Hexanone	0.3259	0.2902	25.00	22.26	ug/L	-11	20	50	0.1000	
1,3-Dichloropropane	0.6170	0.6070	25.00	24.60	ug/L	-2	20	50	0.0500	
Tetrachloroethene	0.4696	0.4059	25.00	21.61	ug/L	-14	20	50	0.2000	
Dibromochloromethane	0.4287	0.4205	25.00	24.52	ug/L	-2	20	50	0.1000	
1,2-Dibromoethane	0.3791	0.3685	25.00	24.30	ug/L	-3	20	50	0.1000	
Chlorobenzene	1.2169	1.1501	25.00	23.63	ug/L	-5	20	50	0.5000	
1,1,1,2-Tetrachloroethane	0.4074	0.3959	25.00	24.29	ug/L	-3	20	50	0.0500	
Ethylbenzene	2.1283	1.9483	25.00	22.89	ug/L	-8	20	50	0.1000	
m,p-Xylenes	0.8596	0.7708	50.00	44.84	ug/L	-10	20	50	0.1000	
o-Xylene	0.8372	0.7807	25.00	23.31	ug/L	-7	20	50	0.3000	
Styrene	1.4086	1.2906	25.00	22.90	ug/L	-8	20	50	0.3000	
Bromoform	0.3331	0.3159	25.00	23.70	ug/L	-5	20	50	0.1000	
Isopropylbenzene	3.3889	3.1422	25.00	23.18	ug/L	-7	20	50	0.1000	
1,1,2,2-Tetrachloroethane	0.8259	0.8386	25.00	25.38	ug/L	2	20	50	0.3000	

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Max Closing %D	Min RF	Flags
1,2,3-Trichloropropane	0.7580	0.7677	25.00	25.32	ug/L	1	20	50	0.0500	
Propylbenzene	4.1535	3.8002	25.00	22.87	ug/L	-9	20	50	0.0500	
Bromobenzene	0.8569	0.8112	25.00	23.67	ug/L	-5	20	50	0.0500	
1,3,5-Trimethylbenzene	3.0022	2.6445	25.00	22.02	ug/L	-12	20	50	0.0500	
2-Chlorotoluene	2.6303	2.4692	25.00	23.47	ug/L	-6	20	50	0.0500	
4-Chlorotoluene	2.4523	2.2439	25.00	22.88	ug/L	-8	20	50	0.0500	
tert-Butylbenzene	2.7603	2.5822	25.00	23.39	ug/L	-6	20	50	0.0500	
1,2,4-Trimethylbenzene	3.1988	2.8302	25.00	22.12	ug/L	-12	20	50	0.0500	
sec-Butylbenzene	4.1674	3.8299	25.00	22.97	ug/L	-8	20	50	0.0500	
para-Isopropyl Toluene	3.5908	3.1967	25.00	22.26	ug/L	-11	20	50	0.0500	
1,3-Dichlorobenzene	1.7442	1.6076	25.00	23.04	ug/L	-8	20	50	0.6000	
1,4-Dichlorobenzene	1.7537	1.5925	25.00	22.70	ug/L	-9	20	50	0.5000	
n-Butylbenzene	3.4401	2.9883	25.00	21.72	ug/L	-13	20	50	0.0500	
1,2-Dichlorobenzene	1.7256	1.6235	25.00	23.52	ug/L	-6	20	50	0.4000	
1,2-Dibromo-3-Chloropropane	0.2231	0.2245	25.00	25.17	ug/L	1	20	50	0.0500	
1,2,4-Trichlorobenzene	1.4538	1.2111	25.00	20.83	ug/L	-17	20	50	0.2000	
Hexachlorobutadiene	0.8192	0.7084	25.00	21.62	ug/L	-14	20	50	0.0500	
Naphthalene	4.1422	3.9176	25.00	23.64	ug/L	-5	20	50	0.0500	
1,2,3-Trichlorobenzene	1.4415	1.3174	25.00	22.85	ug/L	-9	20	50	0.0500	
Dibromofluoromethane	0.4683	0.5019	50.00	53.59	ug/L	7	20	50	0.0500	
1,2-Dichloroethane-d4	0.2915	0.3108	50.00	53.33	ug/L	7	20	50	0.0500	
Trifluorotoluene	0.7325	0.6363	25.00	21.72	ug/L	-13	20	50	0.0500	
Toluene-d8	1.2110	1.2455	50.00	51.43	ug/L	3	20	50	0.0500	
Bromofluorobenzene	0.7995	0.7932	50.00	49.61	ug/L	-1	20	50	0.0500	

ISTD (ICAL ldl14)	ICAL Area	Area	%Drift	ICAL RT	RT	Drift
Pentafluorobenzene	170382	154937	-9.06	10.67	10.66	-0.01
1,4-Difluorobenzene	270971	244218	-9.87	11.53	11.52	-0.01
Chlorobenzene-d5	275959	248167	-10.07	14.42	14.41	-0.01
1,4-Dichlorobenzene-d4	179423	157896	-12.00	16.56	16.55	-0.01

Analyst: KKM Date: 05/25/16 Reviewer: LW Date: 05/26/16

-=low bias c=CCV v=ICV

886206779020.1

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 MSVOA Soil
EPA 8260C

Inst : MSVOA12 Run Name : 50PPB IDF : 1.0
Seqnum : 886209461003.2 File : leo03 Time : 24-MAY-2016 12:19
Cal : 886162307001 Caldate : 21-APR-2016 Caltype : SOIL
Standards: S29760 (10000X), S29559 (10000X), S28143 (10000X), S29529 (5000X)

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Max Closing %D	Min RF	Flags
Freon 12	1.0266	1.3573	50.00	66.11	ug/L	**32**	20	50	0.1000	c+ m ***
Chloromethane	1.1711	1.4756	50.00	63.00	ug/L	**26**	20	50	0.1000	c+ ***
Vinyl Chloride	1.0375	1.2488	50.00	60.19	ug/L	20	20	50	0.1000	
Bromomethane	0.5933	0.6420	50.00	54.10	ug/L	8	20	50	0.1000	v- ***
Chloroethane	0.5504	0.6536	50.00	59.38	ug/L	19	20	50	0.1000	
Trichlorofluoromethane	0.9969	1.1980	50.00	60.09	ug/L	20	20	50	0.1000	
Acetone	0.2257	0.2357	50.00	52.22	ug/L	4	20	50	0.1000	
Freon 113	0.5969	0.6052	50.00	50.70	ug/L	1	20	50	0.1000	
1,1-Dichloroethene	0.5858	0.5465	50.00	46.64	ug/L	-7	20	50	0.1000	
Methylene Chloride	0.7283	0.7092	50.00	48.69	ug/L	-3	20	50	0.1000	
Carbon Disulfide	2.2971	2.1162	50.00	46.06	ug/L	-8	20	50	0.1000	
MTBE	1.7396	1.8259	50.00	52.48	ug/L	5	20	50	0.1000	
trans-1,2-Dichloroethene	0.6477	0.6220	50.00	48.01	ug/L	-4	20	50	0.1000	
Vinyl Acetate	1.2508	1.3935	50.00	55.70	ug/L	11	20	50	0.0500	
1,1-Dichloroethane	1.1625	1.1434	50.00	49.18	ug/L	-2	20	50	0.2000	
2-Butanone	0.3262	0.3637	50.00	55.75	ug/L	11	20	50	0.1000	
2,2-Dichloropropane	0.9192	0.9849	50.00	53.57	ug/L	7	20	50	0.0500	
cis-1,2-Dichloroethene	0.7254	0.7069	50.00	48.72	ug/L	-3	20	50	0.1000	
Chloroform	1.0831	1.1098	50.00	51.23	ug/L	2	20	50	0.2000	
Bromochloromethane	0.3429	0.3411	50.00	49.74	ug/L	-1	20	50	0.0500	
1,1,1-Trichloroethane	0.9226	0.9598	50.00	52.01	ug/L	4	20	50	0.1000	
1,1-Dichloropropene	0.5602	0.5798	50.00	51.75	ug/L	3	20	50	0.0500	
Carbon Tetrachloride	0.5135	0.5488	50.00	53.44	ug/L	7	20	50	0.1000	
1,2-Dichloroethane	0.4579	0.4818	50.00	52.61	ug/L	5	20	50	0.1000	
Benzene	1.6998	1.7595	50.00	51.76	ug/L	4	20	50	0.5000	
Trichloroethene	0.4177	0.4370	50.00	52.30	ug/L	5	20	50	0.2000	
1,2-Dichloropropane	0.4352	0.4467	50.00	51.31	ug/L	3	20	50	0.1000	
Bromodichloromethane	0.5223	0.5521	50.00	52.85	ug/L	6	20	50	0.2000	
Dibromomethane	0.2364	0.2460	50.00	52.02	ug/L	4	20	50	0.0500	
4-Methyl-2-Pentanone	0.4395	0.4804	50.00	54.65	ug/L	9	20	50	0.1000	
cis-1,3-Dichloropropene	0.6767	0.7193	50.00	53.15	ug/L	6	20	50	0.2000	
Toluene	1.8506	1.9542	50.00	52.80	ug/L	6	20	50	0.4000	
trans-1,3-Dichloropropene	0.5904	0.6522	50.00	55.23	ug/L	10	20	50	0.1000	
1,1,2-Trichloroethane	0.1932	0.2153	50.00	55.73	ug/L	11	20	50	0.1000	
2-Hexanone	0.3259	0.3638	50.00	55.81	ug/L	12	20	50	0.1000	
1,3-Dichloropropane	0.6170	0.6786	50.00	55.00	ug/L	10	20	50	0.0500	
Tetrachloroethene	0.4696	0.4886	50.00	52.02	ug/L	4	20	50	0.2000	
Dibromochloromethane	0.4287	0.4728	50.00	55.14	ug/L	10	20	50	0.1000	
1,2-Dibromoethane	0.3791	0.4105	50.00	54.13	ug/L	8	20	50	0.1000	
Chlorobenzene	1.2169	1.3032	50.00	53.54	ug/L	7	20	50	0.5000	
1,1,1,2-Tetrachloroethane	0.4074	0.4518	50.00	55.44	ug/L	11	20	50	0.0500	
Ethylbenzene	2.1283	2.2887	50.00	53.77	ug/L	8	20	50	0.1000	
m,p-Xylenes	0.8596	0.9032	100.0	105.1	ug/L	5	20	50	0.1000	
o-Xylene	0.8372	0.9011	50.00	53.82	ug/L	8	20	50	0.3000	
Styrene	1.4086	1.5003	50.00	53.25	ug/L	7	20	50	0.3000	
Bromoform	0.3331	0.3571	50.00	53.60	ug/L	7	20	50	0.1000	
Isopropylbenzene	3.3889	3.6270	50.00	53.51	ug/L	7	20	50	0.1000	
1,1,2,2-Tetrachloroethane	0.8259	0.9559	50.00	57.87	ug/L	16	20	50	0.3000	

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Max Closing %D	Min RF	Flags
1,2,3-Trichloropropane	0.7580	0.8534	50.00	56.30	ug/L	13	20	50	0.0500	
Propylbenzene	4.1535	4.5729	50.00	55.05	ug/L	10	20	50	0.0500	
Bromobenzene	0.8569	0.8955	50.00	52.25	ug/L	5	20	50	0.0500	
1,3,5-Trimethylbenzene	3.0022	3.1833	50.00	53.02	ug/L	6	20	50	0.0500	
2-Chlorotoluene	2.6303	2.8338	50.00	53.87	ug/L	8	20	50	0.0500	
4-Chlorotoluene	2.4523	2.7211	50.00	55.48	ug/L	11	20	50	0.0500	
tert-Butylbenzene	2.7603	2.9544	50.00	53.52	ug/L	7	20	50	0.0500	
1,2,4-Trimethylbenzene	3.1988	3.4512	50.00	53.95	ug/L	8	20	50	0.0500	
sec-Butylbenzene	4.1674	4.5071	50.00	54.08	ug/L	8	20	50	0.0500	
para-Isopropyl Toluene	3.5908	3.9179	50.00	54.56	ug/L	9	20	50	0.0500	
1,3-Dichlorobenzene	1.7442	1.9348	50.00	55.46	ug/L	11	20	50	0.6000	
1,4-Dichlorobenzene	1.7537	1.9657	50.00	56.05	ug/L	12	20	50	0.5000	
n-Butylbenzene	3.4401	3.8977	50.00	56.65	ug/L	13	20	50	0.0500	
1,2-Dichlorobenzene	1.7256	1.8800	50.00	54.48	ug/L	9	20	50	0.4000	
1,2-Dibromo-3-Chloropropane	0.2231	0.2454	50.00	55.02	ug/L	10	20	50	0.0500	
1,2,4-Trichlorobenzene	1.4538	1.6546	50.00	56.91	ug/L	14	20	50	0.2000	
Hexachlorobutadiene	0.8192	0.8703	50.00	53.12	ug/L	6	20	50	0.0500	
Naphthalene	4.1422	4.3929	50.00	53.03	ug/L	6	20	50	0.0500	
1,2,3-Trichlorobenzene	1.4415	1.5837	50.00	54.93	ug/L	10	20	50	0.0500	
Dibromofluoromethane	0.4683	0.4662	50.00	49.77	ug/L	0	20	50	0.0500	
1,2-Dichloroethane-d4	0.2915	0.3022	50.00	51.84	ug/L	4	20	50	0.0500	
Trifluorotoluene	0.7325	0.7523	50.00	51.36	ug/L	3	20	50	0.0500	
Toluene-d8	1.2110	1.2611	50.00	52.07	ug/L	4	20	50	0.0500	
Bromofluorobenzene	0.7995	0.7798	50.00	48.77	ug/L	-2	20	50	0.0500	

ISTD (ICAL ldl14)	ICAL Area	Area	%Drift	ICAL RT	RT	Drift
Pentafluorobenzene	170382	165949	-2.60	10.67	10.66	-0.01
1,4-Difluorobenzene	270971	259721	-4.15	11.53	11.52	-0.01
Chlorobenzene-d5	275959	255989	-7.24	14.42	14.41	-0.01
1,4-Dichlorobenzene-d4	179423	168058	-6.33	16.56	16.55	-0.01

NJT 05/25/16 [Freon 12]: Combined split peak. [general version]

Analyst: KKM Date: 05/25/16 Reviewer: LW Date: 05/26/16

+=high bias -=low bias c=CCV m=manual integration v=ICV

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 MSVOA Soil
EPA 8260C

Inst : MSVOA12 Run Name : 50PPB IDF : 1.0
Seqnum : 886209461021.1 File : leo21 Time : 24-MAY-2016 22:28
Cal : 886162307001 Caldate : 21-APR-2016 Caltype : SOIL
Standards: S29760 (10000X), S29559 (10000X), S28143 (10000X), S29529 (5000X)

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Max Closing %D	Min RF	Flags
Freon 12	1.0266	1.2783	50.00	62.26	ug/L	**25**	20	50	0.1000	c+ ***
Chloromethane	1.1711	1.4147	50.00	60.40	ug/L	**21**	20	50	0.1000	c+ ***
Vinyl Chloride	1.0375	1.1571	50.00	55.77	ug/L	12	20	50	0.1000	
Bromomethane	0.5933	0.6545	50.00	55.16	ug/L	10	20	50	0.1000	v- ***
Chloroethane	0.5504	0.6278	50.00	57.03	ug/L	14	20	50	0.1000	
Trichlorofluoromethane	0.9969	1.1495	50.00	57.65	ug/L	15	20	50	0.1000	
Acetone	0.2257	0.1844	50.00	40.86	ug/L	-18	20	50	0.1000	
Freon 113	0.5969	0.5821	50.00	48.76	ug/L	-2	20	50	0.1000	
1,1-Dichloroethene	0.5858	0.5333	50.00	45.52	ug/L	-9	20	50	0.1000	
Methylene Chloride	0.7283	0.6907	50.00	47.42	ug/L	-5	20	50	0.1000	
Carbon Disulfide	2.2971	2.0475	50.00	44.57	ug/L	-11	20	50	0.1000	
MTBE	1.7396	1.6130	50.00	46.36	ug/L	-7	20	50	0.1000	
trans-1,2-Dichloroethene	0.6477	0.6000	50.00	46.32	ug/L	-7	20	50	0.1000	
Vinyl Acetate	1.2508	1.0633	50.00	42.51	ug/L	-15	20	50	0.0500	
1,1-Dichloroethane	1.1625	1.1044	50.00	47.50	ug/L	-5	20	50	0.2000	
2-Butanone	0.3262	0.2565	50.00	39.32	ug/L	**-21**	20	50	0.1000	c- ***
2,2-Dichloropropane	0.9192	0.9326	50.00	50.73	ug/L	1	20	50	0.0500	
cis-1,2-Dichloroethene	0.7254	0.6775	50.00	46.69	ug/L	-7	20	50	0.1000	
Chloroform	1.0831	1.0715	50.00	49.47	ug/L	-1	20	50	0.2000	
Bromochloromethane	0.3429	0.3252	50.00	47.43	ug/L	-5	20	50	0.0500	
1,1,1-Trichloroethane	0.9226	0.9300	50.00	50.40	ug/L	1	20	50	0.1000	
1,1-Dichloropropene	0.5602	0.5349	50.00	47.74	ug/L	-5	20	50	0.0500	
Carbon Tetrachloride	0.5135	0.5220	50.00	50.83	ug/L	2	20	50	0.1000	
1,2-Dichloroethane	0.4579	0.4374	50.00	47.75	ug/L	-4	20	50	0.1000	
Benzene	1.6998	1.6434	50.00	48.34	ug/L	-3	20	50	0.5000	
Trichloroethene	0.4177	0.3963	50.00	47.43	ug/L	-5	20	50	0.2000	
1,2-Dichloropropane	0.4352	0.4212	50.00	48.39	ug/L	-3	20	50	0.1000	
Bromodichloromethane	0.5223	0.5041	50.00	48.26	ug/L	-3	20	50	0.2000	
Dibromomethane	0.2364	0.2245	50.00	47.48	ug/L	-5	20	50	0.0500	
4-Methyl-2-Pentanone	0.4395	0.3656	50.00	41.59	ug/L	-17	20	50	0.1000	
cis-1,3-Dichloropropene	0.6767	0.6428	50.00	47.49	ug/L	-5	20	50	0.2000	
Toluene	1.8506	1.7868	50.00	48.28	ug/L	-3	20	50	0.4000	
trans-1,3-Dichloropropene	0.5904	0.5640	50.00	47.77	ug/L	-4	20	50	0.1000	
1,1,2-Trichloroethane	0.1932	0.1878	50.00	48.61	ug/L	-3	20	50	0.1000	
2-Hexanone	0.3259	0.2604	50.00	39.95	ug/L	-20	20	50	0.1000	
1,3-Dichloropropane	0.6170	0.5964	50.00	48.33	ug/L	-3	20	50	0.0500	
Tetrachloroethene	0.4696	0.4345	50.00	46.26	ug/L	-7	20	50	0.2000	
Dibromochloromethane	0.4287	0.4178	50.00	48.73	ug/L	-3	20	50	0.1000	
1,2-Dibromoethane	0.3791	0.3574	50.00	47.13	ug/L	-6	20	50	0.1000	
Chlorobenzene	1.2169	1.1699	50.00	48.07	ug/L	-4	20	50	0.5000	
1,1,1,2-Tetrachloroethane	0.4074	0.4041	50.00	49.59	ug/L	-1	20	50	0.0500	
Ethylbenzene	2.1283	2.0523	50.00	48.22	ug/L	-4	20	50	0.1000	
m,p-Xylenes	0.8596	0.7984	100.0	92.88	ug/L	-7	20	50	0.1000	
o-Xylene	0.8372	0.7995	50.00	47.75	ug/L	-5	20	50	0.3000	
Styrene	1.4086	1.3300	50.00	47.21	ug/L	-6	20	50	0.3000	
Bromoform	0.3331	0.3056	50.00	45.87	ug/L	-8	20	50	0.1000	
Isopropylbenzene	3.3889	3.2063	50.00	47.31	ug/L	-5	20	50	0.1000	
1,1,2,2-Tetrachloroethane	0.8259	0.7933	50.00	48.02	ug/L	-4	20	50	0.3000	

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Max Closing %D	Min RF	Flags
1,2,3-Trichloropropane	0.7580	0.7044	50.00	46.46	ug/L	-7	20	50	0.0500	
Propylbenzene	4.1535	3.9139	50.00	47.12	ug/L	-6	20	50	0.0500	
Bromobenzene	0.8569	0.7977	50.00	46.55	ug/L	-7	20	50	0.0500	
1,3,5-Trimethylbenzene	3.0022	2.7604	50.00	45.97	ug/L	-8	20	50	0.0500	
2-Chlorotoluene	2.6303	2.4874	50.00	47.28	ug/L	-5	20	50	0.0500	
4-Chlorotoluene	2.4523	2.2781	50.00	46.45	ug/L	-7	20	50	0.0500	
tert-Butylbenzene	2.7603	2.5916	50.00	46.95	ug/L	-6	20	50	0.0500	
1,2,4-Trimethylbenzene	3.1988	2.9153	50.00	45.57	ug/L	-9	20	50	0.0500	
sec-Butylbenzene	4.1674	3.9695	50.00	47.63	ug/L	-5	20	50	0.0500	
para-Isopropyl Toluene	3.5908	3.3253	50.00	46.30	ug/L	-7	20	50	0.0500	
1,3-Dichlorobenzene	1.7442	1.6299	50.00	46.72	ug/L	-7	20	50	0.6000	
1,4-Dichlorobenzene	1.7537	1.6275	50.00	46.40	ug/L	-7	20	50	0.5000	
n-Butylbenzene	3.4401	3.1569	50.00	45.88	ug/L	-8	20	50	0.0500	
1,2-Dichlorobenzene	1.7256	1.6276	50.00	47.16	ug/L	-6	20	50	0.4000	
1,2-Dibromo-3-Chloropropane	0.2231	0.1890	50.00	42.37	ug/L	-15	20	50	0.0500	
1,2,4-Trichlorobenzene	1.4538	1.2407	50.00	42.67	ug/L	-15	20	50	0.2000	
Hexachlorobutadiene	0.8192	0.7417	50.00	45.27	ug/L	-9	20	50	0.0500	
Naphthalene	4.1422	3.6050	50.00	43.52	ug/L	-13	20	50	0.0500	
1,2,3-Trichlorobenzene	1.4415	1.2715	50.00	44.10	ug/L	-12	20	50	0.0500	
Dibromofluoromethane	0.4683	0.4848	50.00	51.76	ug/L	4	20	50	0.0500	
1,2-Dichloroethane-d4	0.2915	0.3013	50.00	51.69	ug/L	3	20	50	0.0500	
Trifluorotoluene	0.7325	0.6817	50.00	46.54	ug/L	-7	20	50	0.0500	
Toluene-d8	1.2110	1.2546	50.00	51.80	ug/L	4	20	50	0.0500	
Bromofluorobenzene	0.7995	0.7871	50.00	49.22	ug/L	-2	20	50	0.0500	

ISTD (ICAL ldl14)	ICAL Area	Area	%Drift	ICAL RT	RT	Drift
Pentafluorobenzene	170382	157308	-7.67	10.67	10.66	-0.01
1,4-Difluorobenzene	270971	250371	-7.60	11.53	11.52	-0.01
Chlorobenzene-d5	275959	250275	-9.31	14.42	14.41	-0.01
1,4-Dichlorobenzene-d4	179423	164150	-8.51	16.56	16.55	-0.01

Analyst: KKM Date: 05/25/16 Reviewer: LW Date: 05/26/16

+=high bias -=low bias c=CCV v=ICV

Logbooks & Sequences

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 886206779

Date : 05/22/16 Reference : ldl14
Sequence : MSVOA12 lem Analyzed : 04/22/16 00:01

#	Type	Sample ID	PFLBZ	RT	14DFB	RT	CLBZD5	RT	DCBZ14D4	RT
		ICAL STD	170382	10.67	270971	11.53	275959	14.42	179423	16.56
		LOWER LIMIT	85191	10.50	135486	11.36	137980	14.25	89712	16.39
		UPPER LIMIT	340764	10.84	541942	11.70	551918	14.59	358846	16.73
004	CCV/BS	QC836566	164304	10.66	253401	11.52	241645	14.41	150347	16.55
005	BSD	QC836567	166379	10.66	257515	11.52	251854	14.41	155037	16.55
007	BLANK	QC836568	170240	10.66	263929	11.52	258741	14.41	167639	16.55
008	SAMPLE	277038-001	146370	10.66	238311	11.52	238321	14.41	153926	16.55
009	SAMPLE	277038-002	133723	10.66	218680	11.52	223384	14.41	140539	16.55
010	SAMPLE	277038-003	135894	10.66	222698	11.52	218597	14.41	129151	16.55
011	SAMPLE	277038-004	137163	10.66	227359	11.52	236126	14.41	153043	16.55
012	SAMPLE	277038-005	131783	10.66	210494	11.52	211793	14.41	129067	16.55
013	SAMPLE	277038-006	131800	10.66	215544	11.52	225888	14.41	147659	16.55
014	SAMPLE	277038-007	133787	10.66	217889	11.52	225324	14.41	151947	16.55
015	SAMPLE	277038-008	135157	10.66	226814	11.52	229341	14.41	154513	16.55
016	SAMPLE	277038-009	123513	10.66	204955	11.52	214810	14.41	138105	16.55
017	SAMPLE	277038-010	124627	10.66	212589	11.52	222857	14.41	146146	16.55
018	SAMPLE	277038-011	121543	10.66	197687	11.52	199985	14.41	120781	16.55
019	SAMPLE	277038-012	127130	10.66	210273	11.52	209391	14.41	120079	16.55
020	CCV	25PPB	154937	10.66	244218	11.52	248167	14.41	157896	16.55

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 886209461

Date : 05/24/16 Reference : ldl14
Sequence : MSVOA12 leo Analyzed : 04/22/16 00:01

#	Type	Sample ID	PFLBZ	RT	14DFB	RT	CLBZD5	RT	DCBZ14D4	RT
		ICAL STD	170382	10.67	270971	11.53	275959	14.42	179423	16.56
		LOWER LIMIT	85191	10.50	135486	11.36	137980	14.25	89712	16.39
		UPPER LIMIT	340764	10.84	541942	11.70	551918	14.59	358846	16.73
003	CCV	50PPB	165949	10.66	259721	11.52	255989	14.41	168058	16.55
004	LCS	QC836841	148657	10.66	235872	11.52	233084	14.41	148280	16.55
005	BLANK	QC836843	133687	10.66	216819	11.52	218280	14.41	142133	16.55
006	PREPBLK	QC836905	144403	10.66	231633	11.51	234816	14.41	164668	16.55
007	SAMPLE	277038-001	118765	10.66	195111	11.52	198279	14.41	125573	16.55
008	SAMPLE	277038-009	117243	10.66	195039	11.52	202087	14.41	129708	16.55
012	MS	QC836930	132316	10.66	225278	11.52	236046	14.41	155773	16.55
013	MSD	QC836931	148072	10.66	242635	11.52	246525	14.41	163261	16.55
021	CCV	50PPB	157308	10.66	250371	11.52	250275	14.41	164150	16.55

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 886162307

Instrument : MSVOA12 Begun : 04/21/16 17:07
Method : EPA 8260C SOP Version : TVH_8260B_rv1

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	ldl01	TUN	BFB			04/21/16 17:07	1.0	1	t
002	ldl02	TUN	BFB			04/21/16 17:27	1.0	1	t
003	ldl03	TUN	BFB			04/21/16 17:47	1.0	1	
004	ldl04	IB				04/21/16 18:33	1.0	2	
005	ldl05	IB				04/21/16 19:05	1.0	2	
006	ldl06	IB				04/21/16 19:38	1.0	2	
007	ldl07	IB				04/21/16 20:11	1.0	2	
008	ldl08	IB				04/21/16 20:44	1.0	2	
009	ldl09	IB	CALIB			04/21/16 21:17	1.0	2	
010	ldl10	ICAL	.25PPB			04/21/16 21:50	1.0	3 4 5 2	
011	ldl11	ICAL	5PPB			04/21/16 22:22	1.0	3 4 5 2	
012	ldl12	ICAL	10PPB			04/21/16 22:55	1.0	3 4 5 2	
013	ldl13	ICAL	20PPB			04/21/16 23:28	1.0	3 4 5 2	
014	ldl14	ICAL	50PPB			04/22/16 00:01	1.0	3 4 5 2	
015	ldl15	ICAL	60PPB			04/22/16 00:34	1.0	3 4 5 2	
016	ldl16	ICAL	75PPB			04/22/16 01:06	1.0	3 4 5 2	
017	ldl17	ICAL	100PPB			04/22/16 01:39	1.0	3 4 5 2	
018	ldl18	ICAL	200PPB			04/22/16 02:12	1.0	3 4 5 2	
019	ldl19	ICV	GAS			04/22/16 02:45	1.0	6 2	
020	ldl20	ICV	MIX			04/22/16 03:17	1.0	7 8 9 2	
021	ldl21	IB				04/22/16 03:50	1.0	2	

NJT 04/22/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 21.

LW 04/25/16 : Typo in the sample id for file 10 - spiked at 2.5 not .25

Analyst: NJT Date: 04/22/16 Reviewer: LW Date: 04/25/16

Standards used: 1=S29058 2=S29263 3=S29427 4=S29559 5=S28142 6=S29299 7=S29448 8=S29564 9=S29290

Flags used: t=tune failure

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 886206779

Instrument : MSVOA12 Begun : 05/22/16 14:19
Method : EPA 8260C SOP Version : TVH_8260B_rv1

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	lem01	IB				05/22/16 14:19	1.0	1	?t
002	lem02	TUN	BFB			05/22/16 14:58	1.0	2	
003	lem03	CCV	25PPB			05/22/16 15:24	1.0	3 4 5 1	
004	lem04	CCV/BS	QC836566	Soil	235335	05/22/16 15:57	1.0	6 7 8 9 1	
005	lem05	BSD	QC836567	Soil	235335	05/22/16 16:30	1.0	6 7 8 9 1	
006	lem06	IB				05/22/16 17:27	1.0	1	
007	lem07	BLANK	QC836568	Soil	235335	05/22/16 18:00	1.0	1	
008	lem08	SAMPLE	277038-001	Soil	235335	05/22/16 18:44	0.9488	1	
009	lem09	SAMPLE	277038-002	Soil	235335	05/22/16 19:16	0.9452	1	
010	lem10	SAMPLE	277038-003	Soil	235335	05/22/16 19:49	0.8091	1	
011	lem11	SAMPLE	277038-004	Soil	235335	05/22/16 20:22	0.8117	1	
012	lem12	SAMPLE	277038-005	Soil	235335	05/22/16 20:54	0.8591	1	
013	lem13	SAMPLE	277038-006	Soil	235335	05/22/16 21:27	0.7205	1	
014	lem14	SAMPLE	277038-007	Soil	235335	05/22/16 22:00	0.8143	1	
015	lem15	SAMPLE	277038-008	Soil	235335	05/22/16 22:33	0.9785	1	
016	lem16	SAMPLE	277038-009	Soil	235335	05/22/16 23:06	0.8333	1	
017	lem17	SAMPLE	277038-010	Soil	235335	05/22/16 23:38	0.9416	1	
018	lem18	SAMPLE	277038-011	Soil	235335	05/23/16 00:11	0.8993	1	
019	lem19	SAMPLE	277038-012	Soil	235335	05/23/16 00:44	0.9398	1	
020	lem20	CCV	25PPB			05/23/16 01:17	1.0	3 4 5 1	
021	lem21	IB				05/23/16 01:50	1.0	1	
022	lem22	IB				05/23/16 02:22	1.0	1	

DAR 05/23/16 : Matrix spikes were not performed for this analysis in batch 235335 due to insufficient sample amount.

DAR 05/23/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 22.

Analyst: DAR Date: 05/23/16 Reviewer: LW Date: 05/23/16

Standards used: 1=S29529 2=S29058 3=S29760 4=S29559 5=S28143 6=S29697 7=S29918 8=S29690 9=S29299

Flags used: ?t=missing tune

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 886209461

Instrument : MSVOA12 Begun : 05/24/16 11:01
Method : EPA 8260C SOP Version : TVH_8260B_rv1

#	File	Type	Sample ID	P	Matrix	Batch	Analyzed	IDF	Stds Used	
001	leo01	IB					05/24/16 11:01	1.0	1	?t
002	leo02	TUN	BFB				05/24/16 11:52	1.0	2	
003	leo03	CCV	50PPB				05/24/16 12:19	1.0	3 4 5 1	
004	leo04	LCS	QC836841		Soil	235404	05/24/16 12:52	1.0	6 7 8 9 1	
005	leo05	BLANK	QC836843		Soil	235404	05/24/16 13:35	1.0	1	
006	leo06	PREPBLK	QC836905	M	Soil	235404	05/24/16 14:08	50.0	10 1	
007	leo07	SAMPLE	277038-001		Soil	235404	05/24/16 14:41	0.8052	1	
008	leo08	SAMPLE	277038-009		Soil	235404	05/24/16 15:14	0.9091	1	
009	leo09	MSS	277111-001		Soil	235404	05/24/16 15:46	0.9747	1	
010	leo10	SAMPLE	277111-002		Soil	235404	05/24/16 16:19	0.9452	1	
011	leo11	SAMPLE	277111-003		Soil	235404	05/24/16 16:52	0.9804	1	
012	leo12	MS	QC836930		Soil	235404	05/24/16 17:25	0.9524	6 7 8 9 1	
013	leo13	MSD	QC836931		Soil	235404	05/24/16 17:58	0.9747	6 7 8 9 1	
014	leo14	SAMPLE	277006-001	M	Soil	235404	05/24/16 18:38	50.0	10 1	
015	leo15	SAMPLE	277006-002	M	Soil	235404	05/24/16 19:11	50.0	10 1	
016	leo16	SAMPLE	277006-003	M	Soil	235404	05/24/16 19:44	50.0	10 1	
017	leo17	SAMPLE	277101-001	M	Soil	235404	05/24/16 20:17	50.0	10 1	
018	leo18	SAMPLE	277101-002	M	Soil	235404	05/24/16 20:49	50.0	10 1	
019	leo19	SAMPLE	277131-002	M	Soil	235404	05/24/16 21:22	50.0	10 1	
020	leo20	IB					05/24/16 21:55	1.0	1	
021	leo21	CCV	50PPB				05/24/16 22:28	1.0	3 4 5 1	
022	leo22	IB					05/24/16 23:00	1.0	1	
023	leo23	IB	BOX 1				05/24/16 23:33	1.0	1	
024	leo24	IB	BOX 2				05/25/16 00:06	1.0	1	<<t
025	leo25	IB	BOX 3				05/25/16 00:39	1.0	1	<<t
026	leo26	IB	BOX 4				05/25/16 01:11	1.0	1	<<t

NJT 05/25/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 26.

Analyst: NJT Date: 05/25/16 Reviewer: LW Date: 05/25/16

Standards used: 1=S29529 2=S29058 3=S29760 4=S29559 5=S28143 6=S29697 7=S29918 8=S29690 9=S29299 10=S26863

Flags used: <<t=out of clock ?t=missing tune

MSVOA SOIL PREPSHEET

Batch #: 239335 Batch #: _____

Instrument: 12 Instrument: _____

	Sample ID	grams or mL	Core ID	Encore	Jar	MeOH	RR	DF	Comments	MSVOA #	20% ccv?	hold	due	$Rush	Prep'd by (initials/date)
1	279038-1	5.27	A												
2	2	5.29	A												
3	3	6.18	A												
4	4	6.16	A												
5	5	5.92													
6	6	6.04													
7	7	6.14													
8	8	5.11													
9	9	6.00													
10	10	5.31													
11	11	5.56													
12	12	5.32	C												
13	Closing CCV														
14															
15															
16															
17															
18															
19															
20															
21															
22															
23															
24															
25															
26															
27															
28															
29															

MSVOA SOIL PREPSHEET

Batch #: 235404 Batch #: _____

Instrument: MS12 Instrument: _____

	Sample ID	grams or mL	Core ID	Encore	Jar	MeOH	RR	DF	Comments	MSVOA #	20% ccv?	hold	due	$Rush	Prep'd by (initials/date)
1	277111-1	5.13	A		X								5/26	X	
2	-2	5.29													
3	-3	5.10													
4	277045-1							50X	Put off to screen						
5	-2														
6	-3														
7	-4														
8	277101-1	0.100		X				50X							
9	-2														
10	277006-1				X			50X							
11	-2														
12	-3														
13	P. Blank	0.100	—					50X							
14	277038-1	6.21	D	X			2	1X	1st run: Acetone 2nd: No dilution CCV		X	5/26	5/27	X	
15	-9	5.50					2		+ MeCl w/surr 2nd:						
16	277111-1 MS	5.25	A		X										
17	-1 MSD	5.13													
18	CCV														
19	277131-2	0.100	A		X	X		50X	odor				5/25	X	P+RS/24
20															
21															
22															
23															
24															
25															
26															
27															
28															
29															

Notebook No. BK 3719 7

PROJECT MS VOA MeOH Extraction Log

Continued from Page ____

Date & initial	Sample ID	Soil wt. (g)	MeOH Vol. (mL)	MeOH Lot #	Analysis	Surrogate Std. #	Surrogate Std. Vol. (mL)	Comments
M	Prep Blank	—	10.0	157266	—	526863	0.01	
5/16/16	276840-1A	10.0	10.0	↓	8260	↓	↓	
↓	276841-1	↓	10.0	↓	↓	↓	↓	
↓	2	↓	10.0	↓	↓	↓	↓	
↓	276881-1A	10.0	10.0	↓	↓	↓	↓	Small
~~5/24/16 Liz~~	~~Blank~~	~~10.~~ Liz	5/24					
5/24/16 Liz	P.Blank	—	10.0	157266	8260	526863	0.010	
	276006-1A	10.00	↓	↓	↓	↓	↓	
	-2	↓						
	-3							
	276018-1	2.00						absorbed MeOH Varnish
	276022-1	1.00						
	-2	↓						
	-3							
	4							
5/24/16 CAR	277131-1	5.0	5.0	↓	BTOX	526863	0.005	1:4 total sample
↓	-2	5.0	↓		↓	↓	↓	↓
	-3		CAR 5/24					

Continued on Page

Read and Understood By

Signed ____ Date ____ Signed ____ Date ____

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PROJECT 5035 MeOH Prep Log

Notebook No. BK 3087

Continued From Page

Date & initial	Sample ID	Soil wt. (g)	MeOH Vol. (mL)	MeOH Lot #	Surrogate Std. #	Surrogate Std. Vol. (mL)	Comments
5/24/16 ZS	See Blank on Page #7 of MS			VOA MeOH Ext. Log Book # BK3719			
	276045-1 B	6.60	6.6	157266	526863	0.0066	
	-2	6.20	6.2			0.0062	
	-3	4.90	4.9			0.0049	
	-4	5.60	5.6			0.0056	
	276101-1	5.90	5.9			0.0059	
	-2	5.60	5.6			0.0056	

Continued on Page

Read and Understood By

Signed | Date | Signed | Date

Case Narrative Addendum: Manual Integrations for 277038 GC/MS VOA (Soil)

For CCV 50PPB (MSVOA12 leo03):
Freon 12: Combined split peak.

For BSD QC836567 (MSVOA12 lem05):
Freon 12: Combined split peak for spike & dup.

For LCS QC836841 (MSVOA12 leo04):
Freon 12: Combined split peak.

For MSD QC836931 (MSVOA12 leo13):
Freon 12: Combined split peak for spike & dup.

For Calibration MSVOA12 (886162307001):
Acetone: Combined split peak in 5PPB (ldl11).
Bromomethane: Corrected fronting or tailing peak integration in multiple levels.
Chloromethane: Combined split peak in .25PPB (ldl10).
Freon 12: Corrected fronting or tailing peak integration in 5PPB (ldl11).

For ICV GAS (MSVOA12 ldl19):
Bromomethane: Corrected fronting or tailing peak integration.

CAS Registry Numbers for 277038 MSVOA Soil
Curtis & Tompkins Laboratories

Analyte	CAS RN
1,1,1,2-Tetrachloroethane	630-20-6
1,1,1-Trichloroethane	71-55-6
1,1,2,2-Tetrachloroethane	79-34-5
1,1,2-Trichloroethane	79-00-5
1,1-Dichloroethane	75-34-3
1,1-Dichloroethene	75-35-4
1,1-Dichloropropene	563-58-6
1,2,3-Trichlorobenzene	87-61-6
1,2,3-Trichloropropane	96-18-4
1,2,4-Trichlorobenzene	120-82-1
1,2,4-Trimethylbenzene	95-63-6
1,2-Dibromo-3-Chloropropane	96-12-8
1,2-Dibromoethane	106-93-4
1,2-Dichlorobenzene	95-50-1
1,2-Dichloroethane	107-06-2
1,2-Dichloroethane-d4	17060-07-0
1,2-Dichloropropane	78-87-5
1,3,5-Trimethylbenzene	108-67-8
1,3-Dichlorobenzene	541-73-1
1,3-Dichloropropane	142-28-9
1,4-Dichlorobenzene	106-46-7
2,2-Dichloropropane	594-20-7
2-Butanone	78-93-3
2-Chlorotoluene	95-49-8
2-Hexanone	591-78-6
4-Chlorotoluene	106-43-4
4-Methyl-2-Pentanone	108-10-1
Acetone	67-64-1
Benzene	71-43-2
Bromobenzene	108-86-1
Bromochloromethane	74-97-5
Bromodichloromethane	75-27-4
Bromofluorobenzene	460-00-4
Bromoform	75-25-2
Bromomethane	74-83-9
Carbon Disulfide	75-15-0
Carbon Tetrachloride	56-23-5
Chlorobenzene	108-90-7
Chloroethane	75-00-3
Chloroform	67-66-3
Chloromethane	74-87-3
cis-1,2-Dichloroethene	156-59-2
cis-1,3-Dichloropropene	10061-01-5
Dibromochloromethane	124-48-1
Dibromofluoromethane	1868-53-7
Dibromomethane	74-95-3
Ethylbenzene	100-41-4
Freon 113	76-13-1
Freon 12	75-71-8
Hexachlorobutadiene	87-68-3
Isopropylbenzene	98-82-8
m,p-Xylenes	1330-20-7
Methylene Chloride	75-09-2
MTBE	1634-04-4

Analyte	CAS RN
n-Butylbenzene	104-51-8
Naphthalene	91-20-3
o-Xylene	95-47-6
para-Isopropyl Toluene	99-87-6
Propylbenzene	103-65-1
sec-Butylbenzene	135-98-8
Styrene	100-42-5
tert-Butylbenzene	98-06-6
Tetrachloroethene	127-18-4
Toluene	108-88-3
Toluene-d8	2037-26-5
trans-1,2-Dichloroethene	156-60-5
trans-1,3-Dichloropropene	10061-02-6
Trichloroethene	79-01-6
Trichlorofluoromethane	75-69-4
Vinyl Acetate	108-05-4
Vinyl Chloride	75-01-4

Laboratory Job Number 277038

ANALYTICAL REPORT

Semivolatile Organics by GC/MS

Matrix: Soil

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8270D
Field ID:	BS-BERNARD-01-051916	Batch#:	235475
Lab ID:	277038-001	Sampled:	05/19/16
Matrix:	Soil	Received:	05/20/16
Units:	ug/Kg	Prepared:	05/25/16
Basis:	dry	Analyzed:	05/26/16
Diln Fac:	1.000		

Moisture: 9%

Analyte	Result	LOQ	DL
N-Nitrosodimethylamine	91 U	360	51
Phenol	36 U	360	11
bis(2-Chloroethyl)ether	91 U	360	65
2-Chlorophenol	36 U	360	11
1,3-Dichlorobenzene	91 U	360	62
1,4-Dichlorobenzene	36 U	360	11
Benzyl alcohol	36 U	360	12
1,2-Dichlorobenzene	36 U	360	11
2-Methylphenol	36 U	360	15
bis(2-Chloroisopropyl) ether	36 U	360	11
4-Methylphenol	36 U	360	11
N-Nitroso-di-n-propylamine	36 U	360	11
Hexachloroethane	36 U	360	11
Nitrobenzene	36 U	360	12
Isophorone	36 U	360	11
2-Nitrophenol	36 U	730	11
2,4-Dimethylphenol	36 U	360	15
Benzoic acid	910 U	1,800	480
bis(2-Chloroethoxy)methane	36 U	360	11
2,4-Dichlorophenol	36 U	360	11
1,2,4-Trichlorobenzene	36 U	360	11
Naphthalene	36 U	73	11
4-Chloroaniline	36 U	360	10
Hexachlorobutadiene	36 U	360	9.7
4-Chloro-3-methylphenol	36 U	360	9.1
2-Methylnaphthalene	36 U	73	11
Hexachlorocyclopentadiene	36 U b	730	15
2,4,6-Trichlorophenol	36 U	360	14
2,4,5-Trichlorophenol	36 U	360	9.1
2-Chloronaphthalene	36 U	360	9.8
2-Nitroaniline	36 U	730	12
Dimethylphthalate	36 U	360	11
Acenaphthylene	36 U	73	9.7
2,6-Dinitrotoluene	36 U	360	9.7
3-Nitroaniline	36 U	730	11
Acenaphthene	36 U	73	11
2,4-Dinitrophenol	180 U	730	70
4-Nitrophenol	180 U	730	78
Dibenzofuran	36 U	360	11
2,4-Dinitrotoluene	36 U	360	10
Diethylphthalate	36 U	360	12
Fluorene	36 U	73	11
4-Chlorophenyl-phenylether	36 U	360	11
4-Nitroaniline	36 U	730	11
4,6-Dinitro-2-methylphenol	180 U	730	84
N-Nitrosodiphenylamine	36 U	360	12
Azobenzene	36 U	360	9.3
4-Bromophenyl-phenylether	36 U	360	11

J= Estimated value
U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8270D
Field ID:	BS-BERNARD-01-051916	Batch#:	235475
Lab ID:	277038-001	Sampled:	05/19/16
Matrix:	Soil	Received:	05/20/16
Units:	ug/Kg	Prepared:	05/25/16
Basis:	dry	Analyzed:	05/26/16
Diln Fac:	1.000		

Analyte	Result	LOQ	DL
Hexachlorobenzene	36 U	360	12
Pentachlorophenol	180 U	730	140
Phenanthrene	36 U	73	11
Anthracene	36 U	73	12
Carbazole	36 U	360	14
Di-n-butylphthalate	36 U	360	13
Fluoranthene	13 J	73	11
Pyrene	18 J	73	12
Butylbenzylphthalate	36 U	360	11
3,3'-Dichlorobenzidine	36 U	730	11
Benzo(a)anthracene	36 U	73	11
Chrysene	13 J	73	12
bis(2-Ethylhexyl)phthalate	16 J	360	14
Di-n-octylphthalate	36 U	360	11
Benzo(b)fluoranthene	13 J	73	9.8
Benzo(k)fluoranthene	36 U	73	10
Benzo(a)pyrene	36 U	73	9.5
Indeno(1,2,3-cd)pyrene	36 U	73	9.6
Dibenz(a,h)anthracene	36 U	73	10
Benzo(g,h,i)perylene	36 U	73	11

Surrogate	%REC	Limits
2-Fluorophenol	68	35-115
Phenol-d5	69	33-122
2,4,6-Tribromophenol	53	39-132
Nitrobenzene-d5	56	37-122
2-Fluorobiphenyl	50	44-115
Terphenyl-d14	61	54-127

J= Estimated value
U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8270D
Field ID:	BS-BERNARD-02-051916	Dil'n Fac:	2.000
Lab ID:	277038-002	Batch#:	235475
Matrix:	Soil	Sampled:	05/19/16
Units:	ug/Kg	Received:	05/20/16
Basis:	dry	Prepared:	05/25/16

Moisture: 9%

Analyte	Result	LOQ	DL	Analyzed
N-Nitrosodimethylamine	190 U	740	100	05/27/16
Phenol	74 U	740	22	05/27/16
bis(2-Chloroethyl)ether	190 U	740	130	05/27/16
2-Chlorophenol	74 U	740	22	05/27/16
1,3-Dichlorobenzene	190 U	740	130	05/27/16
1,4-Dichlorobenzene	74 U	740	22	05/27/16
Benzyl alcohol	74 U	740	24	05/27/16
1,2-Dichlorobenzene	74 U	740	22	05/27/16
2-Methylphenol	74 U	740	30	05/27/16
bis(2-Chloroisopropyl) ether	74 U	740	22	05/27/16
4-Methylphenol	74 U	740	22	05/27/16
N-Nitroso-di-n-propylamine	74 U	740	22	05/27/16
Hexachloroethane	74 U	740	22	05/27/16
Nitrobenzene	74 U	740	24	05/27/16
Isophorone	74 U	740	22	05/27/16
2-Nitrophenol	74 U	1,500	22	05/27/16
2,4-Dimethylphenol	74 U	740	31	05/27/16
Benzoic acid	1,900 U	3,700	970	05/27/16
bis(2-Chloroethoxy)methane	74 U	740	22	05/27/16
2,4-Dichlorophenol	74 U	740	22	05/27/16
1,2,4-Trichlorobenzene	74 U	740	22	05/27/16
Naphthalene	74 U	150	22	05/27/16
4-Chloroaniline	74 U	740	21	05/27/16
Hexachlorobutadiene	74 U	740	20	05/27/16
4-Chloro-3-methylphenol	74 U	740	19	05/27/16
2-Methylnaphthalene	74 U	150	22	05/27/16
Hexachlorocyclopentadiene	74 U b	1,500	30	05/27/16
2,4,6-Trichlorophenol	74 U	740	28	05/27/16
2,4,5-Trichlorophenol	74 U	740	19	05/27/16
2-Chloronaphthalene	74 U	740	20	05/27/16
2-Nitroaniline	74 U	1,500	24	05/27/16
Dimethylphthalate	74 U	740	22	05/27/16
Acenaphthylene	74 U	150	20	05/27/16
2,6-Dinitrotoluene	74 U	740	20	05/27/16
3-Nitroaniline	74 U	1,500	22	05/27/16
Acenaphthene	74 U	150	22	05/27/16
2,4-Dinitrophenol	1,300 U	1,500	360	05/26/16
4-Nitrophenol	370 U	1,500	160	05/27/16
Dibenzofuran	74 U	740	23	05/27/16
2,4-Dinitrotoluene	74 U	740	21	05/27/16
Diethylphthalate	74 U	740	25	05/27/16
Fluorene	74 U	150	22	05/27/16
4-Chlorophenyl-phenylether	74 U	740	21	05/27/16
4-Nitroaniline	74 U	1,500	22	05/27/16
4,6-Dinitro-2-methylphenol	370 U	1,500	170	05/27/16
N-Nitrosodiphenylamine	74 U	740	23	05/27/16
Azobenzene	74 U	740	19	05/27/16
4-Bromophenyl-phenylether	74 U	740	23	05/27/16

*= Value outside of QC limits; see narrative
J= Estimated value
U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8270D
Field ID:	BS-BERNARD-02-051916	Dil'n Fac:	2.000
Lab ID:	277038-002	Batch#:	235475
Matrix:	Soil	Sampled:	05/19/16
Units:	ug/Kg	Received:	05/20/16
Basis:	dry	Prepared:	05/25/16

Analyte	Result	LOQ	DL	Analyzed
Hexachlorobenzene	74 U	740	24	05/27/16
Pentachlorophenol	370 U	1,500	280	05/27/16
Phenanthrene	53 J	150	23	05/27/16
Anthracene	74 U	150	25	05/27/16
Carbazole	74 U	740	29	05/27/16
Di-n-butylphthalate	74 U	740	27	05/27/16
Fluoranthene	60 J	150	23	05/27/16
Pyrene	81 J	150	24	05/27/16
Butylbenzylphthalate	74 U	740	22	05/27/16
3,3'-Dichlorobenzidine	74 U	1,500	22	05/27/16
Benzo(a)anthracene	28 J	150	23	05/27/16
Chrysene	41 J	150	25	05/27/16
bis(2-Ethylhexyl)phthalate	74 U	740	29	05/27/16
Di-n-octylphthalate	74 U	740	22	05/27/16
Benzo(b)fluoranthene	39 J	150	20	05/27/16
Benzo(k)fluoranthene	74 U	150	21	05/27/16
Benzo(a)pyrene	30 J	150	19	05/27/16
Indeno(1,2,3-cd)pyrene	22 J	150	20	05/27/16
Dibenz(a,h)anthracene	74 U	150	21	05/27/16
Benzo(g,h,i)perylene	35 J	150	23	05/27/16

Surrogate	%REC	Limits	Analyzed
2-Fluorophenol	65	35-115	05/26/16
2-Fluorophenol	89	35-115	05/27/16
Phenol-d5	166 *	33-122	05/26/16
Phenol-d5	90	33-122	05/27/16
2,4,6-Tribromophenol	60	39-132	05/26/16
2,4,6-Tribromophenol	68	39-132	05/27/16
Nitrobenzene-d5	67 b	37-122	05/26/16
Nitrobenzene-d5	72	37-122	05/27/16
2-Fluorobiphenyl	70	44-115	05/26/16
2-Fluorobiphenyl	64	44-115	05/27/16
Terphenyl-d14	79	54-127	05/26/16
Terphenyl-d14	83	54-127	05/27/16

*= Value outside of QC limits; see narrative
J= Estimated value
U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8270D
Field ID:	BS-BERNARD-03-051916	Diln Fac:	5.000
Lab ID:	277038-003	Batch#:	235475
Matrix:	Soil	Sampled:	05/19/16
Units:	ug/Kg	Received:	05/20/16
Basis:	dry	Prepared:	05/25/16

Moisture: 8%

Analyte	Result		LOQ	DL	Analyzed
N-Nitrosodimethylamine	180 U		1,800	180	05/26/16
Phenol	180 U		1,800	95	05/26/16
bis(2-Chloroethyl)ether	180 U		1,800	68	05/26/16
2-Chlorophenol	180 U		1,800	90	05/26/16
1,3-Dichlorobenzene	180 U		1,800	66	05/26/16
1,4-Dichlorobenzene	180 U		1,800	55	05/26/16
Benzyl alcohol	180 U		1,800	85	05/26/16
1,2-Dichlorobenzene	180 U		1,800	52	05/26/16
2-Methylphenol	180 U		1,800	84	05/26/16
bis(2-Chloroisopropyl) ether	180 U		1,800	100	05/26/16
4-Methylphenol	180 U		1,800	96	05/26/16
N-Nitroso-di-n-propylamine	180 U		1,800	180	05/26/16
Hexachloroethane	180 U		1,800	66	05/26/16
Nitrobenzene	180 U		1,800	66	05/26/16
Isophorone	180 U		1,800	59	05/26/16
2-Nitrophenol	180 U		3,600	55	05/26/16
2,4-Dimethylphenol	180 U		1,800	75	05/26/16
Benzoic acid	4,600 U		9,100	2,700	05/26/16
bis(2-Chloroethoxy)methane	180 U		1,800	63	05/26/16
2,4-Dichlorophenol	180 U		1,800	69	05/26/16
1,2,4-Trichlorobenzene	180 U		1,800	53	05/26/16
Naphthalene	180 U		360	48	05/26/16
4-Chloroaniline	180 U		1,800	90	05/26/16
Hexachlorobutadiene	460 U		1,800	330	05/26/16
4-Chloro-3-methylphenol	180 U		1,800	80	05/26/16
2-Methylnaphthalene	180 U		360	54	05/26/16
Hexachlorocyclopentadiene	460 U	b	3,600	330	05/26/16
2,4,6-Trichlorophenol	180 U		1,800	76	05/26/16
2,4,5-Trichlorophenol	180 U		1,800	48	05/26/16
2-Chloronaphthalene	460 U		1,800	300	05/26/16
2-Nitroaniline	460 U		3,600	180	05/26/16
Dimethylphthalate	180 U		1,800	51	05/26/16
Acenaphthylene	180 U		360	47	05/26/16
2,6-Dinitrotoluene	180 U		1,800	48	05/26/16
3-Nitroaniline	460 U		3,600	180	05/26/16
Acenaphthene	180 U		360	66	05/26/16
2,4-Dinitrophenol	3,300 U		3,600	870	05/26/16
4-Nitrophenol	460 U		3,600	380	05/26/16
Dibenzofuran	180 U		1,800	48	05/26/16
2,4-Dinitrotoluene	180 U		1,800	53	05/26/16
Diethylphthalate	180 U		1,800	46	05/26/16
Fluorene	180 U		360	49	05/26/16
4-Chlorophenyl-phenylether	180 U		1,800	53	05/26/16
4-Nitroaniline	460 U		3,600	180	05/26/16
4,6-Dinitro-2-methylphenol	460 U		3,600	230	05/26/16
N-Nitrosodiphenylamine	460 U		1,800	310	05/26/16
Azobenzene	180 U		1,800	66	05/26/16
4-Bromophenyl-phenylether	460 U		1,800	320	05/26/16
Hexachlorobenzene	180 U		1,800	66	05/26/16

J= Estimated value
U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8270D
Field ID:	BS-BERNARD-03-051916	Dil'n Fac:	5.000
Lab ID:	277038-003	Batch#:	235475
Matrix:	Soil	Sampled:	05/19/16
Units:	ug/Kg	Received:	05/20/16
Basis:	dry	Prepared:	05/25/16

Analyte	Result	LOQ	DL	Analyzed
Pentachlorophenol	910 U	3,600	810	05/26/16
Phenanthrene	73 J	360	52	05/26/16
Anthracene	180 U	360	66	05/26/16
Carbazole	180 U	1,800	51	05/26/16
Di-n-butylphthalate	180 U	1,800	66	05/26/16
Fluoranthene	91 J	360	47	05/26/16
Pyrene	110 J	360	51	05/26/16
Butylbenzylphthalate	180 U	1,800	66	05/26/16
3,3'-Dichlorobenzidine	460 U	3,600	230	05/26/16
Benzo(a)anthracene	49 J	360	47	05/26/16
Chrysene	180 U	360	66	05/26/16
bis(2-Ethylhexyl)phthalate	180 U	1,800	48	05/26/16
Di-n-octylphthalate	180 U	1,800	46	05/26/16
Benzo(b)fluoranthene	76 J	360	66	05/26/16
Benzo(k)fluoranthene	180 U	360	47	05/26/16
Benzo(a)pyrene	180 U	360	47	05/26/16
Indeno(1,2,3-cd)pyrene	180 U	360	66	05/26/16
Dibenz(a,h)anthracene	180 U	360	66	05/26/16
Benzo(g,h,i)perylene	180 U	360	46	05/27/16

Surrogate	%REC	Limits	Analyzed
2-Fluorophenol	89	35-115	05/26/16
2-Fluorophenol	61	35-115	05/27/16
Phenol-d5	85	33-122	05/26/16
Phenol-d5	65	33-122	05/27/16
2,4,6-Tribromophenol	59	39-132	05/26/16
2,4,6-Tribromophenol	40	39-132	05/27/16
Nitrobenzene-d5	79 b	37-122	05/26/16
Nitrobenzene-d5	58	37-122	05/27/16
2-Fluorobiphenyl	67	44-115	05/26/16
2-Fluorobiphenyl	57	44-115	05/27/16
Terphenyl-d14	79	54-127	05/26/16
Terphenyl-d14	57	54-127	05/27/16

J= Estimated value
U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8270D
Field ID:	BS-BERNARD-04-051916	Diln Fac:	1.000
Lab ID:	277038-004	Batch#:	235475
Matrix:	Soil	Sampled:	05/19/16
Units:	ug/Kg	Received:	05/20/16
Basis:	dry	Prepared:	05/25/16

Moisture: 9%

Analyte	Result	LOQ	DL	Analyzed
N-Nitrosodimethylamine	93 U	370	53	05/27/16
Phenol	37 U	370	11	05/27/16
bis(2-Chloroethyl)ether	93 U	370	66	05/27/16
2-Chlorophenol	37 U	370	11	05/27/16
1,3-Dichlorobenzene	93 U	370	63	05/27/16
1,4-Dichlorobenzene	37 U	370	11	05/27/16
Benzyl alcohol	37 U	370	12	05/27/16
1,2-Dichlorobenzene	37 U	370	11	05/27/16
2-Methylphenol	37 U	370	15	05/27/16
bis(2-Chloroisopropyl) ether	37 U	370	11	05/27/16
4-Methylphenol	37 U	370	11	05/27/16
N-Nitroso-di-n-propylamine	37 U	370	11	05/27/16
Hexachloroethane	37 U	370	11	05/27/16
Nitrobenzene	37 U	370	12	05/27/16
Isophorone	37 U	370	11	05/27/16
2-Nitrophenol	37 U	740	11	05/27/16
2,4-Dimethylphenol	37 U	370	16	05/27/16
Benzoic acid	930 U	1,900	490	05/27/16
bis(2-Chloroethoxy)methane	37 U	370	11	05/27/16
2,4-Dichlorophenol	37 U	370	11	05/27/16
1,2,4-Trichlorobenzene	37 U	370	11	05/27/16
Naphthalene	37 U	74	11	05/27/16
4-Chloroaniline	37 U	370	10	05/27/16
Hexachlorobutadiene	37 U	370	9.9	05/27/16
4-Chloro-3-methylphenol	37 U	370	9.3	05/27/16
2-Methylnaphthalene	37 U	74	11	05/27/16
Hexachlorocyclopentadiene	93 U b	740	67	05/26/16
2,4,6-Trichlorophenol	37 U	370	14	05/27/16
2,4,5-Trichlorophenol	37 U	370	9.3	05/27/16
2-Chloronaphthalene	37 U	370	10	05/27/16
2-Nitroaniline	37 U	740	12	05/27/16
Dimethylphthalate	37 U	370	11	05/27/16
Acenaphthylene	37 U	74	10	05/27/16
2,6-Dinitrotoluene	37 U	370	10	05/27/16
3-Nitroaniline	37 U	740	11	05/27/16
Acenaphthene	37 U	74	11	05/27/16
2,4-Dinitrophenol	670 U	740	180	05/26/16
4-Nitrophenol	190 U	740	80	05/27/16
Dibenzofuran	37 U	370	12	05/27/16
2,4-Dinitrotoluene	37 U	370	11	05/27/16
Diethylphthalate	37 U	370	13	05/27/16
Fluorene	37 U	74	11	05/27/16
4-Chlorophenyl-phenylether	37 U	370	11	05/27/16
4-Nitroaniline	37 U	740	11	05/27/16
4,6-Dinitro-2-methylphenol	190 U	740	86	05/27/16
N-Nitrosodiphenylamine	37 U	370	12	05/27/16
Azobenzene	37 U	370	9.5	05/27/16
4-Bromophenyl-phenylether	37 U	370	12	05/27/16

*= Value outside of QC limits; see narrative
J= Estimated value
U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8270D
Field ID:	BS-BERNARD-04-051916	Dil'n Fac:	1.000
Lab ID:	277038-004	Batch#:	235475
Matrix:	Soil	Sampled:	05/19/16
Units:	ug/Kg	Received:	05/20/16
Basis:	dry	Prepared:	05/25/16

Analyte	Result	LOQ	DL	Analyzed
Hexachlorobenzene	37 U	370	12	05/27/16
Pentachlorophenol	190 U	740	140	05/27/16
Phenanthrene	21 J	74	12	05/27/16
Anthracene	37 U	74	13	05/27/16
Carbazole	37 U	370	15	05/27/16
Di-n-butylphthalate	37 U	370	13	05/27/16
Fluoranthene	22 J	74	12	05/27/16
Pyrene	31 J	74	12	05/27/16
Butylbenzylphthalate	37 U	370	11	05/27/16
3,3'-Dichlorobenzidine	37 U	740	11	05/27/16
Benzo(a)anthracene	12 J	74	11	05/27/16
Chrysene	21 J	74	13	05/27/16
bis(2-Ethylhexyl)phthalate	17 J	370	15	05/27/16
Di-n-octylphthalate	37 U	370	11	05/27/16
Benzo(b)fluoranthene	19 J	74	10	05/27/16
Benzo(k)fluoranthene	37 U	74	11	05/27/16
Benzo(a)pyrene	13 J	74	9.8	05/27/16
Indeno(1,2,3-cd)pyrene	11 J	74	9.8	05/27/16
Dibenz(a,h)anthracene	37 U	74	10	05/27/16
Benzo(g,h,i)perylene	18 J	74	11	05/27/16

Surrogate	%REC	Limits	Analyzed
2-Fluorophenol	127 *	35-115	05/26/16
2-Fluorophenol	67	35-115	05/27/16
Phenol-d5	126 *	33-122	05/26/16
Phenol-d5	68	33-122	05/27/16
2,4,6-Tribromophenol	48	39-132	05/26/16
2,4,6-Tribromophenol	47	39-132	05/27/16
Nitrobenzene-d5	71 b	37-122	05/26/16
Nitrobenzene-d5	54	37-122	05/27/16
2-Fluorobiphenyl	55	44-115	05/26/16
2-Fluorobiphenyl	48	44-115	05/27/16
Terphenyl-d14	66	54-127	05/26/16
Terphenyl-d14	56	54-127	05/27/16

*= Value outside of QC limits; see narrative
J= Estimated value
U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8270D
Field ID:	BS-BERNARD-05-051916	Diln Fac:	8.330
Lab ID:	277038-005	Batch#:	235475
Matrix:	Soil	Sampled:	05/19/16
Units:	ug/Kg	Received:	05/20/16
Basis:	dry	Prepared:	05/25/16

Moisture: 9%

Analyte	Result	LOQ	DL	Analyzed
N-Nitrosodimethylamine	300 U	3,000	300	05/26/16
Phenol	300 U	3,000	160	05/26/16
bis(2-Chloroethyl)ether	300 U	3,000	110	05/26/16
2-Chlorophenol	300 U	3,000	150	05/26/16
1,3-Dichlorobenzene	300 U	3,000	110	05/26/16
1,4-Dichlorobenzene	300 U	3,000	91	05/26/16
Benzyl alcohol	300 U	3,000	140	05/26/16
1,2-Dichlorobenzene	300 U	3,000	85	05/26/16
2-Methylphenol	300 U	3,000	140	05/26/16
bis(2-Chloroisopropyl) ether	300 U	3,000	170	05/26/16
4-Methylphenol	300 U	3,000	160	05/26/16
N-Nitroso-di-n-propylamine	300 U	3,000	300	05/26/16
Hexachloroethane	300 U	3,000	110	05/26/16
Nitrobenzene	300 U	3,000	110	05/26/16
Isophorone	300 U	3,000	98	05/26/16
2-Nitrophenol	300 U	6,000	91	05/26/16
2,4-Dimethylphenol	300 U	3,000	120	05/26/16
Benzoic acid	7,500 U	15,000	4,500	05/26/16
bis(2-Chloroethoxy)methane	300 U	3,000	100	05/26/16
2,4-Dichlorophenol	300 U	3,000	110	05/26/16
1,2,4-Trichlorobenzene	300 U	3,000	87	05/26/16
Naphthalene	300 U	600	79	05/26/16
4-Chloroaniline	300 U	3,000	150	05/26/16
Hexachlorobutadiene	750 U	3,000	550	05/26/16
4-Chloro-3-methylphenol	300 U	3,000	130	05/26/16
2-Methylnaphthalene	300 U	600	89	05/26/16
Hexachlorocyclopentadiene	750 U b	6,000	550	05/26/16
2,4,6-Trichlorophenol	300 U	3,000	130	05/26/16
2,4,5-Trichlorophenol	300 U	3,000	79	05/26/16
2-Chloronaphthalene	750 U	3,000	500	05/26/16
2-Nitroaniline	750 U	6,000	300	05/26/16
Dimethylphthalate	300 U	3,000	84	05/26/16
Acenaphthylene	300 U	600	77	05/26/16
2,6-Dinitrotoluene	300 U	3,000	79	05/26/16
3-Nitroaniline	750 U	6,000	300	05/26/16
Acenaphthene	300 U	600	110	05/26/16
2,4-Dinitrophenol	5,400 U	6,000	1,400	05/26/16
4-Nitrophenol	750 U	6,000	620	05/26/16
Dibenzofuran	300 U	3,000	79	05/26/16
2,4-Dinitrotoluene	300 U	3,000	87	05/26/16
Diethylphthalate	300 U	3,000	77	05/26/16
Fluorene	300 U	600	80	05/26/16
4-Chlorophenyl-phenylether	300 U	3,000	88	05/26/16
4-Nitroaniline	750 U	6,000	300	05/26/16
4,6-Dinitro-2-methylphenol	750 U	6,000	380	05/26/16
N-Nitrosodiphenylamine	750 U	3,000	500	05/26/16
Azobenzene	300 U	3,000	110	05/26/16
4-Bromophenyl-phenylether	750 U	3,000	530	05/26/16
Hexachlorobenzene	300 U	3,000	110	05/26/16

*= Value outside of QC limits; see narrative
U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8270D
Field ID:	BS-BERNARD-05-051916	Dil'n Fac:	8.330
Lab ID:	277038-005	Batch#:	235475
Matrix:	Soil	Sampled:	05/19/16
Units:	ug/Kg	Received:	05/20/16
Basis:	dry	Prepared:	05/25/16

Analyte	Result	LOQ	DL	Analyzed
Pentachlorophenol	1,500 U	6,000	1,300	05/26/16
Phenanthrene	300 U	600	86	05/26/16
Anthracene	300 U	600	110	05/26/16
Carbazole	300 U	3,000	84	05/26/16
Di-n-butylphthalate	300 U	3,000	110	05/26/16
Fluoranthene	300 U	600	78	05/26/16
Pyrene	300 U	600	84	05/26/16
Butylbenzylphthalate	300 U	3,000	110	05/26/16
3,3'-Dichlorobenzidine	750 U	6,000	390	05/26/16
Benzo(a)anthracene	300 U	600	78	05/26/16
Chrysene	300 U	600	110	05/26/16
bis(2-Ethylhexyl)phthalate	300 U	3,000	79	05/26/16
Di-n-octylphthalate	300 U	3,000	76	05/26/16
Benzo(b)fluoranthene	300 U	600	110	05/26/16
Benzo(k)fluoranthene	300 U	600	78	05/26/16
Benzo(a)pyrene	300 U	600	78	05/26/16
Indeno(1,2,3-cd)pyrene	300 U	600	110	05/26/16
Dibenz(a,h)anthracene	300 U	600	110	05/26/16
Benzo(g,h,i)perylene	300 U	600	91	05/27/16

Surrogate	%REC	Limits	Analyzed
2-Fluorophenol	81	35-115	05/26/16
2-Fluorophenol	71	35-115	05/27/16
Phenol-d5	80	33-122	05/26/16
Phenol-d5	76	33-122	05/27/16
2,4,6-Tribromophenol	47	39-132	05/26/16
2,4,6-Tribromophenol	50	39-132	05/27/16
Nitrobenzene-d5	75 b	37-122	05/26/16
Nitrobenzene-d5	61	37-122	05/27/16
2-Fluorobiphenyl	66	44-115	05/26/16
2-Fluorobiphenyl	28 *	44-115	05/27/16
Terphenyl-d14	79	54-127	05/26/16
Terphenyl-d14	73	54-127	05/27/16

*= Value outside of QC limits; see narrative
U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8270D
Field ID:	BS-BERNARD-06-051916	Batch#:	235475
Lab ID:	277038-006	Sampled:	05/19/16
Matrix:	Soil	Received:	05/20/16
Units:	ug/Kg	Prepared:	05/25/16
Basis:	dry	Analyzed:	05/27/16
Diln Fac:	2.000		

Moisture: 11%

Analyte	Result	LOQ	DL
N-Nitrosodimethylamine	190 U	740	110
Phenol	74 U	740	22
bis(2-Chloroethyl)ether	190 U	740	130
2-Chlorophenol	74 U	740	22
1,3-Dichlorobenzene	190 U	740	130
1,4-Dichlorobenzene	74 U	740	22
Benzyl alcohol	74 U	740	24
1,2-Dichlorobenzene	74 U	740	22
2-Methylphenol	74 U	740	30
bis(2-Chloroisopropyl) ether	74 U	740	22
4-Methylphenol	74 U	740	22
N-Nitroso-di-n-propylamine	74 U	740	22
Hexachloroethane	74 U	740	22
Nitrobenzene	74 U	740	24
Isophorone	74 U	740	22
2-Nitrophenol	74 U	1,500	22
2,4-Dimethylphenol	74 U	740	31
Benzoic acid	1,900 U	3,700	980
bis(2-Chloroethoxy)methane	74 U	740	22
2,4-Dichlorophenol	74 U	740	22
1,2,4-Trichlorobenzene	74 U	740	22
Naphthalene	74 U	150	22
4-Chloroaniline	74 U	740	21
Hexachlorobutadiene	74 U	740	20
4-Chloro-3-methylphenol	74 U	740	19
2-Methylnaphthalene	74 U	150	22
Hexachlorocyclopentadiene	74 U b	1,500	30
2,4,6-Trichlorophenol	74 U	740	28
2,4,5-Trichlorophenol	74 U	740	19
2-Chloronaphthalene	74 U	740	20
2-Nitroaniline	74 U	1,500	24
Dimethylphthalate	74 U	740	22
Acenaphthylene	74 U	150	20
2,6-Dinitrotoluene	74 U	740	20
3-Nitroaniline	74 U	1,500	22
Acenaphthene	74 U	150	22
2,4-Dinitrophenol	370 U b	1,500	140
4-Nitrophenol	370 U	1,500	160
Dibenzofuran	74 U	740	23
2,4-Dinitrotoluene	74 U	740	21
Diethylphthalate	74 U	740	25
Fluorene	74 U	150	22
4-Chlorophenyl-phenylether	74 U	740	22
4-Nitroaniline	74 U	1,500	22
4,6-Dinitro-2-methylphenol	370 U	1,500	170
N-Nitrosodiphenylamine	74 U	740	24
Azobenzene	74 U	740	19
4-Bromophenyl-phenylether	74 U	740	24
Hexachlorobenzene	74 U	740	24

U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8270D
Field ID:	BS-BERNARD-06-051916	Batch#:	235475
Lab ID:	277038-006	Sampled:	05/19/16
Matrix:	Soil	Received:	05/20/16
Units:	ug/Kg	Prepared:	05/25/16
Basis:	dry	Analyzed:	05/27/16
Diln Fac:	2.000		

Analyte	Result	LOQ	DL
Pentachlorophenol	370 U	1,500	290
Phenanthrene	74 U	150	23
Anthracene	74 U	150	25
Carbazole	74 U	740	30
Di-n-butylphthalate	74 U	740	27
Fluoranthene	74 U	150	23
Pyrene	74 U	150	24
Butylbenzylphthalate	74 U	740	22
3,3'-Dichlorobenzidine	74 U	1,500	22
Benzo(a)anthracene	74 U	150	23
Chrysene	74 U	150	25
bis(2-Ethylhexyl)phthalate	74 U	740	29
Di-n-octylphthalate	74 U	740	22
Benzo(b)fluoranthene	74 U	150	20
Benzo(k)fluoranthene	74 U	150	21
Benzo(a)pyrene	74 U	150	20
Indeno(1,2,3-cd)pyrene	74 U	150	20
Dibenz(a,h)anthracene	74 U	150	21
Benzo(g,h,i)perylene	74 U	150	23

Surrogate	%REC	Limits
2-Fluorophenol	74	35-115
Phenol-d5	77	33-122
2,4,6-Tribromophenol	44	39-132
Nitrobenzene-d5	59	37-122
2-Fluorobiphenyl	52	44-115
Terphenyl-d14	72	54-127

U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8270D
Field ID:	BS-BERNARD-07-051916	Batch#:	235475
Lab ID:	277038-007	Sampled:	05/19/16
Matrix:	Soil	Received:	05/20/16
Units:	ug/Kg	Prepared:	05/25/16
Basis:	dry	Analyzed:	05/27/16
Diln Fac:	1.000		

Moisture: 9%

Analyte	Result	LOQ	DL
N-Nitrosodimethylamine	92 U	370	52
Phenol	37 U	370	11
bis(2-Chloroethyl)ether	92 U	370	66
2-Chlorophenol	37 U	370	11
1,3-Dichlorobenzene	92 U	370	63
1,4-Dichlorobenzene	37 U	370	11
Benzyl alcohol	37 U	370	12
1,2-Dichlorobenzene	37 U	370	11
2-Methylphenol	37 U	370	15
bis(2-Chloroisopropyl) ether	37 U	370	11
4-Methylphenol	37 U	370	11
N-Nitroso-di-n-propylamine	37 U	370	11
Hexachloroethane	37 U	370	11
Nitrobenzene	37 U	370	12
Isophorone	37 U	370	11
2-Nitrophenol	37 U	740	11
2,4-Dimethylphenol	37 U	370	15
Benzoic acid	920 U	1,800	480
bis(2-Chloroethoxy)methane	37 U	370	11
2,4-Dichlorophenol	37 U	370	11
1,2,4-Trichlorobenzene	37 U	370	11
Naphthalene	37 U	74	11
4-Chloroaniline	37 U	370	10
Hexachlorobutadiene	37 U	370	9.8
4-Chloro-3-methylphenol	37 U	370	9.2
2-Methylnaphthalene	37 U	74	11
Hexachlorocyclopentadiene	37 U b	740	15
2,4,6-Trichlorophenol	37 U	370	14
2,4,5-Trichlorophenol	37 U	370	9.3
2-Chloronaphthalene	37 U	370	9.9
2-Nitroaniline	37 U	740	12
Dimethylphthalate	37 U	370	11
Acenaphthylene	37 U	74	9.9
2,6-Dinitrotoluene	37 U	370	9.9
3-Nitroaniline	37 U	740	11
Acenaphthene	37 U	74	11
2,4-Dinitrophenol	180 U b	740	71
4-Nitrophenol	180 U	740	79
Dibenzofuran	37 U	370	11
2,4-Dinitrotoluene	37 U	370	11
Diethylphthalate	37 U	370	13
Fluorene	37 U	74	11
4-Chlorophenyl-phenylether	37 U	370	11
4-Nitroaniline	37 U	740	11
4,6-Dinitro-2-methylphenol	180 U	740	85
N-Nitrosodiphenylamine	37 U	370	12
Azobenzene	37 U	370	9.5
4-Bromophenyl-phenylether	37 U	370	12

J= Estimated value
U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8270D
Field ID:	BS-BERNARD-07-051916	Batch#:	235475
Lab ID:	277038-007	Sampled:	05/19/16
Matrix:	Soil	Received:	05/20/16
Units:	ug/Kg	Prepared:	05/25/16
Basis:	dry	Analyzed:	05/27/16
Diln Fac:	1.000		

Analyte	Result	LOQ	DL
Hexachlorobenzene	37 U	370	12
Pentachlorophenol	180 U	740	140
Phenanthrene	17 J	74	12
Anthracene	37 U	74	13
Carbazole	37 U	370	15
Di-n-butylphthalate	37 U	370	13
Fluoranthene	37 U	74	11
Pyrene	15 J	74	12
Butylbenzylphthalate	37 U	370	11
3,3'-Dichlorobenzidine	37 U	740	11
Benzo(a)anthracene	37 U	74	11
Chrysene	37 U	74	12
bis(2-Ethylhexyl)phthalate	18 J	370	14
Di-n-octylphthalate	37 U	370	11
Benzo(b)fluoranthene	37 U	74	10
Benzo(k)fluoranthene	37 U	74	11
Benzo(a)pyrene	37 U	74	9.7
Indeno(1,2,3-cd)pyrene	37 U	74	9.8
Dibenz(a,h)anthracene	37 U	74	10
Benzo(g,h,i)perylene	37 U	74	11

Surrogate	%REC	Limits
2-Fluorophenol	74	35-115
Phenol-d5	77	33-122
2,4,6-Tribromophenol	54	39-132
Nitrobenzene-d5	57	37-122
2-Fluorobiphenyl	50	44-115
Terphenyl-d14	67	54-127

J= Estimated value
U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8270D
Field ID:	BS-BERNARD-08-051916	Batch#:	235475
Lab ID:	277038-008	Sampled:	05/19/16
Matrix:	Soil	Received:	05/20/16
Units:	ug/Kg	Prepared:	05/25/16
Basis:	dry	Analyzed:	05/27/16
Diln Fac:	1.000		

Moisture: 12%

Analyte	Result	LOQ	DL
N-Nitrosodimethylamine	94 U	380	53
Phenol	38 U	380	11
bis(2-Chloroethyl)ether	94 U	380	67
2-Chlorophenol	38 U	380	11
1,3-Dichlorobenzene	94 U	380	64
1,4-Dichlorobenzene	38 U	380	11
Benzyl alcohol	38 U	380	12
1,2-Dichlorobenzene	38 U	380	11
2-Methylphenol	38 U	380	15
bis(2-Chloroisopropyl) ether	38 U	380	11
4-Methylphenol	38 U	380	11
N-Nitroso-di-n-propylamine	38 U	380	11
Hexachloroethane	38 U	380	11
Nitrobenzene	38 U	380	12
Isophorone	38 U	380	11
2-Nitrophenol	38 U	750	11
2,4-Dimethylphenol	38 U	380	16
Benzoic acid	940 U	1,900	490
bis(2-Chloroethoxy)methane	38 U	380	11
2,4-Dichlorophenol	38 U	380	11
1,2,4-Trichlorobenzene	38 U	380	11
Naphthalene	38 U	75	11
4-Chloroaniline	38 U	380	11
Hexachlorobutadiene	38 U	380	10
4-Chloro-3-methylphenol	38 U	380	9.4
2-Methylnaphthalene	38 U	75	11
Hexachlorocyclopentadiene	38 U b	750	15
2,4,6-Trichlorophenol	38 U	380	14
2,4,5-Trichlorophenol	38 U	380	9.5
2-Chloronaphthalene	38 U	380	10
2-Nitroaniline	38 U	750	12
Dimethylphthalate	38 U	380	11
Acenaphthylene	38 U	75	10
2,6-Dinitrotoluene	38 U	380	10
3-Nitroaniline	38 U	750	11
Acenaphthene	38 U	75	11
2,4-Dinitrophenol	190 U b	750	73
4-Nitrophenol	190 U	750	81
Dibenzofuran	38 U	380	12
2,4-Dinitrotoluene	38 U	380	11
Diethylphthalate	38 U	380	13
Fluorene	38 U	75	11
4-Chlorophenyl-phenylether	38 U	380	11
4-Nitroaniline	38 U	750	11
4,6-Dinitro-2-methylphenol	190 U	750	87
N-Nitrosodiphenylamine	38 U	380	12
Azobenzene	38 U	380	9.7
4-Bromophenyl-phenylether	38 U	380	12

J= Estimated value
U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8270D
Field ID:	BS-BERNARD-08-051916	Batch#:	235475
Lab ID:	277038-008	Sampled:	05/19/16
Matrix:	Soil	Received:	05/20/16
Units:	ug/Kg	Prepared:	05/25/16
Basis:	dry	Analyzed:	05/27/16
Diln Fac:	1.000		

Analyte	Result	LOQ	DL
Hexachlorobenzene	38 U	380	12
Pentachlorophenol	190 U	750	140
Phenanthrene	38 U	75	12
Anthracene	38 U	75	13
Carbazole	38 U	380	15
Di-n-butylphthalate	38 U	380	14
Fluoranthene	38 U	75	12
Pyrene	13 J	75	12
Butylbenzylphthalate	38 U	380	11
3,3'-Dichlorobenzidine	38 U	750	11
Benzo(a)anthracene	38 U	75	12
Chrysene	38 U	75	13
bis(2-Ethylhexyl)phthalate	19 J	380	15
Di-n-octylphthalate	38 U	380	11
Benzo(b)fluoranthene	38 U	75	10
Benzo(k)fluoranthene	38 U	75	11
Benzo(a)pyrene	38 U	75	9.9
Indeno(1,2,3-cd)pyrene	38 U	75	10
Dibenz(a,h)anthracene	38 U	75	11
Benzo(g,h,i)perylene	38 U	75	11

Surrogate	%REC	Limits
2-Fluorophenol	71	35-115
Phenol-d5	74	33-122
2,4,6-Tribromophenol	55	39-132
Nitrobenzene-d5	57	37-122
2-Fluorobiphenyl	50	44-115
Terphenyl-d14	66	54-127

J= Estimated value
U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8270D
Field ID:	BS-BERNARD-09-051916	Diln Fac:	20.00
Lab ID:	277038-009	Batch#:	235475
Matrix:	Soil	Sampled:	05/19/16
Units:	ug/Kg	Received:	05/20/16
Basis:	dry	Prepared:	05/25/16

Moisture: 8%

Analyte	Result	LOQ	DL	Analyzed
N-Nitrosodimethylamine	1,800 U	7,400	930	05/26/16
Phenol	740 U	7,400	330	05/26/16
bis(2-Chloroethyl)ether	740 U	7,400	490	05/26/16
2-Chlorophenol	740 U	7,400	310	05/26/16
1,3-Dichlorobenzene	1,800 U	7,400	930	05/26/16
1,4-Dichlorobenzene	1,800 U	7,400	930	05/26/16
Benzyl alcohol	740 U	7,400	360	05/26/16
1,2-Dichlorobenzene	740 U	7,400	490	05/26/16
2-Methylphenol	740 U	7,400	320	05/26/16
bis(2-Chloroisopropyl) ether	740 U	7,400	350	05/26/16
4-Methylphenol	740 U	7,400	350	05/26/16
N-Nitroso-di-n-propylamine	740 U	7,400	340	05/26/16
Hexachloroethane	1,800 U	7,400	930	05/26/16
Nitrobenzene	740 U	7,400	490	05/26/16
Isophorone	740 U	7,400	230	05/26/16
2-Nitrophenol	1,800 U	15,000	860	05/26/16
2,4-Dimethylphenol	740 U	7,400	410	05/26/16
Benzoic acid	9,200 U b	37,000	8,300	05/26/16
bis(2-Chloroethoxy)methane	740 U	7,400	230	05/26/16
2,4-Dichlorophenol	740 U	7,400	210	05/26/16
1,2,4-Trichlorobenzene	740 U	7,400	490	05/26/16
Naphthalene	740 U	1,500	290	05/26/16
4-Chloroaniline	740 U	7,400	280	05/26/16
Hexachlorobutadiene	740 U	7,400	490	05/26/16
4-Chloro-3-methylphenol	740 U	7,400	190	05/26/16
2-Methylnaphthalene	740 U	1,500	220	05/26/16
Hexachlorocyclopentadiene	3,700 U b	15,000	1,700	05/26/16
2,4,6-Trichlorophenol	740 U	7,400	240	05/26/16
2,4,5-Trichlorophenol	740 U	7,400	200	05/26/16
2-Chloronaphthalene	740 U	7,400	190	05/26/16
2-Nitroaniline	1,800 U	15,000	750	05/26/16
Dimethylphthalate	740 U	7,400	190	05/26/16
Acenaphthylene	740 U	1,500	190	05/26/16
2,6-Dinitrotoluene	1,800 U	7,400	740	05/26/16
3-Nitroaniline	740 U	15,000	190	05/26/16
Acenaphthene	740 U	1,500	190	05/26/16
2,4-Dinitrophenol	3,700 U b	15,000	1,700	05/26/16
4-Nitrophenol	740 U	15,000	190	05/27/16
Dibenzofuran	740 U	7,400	190	05/26/16
2,4-Dinitrotoluene	740 U	7,400	180	05/26/16
Diethylphthalate	740 U	7,400	190	05/26/16
Fluorene	740 U	1,500	190	05/26/16
4-Chlorophenyl-phenylether	740 U	7,400	190	05/26/16
4-Nitroaniline	740 U	15,000	230	05/26/16
4,6-Dinitro-2-methylphenol	1,800 U	15,000	770	05/27/16
N-Nitrosodiphenylamine	740 U	7,400	190	05/26/16
Azobenzene	740 U	7,400	190	05/26/16
4-Bromophenyl-phenylether	740 U	7,400	190	05/26/16
Hexachlorobenzene	740 U	7,400	190	05/26/16

U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
DO= Diluted Out
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8270D
Field ID:	BS-BERNARD-09-051916	Dil'n Fac:	20.00
Lab ID:	277038-009	Batch#:	235475
Matrix:	Soil	Sampled:	05/19/16
Units:	ug/Kg	Received:	05/20/16
Basis:	dry	Prepared:	05/25/16

Analyte	Result	LOQ	DL	Analyzed
Pentachlorophenol	3,700 U	15,000	2,300	05/26/16
Phenanthrene	740 U	1,500	190	05/26/16
Anthracene	740 U	1,500	200	05/26/16
Carbazole	740 U	7,400	220	05/26/16
Di-n-butylphthalate	740 U	7,400	210	05/26/16
Fluoranthene	740 U	1,500	210	05/26/16
Pyrene	740 U	1,500	190	05/26/16
Butylbenzylphthalate	740 U	7,400	210	05/26/16
3,3'-Dichlorobenzidine	3,700 U	15,000	1,800	05/26/16
Benzo(a)anthracene	740 U	1,500	190	05/26/16
Chrysene	740 U	1,500	190	05/26/16
bis(2-Ethylhexyl)phthalate	740 U	7,400	190	05/26/16
Di-n-octylphthalate	1,800 U	7,400	750	05/26/16
Benzo(b)fluoranthene	740 U	1,500	190	05/26/16
Benzo(k)fluoranthene	740 U	1,500	190	05/26/16
Benzo(a)pyrene	740 U	1,500	190	05/26/16
Indeno(1,2,3-cd)pyrene	740 U	1,500	190	05/26/16
Dibenz(a,h)anthracene	740 U	1,500	190	05/26/16
Benzo(g,h,i)perylene	740 U	1,500	190	05/26/16

Surrogate	%REC	Limits	Analyzed
2-Fluorophenol	DO b	35-115	05/26/16
2-Fluorophenol	DO	35-115	05/27/16
Phenol-d5	DO	33-122	05/26/16
Phenol-d5	DO	33-122	05/27/16
2,4,6-Tribromophenol	DO	39-132	05/26/16
2,4,6-Tribromophenol	DO	39-132	05/27/16
Nitrobenzene-d5	DO	37-122	05/26/16
Nitrobenzene-d5	DO	37-122	05/27/16
2-Fluorobiphenyl	DO	44-115	05/26/16
2-Fluorobiphenyl	DO	44-115	05/27/16
Terphenyl-d14	DO	54-127	05/26/16
Terphenyl-d14	DO	54-127	05/27/16

U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
DO= Diluted Out
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8270D
Field ID:	BS-BERNARD-10-051916	Diln Fac:	10.00
Lab ID:	277038-010	Batch#:	235475
Matrix:	Soil	Sampled:	05/19/16
Units:	ug/Kg	Received:	05/20/16
Basis:	dry	Prepared:	05/25/16

Moisture: 9%

Analyte	Result	LOQ	DL	Analyzed
N-Nitrosodimethylamine	920 U	3,700	470	05/26/16
Phenol	370 U	3,700	170	05/26/16
bis(2-Chloroethyl)ether	370 U	3,700	240	05/26/16
2-Chlorophenol	370 U	3,700	150	05/26/16
1,3-Dichlorobenzene	920 U	3,700	470	05/26/16
1,4-Dichlorobenzene	920 U	3,700	470	05/26/16
Benzyl alcohol	370 U	3,700	180	05/26/16
1,2-Dichlorobenzene	370 U	3,700	240	05/26/16
2-Methylphenol	370 U	3,700	160	05/26/16
bis(2-Chloroisopropyl) ether	370 U	3,700	180	05/26/16
4-Methylphenol	370 U	3,700	180	05/26/16
N-Nitroso-di-n-propylamine	370 U	3,700	170	05/26/16
Hexachloroethane	920 U	3,700	470	05/26/16
Nitrobenzene	370 U	3,700	240	05/26/16
Isophorone	370 U	3,700	110	05/26/16
2-Nitrophenol	920 U	7,400	430	05/26/16
2,4-Dimethylphenol	370 U	3,700	210	05/26/16
Benzoic acid	4,600 U b	18,000	4,200	05/26/16
bis(2-Chloroethoxy)methane	370 U	3,700	110	05/26/16
2,4-Dichlorophenol	370 U	3,700	100	05/26/16
1,2,4-Trichlorobenzene	370 U	3,700	240	05/26/16
Naphthalene	370 U	740	140	05/26/16
4-Chloroaniline	370 U	3,700	140	05/26/16
Hexachlorobutadiene	370 U	3,700	240	05/26/16
4-Chloro-3-methylphenol	370 U	3,700	96	05/26/16
2-Methylnaphthalene	370 U	740	110	05/26/16
Hexachlorocyclopentadiene	1,800 U b	7,400	840	05/26/16
2,4,6-Trichlorophenol	370 U	3,700	120	05/26/16
2,4,5-Trichlorophenol	370 U	3,700	100	05/26/16
2-Chloronaphthalene	370 U	3,700	93	05/26/16
2-Nitroaniline	920 U	7,400	380	05/26/16
Dimethylphthalate	370 U	3,700	93	05/26/16
Acenaphthylene	370 U	740	93	05/26/16
2,6-Dinitrotoluene	920 U	3,700	370	05/26/16
3-Nitroaniline	370 U	7,400	93	05/26/16
Acenaphthene	370 U	740	93	05/26/16
2,4-Dinitrophenol	1,800 U b	7,400	830	05/26/16
4-Nitrophenol	370 U	7,400	93	05/27/16
Dibenzofuran	370 U	3,700	93	05/26/16
2,4-Dinitrotoluene	370 U	3,700	93	05/26/16
Diethylphthalate	370 U	3,700	93	05/26/16
Fluorene	370 U	740	93	05/26/16
4-Chlorophenyl-phenylether	370 U	3,700	94	05/26/16
4-Nitroaniline	370 U	7,400	120	05/26/16
4,6-Dinitro-2-methylphenol	920 U	7,400	390	05/27/16
N-Nitrosodiphenylamine	370 U	3,700	93	05/26/16
Azobenzene	370 U	3,700	93	05/26/16
4-Bromophenyl-phenylether	370 U	3,700	93	05/26/16
Hexachlorobenzene	370 U	3,700	93	05/26/16

U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
DO= Diluted Out
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8270D
Field ID:	BS-BERNARD-10-051916	Dil'n Fac:	10.00
Lab ID:	277038-010	Batch#:	235475
Matrix:	Soil	Sampled:	05/19/16
Units:	ug/Kg	Received:	05/20/16
Basis:	dry	Prepared:	05/25/16

Analyte	Result	LOQ	DL	Analyzed
Pentachlorophenol	1,800 U	7,400	1,100	05/26/16
Phenanthrene	370 U	740	93	05/26/16
Anthracene	370 U	740	100	05/26/16
Carbazole	370 U	3,700	110	05/26/16
Di-n-butylphthalate	370 U	3,700	110	05/26/16
Fluoranthene	370 U	740	100	05/26/16
Pyrene	370 U	740	93	05/26/16
Butylbenzylphthalate	370 U	3,700	110	05/26/16
3,3'-Dichlorobenzidine	1,800 U	7,400	880	05/26/16
Benzo(a)anthracene	370 U	740	93	05/26/16
Chrysene	370 U	740	93	05/26/16
bis(2-Ethylhexyl)phthalate	370 U	3,700	95	05/26/16
Di-n-octylphthalate	920 U	3,700	380	05/26/16
Benzo(b)fluoranthene	370 U	740	93	05/26/16
Benzo(k)fluoranthene	370 U	740	93	05/26/16
Benzo(a)pyrene	370 U	740	93	05/26/16
Indeno(1,2,3-cd)pyrene	370 U	740	93	05/26/16
Dibenz(a,h)anthracene	370 U	740	93	05/26/16
Benzo(g,h,i)perylene	370 U	740	93	05/26/16

Surrogate	%REC	Limits	Analyzed
2-Fluorophenol	DO b	35-115	05/26/16
2-Fluorophenol	DO	35-115	05/27/16
Phenol-d5	DO	33-122	05/26/16
Phenol-d5	DO	33-122	05/27/16
2,4,6-Tribromophenol	DO	39-132	05/26/16
2,4,6-Tribromophenol	DO	39-132	05/27/16
Nitrobenzene-d5	DO	37-122	05/26/16
Nitrobenzene-d5	DO	37-122	05/27/16
2-Fluorobiphenyl	DO	44-115	05/26/16
2-Fluorobiphenyl	DO	44-115	05/27/16
Terphenyl-d14	DO	54-127	05/26/16
Terphenyl-d14	DO	54-127	05/27/16

U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
DO= Diluted Out
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8270D
Field ID:	BS-BERNARD-11-051916	Batch#:	235475
Lab ID:	277038-011	Sampled:	05/19/16
Matrix:	Soil	Received:	05/20/16
Units:	ug/Kg	Prepared:	05/25/16
Basis:	dry	Analyzed:	05/26/16
Diln Fac:	5.000		

Moisture: 7%

Analyte	Result	LOQ	DL
N-Nitrosodimethylamine	440 U	1,800	220
Phenol	180 U	1,800	80
bis(2-Chloroethyl)ether	180 U	1,800	120
2-Chlorophenol	180 U	1,800	74
1,3-Dichlorobenzene	440 U	1,800	220
1,4-Dichlorobenzene	440 U	1,800	220
Benzyl alcohol	180 U	1,800	87
1,2-Dichlorobenzene	180 U	1,800	120
2-Methylphenol	180 U	1,800	77
bis(2-Chloroisopropyl) ether	180 U	1,800	85
4-Methylphenol	180 U	1,800	85
N-Nitroso-di-n-propylamine	180 U	1,800	81
Hexachloroethane	440 U	1,800	220
Nitrobenzene	180 U	1,800	120
Isophorone	180 U	1,800	54
2-Nitrophenol	440 U	3,600	210
2,4-Dimethylphenol	180 U	1,800	99
Benzoic acid	2,200 U b	8,900	2,000
bis(2-Chloroethoxy)methane	180 U	1,800	55
2,4-Dichlorophenol	180 U	1,800	50
1,2,4-Trichlorobenzene	180 U	1,800	120
Naphthalene	180 U	360	69
4-Chloroaniline	180 U	1,800	67
Hexachlorobutadiene	180 U	1,800	120
4-Chloro-3-methylphenol	180 U	1,800	46
2-Methylnaphthalene	180 U	360	53
Hexachlorocyclopentadiene	890 U b	3,600	410
2,4,6-Trichlorophenol	180 U	1,800	59
2,4,5-Trichlorophenol	180 U	1,800	49
2-Chloronaphthalene	180 U	1,800	45
2-Nitroaniline	440 U	3,600	180
Dimethylphthalate	180 U	1,800	45
Acenaphthylene	180 U	360	45
2,6-Dinitrotoluene	440 U	1,800	180
3-Nitroaniline	180 U	3,600	45
Acenaphthene	180 U	360	45
2,4-Dinitrophenol	890 U b	3,600	400
4-Nitrophenol	180 U b	3,600	45
Dibenzofuran	180 U	1,800	45
2,4-Dinitrotoluene	180 U	1,800	45
Diethylphthalate	180 U	1,800	45
Fluorene	180 U	360	45
4-Chlorophenyl-phenylether	180 U	1,800	45
4-Nitroaniline	180 U	3,600	56
4,6-Dinitro-2-methylphenol	440 U b	3,600	190
N-Nitrosodiphenylamine	180 U	1,800	45
Azobenzene	180 U	1,800	45
4-Bromophenyl-phenylether	180 U	1,800	45
Hexachlorobenzene	180 U	1,800	45

U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8270D
Field ID:	BS-BERNARD-11-051916	Batch#:	235475
Lab ID:	277038-011	Sampled:	05/19/16
Matrix:	Soil	Received:	05/20/16
Units:	ug/Kg	Prepared:	05/25/16
Basis:	dry	Analyzed:	05/26/16
Diln Fac:	5.000		

Analyte	Result	LOQ	DL
Pentachlorophenol	890 U	3,600	550
Phenanthrene	180 U	360	45
Anthracene	180 U	360	48
Carbazole	180 U	1,800	54
Di-n-butylphthalate	180 U	1,800	51
Fluoranthene	180 U	360	50
Pyrene	180 U	360	45
Butylbenzylphthalate	180 U	1,800	51
3,3'-Dichlorobenzidine	890 U	3,600	420
Benzo(a)anthracene	180 U	360	45
Chrysene	180 U	360	45
bis(2-Ethylhexyl)phthalate	180 U	1,800	46
Di-n-octylphthalate	440 U	1,800	180
Benzo(b)fluoranthene	180 U	360	45
Benzo(k)fluoranthene	180 U	360	45
Benzo(a)pyrene	180 U	360	45
Indeno(1,2,3-cd)pyrene	180 U	360	45
Dibenz(a,h)anthracene	180 U	360	45
Benzo(g,h,i)perylene	180 U	360	45

Surrogate	%REC	Limits
2-Fluorophenol	58 b	35-115
Phenol-d5	61	33-122
2,4,6-Tribromophenol	43	39-132
Nitrobenzene-d5	56	37-122
2-Fluorobiphenyl	58	44-115
Terphenyl-d14	63	54-127

U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8270D
Field ID:	BS-BERNARD-12-051916	Batch#:	235475
Lab ID:	277038-012	Sampled:	05/19/16
Matrix:	Soil	Received:	05/20/16
Units:	ug/Kg	Prepared:	05/25/16
Basis:	dry	Analyzed:	05/27/16
Diln Fac:	8.330		

Moisture: 6%

Analyte	Result	LOQ	DL
N-Nitrosodimethylamine	750 U	3,000	380
Phenol	300 U	3,000	130
bis(2-Chloroethyl)ether	300 U	3,000	200
2-Chlorophenol	300 U	3,000	130
1,3-Dichlorobenzene	750 U	3,000	380
1,4-Dichlorobenzene	750 U	3,000	380
Benzyl alcohol	300 U	3,000	150
1,2-Dichlorobenzene	300 U	3,000	200
2-Methylphenol	300 U	3,000	130
bis(2-Chloroisopropyl) ether	300 U	3,000	140
4-Methylphenol	300 U	3,000	140
N-Nitroso-di-n-propylamine	300 U	3,000	140
Hexachloroethane	750 U	3,000	380
Nitrobenzene	300 U	3,000	200
Isophorone	300 U	3,000	91
2-Nitrophenol	750 U	6,000	350
2,4-Dimethylphenol	300 U	3,000	170
Benzoic acid	3,700 U b	15,000	3,400
bis(2-Chloroethoxy)methane	300 U	3,000	92
2,4-Dichlorophenol	300 U	3,000	84
1,2,4-Trichlorobenzene	300 U	3,000	200
Naphthalene	300 U	600	120
4-Chloroaniline	300 U	3,000	110
Hexachlorobutadiene	300 U	3,000	200
4-Chloro-3-methylphenol	300 U	3,000	78
2-Methylnaphthalene	300 U	600	89
Hexachlorocyclopentadiene	1,500 U b	6,000	680
2,4,6-Trichlorophenol	300 U	3,000	99
2,4,5-Trichlorophenol	300 U	3,000	82
2-Chloronaphthalene	300 U	3,000	75
2-Nitroaniline	750 U	6,000	300
Dimethylphthalate	300 U	3,000	75
Acenaphthylene	300 U	600	75
2,6-Dinitrotoluene	750 U	3,000	300
3-Nitroaniline	300 U	6,000	75
Acenaphthene	300 U	600	75
2,4-Dinitrophenol	1,500 U b	6,000	670
4-Nitrophenol	300 U b	6,000	75
Dibenzofuran	300 U	3,000	75
2,4-Dinitrotoluene	300 U	3,000	75
Diethylphthalate	300 U	3,000	75
Fluorene	300 U	600	75
4-Chlorophenyl-phenylether	300 U	3,000	76
4-Nitroaniline	300 U	6,000	95
4,6-Dinitro-2-methylphenol	750 U b	6,000	310
N-Nitrosodiphenylamine	300 U	3,000	75
Azobenzene	300 U	3,000	75
4-Bromophenyl-phenylether	300 U	3,000	75
Hexachlorobenzene	300 U	3,000	75

U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8270D
Field ID:	BS-BERNARD-12-051916	Batch#:	235475
Lab ID:	277038-012	Sampled:	05/19/16
Matrix:	Soil	Received:	05/20/16
Units:	ug/Kg	Prepared:	05/25/16
Basis:	dry	Analyzed:	05/27/16
Diln Fac:	8.330		

Analyte	Result	LOQ	DL
Pentachlorophenol	1,500 U	6,000	920
Phenanthrene	300 U	600	75
Anthracene	300 U	600	81
Carbazole	300 U	3,000	91
Di-n-butylphthalate	300 U	3,000	86
Fluoranthene	300 U	600	84
Pyrene	300 U	600	75
Butylbenzylphthalate	300 U	3,000	86
3,3'-Dichlorobenzidine	1,500 U	6,000	710
Benzo(a)anthracene	300 U	600	75
Chrysene	300 U	600	75
bis(2-Ethylhexyl)phthalate	300 U	3,000	77
Di-n-octylphthalate	750 U	3,000	310
Benzo(b)fluoranthene	300 U	600	75
Benzo(k)fluoranthene	300 U	600	75
Benzo(a)pyrene	300 U	600	75
Indeno(1,2,3-cd)pyrene	300 U	600	75
Dibenz(a,h)anthracene	300 U	600	75
Benzo(g,h,i)perylene	300 U	600	75

Surrogate	%REC	Limits
2-Fluorophenol	48 b	35-115
Phenol-d5	54	33-122
2,4,6-Tribromophenol	39	39-132
Nitrobenzene-d5	49	37-122
2-Fluorobiphenyl	56	44-115
Terphenyl-d14	59	54-127

U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8270D
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC837118	Batch#:	235475
Matrix:	Soil	Prepared:	05/25/16
Units:	ug/Kg	Analyzed:	05/26/16

Analyte	Result		LOQ	DL
N-Nitrosodimethylamine	83	U	330	47
Phenol	33	U	330	10
bis(2-Chloroethyl)ether	83	U	330	60
2-Chlorophenol	33	U	330	10
1,3-Dichlorobenzene	83	U	330	57
1,4-Dichlorobenzene	33	U	330	10
Benzyl alcohol	33	U	330	11
1,2-Dichlorobenzene	33	U	330	10
2-Methylphenol	33	U	330	14
bis(2-Chloroisopropyl) ether	33	U	330	10
4-Methylphenol	33	U	330	10
N-Nitroso-di-n-propylamine	33	U	330	10
Hexachloroethane	33	U	330	10
Nitrobenzene	33	U	330	11
Isophorone	33	U	330	10
2-Nitrophenol	33	U	670	10
2,4-Dimethylphenol	33	U	330	14
Benzoic acid	830	U	1,700	440
bis(2-Chloroethoxy)methane	33	U	330	10
2,4-Dichlorophenol	33	U	330	10
1,2,4-Trichlorobenzene	33	U	330	10
Naphthalene	33	U	67	10
4-Chloroaniline	33	U	330	9.4
Hexachlorobutadiene	33	U	330	8.9
4-Chloro-3-methylphenol	33	U	330	8.3
2-Methylnaphthalene	33	U	67	10
Hexachlorocyclopentadiene	33	U b	670	14
2,4,6-Trichlorophenol	33	U	330	13
2,4,5-Trichlorophenol	33	U	330	8.4
2-Chloronaphthalene	33	U	330	9.0
2-Nitroaniline	33	U	670	11
Dimethylphthalate	33	U	330	10
Acenaphthylene	33	U	67	8.9
2,6-Dinitrotoluene	33	U	330	8.9
3-Nitroaniline	33	U	670	10
Acenaphthene	33	U	67	10
2,4-Dinitrophenol	170	U	670	64
4-Nitrophenol	170	U	670	71
Dibenzofuran	33	U	330	10
2,4-Dinitrotoluene	33	U	330	9.6
Diethylphthalate	33	U	330	11
Fluorene	33	U	67	9.9
4-Chlorophenyl-phenylether	33	U	330	9.6
4-Nitroaniline	33	U	670	10
4,6-Dinitro-2-methylphenol	170	U	670	77
N-Nitrosodiphenylamine	33	U	330	11
Azobenzene	33	U	330	8.6
4-Bromophenyl-phenylether	33	U	330	11
Hexachlorobenzene	33	U	330	11
Pentachlorophenol	170	U	670	130
Phenanthrene	33	U	67	11
Anthracene	33	U	67	11

U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8270D
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC837118	Batch#:	235475
Matrix:	Soil	Prepared:	05/25/16
Units:	ug/Kg	Analyzed:	05/26/16

Analyte	Result	LOQ	DL
Carbazole	33 U	330	13
Di-n-butylphthalate	33 U	330	12
Fluoranthene	33 U	67	10
Pyrene	33 U	67	11
Butylbenzylphthalate	33 U	330	10
3,3'-Dichlorobenzidine	33 U	670	10
Benzo(a)anthracene	33 U	67	10
Chrysene	33 U	67	11
bis(2-Ethylhexyl)phthalate	33 U	330	13
Di-n-octylphthalate	33 U	330	10
Benzo(b)fluoranthene	33 U	67	9.0
Benzo(k)fluoranthene	33 U	67	9.5
Benzo(a)pyrene	33 U	67	8.8
Indeno(1,2,3-cd)pyrene	33 U	67	8.8
Dibenz(a,h)anthracene	33 U	67	9.3
Benzo(g,h,i)perylene	33 U	67	10

Surrogate	%REC	Limits
2-Fluorophenol	86	35-115
Phenol-d5	89	33-122
2,4,6-Tribromophenol	73	39-132
Nitrobenzene-d5	69	37-122
2-Fluorobiphenyl	71	44-115
Terphenyl-d14	84	54-127

U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8270D
Type:	LCS	Dil'n Fac:	1.000
Lab ID:	QC837119	Batch#:	235475
Matrix:	Soil	Prepared:	05/25/16
Units:	ug/Kg	Analyzed:	05/26/16

Analyte	Spiked	Result	%REC	Limits
N-Nitrosodimethylamine	2,683	1,717	64	23-123
Phenol	2,683	2,102	78	34-121
bis(2-Chloroethyl)ether	2,683	2,296	86	31-120
2-Chlorophenol	2,683	1,995	74	34-121
1,3-Dichlorobenzene	2,683	1,969	73	30-115
1,4-Dichlorobenzene	2,683	1,994	74	31-115
Benzyl alcohol	2,683	2,201	82	29-122
1,2-Dichlorobenzene	2,683	2,003	75	33-117
2-Methylphenol	2,683	2,114	79	32-122
bis(2-Chloroisopropyl) ether	2,683	2,159	80	33-131
4-Methylphenol	2,683	2,052	76	42-126
N-Nitroso-di-n-propylamine	2,683	2,157	80	36-120
Hexachloroethane	2,683	2,038	76	28-117
Nitrobenzene	2,683	2,109	79	34-122
Isophorone	2,683	2,231	83	30-122
2-Nitrophenol	2,683	2,171	81	36-123
2,4-Dimethylphenol	2,683	2,220	83	30-127
Benzoic acid	4,024	1,023	25	10-120
bis(2-Chloroethoxy)methane	1,006	862.8	86	36-121
2,4-Dichlorophenol	2,683	2,155	80	40-122
1,2,4-Trichlorobenzene	2,683	2,010	75	34-118
Naphthalene	1,006	827.5	82	35-123
4-Chloroaniline	2,683	997.7	37	17-106
Hexachlorobutadiene	2,683	1,972	74	32-123
4-Chloro-3-methylphenol	2,683	2,375	89	45-122
2-Methylnaphthalene	1,006	859.0	85	38-122
Hexachlorocyclopentadiene	2,683	1,526 b	57	23-120
2,4,6-Trichlorophenol	2,683	1,906	71	39-126
2,4,5-Trichlorophenol	2,683	1,952	73	41-124
2-Chloronaphthalene	1,006	783.3	78	41-114
2-Nitroaniline	2,683	1,870	70	44-127
Dimethylphthalate	2,683	1,843	69	48-124
Acenaphthylene	1,006	754.4	75	32-132
2,6-Dinitrotoluene	2,683	1,928	72	46-124
3-Nitroaniline	2,683	1,103	41	33-119
Acenaphthene	1,006	702.6	70	40-123
2,4-Dinitrophenol	2,683	290.0	11	10-120
4-Nitrophenol	2,683	1,700	63	30-132
Dibenzofuran	1,006	752.4	75	44-120
2,4-Dinitrotoluene	2,683	1,871	70	47-126
Diethylphthalate	1,006	755.8	75	50-124
Fluorene	1,006	747.6	74	43-125
4-Chlorophenyl-phenylether	1,006	796.7	79	45-121
4-Nitroaniline	2,683	1,674	62	41-120
4,6-Dinitro-2-methylphenol	2,683	721.5	27 *	29-132
N-Nitrosodiphenylamine	1,006	880.4	88	38-127
Azobenzene	1,006	846.4	84	39-125
4-Bromophenyl-phenylether	1,006	883.5	88	46-124
Hexachlorobenzene	2,683	2,157	80	45-122
Pentachlorophenol	2,683	1,868	70	25-133
Phenanthrene	1,006	802.2	80	50-121
Anthracene	1,006	835.0	83	47-123
Carbazole	2,683	1,909	71	50-123
Di-n-butylphthalate	1,006	882.3	88	51-128

*= Value outside of QC limits; see narrative
b= See narrative

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8270D
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC837119	Batch#:	235475
Matrix:	Soil	Prepared:	05/25/16
Units:	ug/Kg	Analyzed:	05/26/16

Analyte	Spiked	Result	%REC	Limits
Fluoranthene	1,006	825.8	82	50-127
Pyrene	1,006	915.0	91	47-127
Butylbenzylphthalate	1,006	924.8	92	48-132
3,3'-Dichlorobenzidine	2,683	1,648	61	22-121
Benzo(a)anthracene	1,006	850.4	85	49-126
Chrysene	1,006	851.8	85	50-124
bis(2-Ethylhexyl)phthalate	1,006	945.9	94	51-133
Di-n-octylphthalate	1,006	964.4	96	45-140
Benzo(b)fluoranthene	1,006	845.3	84	45-132
Benzo(k)fluoranthene	1,006	846.1	84	47-132
Benzo(a)pyrene	1,006	834.7	83	45-129
Indeno(1,2,3-cd)pyrene	1,006	874.0	87	45-133
Dibenz(a,h)anthracene	1,006	883.9	88	45-134
Benzo(g,h,i)perylene	1,006	862.7	86	43-134

Surrogate	%REC	Limits
2-Fluorophenol	74	35-115
Phenol-d5	78	33-122
2,4,6-Tribromophenol	77	39-132
Nitrobenzene-d5	59	37-122
2-Fluorobiphenyl	56	44-115
Terphenyl-d14	73	54-127

*= Value outside of QC limits; see narrative
b= See narrative

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8270D
Field ID:	BS-BERNARD-01-051916	Batch#:	235475
MSS Lab ID:	277038-001	Sampled:	05/19/16
Matrix:	Soil	Received:	05/20/16
Units:	ug/Kg	Prepared:	05/25/16
Basis:	dry	Analyzed:	05/26/16
Diln Fac:	1.000		

Type: MS
Lab ID: QC837120

Moisture: 9%

Analyte	MSS Result	Spiked	Result	%REC	Limits
N-Nitrosodimethylamine	<51.34	2,930	2,233	76	23-123
Phenol	<10.88	2,930	2,423	83	34-121
bis(2-Chloroethyl)ether	<64.83	2,930	2,684	92	31-120
2-Chlorophenol	<10.88	2,930	2,285	78	34-121
1,3-Dichlorobenzene	<61.68	2,930	2,131	73	30-115
1,4-Dichlorobenzene	<10.88	2,930	2,140	73	31-115
Benzyl alcohol	<11.84	2,930	2,618	89	29-122
1,2-Dichlorobenzene	<10.88	2,930	2,192	75	33-117
2-Methylphenol	<14.84	2,930	2,438	83	32-122
bis(2-Chloroisopropyl) ether	<10.88	2,930	2,487	85	33-131
4-Methylphenol	<10.88	2,930	2,381	81	42-126
N-Nitroso-di-n-propylamine	<10.88	2,930	2,533	86	36-120
Hexachloroethane	<10.88	2,930	1,977	67	28-117
Nitrobenzene	<11.88	2,930	2,419	83	34-122
Isophorone	<10.88	2,930	2,629	90	30-122
2-Nitrophenol	<10.88	2,930	2,531	86	36-123
2,4-Dimethylphenol	<15.22	2,930	2,735	93	30-127
Benzoic acid	<476.0	4,396	1,220	28	10-120
bis(2-Chloroethoxy)methane	<10.88	1,099	1,003	91	36-121
2,4-Dichlorophenol	<10.88	2,930	2,449	84	40-122
1,2,4-Trichlorobenzene	<10.88	2,930	2,198	75	34-118
Naphthalene	<10.88	1,099	908.2	83	35-123
4-Chloroaniline	<10.23	2,930	1,876	64	17-106
Hexachlorobutadiene	<9.679	2,930	2,070	71	32-123
4-Chloro-3-methylphenol	<9.079	2,930	2,723	93	45-122
2-Methylnaphthalene	<10.88	1,099	978.7	89	38-122
Hexachlorocyclopentadiene	<14.84	2,930	249.7 b	9 *	23-120
2,4,6-Trichlorophenol	<13.70	2,930	2,094	71	39-126
2,4,5-Trichlorophenol	<9.113	2,930	2,206	75	41-124
2-Chloronaphthalene	<9.778	1,099	853.6	78	41-114
2-Nitroaniline	<11.73	2,930	2,173	74	44-127
Dimethylphthalate	<10.91	2,930	2,016	69	48-124
Acenaphthylene	<9.731	1,099	847.1	77	32-132
2,6-Dinitrotoluene	<9.747	2,930	2,079	71	46-124
3-Nitroaniline	<10.88	2,930	1,457	50	33-119
Acenaphthene	<10.88	1,099	773.9	70	40-123
2,4-Dinitrophenol	<69.91	2,930	931.5	32	10-120
4-Nitrophenol	<77.64	2,930	1,872	64	30-132
Dibenzofuran	<11.28	1,099	835.3	76	44-120
2,4-Dinitrotoluene	<10.48	2,930	2,054	70	47-126
Diethylphthalate	<12.33	1,099	837.8	76	50-124
Fluorene	<10.77	1,099	825.8	75	43-125
4-Chlorophenyl-phenylether	<10.50	1,099	862.2	78	45-121
4-Nitroaniline	<10.88	2,930	1,830	62	41-120
4,6-Dinitro-2-methylphenol	<83.63	2,930	1,514	52	29-132
N-Nitrosodiphenylamine	<11.52	1,099	997.6	91	38-127

*= Value outside of QC limits; see narrative
b= See narrative
RPD= Relative Percent Difference

68.0

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8270D
Field ID:	BS-BERNARD-01-051916	Batch#:	235475
MSS Lab ID:	277038-001	Sampled:	05/19/16
Matrix:	Soil	Received:	05/20/16
Units:	ug/Kg	Prepared:	05/25/16
Basis:	dry	Analyzed:	05/26/16
Diln Fac:	1.000		

Analyte	MSS Result	Spiked	Result	%REC	Limits
Azobenzene	<9.319	1,099	955.2	87	39-125
4-Bromophenyl-phenylether	<11.47	1,099	977.3	89	46-124
Hexachlorobenzene	<11.66	2,930	2,325	79	45-122
Pentachlorophenol	<139.3	2,930	1,954	67	25-133
Phenanthrene	<11.46	1,099	885.8	81	50-121
Anthracene	<12.37	1,099	919.1	84	47-123
Carbazole	<14.43	2,930	2,102	72	50-123
Di-n-butylphthalate	<13.17	1,099	959.5	87	51-128
Fluoranthene	12.74	1,099	883.4	79	50-127
Pyrene	18.38	1,099	971.5	87	47-127
Butylbenzylphthalate	<10.93	1,099	989.7	90	48-132
3,3'-Dichlorobenzidine	<10.88	2,930	2,159	74	22-121
Benzo(a)anthracene	<11.15	1,099	915.2	83	49-126
Chrysene	13.12	1,099	914.2	82	50-124
bis(2-Ethylhexyl)phthalate	15.76	1,099	975.6	87	51-133
Di-n-octylphthalate	<10.88	1,099	1,036	94	45-140
Benzo(b)fluoranthene	12.51	1,099	878.7	79	45-132
Benzo(k)fluoranthene	<10.34	1,099	859.0	78	47-132
Benzo(a)pyrene	<9.545	1,099	862.3	78	45-129
Indeno(1,2,3-cd)pyrene	<9.606	1,099	818.1	74	45-133
Dibenz(a,h)anthracene	<10.16	1,099	838.8	76	45-134
Benzo(g,h,i)perylene	<11.04	1,099	806.3	73	43-134

Surrogate	%REC	Limits
2-Fluorophenol	78	35-115
Phenol-d5	83	33-122
2,4,6-Tribromophenol	66	39-132
Nitrobenzene-d5	61	37-122
2-Fluorobiphenyl	53	44-115
Terphenyl-d14	70	54-127

*= Value outside of QC limits; see narrative
b= See narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8270D
Field ID:	BS-BERNARD-01-051916	Batch#:	235475
MSS Lab ID:	277038-001	Sampled:	05/19/16
Matrix:	Soil	Received:	05/20/16
Units:	ug/Kg	Prepared:	05/25/16
Basis:	dry	Analyzed:	05/26/16
Diln Fac:	1.000		

Type: MSD Moisture: 9%
Lab ID: QC837121

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
N-Nitrosodimethylamine	2,903	1,668	57	23-123	28 *	20
Phenol	2,903	2,142	74	34-121	11	20
bis(2-Chloroethyl)ether	2,903	2,183	75	31-120	20	20
2-Chlorophenol	2,903	2,019	70	34-121	11	20
1,3-Dichlorobenzene	2,903	1,804	62	30-115	16	20
1,4-Dichlorobenzene	2,903	1,839	63	31-115	14	20
Benzyl alcohol	2,903	2,250	77	29-122	14	20
1,2-Dichlorobenzene	2,903	1,866	64	33-117	15	20
2-Methylphenol	2,903	2,209	76	32-122	9	20
bis(2-Chloroisopropyl) ether	2,903	2,105	73	33-131	16	20
4-Methylphenol	2,903	2,110	73	42-126	11	20
N-Nitroso-di-n-propylamine	2,903	2,177	75	36-120	14	20
Hexachloroethane	2,903	1,608	55	28-117	20	20
Nitrobenzene	2,903	2,094	72	34-122	13	20
Isophorone	2,903	2,261	78	30-122	14	20
2-Nitrophenol	2,903	2,181	75	36-123	14	20
2,4-Dimethylphenol	2,903	2,486	86	30-127	9	20
Benzoic acid	4,355	1,073	25	10-120	12	20
bis(2-Chloroethoxy)methane	1,089	881.0	81	36-121	12	20
2,4-Dichlorophenol	2,903	2,325	80	40-122	4	20
1,2,4-Trichlorobenzene	2,903	1,939	67	34-118	12	20
Naphthalene	1,089	785.9	72	35-123	14	20
4-Chloroaniline	2,903	1,402	48	17-106	28 *	20
Hexachlorobutadiene	2,903	1,840	63	32-123	11	20
4-Chloro-3-methylphenol	2,903	2,535	87	45-122	6	20
2-Methylnaphthalene	1,089	876.5	81	38-122	10	20
Hexachlorocyclopentadiene	2,903	130.2 b	4 *	23-120	62 *	20
2,4,6-Trichlorophenol	2,903	1,974	68	39-126	5	20
2,4,5-Trichlorophenol	2,903	2,083	72	41-124	5	20
2-Chloronaphthalene	1,089	814.5	75	41-114	4	20
2-Nitroaniline	2,903	2,058	71	44-127	4	20
Dimethylphthalate	2,903	1,950	67	48-124	2	20
Acenaphthylene	1,089	794.0	73	32-132	6	20
2,6-Dinitrotoluene	2,903	2,010	69	46-124	2	20
3-Nitroaniline	2,903	1,186	41	33-119	20	20
Acenaphthene	1,089	738.8	68	40-123	4	20
2,4-Dinitrophenol	2,903	624.9	22	10-120	39 *	20
4-Nitrophenol	2,903	1,780	61	30-132	4	20
Dibenzofuran	1,089	792.6	73	44-120	4	20
2,4-Dinitrotoluene	2,903	1,940	67	47-126	5	20
Diethylphthalate	1,089	803.7	74	50-124	3	20
Fluorene	1,089	795.4	73	43-125	3	20
4-Chlorophenyl-phenylether	1,089	816.3	75	45-121	5	20
4-Nitroaniline	2,903	1,700	59	41-120	6	20
4,6-Dinitro-2-methylphenol	2,903	1,132	39	29-132	28 *	20
N-Nitrosodiphenylamine	1,089	949.5	87	38-127	4	20

*= Value outside of QC limits; see narrative
b= See narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8270D
Field ID:	BS-BERNARD-01-051916	Batch#:	235475
MSS Lab ID:	277038-001	Sampled:	05/19/16
Matrix:	Soil	Received:	05/20/16
Units:	ug/Kg	Prepared:	05/25/16
Basis:	dry	Analyzed:	05/26/16
Diln Fac:	1.000		

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Azobenzene	1,089	912.3	84	39-125	4	20
4-Bromophenyl-phenylether	1,089	916.4	84	46-124	6	20
Hexachlorobenzene	2,903	2,202	76	45-122	4	20
Pentachlorophenol	2,903	1,562	54	25-133	21 *	20
Phenanthrene	1,089	848.9	78	50-121	3	20
Anthracene	1,089	874.3	80	47-123	4	20
Carbazole	2,903	2,016	69	50-123	3	20
Di-n-butylphthalate	1,089	923.3	85	51-128	3	20
Fluoranthene	1,089	830.8	75	50-127	5	20
Pyrene	1,089	961.2	87	47-127	0	20
Butylbenzylphthalate	1,089	978.1	90	48-132	0	20
3,3'-Dichlorobenzidine	2,903	2,070	71	22-121	3	20
Benzo(a)anthracene	1,089	891.7	82	49-126	2	20
Chrysene	1,089	909.0	82	50-124	0	20
bis(2-Ethylhexyl)phthalate	1,089	984.4	89	51-133	2	20
Di-n-octylphthalate	1,089	1,028	94	45-140	0	20
Benzo(b)fluoranthene	1,089	891.9	81	45-132	2	20
Benzo(k)fluoranthene	1,089	869.5	80	47-132	2	20
Benzo(a)pyrene	1,089	855.4	79	45-129	0	20
Indeno(1,2,3-cd)pyrene	1,089	792.6	73	45-133	2	20
Dibenz(a,h)anthracene	1,089	810.2	74	45-134	3	20
Benzo(g,h,i)perylene	1,089	775.8	71	43-134	3	20

Surrogate	%REC	Limits
2-Fluorophenol	65	35-115
Phenol-d5	73	33-122
2,4,6-Tribromophenol	60	39-132
Nitrobenzene-d5	52	37-122
2-Fluorobiphenyl	48	44-115
Terphenyl-d14	69	54-127

*= Value outside of QC limits; see narrative
b= See narrative
RPD= Relative Percent Difference

Initial & Continuing Calibration Data

CURTIS & TOMPKINS DFTPP TUNE FOR 277038 MSBNA Soil
EPA 8270D

Inst : MSBNA05 Run Name : DFTPP/PEM IDF : 1.0
Seqnum : 546189808002 File : xea02 Time : 10-MAY-2016 19:56
Caltype : DFTPP/PEM

Standards: S29605

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	218502	39.92	
68	< 2% of mass 69	0	0.00	
69		264554	100.00	
70	< 2% of mass 69	1385	0.52	
127	40% - 60% of mass 198	276672	50.54	
197	< 1% of mass 198	0	0.00	
198		547413	100.00	
199	5% - 9% of mass 198	37946	6.93	
275	10% - 30% of mass 198	139866	25.55	
365	> 1% of mass 198	12460	2.28	
441	Present, < mass 443	62882	80.14	
442	> 40% and < 100% of mass 198	400426	73.15	
443	17% - 23% of mass 442	78461	19.59	

Analyst: ICK Date: 05/10/16 Reviewer: LW Date: 05/12/16

PEM Report

File Name : G:\msbna05\051016\XEA02.D
Date Acquired : 10 May 2016 7:56 pm
Sample Name : TUN,S29605
Misc. Info : DFTPP/PEM
Calib. Title : MSBNA05 BNA DFTPP/PEM
Inst. Name : MSBNA05
AcquisitionMeth: DFTPP05.M

Compound Name	Tailing Factor	RT	Area
Pentachlorophenol	0.969	5.58	846986
Benzidine	0.517	7.47	3670039
4,4'-DDT		8.51	2856228
4,4'-DDE		7.70	3354
4,4'-DDD		8.12	81142

% Breakdown: 4,4'-DDT	LIMIT <=20%	3%	PASS
Tailing: Pentachlorophenol	8270C <5.0	1.0	PASS
	8270D <=2	1	PASS
Tailing: Benzidine	8270C <3.0	0.5	PASS
	8270D <=2	1	PASS

CURTIS & TOMPKINS DFTPP TUNE FOR 277038 MSBNA Soil
EPA 8270D

Inst : MSBNA05 Run Name : DFTPP/PEM IDF : 1.0
Seqnum : 546212333002 File : xeq02 Time : 26-MAY-2016 11:20
Caltype : DFTPP/PEM

Standards: S29605

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	229958	42.21	
68	< 2% of mass 69	0	0.00	
69		277589	100.00	
70	< 2% of mass 69	1161	0.42	
127	40% - 60% of mass 198	282858	51.92	
197	< 1% of mass 198	0	0.00	
198		544789	100.00	
199	5% - 9% of mass 198	37208	6.83	
275	10% - 30% of mass 198	134685	24.72	
365	> 1% of mass 198	12015	2.21	
441	Present, < mass 443	44477	53.09	
442	> 40% and < 100% of mass 198	436373	80.10	
443	17% - 23% of mass 442	83778	19.20	

Analyst: PMM Date: 05/26/16 Reviewer: LW Date: 05/26/16

PEM Report

File Name : G:\msbna05\052616\XEQ02.D
Date Acquired : 26 May 2016 11:20 am
Sample Name : TUN,S29605
Misc. Info : DFTPP/PEM
Calib. Title : MSBNA05 BNA
Inst. Name : MSBNA05
AcquisitionMeth: DFTPP05.M

Compound Name	Tailing Factor	RT	Area
Pentachlorophenol	1.160	5.58	253752
Benzidine	0.605	7.46	3236950
4,4'-DDT		8.49	1891580
4,4'-DDE		7.69	5367
4,4'-DDD		8.11	137678

% Breakdown: 4,4'-DDT	LIMIT <=20%	7%	PASS
Tailing: Pentachlorophenol	8270C <5.0	1.2	PASS
	8270D <=2	1	PASS
Tailing: Benzidine	8270C <3.0	0.6	PASS
	8270D <=2	1	PASS

CURTIS & TOMPKINS DFTPP TUNE FOR 277038 MSBNA Soil
EPA 8270D

Inst : MSBNA05 Run Name : DFTPP/PEM IDF : 1.0
Seqnum : 546213750004 File : xer04 Time : 27-MAY-2016 11:58
Caltype : DFTPP/PEM

Standards: S29605

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	242824	43.99	
68	< 2% of mass 69	0	0.00	
69		290424	100.00	
70	< 2% of mass 69	1256	0.43	
127	40% - 60% of mass 198	293376	53.15	
197	< 1% of mass 198	0	0.00	
198		551936	100.00	
199	5% - 9% of mass 198	37842	6.86	
275	10% - 30% of mass 198	134354	24.34	
365	> 1% of mass 198	11671	2.11	
441	Present, < mass 443	72061	84.17	
442	> 40% and < 100% of mass 198	446933	80.98	
443	17% - 23% of mass 442	85610	19.15	

Analyst: ICK Date: 05/27/16 Reviewer: LW Date: 05/27/16

PEM Report

File Name : G:\msbna05\052716\XER04.D
Date Acquired : 27 May 2016 11:58 am
Sample Name : TUN,S29605
Misc. Info : DFTPP/PEM
Calib. Title : MSBNA05 BNA DFTPP/PEM
Inst. Name : MSBNA05
AcquisitionMeth: DFTPP05.M

Compound Name	Tailing Factor	RT	Area
Pentachlorophenol	0.919	5.59	471300
Benzidine	0.673	7.47	3628308
4,4'-DDT		8.50	2024653
4,4'-DDE		7.70	5141
4,4'-DDD		8.12	113952

% Breakdown: 4,4'-DDT	LIMIT <=20%	6%	PASS
Tailing: Pentachlorophenol	8270C <5.0	0.9	PASS
	8270D <=2	1	PASS
Tailing: Benzidine	8270C <3.0	0.7	PASS
	8270D <=2	1	PASS

Fri May 27 13:05:44 2016

CURTIS & TOMPKINS DFTPP TUNE FOR 277038 MSBNA Soil
EPA 8270D

Inst : MSBNA07 Run Name : DFTPP/PEM IDF : 1.0
Seqnum : 566163756002 File : zdm02 Time : 22-APR-2016 17:45
Caltype : DFTPP/PEM

Standards: S29605

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	372503	34.69	
68	< 2% of mass 69	0	0.00	
69		330688	100.00	
70	< 2% of mass 69	1678	0.51	
127	40% - 60% of mass 198	495424	46.14	
197	< 1% of mass 198	0	0.00	
198		1073706	100.00	
199	5% - 9% of mass 198	73560	6.85	
275	10% - 30% of mass 198	311189	28.98	
365	> 1% of mass 198	20064	1.87	
441	Present, < mass 443	78098	89.19	
442	> 40% and < 100% of mass 198	459264	42.77	
443	17% - 23% of mass 442	87560	19.07	

Analyst: KMH Date: 04/23/16 Reviewer: LW Date: 04/25/16

PEM Report

File Name : G:\csinput.net\DATA\042216\ZDM02.D
Date Acquired : 22 Apr 2016 5:45 pm
Sample Name : TUN,S29605
Misc. Info : DFTPP/PEM
Calib. Title : MSBNA07 BNA DFTPP/PEM
Inst. Name : MSBNA07
AcquisitionMeth: DFTPP07.M

Compound Name	Tailing Factor	RT	Area
Pentachlorophenol	1.378	5.59	2026098
Benzidine	0.757	7.47	7045218
4,4'-DDT		8.51	4578948
4,4'-DDE		7.71	22691
4,4'-DDD		8.13	286170

% Breakdown: 4,4'-DDT	LIMIT <=20%	6%	PASS
Tailing: Pentachlorophenol	8270C <5.0	1.4	PASS
	8270D <=2	1	PASS
Tailing: Benzidine	8270C <3.0	0.8	PASS
	8270D <=2	1	PASS

Fri Apr 22 17:55:04 2016

CURTIS & TOMPKINS DFTPP TUNE FOR 277038 MSBNA Soil
EPA 8270D

Inst : MSBNA07 Run Name : DFTPP/PEM IDF : 1.0
Seqnum : 566212319007 File : zeq07 Time : 26-MAY-2016 20:10
Caltype : DFTPP/PEM

Standards: S29605

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	507089	38.07	
68	< 2% of mass 69	0	0.00	
69		458237	100.00	
70	< 2% of mass 69	1987	0.43	
127	40% - 60% of mass 198	633706	47.58	
197	< 1% of mass 198	0	0.00	
198		1331984	100.00	
199	5% - 9% of mass 198	90336	6.78	
275	10% - 30% of mass 198	373077	28.01	
365	> 1% of mass 198	30837	2.32	
441	Present, < mass 443	129621	90.35	
442	> 40% and < 100% of mass 198	743893	55.85	
443	17% - 23% of mass 442	143469	19.29	

Analyst: LW Date: 05/27/16 Reviewer: ICK Date: 05/27/16

PEM Report

File Name : G:\msbna07\052616\ZEQ07.D
Date Acquired : 26 May 2016 8:10 pm
Sample Name : TUN,S29605
Misc. Info : DFTPP/PEM
Calib. Title : MSBNA07 BNA DFTPP/PEM
Inst. Name : MSBNA07
AcquisitionMeth: DFTPP07.M

Compound Name	Tailing Factor	RT	Area
Pentachlorophenol	1.135	5.46	1678961
Benzidine	0.882	7.33	8140477
4,4'-DDT		8.35	5672154
4,4'-DDE		7.55	8037
4,4'-DDD		7.97	289438

% Breakdown: 4,4'-DDT	LIMIT <=20%	5%	PASS
Tailing: Pentachlorophenol	8270C <5.0	1.1	PASS
	8270D <=2	1	PASS
Tailing: Benzidine	8270C <3.0	0.9	PASS
	8270D <=2	1	PASS

Thu May 26 20:35:18 2016

CURTIS & TOMPKINS DFTPP TUNE FOR 277038 MSBNA Soil
EPA 8270D

Inst : MSBNA07 Run Name : DFTPP/PEM IDF : 1.0
Seqnum : 566213784002 File : zer02 Time : 27-MAY-2016 11:33
Caltype : DFTPP/PEM

Standards: S29605

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	409448	45.70	
68	< 2% of mass 69	0	0.00	
69		361057	100.00	
70	< 2% of mass 69	1894	0.52	
127	40% - 60% of mass 198	464320	51.82	
197	< 1% of mass 198	0	0.00	
198		896017	100.00	
199	5% - 9% of mass 198	60362	6.74	
275	10% - 30% of mass 198	230762	25.75	
365	> 1% of mass 198	18344	2.05	
441	Present, < mass 443	77768	86.59	
442	> 40% and < 100% of mass 198	465472	51.95	
443	17% - 23% of mass 442	89810	19.29	

Analyst: ICK Date: 05/27/16 Reviewer: LW Date: 05/27/16

PEM Report

File Name : G:\csinput.net\DATA\052716\ZER02.D
Date Acquired : 27 May 2016 11:33 am
Sample Name : TUN,S29605
Misc. Info : DFTPP/PEM
Calib. Title : MSBNA07 BNA DFTPP/PEM
Inst. Name : MSBNA07
AcquisitionMeth: DFTPP07.M

Compound Name	Tailing Factor	RT	Area
Pentachlorophenol	1.297	5.45	758150
Benzidine	0.966	7.31	6566364
4,4'-DDT		8.33	3369272
4,4'-DDE		7.54	6059
4,4'-DDD		7.95	261086

% Breakdown: 4,4'-DDT	LIMIT <=20%	7%	PASS
Tailing: Pentachlorophenol	8270C <5.0	1.3	PASS
	8270D <=2	1	PASS
Tailing: Benzidine	8270C <3.0	1.0	PASS
	8270D <=2	1	PASS

CURTIS & TOMPKINS DFTPP TUNE FOR 277038 MSBNA Soil
EPA 8270D

Inst : MSBNA09 Run Name : DFTPP/PEM IDF : 1.0
Seqnum : 586198243003 File : reg03 Time : 16-MAY-2016 18:53
Caltype : DFTPP/PEM

Standards: S29605

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	229837	40.23	
68	< 2% of mass 69	3821	1.82	
69		210154	100.00	
70	< 2% of mass 69	1099	0.52	
127	40% - 60% of mass 198	281536	49.28	
197	< 1% of mass 198	0	0.00	
198		571242	100.00	
199	5% - 9% of mass 198	37778	6.61	
275	10% - 30% of mass 198	133136	23.31	
365	> 1% of mass 198	13707	2.40	
441	Present, < mass 443	67632	78.22	
442	> 40% and < 100% of mass 198	463402	81.12	
443	17% - 23% of mass 442	86461	18.66	

KMH 05/17/16 [4,4'-DDD]: Corrected automatically drawn baseline.

Analyst: KMH Date: 05/17/16 Reviewer: LW Date: 05/18/16

PEM Report

File Name : G:\msbna09\051616\REG03.D
Date Acquired : 16 May 2016 6:53 pm
Sample Name : TUN,S29605
Misc. Info : DFTPP/PEM
Calib. Title : MSBNA09 BNA DFTPP/PEM
Inst. Name : MSBNA09
AcquisitionMeth: DFTPP09.M

Compound Name	Tailing Factor	RT	Area
Pentachlorophenol	1.201	5.57	467060
Benzidine	1.069	7.42	3177400
4,4'-DDT		8.45	2190819
4,4'-DDE		7.65	10558
4,4'-DDD		8.07	47170

% Breakdown: 4,4'-DDT	LIMIT <=20%	3%	PASS
Tailing: Pentachlorophenol	8270C <5.0	1.2	PASS
	8270D <=2	1	PASS
Tailing: Benzidine	8270C <3.0	1.1	PASS
	8270D <=2	1	PASS

Mon May 16 19:27:19 2016

CURTIS & TOMPKINS DFTPP TUNE FOR 277038 MSBNA Soil
EPA 8270D

Inst : MSBNA09 Run Name : DFTPP/PEM IDF : 1.0
Seqnum : 586212309002 File : req02 Time : 26-MAY-2016 10:55
Caltype : DFTPP/PEM

Standards: S29605

Mass	Ion Abundance Criteria	Abundance	% Relative Abundance	Q
51	30% - 60% of mass 198	327310	43.74	
68	< 2% of mass 69	4738	1.64	
69		288405	100.00	
70	< 2% of mass 69	1588	0.55	
127	40% - 60% of mass 198	373781	49.95	
197	< 1% of mass 198	3536	0.47	
198		748245	100.00	
199	5% - 9% of mass 198	49757	6.65	
275	10% - 30% of mass 198	163949	21.91	
365	> 1% of mass 198	16696	2.23	
441	Present, < mass 443	88378	78.47	
442	> 40% and < 100% of mass 198	608832	81.37	
443	17% - 23% of mass 442	112626	18.50	

Analyst: PMM Date: 05/26/16 Reviewer: LW Date: 05/26/16

PEM Report

File Name : G:\msbna09\052616\REQ02.D
Date Acquired : 26 May 2016 10:55 am
Sample Name : TUN,S29605
Misc. Info : DFTPP/PEM
Calib. Title : MSBNA09 BNA DFTPP/PEM
Inst. Name : MSBNA09
AcquisitionMeth: DFTPP09.M

Compound Name	Tailing Factor	RT	Area
Pentachlorophenol	1.324	5.56	691165
Benzidine	1.260	7.41	5770684
4,4'-DDT		8.44	2853266
4,4'-DDE		7.65	9218
4,4'-DDD		8.06	229343

% Breakdown: 4,4'-DDT	LIMIT <=20%	8%	PASS
Tailing: Pentachlorophenol	8270C <5.0	1.3	PASS
	8270D <=2	1	PASS
Tailing: Benzidine	8270C <3.0	1.3	PASS
	8270D <=2	1	PASS

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 277038 MSBNA Soil: EPA 8270D

Inst : MSBNA05
Calnum : 546189808001
Units : ug/mL

Name : 6PTBNA5
Date : 10-MAY-2016 20:33

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	xea03	546189808003	ICAL	10-MAY-2016 20:33	S28846
L2	xea04	546189808004	ICAL	10-MAY-2016 21:14	S28847
L3	xea05	546189808005	ICAL	10-MAY-2016 21:57	S28848
L4	xea06	546189808006	ICAL	10-MAY-2016 22:41	S28849
L5	xea07	546189808007	ICAL	10-MAY-2016 23:25	S28850
L6	xea08	546189808008	ICAL	11-MAY-2016 00:08	S28851
L7	xea09	546189808009	ICAL	11-MAY-2016 00:51	S28852
L8	xea10	546189808010	ICAL	11-MAY-2016 01:31	S28853
L9	xea11	546189808011	ICAL	11-MAY-2016 02:13	S28854

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	X	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
N-Nitrosodimethylamine		0.5651	0.6139	0.6247	0.6372	0.6544	0.6400	0.6346	0.6275	AVRG	R		1.60082		0.6247	4	15	0.05	0.99	
Phenol		1.7431	1.8001	1.7679	1.7452	1.7436	1.6251	1.5667	1.5379	AVRG	R		0.59130		1.6912	6	15	0.800	0.99	
bis(2-Chloroethyl)ether		1.3249	1.3450	1.3240	1.2916	1.2665	1.1538	1.1479	1.0959	AVRG	R		0.80405		1.2437	8	15	0.700	0.99	
2-Chlorophenol		1.5276	1.5530	1.5131	1.4998	1.4718	1.3446	1.3012	1.2511	AVRG	R		0.69795		1.4328	8	15	0.800	0.99	
1,3-Dichlorobenzene		1.6978	1.7314	1.6292	1.6172	1.5836	1.3725	1.2941	1.1993	AVRG	R		0.65979		1.5156	13	15	0.05	0.99	
1,4-Dichlorobenzene		1.7123	1.7018	1.5972	1.5769	1.5319	1.2909	1.2251	1.1168	AVRG	R		0.68068		1.4691	15	15	0.05	0.99	
Benzyl alcohol		0.9127	0.9667	0.9614	0.9430	0.9594	0.9237	0.9060	0.8965	AVRG	R		1.07101		0.9337	3	15	0.05	0.99	
1,2-Dichlorobenzene		1.6367	1.6456	1.5661	1.5371	1.4912	1.2982	1.2136	1.1214	AVRG	R		0.69505		1.4387	14	15	0.05	0.99	
2-Methylphenol		1.1564	1.1782	1.1592	1.1313	1.1345	1.0440	1.0087	0.9685	AVRG	R		0.91107		1.0976	7	15	0.700	0.99	
bis(2-Chloroisopropyl) ether		1.5876	1.6494	1.6238	1.5887	1.6175	1.5304	1.4951	1.4574	AVRG	R		0.63746		1.5687	4	15	0.010	0.99	
4-Methylphenol		1.6400	1.6679	1.6343	1.5830	1.5950	1.5427	1.5321		AVRG	R		0.62528		1.5993	3	15	0.600	0.99	
N-Nitroso-di-n-propylamine		0.7422	0.7831	0.7922	0.7825	0.8141	0.7648	0.7396	0.7438	AVRG	R		1.29820		0.7703	4	15	0.500	0.99	
Hexachloroethane		0.6572	0.6878	0.6623	0.6581	0.6539	0.5926	0.5678	0.5297	AVRG	R		1.59702		0.6262	9	15	0.300	0.99	
Nitrobenzene		0.4516	0.4433	0.4363	0.4204	0.4196	0.3882	0.3798	0.3615	AVRG	R		2.42377		0.4126	8	15	0.200	0.99	
Isophorone		0.7774	0.7797	0.7673	0.7310	0.7344	0.6974			AVRG	R		1.33715		0.7479	4	15	0.400	0.99	
2-Nitrophenol			0.2477	0.2477	0.2356	0.2386	0.2211	0.2156	0.2048	AVRG	R		4.34450		0.2302	7	15	0.100	0.99	
2,4-Dimethylphenol		0.4121	0.4002	0.3927	0.3427	0.3743	0.3351	0.3280	0.3143	AVRG	R		2.75915		0.3624	10	15	0.200	0.99	
bis(2-Chloroethoxy)methane			0.4940	0.4884	0.4806	0.4758	0.4479	0.4316	0.4143	AVRG	R		2.16543		0.4618	7	15	0.300	0.99	
Benzoic acid		0.2127	0.2180	0.2482	0.2425	0.2501	0.2443	0.2466	0.2556	AVRG	R		4.17100		0.2398	7	15	0.05	0.99	
2,4-Dichlorophenol		0.3806	0.3722	0.3645	0.3468	0.3390	0.2949	0.2777	0.2606	AVRG	R		3.03456		0.3295	14	15	0.200	0.99	
1,2,4-Trichlorobenzene		0.4212	0.4150	0.3886	0.3725	0.3567	0.3065	0.2883		AVRG	R		2.74640		0.3641	14	15	0.05	0.99	
Naphthalene	1.3832	1.3416	1.3163	1.2479	1.2044	1.1688	1.0031	0.9384	0.8628	QUAD	A	0.38570	1.33938	-0.00814	1.1629	1.000	15	0.700	0.99	
4-Chloroaniline		0.3894	0.5232	0.5122	0.4943	0.4814m	0.4122m	0.3948m	0.3809m	AVRG	R		2.22932		0.4486	13	15	0.010	0.99	
Hexachlorobutadiene		0.2283	0.2229	0.2142	0.2011	0.1968	0.1672	0.1582		AVRG	R		5.04072		0.1984	14	15	0.010	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	X	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
4-Chloro-3-methylphenol		0.3794	0.3754	0.3680	0.3506	0.3453	0.3248	0.3097	0.3009	AVRG	R		2.90471		0.3443	9	15	0.200	0.99	
2-Methylnaphthalene	0.9073	0.9007	0.8988	0.8677	0.8392	0.8240	0.7161	0.6762	0.6283	AVRG	R		1.23996		0.8065	13	15	0.400	0.99	
Hexachlorocyclopentadiene			0.4349	0.4157	0.3878	0.4055	0.3527	0.3350	0.3058	AVRG	R		2.65403		0.3768	12	15	0.050	0.99	
2,4,6-Trichlorophenol		0.4879	0.4968	0.4660	0.4558	0.4421	0.3873	0.3729	0.3514	AVRG	R		2.31196		0.4325	13	15	0.200	0.99	
2,4,5-Trichlorophenol		0.5173	0.5266	0.4934	0.4740	0.4652	0.3987	0.3695	0.3435	AVRG	R		2.22955		0.4485	15	15	0.200	0.99	
2-Chloronaphthalene			1.5217	1.4325	1.4057	1.3471	1.1617	1.1315	1.0597	AVRG	R		0.77263		1.2943	14	15	0.800	0.99	
2-Nitroaniline			0.4384	0.4389	0.4302	0.4341	0.4149	0.4061	0.4004	AVRG	R		2.36250		0.4233	4	15	0.010	0.99	
Dimethylphthalate		1.6727	1.6707	1.5609	1.5359	1.4987	1.2552	1.2248	1.1256	AVRG	R		0.69297		1.4431	15	15	0.010	0.99	
2,6-Dinitrotoluene		0.3907	0.4155	0.3998	0.3923	0.3941	0.3601	0.3492	0.3359	AVRG	R		2.63372		0.3797	7	15	0.200	0.99	
Acenaphthylene	2.4078	2.3709	2.4163	2.3049	2.2089	2.1548	1.8603	1.7649	1.6284	AVRG	R		0.47078		2.1242	14	15	0.900	0.99	
3-Nitroaniline			0.3685m	0.4282m	0.4294m	0.4555	0.4289	0.4269	0.4224m	AVRG	R		2.36495		0.4228	6	15	0.010	0.99	
Acenaphthene	1.5398	1.5348	1.5838	1.5412	1.5037	1.5030	1.2352	1.1384	1.0787	AVRG	R		0.71098		1.4065	14	15	0.900	0.99	
2,4-Dinitrophenol			0.1847	0.2102	0.2138	0.2349	0.2327	0.2337	0.2333	AVRG	R		4.53587		0.2205	9	15	0.010	0.99	
4-Nitrophenol			0.2151	0.2155	0.2150	0.2199	0.2084	0.2072	0.2024	AVRG	R		4.71856		0.2119	3	15	0.010	0.99	
Dibenzofuran			2.1855	2.0579	2.0083	1.9537	1.6635	1.5790	1.4231	AVRG	R		0.54386		1.8387	15	15	0.800	0.99	
2,4-Dinitrotoluene		0.5241	0.5482	0.5289	0.5251	0.5219	0.4773	0.4611	0.4350	AVRG	R		1.98927		0.5027	8	15	0.200	0.99	
Diethylphthalate			1.8099	1.7242	1.7060	1.6885	1.4578	1.3804	1.3069	AVRG	R		0.63213		1.5820	12	15	0.010	0.99	
Fluorene	1.8392	1.8218	1.8442	1.7402	1.6800	1.6475	1.4010	1.3345	1.2282	AVRG	R		0.61912		1.6152	15	15	0.900	0.99	
4-Chlorophenyl-phenylether			0.8614	0.8267	0.8025	0.7842	0.6834	0.6572	0.6072	AVRG	R		1.34033		0.7461	13	15	0.400	0.99	
4-Nitroaniline			0.3966m	0.4211	0.4211	0.4474	0.4318	0.4284	0.4164	AVRG	R		2.36258		0.4233	4	15	0.010	0.99	
4,6-Dinitro-2-methylphenol			0.1552	0.1638	0.1623	0.1689	0.1626	0.1596	0.1544	AVRG	R		6.21179		0.1610	3	15	0.010	0.99	
N-Nitrosodiphenylamine			0.7178	0.6937	0.6730	0.6676	0.6028	0.5825	0.5540	AVRG	R		1.55854		0.6416	10	15	0.010	0.99	
Azobenzene			0.9308	0.9178	0.8846	0.8799	0.8043	0.7719	0.7374	AVRG	R		1.18112		0.8467	9	15	0.05	0.99	
4-Bromophenyl-phenylether			0.2628	0.2608	0.2538	0.2563	0.2374	0.2257	0.2186	AVRG	R		4.08075		0.2451	7	15	0.100	0.99	
Hexachlorobenzene		0.2691	0.2788	0.2697	0.2580	0.2510	0.2186	0.2095	0.1941	AVRG	R		4.10493		0.2436	13	15	0.100	0.99	
Pentachlorophenol			0.1694	0.1793	0.1718	0.1760	0.1616	0.1552	0.1497	AVRG	R		6.01843		0.1662	7	15	0.050	0.99	
Phenanthrene	1.4241	1.3824	1.3653	1.2821	1.2342	1.2045	1.0254	0.9654		AVRG	R		0.80944		1.2354	13	15	0.700	0.99	
Anthracene	1.4060	1.3877	1.3629	1.2899	1.2506	1.2349	1.0544	0.9930	0.9154	AVRG	R		0.82609		1.2105	15	15	0.700	0.99	
Carbazole		1.1726	1.1655	1.1096	1.0497	0.9774	0.8253			AVRG	R		0.95237		1.0500	13	15	0.010	0.99	
Di-n-butylphthalate			1.6258	1.5830	1.5146	1.4882	1.2472	1.1794	1.0881	AVRG	R		0.71970		1.3895	15	15	0.010	0.99	
Fluoranthene	1.5688	1.5630	1.5459	1.4857	1.4359	1.4105	1.1889	1.1333	1.0463	AVRG	R		0.72708		1.3754	15	15	0.600	0.99	
Pyrene	1.4860	1.4846	1.5670	1.5081	1.4593	1.4508	1.2404	1.1904	1.1299	AVRG	R		0.71905		1.3907	11	15	0.600	0.99	
Butylbenzylphthalate			0.7021	0.7189	0.7080	0.7219	0.6806	0.6644	0.6491	AVRG	R		1.44481		0.6921	4	15	0.010	0.99	
3,3'-Dichlorobenzidine			0.4169	0.4701	0.4724	0.4844	0.4220	0.4003	0.3710	AVRG	R		2.30482		0.4339	10	15	0.010	0.99	
Benzo(a)anthracene	1.3936	1.3155	1.3684	1.3455	1.3031	1.3149	1.2180	1.2000	1.1673	AVRG	R		0.77410		1.2918	6	15	0.800	0.99	
bis(2-Ethylhexyl)phthalate			1.0056	1.0166	0.9870	0.9773	0.7800	0.6923		AVRG	R		1.09913		0.9098	15	15	0.010	0.99	
Chrysene	1.2155	1.1666	1.1986	1.1528	1.1384	1.1366	1.0395	1.0306	0.9790	AVRG	R		0.89483		1.1175	7	15	0.700	0.99	
Di-n-octylphthalate			1.5829	1.6414	1.6741	1.6988	1.5932	1.5854	1.5253	AVRG	R		0.61941		1.6144	4	15	0.010	0.99	
Benzo(b)fluoranthene	1.1032m	1.1101m	1.1975	1.2170	1.2492	1.2720	1.2431	1.2535	1.2801	AVRG	R		0.82375		1.2140	5	15	0.700	0.99	
Benzo(k)fluoranthene	1.0856	1.1092	1.1748	1.1749	1.1738	1.2175	1.1086	1.1045m	1.0402m	AVRG	R		0.88330		1.1321	5	15	0.700	0.99	
Benzo(a)pyrene	1.0639	1.0925	1.1833	1.2130	1.2176	1.2655	1.2097	1.2086	1.2029	AVRG	R		0.84451		1.1841	5	15	0.700	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	X	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Indeno(1,2,3-cd)pyrene	1.0631	1.0892	1.2004	1.2189	1.2699	1.3285	1.3097	1.3256	1.3261	AVRG	R		0.80852		1.2368	8	15	0.500	0.99	
Dibenz(a,h)anthracene	0.8732	0.8947	0.9881	1.0005	1.0380	1.1049	1.0861	1.1048	1.0991	AVRG	R		0.97940		1.0210	9	15	0.400	0.99	
Benzo(g,h,i)perylene	0.9381	0.9154	0.9864	1.0144	1.0643	1.1067	1.0699	1.0790	1.0810	AVRG	R		0.97242		1.0284	7	15	0.500	0.99	
2-Fluorophenol	1.4109	1.4040	1.5034	1.4942	1.5035	1.5252	1.4739	1.4564	1.4473	AVRG	R		0.68085		1.4688	3	15	0.05	0.99	
Phenol-d5	1.7831	1.7888	1.8876	1.8712	1.8650	1.8975	1.8378	1.8039	1.7970	AVRG	R		0.54440		1.8369	2	15	0.05	0.99	
Nitrobenzene-d5	0.5420	0.5523	0.5678	0.5610	0.5440	0.5517	0.5207	0.5147	0.5064	AVRG	R		1.85163		0.5401	4	15	0.05	0.99	
2-Fluorobiphenyl		2.1888	2.2013	1.9965	1.9640	1.8242	1.4987	1.4141	1.3137	QUAD	A	3.04765	1.96782	-0.01206	1.8002	0.996	15	0.05	0.99	
2,4,6-Tribromophenol	0.1852	0.2010	0.2204	0.2213	0.2156	0.2222	0.2106	0.2070	0.1967	AVRG	R		4.78691		0.2089	6	15	0.05	0.99	
Terphenyl-d14	1.1511	1.1486	1.2225	1.1940	1.1504	1.1331	0.9775	0.9292	0.8836	AVRG	R		0.91930		1.0878	11	15	0.05	0.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
N-Nitrosodimethylamine			10.000	-10	20.000	-2	32.000	0	40.000	2	50.000	5	80.000	2	100.00	2	120.00	0
Phenol			10.000	3	20.000	6	32.000	5	40.000	3	50.000	3	80.000	-4	100.00	-7	120.00	-9
bis(2-Chloroethyl)ether			10.000	7	20.000	8	32.000	6	40.000	4	50.000	2	80.000	-7	100.00	-8	120.00	-12
2-Chlorophenol			10.000	7	20.000	8	32.000	6	40.000	5	50.000	3	80.000	-6	100.00	-9	120.00	-13
1,3-Dichlorobenzene			10.000	12	20.000	14	32.000	7	40.000	7	50.000	4	80.000	-9	100.00	-15	120.00	**-21**
1,4-Dichlorobenzene			10.000	17	20.000	16	32.000	9	40.000	7	50.000	4	80.000	-12	100.00	-17	120.00	**-24**
Benzyl alcohol			10.000	-2	20.000	4	32.000	3	40.000	1	50.000	3	80.000	-1	100.00	-3	120.00	-4
1,2-Dichlorobenzene			10.000	14	20.000	14	32.000	9	40.000	7	50.000	4	80.000	-10	100.00	-16	120.00	**-22**
2-Methylphenol			10.000	5	20.000	7	32.000	6	40.000	3	50.000	3	80.000	-5	100.00	-8	120.00	-12
bis(2-Chloroisopropyl) ether			10.000	1	20.000	5	32.000	4	40.000	1	50.000	3	80.000	-2	100.00	-5	120.00	-7
4-Methylphenol			10.000	3	20.000	4	32.000	2	40.000	-1	50.000	0	80.000	-4	100.00	-4		
N-Nitroso-di-n-propylamine			10.000	-4	20.000	2	32.000	3	40.000	2	50.000	6	80.000	-1	100.00	-4	120.00	-3
Hexachloroethane			10.000	5	20.000	10	32.000	6	40.000	5	50.000	4	80.000	-5	100.00	-9	120.00	-15
Nitrobenzene			10.000	9	20.000	7	32.000	6	40.000	2	50.000	2	80.000	-6	100.00	-8	120.00	-12
Isophorone			10.000	4	20.000	4	32.000	3	40.000	-2	50.000	-2	80.000	-7				
2-Nitrophenol					20.000	8	32.000	8	40.000	2	50.000	4	80.000	-4	100.00	-6	120.00	-11
2,4-Dimethylphenol			10.000	14	20.000	10	32.000	8	40.000	-5	50.000	3	80.000	-8	100.00	-10	120.00	-13
bis(2-Chloroethoxy)methane					10.000	7	16.000	6	20.000	4	25.000	3	40.000	-3	50.000	-7	60.000	-10
Benzoic acid			50.000	-11	60.000	-9	80.000	4	90.000	1	100.00	4	120.00	2	130.00	3	140.00	7
2,4-Dichlorophenol			10.000	16	20.000	13	32.000	11	40.000	5	50.000	3	80.000	-11	100.00	-16	120.00	**-21**
1,2,4-Trichlorobenzene			10.000	16	20.000	14	32.000	7	40.000	2	50.000	-2	80.000	-16	100.00	**-21**		
Naphthalene	2.0000	-10	5.0000	-3	10.000	2	16.000	1	20.000	1	25.000	2	40.000	-3	50.000	0	60.000	1
4-Chloroaniline			10.000	-13	20.000	17	32.000	14	40.000	10	50.000	7	80.000	-8	100.00	-12	120.00	-15
Hexachlorobutadiene			10.000	15	20.000	12	32.000	8	40.000	1	50.000	-1	80.000	-16	100.00	-20		
4-Chloro-3-methylphenol			10.000	10	20.000	9	32.000	7	40.000	2	50.000	0	80.000	-6	100.00	-10	120.00	-13
2-Methylnaphthalene	2.0000	13	5.0000	12	10.000	11	16.000	8	20.000	4	25.000	2	40.000	-11	50.000	-16	60.000	**-22**
Hexachlorocyclopentadiene					20.000	15	32.000	10	40.000	3	50.000	8	80.000	-6	100.00	-11	120.00	-19
2,4,6-Trichlorophenol			10.000	13	20.000	15	32.000	8	40.000	5	50.000	2	80.000	-10	100.00	-14	120.00	-19
2,4,5-Trichlorophenol			10.000	15	20.000	17	32.000	10	40.000	6	50.000	4	80.000	-11	100.00	-18	120.00	**-23**
2-Chloronaphthalene					10.000	18	16.000	11	20.000	9	25.000	4	40.000	-10	50.000	-13	60.000	-18
2-Nitroaniline					20.000	4	32.000	4	40.000	2	50.000	3	80.000	-2	100.00	-4	120.00	-5
Dimethylphthalate			10.000	16	20.000	16	32.000	8	40.000	6	50.000	4	80.000	-13	100.00	-15	120.00	**-22**
2,6-Dinitrotoluene			10.000	3	20.000	9	32.000	5	40.000	3	50.000	4	80.000	-5	100.00	-8	120.00	-12
Acenaphthylene	2.0000	13	5.0000	12	10.000	14	16.000	9	20.000	4	25.000	1	40.000	-12	50.000	-17	60.000	**-23**
3-Nitroaniline					20.000	-13	32.000	1	40.000	2	50.000	8	80.000	1	100.00	1	120.00	0
Acenaphthene	2.0000	9	5.0000	9	10.000	13	16.000	10	20.000	7	25.000	7	40.000	-12	50.000	-19	60.000	**-23**
2,4-Dinitrophenol					20.000	-16	32.000	-5	40.000	-3	50.000	7	80.000	6	100.00	6	120.00	6
4-Nitrophenol					20.000	1	32.000	2	40.000	1	50.000	4	80.000	-2	100.00	-2	120.00	-5
Dibenzofuran					10.000	19	16.000	12	20.000	9	25.000	6	40.000	-10	50.000	-14	60.000	**-23**
2,4-Dinitrotoluene			10.000	4	20.000	9	32.000	5	40.000	4	50.000	4	80.000	-5	100.00	-8	120.00	-13
Diethylphthalate					10.000	14	16.000	9	20.000	8	25.000	7	40.000	-8	50.000	-13	60.000	-17
Fluorene	2.0000	14	5.0000	13	10.000	14	16.000	8	20.000	4	25.000	2	40.000	-13	50.000	-17	60.000	**-24**

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
4-Chlorophenyl-phenylether					10.000	15	16.000	11	20.000	8	25.000	5	40.000	-8	50.000	-12	60.000	-19
4-Nitroaniline					20.000	-6	32.000	-1	40.000	-1	50.000	6	80.000	2	100.00	1	120.00	-2
4,6-Dinitro-2-methylphenol					20.000	-4	32.000	2	40.000	1	50.000	5	80.000	1	100.00	-1	120.00	-4
N-Nitrosodiphenylamine					10.000	12	16.000	8	20.000	5	25.000	4	40.000	-6	50.000	-9	60.000	-14
Azobenzene					10.000	10	16.000	8	20.000	4	25.000	4	40.000	-5	50.000	-9	60.000	-13
4-Bromophenyl-phenylether					10.000	7	16.000	6	20.000	4	25.000	5	40.000	-3	50.000	-8	60.000	-11
Hexachlorobenzene			10.000	10	20.000	14	32.000	11	40.000	6	50.000	3	80.000	-10	100.00	-14	120.00	-20
Pentachlorophenol					20.000	2	32.000	8	40.000	3	50.000	6	80.000	-3	100.00	-7	120.00	-10
Phenanthrene	2.0000	15	5.0000	12	10.000	11	16.000	4	20.000	0	25.000	-3	40.000	-17	50.000	**-22**		
Anthracene	2.0000	16	5.0000	15	10.000	13	16.000	7	20.000	3	25.000	2	40.000	-13	50.000	-18	60.000	**-24**
Carbazole			10.000	12	20.000	11	32.000	6	40.000	0	50.000	-7	80.000	**-21**				
Di-n-butylphthalate					10.000	17	16.000	14	20.000	9	25.000	7	40.000	-10	50.000	-15	60.000	**-22**
Fluoranthene	2.0000	14	5.0000	14	10.000	12	16.000	8	20.000	4	25.000	3	40.000	-14	50.000	-18	60.000	**-24**
Pyrene	2.0000	7	5.0000	7	10.000	13	16.000	8	20.000	5	25.000	4	40.000	-11	50.000	-14	60.000	-19
Butylbenzylphthalate					10.000	1	16.000	4	20.000	2	25.000	4	40.000	-2	50.000	-4	60.000	-6
3,3'-Dichlorobenzidine					20.000	-4	32.000	8	40.000	9	50.000	12	80.000	-3	100.00	-8	120.00	-15
Benzo(a)anthracene	2.0000	8	5.0000	2	10.000	6	16.000	4	20.000	1	25.000	2	40.000	-6	50.000	-7	60.000	-10
bis(2-Ethylhexyl)phthalate					10.000	11	16.000	12	20.000	8	25.000	7	40.000	-14	50.000	**-24**		
Chrysene	2.0000	9	5.0000	4	10.000	7	16.000	3	20.000	2	25.000	2	40.000	-7	50.000	-8	60.000	-12
Di-n-octylphthalate					10.000	-2	16.000	2	20.000	4	25.000	5	40.000	-1	50.000	-2	60.000	-6
Benzo(b)fluoranthene	2.0000	-9	5.0000	-9	10.000	-1	16.000	0	20.000	3	25.000	5	40.000	2	50.000	3	60.000	5
Benzo(k)fluoranthene	2.0000	-4	5.0000	-2	10.000	4	16.000	4	20.000	4	25.000	8	40.000	-2	50.000	-2	60.000	-8
Benzo(a)pyrene	2.0000	-10	5.0000	-8	10.000	0	16.000	2	20.000	3	25.000	7	40.000	2	50.000	2	60.000	2
Indeno(1,2,3-cd)pyrene	2.0000	-14	5.0000	-12	10.000	-3	16.000	-1	20.000	3	25.000	7	40.000	6	50.000	7	60.000	7
Dibenz(a,h)anthracene	2.0000	-14	5.0000	-12	10.000	-3	16.000	-2	20.000	2	25.000	8	40.000	6	50.000	8	60.000	8
Benzo(g,h,i)perylene	2.0000	-9	5.0000	-11	10.000	-4	16.000	-1	20.000	3	25.000	8	40.000	4	50.000	5	60.000	5
2-Fluorophenol	2.0000	-4	5.0000	-4	10.000	2	16.000	2	20.000	2	25.000	4	40.000	0	50.000	-1	60.000	-1
Phenol-d5	2.0000	-3	5.0000	-3	10.000	3	16.000	2	20.000	2	25.000	3	40.000	0	50.000	-2	60.000	-2
Nitrobenzene-d5	2.0000	0	5.0000	2	10.000	5	16.000	4	20.000	1	25.000	2	40.000	-4	50.000	-5	60.000	-6
2-Fluorobiphenyl			5.0000	-18	10.000	3	16.000	2	20.000	6	25.000	3	40.000	-6	50.000	-1	60.000	4
2,4,6-Tribromophenol	2.0000	-11	5.0000	-4	10.000	6	16.000	6	20.000	3	25.000	6	40.000	1	50.000	-1	60.000	-6
Terphenyl-d14	2.0000	6	5.0000	6	10.000	12	16.000	10	20.000	6	25.000	4	40.000	-10	50.000	-15	60.000	-19

KMH 05/11/16 [Aniline]: Picked or reassigned peak in all levels.

KMH 05/11/16 [Benzidine]: q deleted in xea03

KMH 05/11/16 [Benzo(b)fluoranthene]: Picked or reassigned peak in multiple levels.

KMH 05/11/16 [Benzidine]: Corrected automatically drawn baseline in ICAL (xea04).

KMH 05/11/16 [3-Nitroaniline]: Picked or reassigned peak in multiple levels.

KMH 05/11/16 [4-Nitroaniline]: Corrected automatically drawn baseline in ICAL (xea05).

KMH 05/11/16 [3-Nitroaniline]: Corrected automatically drawn baseline in multiple levels.

KMH 05/11/16 [4-Chloroaniline]: Corrected automatically drawn baseline in multiple levels.

KMH 05/11/16 [Benzo(k)fluoranthene]: Corrected automatically drawn baseline in multiple levels.

KMH 05/11/16 [4-Methylphenol]: Corrected automatically drawn baseline in ICAL (xea11).

Analyst: KMH Date: 05/11/16 Reviewer: LW Date: 05/12/16

m=manual integration

X=A: Instrument response = a0 + amount * a1 + amount^2 * a2 (invert equation before quantitating); X=R: Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor; QUAD=Quadratic regression

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 277038 MSBNA Soil
EPA 8270D

Inst : MSBNA05 Name : 6PTBNA5
Calnum : 546189808001 Cal Date : 10-MAY-2016

ICV 546189808012 (xea12 11-MAY-2016) stds: S29716

Analyte	Spiked	Quant	Units	%D	Max	Flags
N-Nitrosodimethylamine	40.00	39.54	ug/mL	-1	20	
Phenol	40.00	39.33	ug/mL	-2	20	
bis(2-Chloroethyl)ether	40.00	39.12	ug/mL	-2	20	
2-Chlorophenol	40.00	39.98	ug/mL	0	20	
1,3-Dichlorobenzene	40.00	40.11	ug/mL	0	20	
1,4-Dichlorobenzene	40.00	40.66	ug/mL	2	20	
Benzyl alcohol	40.00	39.12	ug/mL	-2	20	
1,2-Dichlorobenzene	40.00	40.73	ug/mL	2	20	
2-Methylphenol	40.00	40.28	ug/mL	1	20	
bis(2-Chloroisopropyl) ether	40.00	38.99	ug/mL	-3	20	
4-Methylphenol	40.00	35.73	ug/mL	-11	20	
N-Nitroso-di-n-propylamine	40.00	39.64	ug/mL	-1	20	
Hexachloroethane	40.00	40.10	ug/mL	0	20	
Nitrobenzene	40.00	38.73	ug/mL	-3	20	
Isophorone	40.00	37.68	ug/mL	-6	20	
2-Nitrophenol	40.00	39.44	ug/mL	-1	20	
2,4-Dimethylphenol	40.00	41.22	ug/mL	3	20	
bis(2-Chloroethoxy)methane	40.00	37.36	ug/mL	-7	20	
Benzoic acid	100.0	104.8	ug/mL	5	20	
2,4-Dichlorophenol	40.00	39.84	ug/mL	0	20	
1,2,4-Trichlorobenzene	40.00	37.87	ug/mL	-5	20	
Naphthalene	40.00	35.87	ug/mL	-10	20	
4-Chloroaniline	40.00	41.10	ug/mL	3	20	
Hexachlorobutadiene	40.00	37.39	ug/mL	-7	20	
4-Chloro-3-methylphenol	40.00	38.87	ug/mL	-3	20	
2-Methylnaphthalene	40.00	35.34	ug/mL	-12	20	
Hexachlorocyclopentadiene	40.00	39.00	ug/mL	-2	20	
2,4,6-Trichlorophenol	40.00	38.55	ug/mL	-4	20	
2,4,5-Trichlorophenol	40.00	39.07	ug/mL	-2	20	
2-Chloronaphthalene	40.00	35.09	ug/mL	-12	20	
2-Nitroaniline	40.00	38.40	ug/mL	-4	20	
Dimethylphthalate	40.00	38.97	ug/mL	-3	20	
2,6-Dinitrotoluene	40.00	38.99	ug/mL	-3	20	
Acenaphthylene	40.00	33.20	ug/mL	-17	20	
3-Nitroaniline	40.00	40.27	ug/mL	1	20	m
Acenaphthene	40.00	33.78	ug/mL	-16	20	
2,4-Dinitrophenol	40.00	36.90	ug/mL	-8	20	
4-Nitrophenol	40.00	37.71	ug/mL	-6	20	
Dibenzofuran	40.00	35.86	ug/mL	-10	20	
2,4-Dinitrotoluene	40.00	39.50	ug/mL	-1	20	
Diethylphthalate	40.00	34.79	ug/mL	-13	20	
Fluorene	40.00	33.15	ug/mL	-17	20	
4-Chlorophenyl-phenylether	40.00	35.52	ug/mL	-11	20	
4-Nitroaniline	40.00	39.84	ug/mL	0	20	
4,6-Dinitro-2-methylphenol	40.00	37.98	ug/mL	-5	20	
N-Nitrosodiphenylamine	40.00	40.15	ug/mL	0	20	
Azobenzene	40.00	35.64	ug/mL	-11	20	
4-Bromophenyl-phenylether	40.00	36.71	ug/mL	-8	20	
Hexachlorobenzene	40.00	37.55	ug/mL	-6	20	

Analyte	Spiked	Quant	Units	%D	Max	Flags
Pentachlorophenol	40.00	37.24	ug/mL	-7	20	
Phenanthrene	40.00	32.32	ug/mL	-19	20	
Anthracene	40.00	33.61	ug/mL	-16	20	
Carbazole	40.00	38.32	ug/mL	-4	20	
Di-n-butylphthalate	40.00	34.28	ug/mL	-14	20	
Fluoranthene	40.00	33.23	ug/mL	-17	20	
Pyrene	40.00	33.30	ug/mL	-17	20	
Butylbenzylphthalate	40.00	38.21	ug/mL	-4	20	
3,3'-Dichlorobenzidine	60.00	59.74	ug/mL	0	20	
Benzo(a)anthracene	40.00	36.57	ug/mL	-9	20	
bis(2-Ethylhexyl)phthalate	40.00	35.61	ug/mL	-11	20	
Chrysene	40.00	35.54	ug/mL	-11	20	
Di-n-octylphthalate	40.00	38.27	ug/mL	-4	20	
Benzo(b)fluoranthene	40.00	41.93	ug/mL	5	20	
Benzo(k)fluoranthene	40.00	39.39	ug/mL	-2	20	
Benzo(a)pyrene	40.00	39.98	ug/mL	0	20	
Indeno(1,2,3-cd)pyrene	40.00	40.54	ug/mL	1	20	
Dibenz(a,h)anthracene	40.00	40.54	ug/mL	1	20	
Benzo(g,h,i)perylene	40.00	39.44	ug/mL	-1	20	

Analyst: KMH Date: 05/11/16 Reviewer: LW Date: 05/12/16

m=manual integration

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 277038 MSBNA Soil: EPA 8270D

Inst : MSBNA07
Calnum : 566163756001
Units : ug/mL

Name : 6PTBNA7
Date : 22-APR-2016 20:45
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	zdm03	566163756003	ICAL	22-APR-2016 20:45	S28846
L2	zdm04	566163756004	ICAL	22-APR-2016 21:20	S28847
L3	zdm05	566163756005	ICAL	22-APR-2016 21:57	S28848
L4	zdm06	566163756006	ICAL	22-APR-2016 22:34	S28849
L5	zdm07	566163756007	ICAL	22-APR-2016 23:11	S28850
L6	zdm08	566163756008	ICAL	22-APR-2016 23:48	S28851
L7	zdm09	566163756009	ICAL	23-APR-2016 00:25	S28852
L8	zdm10	566163756010	ICAL	23-APR-2016 01:01	S28853
L9	zdm11	566163756011	ICAL	23-APR-2016 01:38	S28854

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
N-Nitrosodimethylamine		0.7015	0.7483	0.7041m	0.7241	0.7318m	0.6862m	0.6844m	0.6768	AVRG		1.41415		0.7071	4	15	0.05	0.99	
Phenol		1.7711	1.7914	1.6553	1.6269	1.5933	1.4165	1.3486	1.2860m	AVRG		0.64055		1.5612	12	15	0.800	0.99	
bis(2-Chloroethyl)ether		1.3888	1.4002	1.2963	1.2663	1.2369	1.0829	1.0417m	1.1013m	AVRG		0.81513		1.2268	11	15	0.700	0.99	
2-Chlorophenol		1.6513	1.6849	1.5568	1.5432	1.5227	1.3500	1.2913	1.2583	AVRG		0.67463		1.4823	11	15	0.800	0.99	
1,3-Dichlorobenzene		1.8100	1.8242	1.6845	1.5967	1.5535	1.3180	1.2010		AVRG		0.63707		1.5697	15	15	0.05	0.99	
1,4-Dichlorobenzene		1.7919	1.7741	1.6262	1.5419	1.4881	1.2417			AVRG		0.63399		1.5773	13	15	0.05	0.99	
Benzyl alcohol		0.9931	1.0315	0.9508	0.9566	0.9395	0.8735	0.8608	0.8546	AVRG		1.07232		0.9326	7	15	0.05	0.99	
1,2-Dichlorobenzene		1.7178	1.7267	1.5821	1.5220	1.4709	1.2337	1.1305		AVRG		0.67413		1.4834	15	15	0.05	0.99	
2-Methylphenol		1.1835	1.2039	1.0947	1.0786	1.0477	0.9189	0.8640	0.8336	AVRG		0.97264		1.0281	14	15	0.700	0.99	
bis(2-Chloroisopropyl) ether		2.0637	2.0251	1.8533	1.7838	1.7436	1.4996	1.3983		AVRG		0.56600		1.7668	14	15	0.010	0.99	
4-Methylphenol		1.7017	1.7091	1.5680	1.5638	1.5520				AVRG		0.61770		1.6189	5	15	0.600	0.99	
N-Nitroso-di-n-propylamine		0.8110	0.8229	0.7619	0.7625	0.7426	0.6478m	0.6270m	0.6156m	AVRG		1.38137		0.7239	11	15	0.500	0.99	
Hexachloroethane		0.5966	0.6112	0.5641	0.5471	0.5340	0.4602	0.4155		AVRG		1.87735		0.5327	13	15	0.300	0.99	
Nitrobenzene		0.3431m	0.3531m	0.3248m	0.3280m	0.3242m	0.2920m	0.2843m	0.2781m	AVRG		3.16495		0.3160	9	15	0.200	0.99	
Isophorone		0.6366	0.6496	0.6090	0.6268	0.6216	0.5658m	0.5614m	0.5619m	AVRG		1.65534		0.6041	6	15	0.400	0.99	
2-Nitrophenol			0.2460	0.2341m	0.2413	0.2416	0.2184m	0.2099	0.2066m	AVRG		4.38055		0.2283	7	15	0.100	0.99	
2,4-Dimethylphenol		0.3484m	0.3497m	0.3225	0.3275	0.3205m	0.2906	0.2875m	0.2810m	AVRG		3.16504		0.3160	9	15	0.200	0.99	
bis(2-Chloroethoxy)methane			0.4301	0.4060	0.4130	0.4124	0.3721	0.3705	0.3673	AVRG		2.52583		0.3959	6	15	0.300	0.99	
Benzoic acid		0.2194	0.2560m	0.2560	0.2791	0.2841	0.2747	0.2834	0.2894	AVRG		3.73492		0.2677	9	15	0.05	0.99	
2,4-Dichlorophenol		0.3388	0.3539	0.3279	0.3303	0.3220	0.2814	0.2675	0.2558	AVRG		3.22889		0.3097	12	15	0.200	0.99	
1,2,4-Trichlorobenzene		0.3757	0.3836	0.3544	0.3503	0.3417	0.2900	0.2694	0.2568	AVRG		3.05125		0.3277	15	15	0.05	0.99	
Naphthalene	1.3799	1.2579	1.2838	1.1653	1.1566	1.1352	0.9892	0.9365	0.9046	AVRG		0.88157		1.1343	14	15	0.700	0.99	
4-Chloroaniline		0.3948	0.5057m	0.4736m	0.4728m	0.4587m	0.4130m	0.3970m	0.3896m	AVRG		2.28224		0.4382	10	15	0.010	0.99	
Hexachlorobutadiene		0.1888	0.1950	0.1800	0.1815	0.1764	0.1510	0.1380	0.1291	AVRG		5.97068		0.1675	15	15	0.010	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
4-Chloro-3-methylphenol		0.3044	0.3074	0.2872	0.2939	0.2890	0.2635	0.2594	0.2543	AVRG		3.54126		0.2824	7	15	0.200	0.99	
2-Methylnaphthalene	0.8846	0.8316	0.8514	0.7882	0.8016	0.7845	0.6928	0.6721	0.6487	AVRG		1.29393		0.7728	11	15	0.400	0.99	
Hexachlorocyclopentadiene			0.3510	0.3442	0.3560	0.3588	0.3343	0.3183	0.3025	AVRG		2.95976		0.3379	6	15	0.050	0.99	
2,4,6-Trichlorophenol		0.4487	0.4658	0.4431	0.4505	0.4431	0.4009	0.3858	0.3670	AVRG		2.34957		0.4256	8	15	0.200	0.99	
2,4,5-Trichlorophenol		0.4869	0.4939	0.4685	0.4687	0.4508	0.3927	0.3682	0.3533	AVRG		2.29688		0.4354	13	15	0.200	0.99	
2-Chloronaphthalene			1.4462	1.3325	1.3243	1.3256	1.2174	1.1762	1.1409	AVRG		0.78097		1.2805	8	15	0.800	0.99	
2-Nitroaniline			0.3364	0.3224	0.3303	0.3338	0.3153	0.3217	0.3180	AVRG		3.07319		0.3254	2	15	0.010	0.99	
Dimethylphthalate		1.5920	1.5947	1.4820	1.4722	1.4440	1.3037	1.2451	1.1996	AVRG		0.70589		1.4167	11	15	0.010	0.99	
2,6-Dinitrotoluene		0.3827	0.3944	0.3784	0.3800	0.3778	0.3523	0.3429	0.3366	AVRG		2.71626		0.3682	6	15	0.200	0.99	
Acenaphthylene	2.5674	2.3429	2.3588	2.2248	2.2581	2.1986	1.9857	1.9134	1.8346	AVRG		0.45722		2.1871	11	15	0.900	0.99	
3-Nitroaniline			0.3236m	0.3569	0.3949m	0.3975	0.3940	0.4044	0.4011	AVRG		2.61937		0.3818	8	15	0.010	0.99	
Acenaphthene	1.5553	1.4302	1.4729	1.4072	1.4294	1.4116	1.2235m	1.1466	1.1122	AVRG		0.73837		1.3543	11	15	0.900	0.99	
2,4-Dinitrophenol			0.1594	0.1795	0.2008	0.2141	0.2165	0.2214	0.2213	AVRG		4.95409		0.2019	12	15	0.010	0.99	
4-Nitrophenol			0.1353	0.1388	0.1438	0.1475	0.1448	0.1575m	0.1579m	AVRG		6.82577		0.1465	6	15	0.010	0.99	
Dibenzofuran			2.0180	1.8759	1.8714	1.8451	1.6560	1.5729	1.4709	AVRG		0.56864		1.7586	11	15	0.800	0.99	
2,4-Dinitrotoluene		0.4774	0.4918	0.4663	0.4726	0.4754	0.4411	0.4272m	0.4069m	AVRG		2.18663		0.4573	6	15	0.200	0.99	
Diethylphthalate			1.5493	1.4577	1.4782	1.4557	1.3046	1.2738	1.2224	AVRG		0.71856		1.3917	9	15	0.010	0.99	
Fluorene	1.8571	1.6834	1.6663	1.5416	1.5370	1.4949	1.3539	1.2958	1.2545	AVRG		0.65768		1.5205	13	15	0.900	0.99	
4-Chlorophenyl-phenylether			0.8109	0.7675	0.7752	0.7649	0.6939	0.6614	0.6378	AVRG		1.36942		0.7302	9	15	0.400	0.99	
4-Nitroaniline			0.3630	0.3369m	0.3654m	0.3681m	0.3359	0.3357	0.3089	AVRG		2.89978		0.3449	6	15	0.010	0.99	
4,6-Dinitro-2-methylphenol			0.1475	0.1487	0.1594	0.1611	0.1550	0.1581	0.1517	AVRG		6.47210		0.1545	3	15	0.010	0.99	
N-Nitrosodiphenylamine			0.6760	0.6271	0.6405	0.6379	0.5845	0.5754	0.5637	AVRG		1.62601		0.6150	7	15	0.010	0.99	
Azobenzene			0.7034	0.6672	0.6751	0.6805	0.6275	0.6161	0.6052	AVRG		1.53003		0.6536	6	15	0.05	0.99	
4-Bromophenyl-phenylether			0.2442	0.2311	0.2415	0.2362	0.2244	0.2214	0.2186	AVRG		4.32802		0.2311	4	15	0.100	0.99	
Hexachlorobenzene		0.2467	0.2630	0.2544	0.2567	0.2558	0.2301	0.2188	0.2113	AVRG		4.13057		0.2421	8	15	0.100	0.99	
Pentachlorophenol			0.1753	0.1725	0.1812	0.1809	0.1713	0.1658	0.1616	AVRG		5.79155		0.1727	4	15	0.050	0.99	
Phenanthrene	1.3591	1.2120	1.2240	1.1300	1.1448	1.1406	1.0410	1.0218	0.9865	AVRG		0.87722		1.1400	10	15	0.700	0.99	
Anthracene	1.3517	1.2226	1.2175	1.1513	1.1470	1.1375	1.0367	0.9929	0.9722	AVRG		0.87982		1.1366	11	15	0.700	0.99	
Carbazole		0.9934	1.0150	0.9126	0.9718	0.9228	0.8493	0.8349	0.8158	AVRG		1.09353		0.9145	8	15	0.010	0.99	
Di-n-butylphthalate			1.3990	1.3377	1.3734	1.3697	1.2717	1.2270	1.1875	AVRG		0.76369		1.3094	6	15	0.010	0.99	
Fluoranthene	1.4561	1.3472	1.3826	1.3195	1.3723	1.3512	1.2373	1.2014	1.1799	AVRG		0.75965		1.3164	7	15	0.600	0.99	
Pyrene	1.5521	1.4666	1.5281	1.5057	1.5434	1.5853	1.4898	1.4579	1.4490	AVRG		0.66284		1.5086	3	15	0.600	0.99	
Butylbenzylphthalate			0.6350	0.6409	0.6751	0.7024	0.6905	0.6969	0.6928	AVRG		1.47876		0.6762	4	15	0.010	0.99	
3,3'-Dichlorobenzidine			0.3754	0.4011	0.4609	0.4838	0.4643	0.4469	0.4385	AVRG		2.27957		0.4387	9	15	0.010	0.99	
Benzo(a)anthracene	1.3239	1.2518	1.2956	1.2505	1.2818	1.2893	1.2495	1.2518	1.2837	AVRG		0.78411		1.2753	2	15	0.800	0.99	
bis(2-Ethylhexyl)phthalate			0.9033	0.8946	0.9244	0.9269	0.7868	0.6811	0.6433	AVRG		1.21518		0.8229	15	15	0.010	0.99	
Chrysene	1.1607	1.0523	1.0663	1.0255	1.0558	1.0663	1.0256	1.0373	1.0332	AVRG		0.94507		1.0581	4	15	0.700	0.99	
Di-n-octylphthalate			1.4710	1.5181	1.6663	1.7466	1.7553	1.8241	1.8373	AVRG		0.59228		1.6884	9	15	0.010	0.99	
Benzo(b)fluoranthene	1.0763	1.0803	1.2172	1.2353	1.3172	1.3637	1.4081	1.4901	1.5511	AVRG		0.76665		1.3044	13	15	0.700	0.99	
Benzo(k)fluoranthene	1.0967	1.1096	1.1928	1.1910	1.2554	1.2777	1.1935	1.1838m	1.1179m	AVRG		0.84759		1.1798	5	15	0.700	0.99	
Benzo(a)pyrene	1.0625	1.0492	1.1868	1.2023	1.2781	1.3213	1.3030	1.3536	1.3620	AVRG		0.80943		1.2354	10	15	0.700	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Indeno(1,2,3-cd)pyrene	1.1183	1.1205	1.2991	1.3400	1.4499	1.5136	1.5204	1.5813	1.5775	AVRG		0.71883		1.3912	13	15	0.500	0.99	
Dibenz(a,h)anthracene	0.9192	0.9461	1.1004	1.1355	1.2138	1.2558	1.2372	1.2713	1.2703	AVRG		0.86960		1.1500	12	15	0.400	0.99	
Benzo(g,h,i)perylene	1.0467	0.9556	1.0339	1.0574	1.1604	1.1927	1.1405	1.1646	1.1537	AVRG		0.90860		1.1006	7	15	0.500	0.99	
2-Fluorophenol	1.6359	1.5764	1.6456	1.5699	1.5955	1.6036	1.4884	1.4713	1.4591	AVRG		0.64077		1.5606	5	15	0.05	0.99	
Phenol-d5	1.8983	1.8050	1.8848	1.7944	1.8239	1.8017	1.6780	1.6547	1.6096m	AVRG		0.56425		1.7723	6	15	0.05	0.99	
Nitrobenzene-d5	0.4414	0.4160	0.4322	0.4097	0.4234	0.4218	0.3899	0.3889	0.3832	AVRG		2.42819		0.4118	5	15	0.05	0.99	
2-Fluorobiphenyl	2.3086	2.0930	2.0770	1.8986	1.8459	1.8254	1.6025	1.5052		AVRG		0.52783		1.8945	14	15	0.05	0.99	
2,4,6-Tribromophenol	0.1356	0.1642	0.1964	0.1930	0.2002	0.2023	0.1922	0.1905	0.1901	AVRG		5.40723		0.1849	12	15	0.05	0.99	
Terphenyl-d14	1.1897	1.1738	1.2102	1.1990	1.2528	1.2676	1.1919	1.1615	1.1356	AVRG		0.83472		1.1980	3	15	0.05	0.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
N-Nitrosodimethylamine			10.000	-1	20.000	6	32.000	0	40.000	2	50.000	3	80.000	-3	100.00	-3	120.00	-4
Phenol			10.000	13	20.000	15	32.000	6	40.000	4	50.000	2	80.000	-9	100.00	-14	120.00	-18
bis(2-Chloroethyl)ether			10.000	13	20.000	14	32.000	6	40.000	3	50.000	1	80.000	-12	100.00	-15	120.00	-10
2-Chlorophenol			10.000	11	20.000	14	32.000	5	40.000	4	50.000	3	80.000	-9	100.00	-13	120.00	-15
1,3-Dichlorobenzene			10.000	15	20.000	16	32.000	7	40.000	2	50.000	-1	80.000	-16	100.00	**-23**		
1,4-Dichlorobenzene			10.000	14	20.000	12	32.000	3	40.000	-2	50.000	-6	80.000	**-21**				
Benzyl alcohol			10.000	6	20.000	11	32.000	2	40.000	3	50.000	1	80.000	-6	100.00	-8	120.00	-8
1,2-Dichlorobenzene			10.000	16	20.000	16	32.000	7	40.000	3	50.000	-1	80.000	-17	100.00	**-24**		
2-Methylphenol			10.000	15	20.000	17	32.000	6	40.000	5	50.000	2	80.000	-11	100.00	-16	120.00	-19
bis(2-Chloroisopropyl) ether			10.000	17	20.000	15	32.000	5	40.000	1	50.000	-1	80.000	-15	100.00	**-21**		
4-Methylphenol			10.000	5	20.000	6	32.000	-3	40.000	-3	50.000	-4						
N-Nitroso-di-n-propylamine			10.000	12	20.000	14	32.000	5	40.000	5	50.000	3	80.000	-11	100.00	-13	120.00	-15
Hexachloroethane			10.000	12	20.000	15	32.000	6	40.000	3	50.000	0	80.000	-14	100.00	**-22**		
Nitrobenzene			10.000	9	20.000	12	32.000	3	40.000	4	50.000	3	80.000	-8	100.00	-10	120.00	-12
Isophorone			10.000	5	20.000	8	32.000	1	40.000	4	50.000	3	80.000	-6	100.00	-7	120.00	-7
2-Nitrophenol					20.000	8	32.000	3	40.000	6	50.000	6	80.000	-4	100.00	-8	120.00	-9
2,4-Dimethylphenol			10.000	10	20.000	11	32.000	2	40.000	4	50.000	1	80.000	-8	100.00	-9	120.00	-11
bis(2-Chloroethoxy)methane					10.000	9	16.000	3	20.000	4	25.000	4	40.000	-6	50.000	-6	60.000	-7
Benzoic acid			50.000	-18	60.000	-4	80.000	-4	90.000	4	100.00	6	120.00	3	130.00	6	140.00	8
2,4-Dichlorophenol			10.000	9	20.000	14	32.000	6	40.000	7	50.000	4	80.000	-9	100.00	-14	120.00	-17
1,2,4-Trichlorobenzene			10.000	15	20.000	17	32.000	8	40.000	7	50.000	4	80.000	-12	100.00	-18	120.00	**-22**
Naphthalene	2.0000	**22**	5.0000	11	10.000	13	16.000	3	20.000	2	25.000	0	40.000	-13	50.000	-17	60.000	-20
4-Chloroaniline			10.000	-10	20.000	15	32.000	8	40.000	8	50.000	5	80.000	-6	100.00	-9	120.00	-11
Hexachlorobutadiene			10.000	13	20.000	16	32.000	7	40.000	8	50.000	5	80.000	-10	100.00	-18	120.00	**-23**
4-Chloro-3-methylphenol			10.000	8	20.000	9	32.000	2	40.000	4	50.000	2	80.000	-7	100.00	-8	120.00	-10
2-Methylnaphthalene	2.0000	14	5.0000	8	10.000	10	16.000	2	20.000	4	25.000	2	40.000	-10	50.000	-13	60.000	-16
Hexachlorocyclopentadiene					20.000	4	32.000	2	40.000	5	50.000	6	80.000	-1	100.00	-6	120.00	-10
2,4,6-Trichlorophenol			10.000	5	20.000	9	32.000	4	40.000	6	50.000	4	80.000	-6	100.00	-9	120.00	-14
2,4,5-Trichlorophenol			10.000	12	20.000	13	32.000	8	40.000	8	50.000	4	80.000	-10	100.00	-15	120.00	-19
2-Chloronaphthalene					10.000	13	16.000	4	20.000	3	25.000	4	40.000	-5	50.000	-8	60.000	-11
2-Nitroaniline					20.000	3	32.000	-1	40.000	1	50.000	3	80.000	-3	100.00	-1	120.00	-2
Dimethylphthalate			10.000	12	20.000	13	32.000	5	40.000	4	50.000	2	80.000	-8	100.00	-12	120.00	-15
2,6-Dinitrotoluene			10.000	4	20.000	7	32.000	3	40.000	3	50.000	3	80.000	-4	100.00	-7	120.00	-9
Acenaphthylene	2.0000	17	5.0000	7	10.000	8	16.000	2	20.000	3	25.000	1	40.000	-9	50.000	-13	60.000	-16
3-Nitroaniline					20.000	-15	32.000	-7	40.000	3	50.000	4	80.000	3	100.00	6	120.00	5
Acenaphthene	2.0000	15	5.0000	6	10.000	9	16.000	4	20.000	6	25.000	4	40.000	-10	50.000	-15	60.000	-18
2,4-Dinitrophenol					20.000	**-21**	32.000	-11	40.000	-1	50.000	6	80.000	7	100.00	10	120.00	10
4-Nitrophenol					20.000	-8	32.000	-5	40.000	-2	50.000	1	80.000	-1	100.00	8	120.00	8
Dibenzofuran					10.000	15	16.000	7	20.000	6	25.000	5	40.000	-6	50.000	-11	60.000	-16
2,4-Dinitrotoluene			10.000	4	20.000	8	32.000	2	40.000	3	50.000	4	80.000	-4	100.00	-7	120.00	-11
Diethylphthalate					10.000	11	16.000	5	20.000	6	25.000	5	40.000	-6	50.000	-8	60.000	-12
Fluorene	2.0000	**22**	5.0000	11	10.000	10	16.000	1	20.000	1	25.000	-2	40.000	-11	50.000	-15	60.000	-17

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
4-Chlorophenyl-phenylether					10.000	11	16.000	5	20.000	6	25.000	5	40.000	-5	50.000	-9	60.000	-13
4-Nitroaniline					20.000	5	32.000	-2	40.000	6	50.000	7	80.000	-3	100.00	-3	120.00	-10
4,6-Dinitro-2-methylphenol					20.000	-5	32.000	-4	40.000	3	50.000	4	80.000	0	100.00	2	120.00	-2
N-Nitrosodiphenylamine					10.000	10	16.000	2	20.000	4	25.000	4	40.000	-5	50.000	-6	60.000	-8
Azobenzene					10.000	8	16.000	2	20.000	3	25.000	4	40.000	-4	50.000	-6	60.000	-7
4-Bromophenyl-phenylether					10.000	6	16.000	0	20.000	5	25.000	2	40.000	-3	50.000	-4	60.000	-5
Hexachlorobenzene			10.000	2	20.000	9	32.000	5	40.000	6	50.000	6	80.000	-5	100.00	-10	120.00	-13
Pentachlorophenol					20.000	2	32.000	0	40.000	5	50.000	5	80.000	-1	100.00	-4	120.00	-6
Phenanthrene	2.0000	19	5.0000	6	10.000	7	16.000	-1	20.000	0	25.000	0	40.000	-9	50.000	-10	60.000	-13
Anthracene	2.0000	19	5.0000	8	10.000	7	16.000	1	20.000	1	25.000	0	40.000	-9	50.000	-13	60.000	-14
Carbazole			10.000	9	20.000	11	32.000	0	40.000	6	50.000	1	80.000	-7	100.00	-9	120.00	-11
Di-n-butylphthalate					10.000	7	16.000	2	20.000	5	25.000	5	40.000	-3	50.000	-6	60.000	-9
Fluoranthene	2.0000	11	5.0000	2	10.000	5	16.000	0	20.000	4	25.000	3	40.000	-6	50.000	-9	60.000	-10
Pyrene	2.0000	3	5.0000	-3	10.000	1	16.000	0	20.000	2	25.000	5	40.000	-1	50.000	-3	60.000	-4
Butylbenzylphthalate					10.000	-6	16.000	-5	20.000	0	25.000	4	40.000	2	50.000	3	60.000	2
3,3'-Dichlorobenzidine					20.000	-14	32.000	-9	40.000	5	50.000	10	80.000	6	100.00	2	120.00	0
Benzo(a)anthracene	2.0000	4	5.0000	-2	10.000	2	16.000	-2	20.000	1	25.000	1	40.000	-2	50.000	-2	60.000	1
bis(2-Ethylhexyl)phthalate					10.000	10	16.000	9	20.000	12	25.000	13	40.000	-4	50.000	-17	60.000	**-22**
Chrysene	2.0000	10	5.0000	-1	10.000	1	16.000	-3	20.000	0	25.000	1	40.000	-3	50.000	-2	60.000	-2
Di-n-octylphthalate					10.000	-13	16.000	-10	20.000	-1	25.000	3	40.000	4	50.000	8	60.000	9
Benzo(b)fluoranthene	2.0000	-17	5.0000	-17	10.000	-7	16.000	-5	20.000	1	25.000	5	40.000	8	50.000	14	60.000	19
Benzo(k)fluoranthene	2.0000	-7	5.0000	-6	10.000	1	16.000	1	20.000	6	25.000	8	40.000	1	50.000	0	60.000	-5
Benzo(a)pyrene	2.0000	-14	5.0000	-15	10.000	-4	16.000	-3	20.000	3	25.000	7	40.000	5	50.000	10	60.000	10
Indeno(1,2,3-cd)pyrene	2.0000	-20	5.0000	-19	10.000	-7	16.000	-4	20.000	4	25.000	9	40.000	9	50.000	14	60.000	13
Dibenz(a,h)anthracene	2.0000	-20	5.0000	-18	10.000	-4	16.000	-1	20.000	6	25.000	9	40.000	8	50.000	11	60.000	10
Benzo(g,h,i)perylene	2.0000	-5	5.0000	-13	10.000	-6	16.000	-4	20.000	5	25.000	8	40.000	4	50.000	6	60.000	5
2-Fluorophenol	2.0000	5	5.0000	1	10.000	5	16.000	1	20.000	2	25.000	3	40.000	-5	50.000	-6	60.000	-7
Phenol-d5	2.0000	7	5.0000	2	10.000	6	16.000	1	20.000	3	25.000	2	40.000	-5	50.000	-7	60.000	-9
Nitrobenzene-d5	2.0000	7	5.0000	1	10.000	5	16.000	-1	20.000	3	25.000	2	40.000	-5	50.000	-6	60.000	-7
2-Fluorobiphenyl	2.0000	**22**	5.0000	10	10.000	10	16.000	0	20.000	-3	25.000	-4	40.000	-15	50.000	**-21**		
2,4,6-Tribromophenol	2.0000	**-27**	5.0000	-11	10.000	6	16.000	4	20.000	8	25.000	9	40.000	4	50.000	3	60.000	3
Terphenyl-d14	2.0000	-1	5.0000	-2	10.000	1	16.000	0	20.000	5	25.000	6	40.000	-1	50.000	-3	60.000	-5

KMH 04/23/16 [Aniline]: Picked or reassigned peak in multiple levels.

KMH 04/23/16 [Nitrobenzene]: Picked or reassigned peak in all levels.

KMH 04/23/16 [2-Nitrophenol]: Picked or reassigned peak in multiple levels.

KMH 04/23/16 [2,4-Dimethylphenol]: Picked or reassigned peak in multiple levels.

KMH 04/23/16 [Benzoic acid]: Corrected automatically drawn baseline in ICAL (zdm05).

KMH 04/23/16 [4-Chloroaniline]: Corrected automatically drawn baseline in multiple levels.

KMH 04/23/16 [3-Nitroaniline]: Corrected automatically drawn baseline in multiple levels.

KMH 04/23/16 [N-Nitrosodimethylamine]: Picked or reassigned peak in ICAL (zdm06).

KMH 04/23/16 [4-Nitroaniline]: Corrected automatically drawn baseline in multiple levels.

KMH 04/23/16 [N-Nitrosodimethylamine]: Corrected automatically drawn baseline in multiple levels.

KMH 04/23/16 [4-Methylphenol]: Corrected automatically drawn baseline in multiple levels.

KMH 04/23/16 [N-Nitroso-di-n-propylamine]: Picked or reassigned peak in multiple levels.

KMH 04/23/16 [Isophorone]: Picked or reassigned peak in multiple levels.

KMH 04/23/16 [2-Nitrophenol]: Picked or reassigned peak in multiple levels.

KMH 04/23/16 [Acenaphthene]: Corrected automatically drawn baseline in ICAL (zdm09).

KMH 04/23/16 [Aniline]: Corrected automatically drawn baseline in multiple levels.

KMH 04/23/16 [bis(2-Chloroethyl)ether]: Corrected automatically drawn baseline in multiple levels.

KMH 04/23/16 [4-Nitrophenol]: Picked or reassigned peak in multiple levels.

KMH 04/23/16 [2,4-Dinitrotoluene]: Picked or reassigned peak in multiple levels.

KMH 04/23/16 [Benzo(k)fluoranthene]: Picked or reassigned peak in multiple levels.

KMH 04/23/16 [Pyridine]: Corrected automatically drawn baseline in ICAL (zdm10).

KMH 04/23/16 [Phenol-d5]: Picked or reassigned peak in ICAL (zdm11).

KMH 04/23/16 [Phenol]: Picked or reassigned peak in ICAL (zdm11).

Analyst: KMH Date: 04/23/16 Reviewer: LW Date: 04/25/16

m=manual integration

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 277038 MSBNA Soil
EPA 8270D

Inst : MSBNA07 Name : 6PTBNA7
Calnum : 566163756001 Cal Date : 22-APR-2016

ICV 566163756012 (zdm12 23-APR-2016) stds: S29716

Analyte	Spiked	Quant	Units	%D	Max	Flags
N-Nitrosodimethylamine	40.00	39.16	ug/mL	-2	20	
Phenol	40.00	38.73	ug/mL	-3	20	
bis(2-Chloroethyl)ether	40.00	39.51	ug/mL	-1	20	
2-Chlorophenol	40.00	39.81	ug/mL	0	20	
1,3-Dichlorobenzene	40.00	39.44	ug/mL	-1	20	
1,4-Dichlorobenzene	40.00	38.08	ug/mL	-5	20	
Benzyl alcohol	40.00	38.64	ug/mL	-3	20	
1,2-Dichlorobenzene	40.00	39.20	ug/mL	-2	20	
2-Methylphenol	40.00	40.28	ug/mL	1	20	
bis(2-Chloroisopropyl) ether	40.00	39.08	ug/mL	-2	20	
4-Methylphenol	40.00	33.54	ug/mL	-16	20	
N-Nitroso-di-n-propylamine	40.00	40.20	ug/mL	1	20	
Hexachloroethane	40.00	39.22	ug/mL	-2	20	
Nitrobenzene	40.00	38.83	ug/mL	-3	20	m
Isophorone	40.00	39.01	ug/mL	-2	20	
2-Nitrophenol	40.00	38.69	ug/mL	-3	20	
2,4-Dimethylphenol	40.00	41.00	ug/mL	3	20	m
bis(2-Chloroethoxy)methane	40.00	36.59	ug/mL	-9	20	
Benzoic acid	100.0	96.26	ug/mL	-4	20	
2,4-Dichlorophenol	40.00	39.32	ug/mL	-2	20	
1,2,4-Trichlorobenzene	40.00	39.78	ug/mL	-1	20	
Naphthalene	40.00	34.08	ug/mL	-15	20	
4-Chloroaniline	40.00	41.15	ug/mL	3	20	m
Hexachlorobutadiene	40.00	38.97	ug/mL	-3	20	
4-Chloro-3-methylphenol	40.00	38.68	ug/mL	-3	20	
2-Methylnaphthalene	40.00	35.59	ug/mL	-11	20	
Hexachlorocyclopentadiene	40.00	38.02	ug/mL	-5	20	
2,4,6-Trichlorophenol	40.00	39.05	ug/mL	-2	20	
2,4,5-Trichlorophenol	40.00	38.90	ug/mL	-3	20	
2-Chloronaphthalene	40.00	36.65	ug/mL	-8	20	
2-Nitroaniline	40.00	38.59	ug/mL	-4	20	
Dimethylphthalate	40.00	38.39	ug/mL	-4	20	
2,6-Dinitrotoluene	40.00	37.84	ug/mL	-5	20	
Acenaphthylene	40.00	34.83	ug/mL	-13	20	
3-Nitroaniline	40.00	35.32	ug/mL	-12	20	
Acenaphthene	40.00	34.35	ug/mL	-14	20	
2,4-Dinitrophenol	40.00	34.00	ug/mL	-15	20	
4-Nitrophenol	40.00	35.39	ug/mL	-12	20	
Dibenzofuran	40.00	37.34	ug/mL	-7	20	
2,4-Dinitrotoluene	40.00	37.73	ug/mL	-6	20	
Diethylphthalate	40.00	34.75	ug/mL	-13	20	
Fluorene	40.00	34.10	ug/mL	-15	20	
4-Chlorophenyl-phenylether	40.00	36.51	ug/mL	-9	20	
4-Nitroaniline	40.00	36.92	ug/mL	-8	20	
4,6-Dinitro-2-methylphenol	40.00	33.97	ug/mL	-15	20	
N-Nitrosodiphenylamine	40.00	41.48	ug/mL	4	20	
Azobenzene	40.00	35.70	ug/mL	-11	20	
4-Bromophenyl-phenylether	40.00	36.73	ug/mL	-8	20	
Hexachlorobenzene	40.00	35.92	ug/mL	-10	20	

Analyte	Spiked	Quant	Units	%D	Max	Flags
Pentachlorophenol	40.00	33.92	ug/mL	-15	20	
Phenanthrene	40.00	35.63	ug/mL	-11	20	
Anthracene	40.00	35.63	ug/mL	-11	20	
Carbazole	40.00	38.86	ug/mL	-3	20	
Di-n-butylphthalate	40.00	35.52	ug/mL	-11	20	
Fluoranthene	40.00	35.23	ug/mL	-12	20	
Pyrene	40.00	35.88	ug/mL	-10	20	
Butylbenzylphthalate	40.00	38.47	ug/mL	-4	20	
3,3'-Dichlorobenzidine	60.00	55.88	ug/mL	-7	20	
Benzo(a)anthracene	40.00	37.34	ug/mL	-7	20	
bis(2-Ethylhexyl)phthalate	40.00	41.37	ug/mL	3	20	
Chrysene	40.00	36.93	ug/mL	-8	20	
Di-n-octylphthalate	40.00	39.38	ug/mL	-2	20	
Benzo(b)fluoranthene	40.00	42.22	ug/mL	6	20	
Benzo(k)fluoranthene	40.00	41.36	ug/mL	3	20	
Benzo(a)pyrene	40.00	41.05	ug/mL	3	20	
Indeno(1,2,3-cd)pyrene	40.00	41.31	ug/mL	3	20	
Dibenz(a,h)anthracene	40.00	40.54	ug/mL	1	20	
Benzo(g,h,i)perylene	40.00	38.42	ug/mL	-4	20	

Analyst: KMH Date: 04/23/16 Reviewer: LW Date: 04/25/16

m=manual integration

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 277038 MSBNA Soil: EPA 8270D

Inst : MSBNA09
Calnum : 586198243002
Units : ug/mL

Name : 6PTBNA9
Date : 16-MAY-2016 19:29
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	reg04	586198243004	ICAL	16-MAY-2016 19:29	S28846
L2	reg05	586198243005	ICAL	16-MAY-2016 19:59	S28847
L3	reg06	586198243006	ICAL	16-MAY-2016 20:29	S28848
L4	reg07	586198243007	ICAL	16-MAY-2016 20:59	S28849
L5	reg08	586198243008	ICAL	16-MAY-2016 21:29	S28850
L6	reg09	586198243009	ICAL	16-MAY-2016 21:59	S28851
L7	reg10	586198243010	ICAL	16-MAY-2016 22:30	S28852
L8	reg11	586198243011	ICAL	16-MAY-2016 23:01	S28853
L9	reg12	586198243012	ICAL	16-MAY-2016 23:32	S28854

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
N-Nitrosodimethylamine		0.6757	0.7304	0.6964	0.7367	0.7673	0.7303	0.7362	0.7277	AVRG		1.37915		0.7251	4	15	0.05	0.99	
Phenol		1.5353	1.6383	1.6104	1.6470	1.7250	1.6271	1.6404	1.6162	AVRG		0.61350		1.6300	3	15	0.800	0.99	
bis(2-Chloroethyl)ether		1.3723m	1.3678	1.2469	1.2869	1.2986	1.2154	1.2070	1.1824m	AVRG		0.78608		1.2721	6	15	0.700	0.99	
2-Chlorophenol		1.4618	1.5295	1.4839	1.5192	1.5437	1.4452	1.4493	1.4347	AVRG		0.67412		1.4834	3	15	0.800	0.99	
1,3-Dichlorobenzene		1.6532	1.7026	1.6232	1.6388	1.6435	1.4904	1.4878	1.4190	AVRG		0.63199		1.5823	6	15	0.05	0.99	
1,4-Dichlorobenzene		1.6980	1.7383	1.6569	1.6863	1.6633	1.5181	1.5075	1.4214	AVRG		0.62065		1.6112	7	15	0.05	0.99	
Benzyl alcohol		0.8509	0.9408	0.9481	0.9929	1.0409	0.9619	0.9954	0.9911	AVRG		1.03599		0.9653	6	15	0.05	0.99	
1,2-Dichlorobenzene		1.5812	1.6115	1.5471	1.5640	1.5570	1.4265	1.4303	1.3519	AVRG		0.66283		1.5087	6	15	0.05	0.99	
2-Methylphenol		1.1270	1.1513	1.1121	1.1531	1.1720	1.0890	1.0895	1.0638	AVRG		0.89308		1.1197	3	15	0.700	0.99	
bis(2-Chloroisopropyl) ether		1.8499	1.8789	1.8027	1.8227	1.8538	1.7108	1.6985	1.6613	AVRG		0.56028		1.7848	5	15	0.010	0.99	
4-Methylphenol		1.5624	1.6457	1.6030	1.6964	1.7291	1.5901	1.6037	1.6270	AVRG		0.61268		1.6322	3	15	0.600	0.99	
N-Nitroso-di-n-propylamine		0.8701	0.9200	0.9402	0.9726	1.0119	0.9231	0.9292	0.9229	AVRG		1.06808		0.9363	4	15	0.500	0.99	
Hexachloroethane		0.6234	0.6341	0.6046	0.6159	0.6135	0.5550	0.5567	0.5203	AVRG		1.69368		0.5904	7	15	0.300	0.99	
Nitrobenzene		0.3375	0.3486	0.3408	0.3465	0.3443	0.3234	0.3132	0.3048	AVRG		3.00861		0.3324	5	15	0.200	0.99	
Isophorone		0.7149	0.7568	0.7284	0.7200	0.6958	0.6403	0.6276	0.6291	AVRG		1.45116		0.6891	7	15	0.400	0.99	
2-Nitrophenol			0.1933	0.1919	0.2011	0.2092	0.1953	0.1908	0.1875	AVRG		5.11324		0.1956	4	15	0.100	0.99	
2,4-Dimethylphenol		0.3368	0.3579	0.3553	0.3592	0.3524	0.3193	0.3138	0.3025	AVRG		2.96602		0.3372	7	15	0.200	0.99	
bis(2-Chloroethoxy)methane			0.3966	0.3942	0.4100	0.4168	0.3862	0.3742	0.3705	AVRG		2.54705		0.3926	4	15	0.300	0.99	
Benzoic acid		0.1145m	0.1416m	0.1594m	0.1707m	0.2060m	0.1995m	0.2025m	0.2244m	LINR	30.5551	3.63430		0.1773	0.987	15	0.05	0.99	
2,4-Dichlorophenol		0.3084	0.3235	0.3192	0.3253	0.3226	0.2915	0.2826	0.2744	AVRG		3.26869		0.3059	7	15	0.200	0.99	
1,2,4-Trichlorobenzene		0.3278	0.3293	0.3146	0.3177	0.3115	0.2827	0.2808	0.2677	AVRG		3.28926		0.3040	8	15	0.05	0.99	
Naphthalene	1.0927	1.0710	1.1076	1.0623	1.0844	1.0925	1.0188	1.0050	0.9795	AVRG		0.94598		1.0571	4	15	0.700	0.99	
4-Chloroaniline		0.4101m	0.4944	0.4802	0.4795	0.4605	0.4198	0.4072	0.3954	AVRG		2.25547		0.4434	9	15	0.010	0.99	
Hexachlorobutadiene		0.1792	0.1834	0.1752	0.1714	0.1675	0.1549	0.1506	0.1451	AVRG		6.02767		0.1659	8	15	0.010	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
4-Chloro-3-methylphenol		0.3484	0.3629	0.3514	0.3404	0.3288	0.2997	0.2931	0.2882	AVRG		3.06166		0.3266	9	15	0.200	0.99	
2-Methylnaphthalene	0.7238	0.7429	0.7979	0.7872	0.7974	0.7946	0.7216	0.7009	0.6849	AVRG		1.33310		0.7501	6	15	0.400	0.99	
Hexachlorocyclopentadiene			0.2323	0.2542	0.2884	0.3276	0.3169	0.3209	0.3048	AVRG		3.42283		0.2922	12	15	0.050	0.99	
2,4,6-Trichlorophenol		0.3909	0.4090	0.3970	0.4229	0.4292	0.3892	0.3890	0.3713	AVRG		2.50113		0.3998	5	15	0.200	0.99	
2,4,5-Trichlorophenol		0.4361	0.4745	0.4609	0.4600	0.4632	0.4259	0.4151	0.3976	AVRG		2.26418		0.4417	6	15	0.200	0.99	
2-Chloronaphthalene			1.3711	1.3388	1.3918	1.4024	1.2700	1.2441	1.1754	AVRG		0.76139		1.3134	7	15	0.800	0.99	
2-Nitroaniline			0.3735	0.3724	0.3867	0.4040	0.3813	0.3768	0.3632	AVRG		2.63361		0.3797	3	15	0.010	0.99	
Dimethylphthalate		1.6267	1.6700	1.6307	1.6630	1.7111	1.5754	1.5625	1.4748	AVRG		0.61947		1.6143	5	15	0.010	0.99	
2,6-Dinitrotoluene		0.3524	0.3787	0.3737	0.3816	0.4065	0.3795	0.3809	0.3655	AVRG		2.65008		0.3773	4	15	0.200	0.99	
Acenaphthylene	2.0946	2.1341	2.2294	2.1579	2.1984	2.2435	2.0525	2.0263	1.9718	AVRG		0.47099		2.1232	4	15	0.900	0.99	
3-Nitroaniline			0.3679m	0.3810	0.3952	0.4291	0.4063	0.4100	0.4004	AVRG		2.50906		0.3986	5	15	0.010	0.99	
Acenaphthene	1.3344	1.3574	1.3903	1.3803	1.4104	1.5194	1.4105	1.4186	1.2321	AVRG		0.72269		1.3837	6	15	0.900	0.99	
2,4-Dinitrophenol			0.0652	0.0940	0.1165	0.1956	0.2063	0.2182	0.2269	LINR	17.9835	3.74975		0.1604	0.993	15	0.010	0.99	
4-Nitrophenol			0.1708	0.1835	0.1989	0.2235	0.2129	0.2125	0.2073	AVRG		4.96647		0.2014	9	15	0.010	0.99	
Dibenzofuran			2.0107	1.9701	1.9616	2.0239	1.8702	1.8625	1.7539	AVRG		0.52033		1.9218	5	15	0.800	0.99	
2,4-Dinitrotoluene		0.4767	0.5285	0.5222	0.5365	0.5595	0.5252	0.5170	0.4898	AVRG		1.92520		0.5194	5	15	0.200	0.99	
Diethylphthalate			1.8635	1.8627	1.8748	1.9832	1.8136	1.7786	1.6783	AVRG		0.54454		1.8364	5	15	0.010	0.99	
Fluorene	1.7937	1.6659	1.6866	1.6506	1.6604	1.7212	1.6135	1.5973	1.5295	AVRG		0.60327		1.6576	5	15	0.900	0.99	
4-Chlorophenyl-phenylether			0.8022	0.7853	0.7929	0.8195	0.7658	0.7645	0.7414	AVRG		1.27933		0.7817	3	15	0.400	0.99	
4-Nitroaniline			0.3734m	0.3737m	0.4192	0.4320	0.4093	0.4045	0.3904	AVRG		2.49770		0.4004	6	15	0.010	0.99	
4,6-Dinitro-2-methylphenol			0.1126	0.1244	0.1355	0.1535	0.1479	0.1495	0.1508	AVRG		7.18520		0.1392	11	15	0.010	0.99	
N-Nitrosodiphenylamine			0.6724	0.6437	0.6470	0.6658	0.6146	0.6113	0.6026	AVRG		1.57048		0.6367	4	15	0.010	0.99	
Azobenzene			0.7989	0.7574	0.7627	0.7548	0.6893	0.6840	0.6741	AVRG		1.36685		0.7316	7	15	0.05	0.99	
4-Bromophenyl-phenylether			0.2321	0.2224	0.2262	0.2317	0.2223	0.2234	0.2258	AVRG		4.41950		0.2263	2	15	0.100	0.99	
Hexachlorobenzene		0.2141	0.2178	0.2074	0.2092	0.2182	0.2063	0.2051	0.2037	AVRG		4.75656		0.2102	3	15	0.100	0.99	
Pentachlorophenol			0.0977	0.1072	0.1188	0.1391	0.1382	0.1403	0.1452	AVRG		7.89601		0.1266	15	15	0.050	0.99	
Phenanthrene	1.3167	1.2325	1.2837	1.2352	1.2456	1.2480	1.1506	1.1218	1.0782	AVRG		0.82476		1.2125	6	15	0.700	0.99	
Anthracene	1.2388	1.2392	1.2856	1.2411	1.2607	1.2764	1.1745	1.1492	1.1051	AVRG		0.82038		1.2190	5	15	0.700	0.99	
Carbazole		1.0703	1.1797	1.1373	1.1526	1.1193	0.9843	0.9419	0.8910	AVRG		0.94380		1.0596	10	15	0.010	0.99	
Di-n-butylphthalate			1.8099	1.6992	1.7074	1.6387	1.4533	1.4040	1.2975	AVRG		0.63578		1.5729	12	15	0.010	0.99	
Fluoranthene	1.3672	1.4524	1.5158	1.4366	1.4199	1.3807	1.2262	1.1890	1.1309	AVRG		0.74266		1.3465	10	15	0.600	0.99	
Pyrene	1.4281	1.5478	1.6463	1.6825	1.7057	1.7123	1.5464	1.5181	1.4720	AVRG		0.63117		1.5844	7	15	0.600	0.99	
Butylbenzylphthalate			0.7786	0.7725	0.7696	0.7575	0.6817	0.6759	0.6577	AVRG		1.37430		0.7276	7	15	0.010	0.99	
3,3'-Dichlorobenzidine			0.3768	0.3906	0.4088	0.4353	0.4053	0.4063	0.4012	AVRG		2.47849		0.4035	4	15	0.010	0.99	
Benzo(a)anthracene	1.2668	1.2231	1.2901	1.2624	1.2776	1.2956	1.2272	1.2302	1.2371	AVRG		0.79576		1.2567	2	15	0.800	0.99	
bis(2-Ethylhexyl)phthalate			1.0751	1.0473	1.0481	0.9722	0.8294	0.8007	0.7482	AVRG		1.07345		0.9316	15	15	0.010	0.99	
Chrysene	1.2095	1.1645	1.1868	1.1611	1.1783	1.1956	1.1204	1.1299	1.1149	AVRG		0.86033		1.1623	3	15	0.700	0.99	
Di-n-octylphthalate			1.9679	1.9835	2.0546	2.1341	2.0009	2.0066	2.1246	AVRG		0.49047		2.0389	3	15	0.010	0.99	
Benzo(b)fluoranthene	1.0731	1.0591	1.2082	1.1854	1.2564	1.2633	1.2267	1.2713	1.3255	AVRG		0.82803		1.2077	7	15	0.700	0.99	
Benzo(k)fluoranthene	1.1592	1.1594	1.2225	1.2358	1.2303	1.2470	1.2114	1.1933	1.2466	AVRG		0.82528		1.2117	3	15	0.700	0.99	
Benzo(a)pyrene	0.9577	1.0223	1.1468	1.1521	1.1799	1.2237	1.1961	1.2041	1.2263	AVRG		0.87302		1.1454	8	15	0.700	0.99	

Analyte	L1	L2	L3	L4	L5	L6	L7	L8	L9	Type	a0	a1	a2	Avg	r^2 %RSD	Max %RSD	Min RF	Min r^2	Flg
Indeno(1,2,3-cd)pyrene	0.9649	1.1190	1.1747	1.1985	1.2565	1.2536	1.2072	1.1653	1.0495	AVRG		0.86629		1.1544	8	15	0.500	0.99	
Dibenz(a,h)anthracene	0.8121	0.9411	0.9860	0.9975	1.0482	1.0610	1.0201	0.9870	0.9187	AVRG		1.02604		0.9746	8	15	0.400	0.99	
Benzo(g,h,i)perylene	0.8714	0.9518	0.9604	0.9844	1.0223	1.0028	0.9681	0.9089	0.7940	AVRG		1.06330		0.9405	8	15	0.500	0.99	
2-Fluorophenol	1.1991	1.2374	1.3993	1.3739	1.4370	1.4722	1.4011	1.4159	1.4166	AVRG		0.72860		1.3725	7	15	0.05	0.99	
Phenol-d5	1.5503	1.5806	1.7245	1.6708	1.7322	1.8319	1.7327	1.7482	1.7443	AVRG		0.58765		1.7017	5	15	0.05	0.99	
Nitrobenzene-d5	0.3920	0.4125	0.4405	0.4263	0.4415	0.4520	0.4302	0.4231	0.4174	AVRG		2.34649		0.4262	4	15	0.05	0.99	
2-Fluorobiphenyl	1.9065	1.9105	1.9756	1.9437	2.0009	1.9936	1.7844	1.7304	1.6278	AVRG		0.53338		1.8748	7	15	0.05	0.99	
2,4,6-Tribromophenol	0.1424	0.1545	0.1759	0.1777	0.1866	0.2121	0.2047	0.2113	0.2147	AVRG		5.35734		0.1867	14	15	0.05	0.99	
Terphenyl-d14	1.1127	1.2167	1.2975	1.2930	1.3375	1.3056	1.1934	1.1801	1.1550	AVRG		0.81144		1.2324	6	15	0.05	0.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
N-Nitrosodimethylamine			10.000	-7	20.000	1	32.000	-4	40.000	2	50.000	6	80.000	1	100.00	2	120.00	0
Phenol			10.000	-6	20.000	1	32.000	-1	40.000	1	50.000	6	80.000	0	100.00	1	120.00	-1
bis(2-Chloroethyl)ether			10.000	8	20.000	8	32.000	-2	40.000	1	50.000	2	80.000	-4	100.00	-5	120.00	-7
2-Chlorophenol			10.000	-1	20.000	3	32.000	0	40.000	2	50.000	4	80.000	-3	100.00	-2	120.00	-3
1,3-Dichlorobenzene			10.000	4	20.000	8	32.000	3	40.000	4	50.000	4	80.000	-6	100.00	-6	120.00	-10
1,4-Dichlorobenzene			10.000	5	20.000	8	32.000	3	40.000	5	50.000	3	80.000	-6	100.00	-6	120.00	-12
Benzyl alcohol			10.000	-12	20.000	-3	32.000	-2	40.000	3	50.000	8	80.000	0	100.00	3	120.00	3
1,2-Dichlorobenzene			10.000	5	20.000	7	32.000	3	40.000	4	50.000	3	80.000	-5	100.00	-5	120.00	-10
2-Methylphenol			10.000	1	20.000	3	32.000	-1	40.000	3	50.000	5	80.000	-3	100.00	-3	120.00	-5
bis(2-Chloroisopropyl) ether			10.000	4	20.000	5	32.000	1	40.000	2	50.000	4	80.000	-4	100.00	-5	120.00	-7
4-Methylphenol			10.000	-4	20.000	1	32.000	-2	40.000	4	50.000	6	80.000	-3	100.00	-2	120.00	0
N-Nitroso-di-n-propylamine			10.000	-7	20.000	-2	32.000	0	40.000	4	50.000	8	80.000	-1	100.00	-1	120.00	-1
Hexachloroethane			10.000	6	20.000	7	32.000	2	40.000	4	50.000	4	80.000	-6	100.00	-6	120.00	-12
Nitrobenzene			10.000	2	20.000	5	32.000	3	40.000	4	50.000	4	80.000	-3	100.00	-6	120.00	-8
Isophorone			10.000	4	20.000	10	32.000	6	40.000	4	50.000	1	80.000	-7	100.00	-9	120.00	-9
2-Nitrophenol					20.000	-1	32.000	-2	40.000	3	50.000	7	80.000	0	100.00	-2	120.00	-4
2,4-Dimethylphenol			10.000	0	20.000	6	32.000	5	40.000	7	50.000	5	80.000	-5	100.00	-7	120.00	-10
bis(2-Chloroethoxy)methane					10.000	1	16.000	0	20.000	4	25.000	6	40.000	-2	50.000	-5	60.000	-6
Benzoic acid			50.000	3	60.000	2	80.000	-4	90.000	-4	100.00	5	120.00	-2	130.00	-3	140.00	3
2,4-Dichlorophenol			10.000	1	20.000	6	32.000	4	40.000	6	50.000	5	80.000	-5	100.00	-8	120.00	-10
1,2,4-Trichlorobenzene			10.000	8	20.000	8	32.000	3	40.000	4	50.000	2	80.000	-7	100.00	-8	120.00	-12
Naphthalene	2.0000	3	5.0000	1	10.000	5	16.000	0	20.000	3	25.000	3	40.000	-4	50.000	-5	60.000	-7
4-Chloroaniline			10.000	-8	20.000	12	32.000	8	40.000	8	50.000	4	80.000	-5	100.00	-8	120.00	-11
Hexachlorobutadiene			10.000	8	20.000	11	32.000	6	40.000	3	50.000	1	80.000	-7	100.00	-9	120.00	-13
4-Chloro-3-methylphenol			10.000	7	20.000	11	32.000	8	40.000	4	50.000	1	80.000	-8	100.00	-10	120.00	-12
2-Methylnaphthalene	2.0000	-4	5.0000	-1	10.000	6	16.000	5	20.000	6	25.000	6	40.000	-4	50.000	-7	60.000	-9
Hexachlorocyclopentadiene					20.000	-20	32.000	-13	40.000	-1	50.000	12	80.000	8	100.00	10	120.00	4
2,4,6-Trichlorophenol			10.000	-2	20.000	2	32.000	-1	40.000	6	50.000	7	80.000	-3	100.00	-3	120.00	-7
2,4,5-Trichlorophenol			10.000	-1	20.000	7	32.000	4	40.000	4	50.000	5	80.000	-4	100.00	-6	120.00	-10
2-Chloronaphthalene					10.000	4	16.000	2	20.000	6	25.000	7	40.000	-3	50.000	-5	60.000	-11
2-Nitroaniline					20.000	-2	32.000	-2	40.000	2	50.000	6	80.000	0	100.00	-1	120.00	-4
Dimethylphthalate			10.000	1	20.000	3	32.000	1	40.000	3	50.000	6	80.000	-2	100.00	-3	120.00	-9
2,6-Dinitrotoluene			10.000	-7	20.000	0	32.000	-1	40.000	1	50.000	8	80.000	1	100.00	1	120.00	-3
Acenaphthylene	2.0000	-1	5.0000	1	10.000	5	16.000	2	20.000	4	25.000	6	40.000	-3	50.000	-5	60.000	-7
3-Nitroaniline					20.000	-8	32.000	-4	40.000	-1	50.000	8	80.000	2	100.00	3	120.00	0
Acenaphthene	2.0000	-4	5.0000	-2	10.000	0	16.000	0	20.000	2	25.000	10	40.000	2	50.000	3	60.000	-11
2,4-Dinitrophenol					20.000	14	32.000	-9	40.000	-11	50.000	9	80.000	0	100.00	0	120.00	0
4-Nitrophenol					20.000	-15	32.000	-9	40.000	-1	50.000	11	80.000	6	100.00	6	120.00	3
Dibenzofuran					10.000	5	16.000	3	20.000	2	25.000	5	40.000	-3	50.000	-3	60.000	-9
2,4-Dinitrotoluene			10.000	-8	20.000	2	32.000	1	40.000	3	50.000	8	80.000	1	100.00	0	120.00	-6
Diethylphthalate					10.000	1	16.000	1	20.000	2	25.000	8	40.000	-1	50.000	-3	60.000	-9
Fluorene	2.0000	8	5.0000	0	10.000	2	16.000	0	20.000	0	25.000	4	40.000	-3	50.000	-4	60.000	-8

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D	L9	%D
4-Chlorophenyl-phenylether					10.000	3	16.000	0	20.000	1	25.000	5	40.000	-2	50.000	-2	60.000	-5
4-Nitroaniline					20.000	-7	32.000	-7	40.000	5	50.000	8	80.000	2	100.00	1	120.00	-2
4,6-Dinitro-2-methylphenol					20.000	-19	32.000	-11	40.000	-3	50.000	10	80.000	6	100.00	7	120.00	8
N-Nitrosodiphenylamine					10.000	6	16.000	1	20.000	2	25.000	5	40.000	-3	50.000	-4	60.000	-5
Azobenzene					10.000	9	16.000	4	20.000	4	25.000	3	40.000	-6	50.000	-7	60.000	-8
4-Bromophenyl-phenylether					10.000	3	16.000	-2	20.000	0	25.000	2	40.000	-2	50.000	-1	60.000	0
Hexachlorobenzene			10.000	2	20.000	4	32.000	-1	40.000	0	50.000	4	80.000	-2	100.00	-2	120.00	-3
Pentachlorophenol					20.000	**-23**	32.000	-15	40.000	-6	50.000	10	80.000	9	100.00	11	120.00	15
Phenanthrene	2.0000	9	5.0000	2	10.000	6	16.000	2	20.000	3	25.000	3	40.000	-5	50.000	-7	60.000	-11
Anthracene	2.0000	2	5.0000	2	10.000	5	16.000	2	20.000	3	25.000	5	40.000	-4	50.000	-6	60.000	-9
Carbazole			10.000	1	20.000	11	32.000	7	40.000	9	50.000	6	80.000	-7	100.00	-11	120.00	-16
Di-n-butylphthalate					10.000	15	16.000	8	20.000	9	25.000	4	40.000	-8	50.000	-11	60.000	-18
Fluoranthene	2.0000	2	5.0000	8	10.000	13	16.000	7	20.000	5	25.000	3	40.000	-9	50.000	-12	60.000	-16
Pyrene	2.0000	-10	5.0000	-2	10.000	4	16.000	6	20.000	8	25.000	8	40.000	-2	50.000	-4	60.000	-7
Butylbenzylphthalate					10.000	7	16.000	6	20.000	6	25.000	4	40.000	-6	50.000	-7	60.000	-10
3,3'-Dichlorobenzidine					20.000	-7	32.000	-3	40.000	1	50.000	8	80.000	0	100.00	1	120.00	-1
Benzo(a)anthracene	2.0000	1	5.0000	-3	10.000	3	16.000	0	20.000	2	25.000	3	40.000	-2	50.000	-2	60.000	-2
bis(2-Ethylhexyl)phthalate					10.000	15	16.000	12	20.000	13	25.000	4	40.000	-11	50.000	-14	60.000	-20
Chrysene	2.0000	4	5.0000	0	10.000	2	16.000	0	20.000	1	25.000	3	40.000	-4	50.000	-3	60.000	-4
Di-n-octylphthalate					10.000	-3	16.000	-3	20.000	1	25.000	5	40.000	-2	50.000	-2	60.000	4
Benzo(b)fluoranthene	2.0000	-11	5.0000	-12	10.000	0	16.000	-2	20.000	4	25.000	5	40.000	2	50.000	5	60.000	10
Benzo(k)fluoranthene	2.0000	-4	5.0000	-4	10.000	1	16.000	2	20.000	2	25.000	3	40.000	0	50.000	-2	60.000	3
Benzo(a)pyrene	2.0000	-16	5.0000	-11	10.000	0	16.000	1	20.000	3	25.000	7	40.000	4	50.000	5	60.000	7
Indeno(1,2,3-cd)pyrene	2.0000	-16	5.0000	-3	10.000	2	16.000	4	20.000	9	25.000	9	40.000	5	50.000	1	60.000	-9
Dibenz(a,h)anthracene	2.0000	-17	5.0000	-3	10.000	1	16.000	2	20.000	8	25.000	9	40.000	5	50.000	1	60.000	-6
Benzo(g,h,i)perylene	2.0000	-7	5.0000	1	10.000	2	16.000	5	20.000	9	25.000	7	40.000	3	50.000	-3	60.000	-16
2-Fluorophenol	2.0000	-13	5.0000	-10	10.000	2	16.000	0	20.000	5	25.000	7	40.000	2	50.000	3	60.000	3
Phenol-d5	2.0000	-9	5.0000	-7	10.000	1	16.000	-2	20.000	2	25.000	8	40.000	2	50.000	3	60.000	3
Nitrobenzene-d5	2.0000	-8	5.0000	-3	10.000	3	16.000	0	20.000	4	25.000	6	40.000	1	50.000	-1	60.000	-2
2-Fluorobiphenyl	2.0000	2	5.0000	2	10.000	5	16.000	4	20.000	7	25.000	6	40.000	-5	50.000	-8	60.000	-13
2,4,6-Tribromophenol	2.0000	**-24**	5.0000	-17	10.000	-6	16.000	-5	20.000	0	25.000	14	40.000	10	50.000	13	60.000	15
Terphenyl-d14	2.0000	-10	5.0000	-1	10.000	5	16.000	5	20.000	9	25.000	6	40.000	-3	50.000	-4	60.000	-6

KMH 05/17/16 [Aniline]: Picked or reassigned peak in all levels.

KMH 05/17/16 [bis(2-Chloroethyl)ether]: Corrected automatically drawn baseline in multiple levels.

KMH 05/17/16 [2,4,5-Trichlorophenol]: Corrected automatically drawn baseline in ICAL (reg04).

KMH 05/17/16 [4-Nitrophenol]: Corrected automatically drawn baseline in multiple levels.

KMH 05/17/16 [4-Nitroaniline]: Corrected automatically drawn baseline in multiple levels.

KMH 05/17/16 [4,6-Dinitro-2-methylphenol]: Corrected automatically drawn baseline in ICAL (reg04).

KMH 05/17/16 [Benzidine]: Corrected automatically drawn baseline in ICAL (reg04).

KMH 05/17/16 [Benzoic acid]: Corrected automatically drawn baseline in multiple levels.

KMH 05/17/16 [4-Chloroaniline]: Corrected automatically drawn baseline in ICAL (reg05).

KMH 05/17/16 [2,4-Dinitrophenol]: Corrected automatically drawn baseline in ICAL (reg05).

KMH 05/17/16 [3-Nitroaniline]: Corrected automatically drawn baseline in ICAL (reg06).

ICK 05/19/16 [Benzidine]: Will not report Benzidine from BNA9.

Analyst: ICK Date: 05/19/16 Reviewer: LW Date: 05/20/16

m=manual integration

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor; LINR=Linear regression

586198243002

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 277038 MSBNA Soil
EPA 8270D

Inst : MSBNA09 Name : 6PTBNA9
Calnum : 586198243002 Cal Date : 16-MAY-2016

ICV 586198243013 (reg13 17-MAY-2016) stds: S29716

Analyte	Spiked	Quant	Units	%D	Max	Flags
N-Nitrosodimethylamine	40.00	37.26	ug/mL	-7	20	
Phenol	40.00	38.12	ug/mL	-5	20	
bis(2-Chloroethyl)ether	40.00	37.73	ug/mL	-6	20	
2-Chlorophenol	40.00	38.31	ug/mL	-4	20	
1,3-Dichlorobenzene	40.00	38.84	ug/mL	-3	20	
1,4-Dichlorobenzene	40.00	38.85	ug/mL	-3	20	
Benzyl alcohol	40.00	38.67	ug/mL	-3	20	
1,2-Dichlorobenzene	40.00	39.29	ug/mL	-2	20	
2-Methylphenol	40.00	39.16	ug/mL	-2	20	
bis(2-Chloroisopropyl) ether	40.00	37.97	ug/mL	-5	20	
4-Methylphenol	40.00	35.39	ug/mL	-12	20	
N-Nitroso-di-n-propylamine	40.00	38.12	ug/mL	-5	20	
Hexachloroethane	40.00	38.97	ug/mL	-3	20	
Nitrobenzene	40.00	38.21	ug/mL	-4	20	
Isophorone	40.00	38.16	ug/mL	-5	20	
2-Nitrophenol	40.00	39.15	ug/mL	-2	20	
2,4-Dimethylphenol	40.00	41.34	ug/mL	3	20	
bis(2-Chloroethoxy)methane	40.00	37.55	ug/mL	-6	20	
Benzoic acid	100.0	99.39	ug/mL	-1	20	
2,4-Dichlorophenol	40.00	39.76	ug/mL	-1	20	
1,2,4-Trichlorobenzene	40.00	38.79	ug/mL	-3	20	
Naphthalene	40.00	36.63	ug/mL	-8	20	
4-Chloroaniline	40.00	40.57	ug/mL	1	20	
Hexachlorobutadiene	40.00	39.10	ug/mL	-2	20	
4-Chloro-3-methylphenol	40.00	38.54	ug/mL	-4	20	
2-Methylnaphthalene	40.00	38.52	ug/mL	-4	20	
Hexachlorocyclopentadiene	40.00	37.73	ug/mL	-6	20	
2,4,6-Trichlorophenol	40.00	39.86	ug/mL	0	20	
2,4,5-Trichlorophenol	40.00	38.65	ug/mL	-3	20	
2-Chloronaphthalene	40.00	37.39	ug/mL	-7	20	
2-Nitroaniline	40.00	38.69	ug/mL	-3	20	
Dimethylphthalate	40.00	39.70	ug/mL	-1	20	
2,6-Dinitrotoluene	40.00	40.62	ug/mL	2	20	
Acenaphthylene	40.00	36.84	ug/mL	-8	20	
3-Nitroaniline	40.00	38.83	ug/mL	-3	20	
Acenaphthene	40.00	36.07	ug/mL	-10	20	
2,4-Dinitrophenol	40.00	38.51	ug/mL	-4	20	
4-Nitrophenol	40.00	38.97	ug/mL	-3	20	
Dibenzofuran	40.00	37.73	ug/mL	-6	20	
2,4-Dinitrotoluene	40.00	41.15	ug/mL	3	20	
Diethylphthalate	40.00	36.70	ug/mL	-8	20	
Fluorene	40.00	36.72	ug/mL	-8	20	
4-Chlorophenyl-phenylether	40.00	37.56	ug/mL	-6	20	
4-Nitroaniline	40.00	39.12	ug/mL	-2	20	
4,6-Dinitro-2-methylphenol	40.00	38.10	ug/mL	-5	20	
N-Nitrosodiphenylamine	40.00	42.15	ug/mL	5	20	
Azobenzene	40.00	35.44	ug/mL	-11	20	
4-Bromophenyl-phenylether	40.00	37.89	ug/mL	-5	20	
Hexachlorobenzene	40.00	38.80	ug/mL	-3	20	

Analyte	Spiked	Quant	Units	%D	Max	Flags
Pentachlorophenol	40.00	35.12	ug/mL	-12	20	
Phenanthrene	40.00	37.14	ug/mL	-7	20	
Anthracene	40.00	37.60	ug/mL	-6	20	
Carbazole	40.00	39.57	ug/mL	-1	20	
Di-n-butylphthalate	40.00	35.95	ug/mL	-10	20	
Fluoranthene	40.00	35.99	ug/mL	-10	20	
Pyrene	40.00	36.38	ug/mL	-9	20	
Butylbenzylphthalate	40.00	36.92	ug/mL	-8	20	
3,3'-Dichlorobenzidine	60.00	58.59	ug/mL	-2	20	
Benzo(a)anthracene	40.00	37.74	ug/mL	-6	20	
bis(2-Ethylhexyl)phthalate	40.00	37.17	ug/mL	-7	20	
Chrysene	40.00	37.03	ug/mL	-7	20	
Di-n-octylphthalate	40.00	38.59	ug/mL	-4	20	
Benzo(b)fluoranthene	40.00	41.97	ug/mL	5	20	
Benzo(k)fluoranthene	40.00	39.62	ug/mL	-1	20	
Benzo(a)pyrene	40.00	40.32	ug/mL	1	20	
Indeno(1,2,3-cd)pyrene	40.00	38.48	ug/mL	-4	20	
Dibenz(a,h)anthracene	40.00	38.26	ug/mL	-4	20	
Benzo(g,h,i)perylene	40.00	37.06	ug/mL	-7	20	

KMH: 05/17/16 * ICK: 05/19/16 LW: 05/20/16

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 MSBNA Soil
EPA 8270D

Inst : MSBNA05 Run Name : CCV IDF : 1.0
Seqnum : 546212333003.1 File : xeq03 Time : 26-MAY-2016 11:44
Cal : 546189808001 Caldate : 10-MAY-2016
Standards: S28768

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Max Closing %D	Min RF	Flags
N-Nitrosodimethylamine	0.6247	0.5982	40.00	38.30	ug/mL	-4	20	50	0.0500	
Phenol	1.6912	1.7248	40.00	40.79	ug/mL	2	20	50	0.8000	
bis(2-Chloroethyl)ether	1.2437	1.3085	40.00	42.08	ug/mL	5	20	50	0.7000	
2-Chlorophenol	1.4328	1.4655	40.00	40.91	ug/mL	2	20	50	0.8000	
1,3-Dichlorobenzene	1.5156	1.5999	40.00	42.22	ug/mL	6	20	50	0.0500	
1,4-Dichlorobenzene	1.4691	1.5626	40.00	42.54	ug/mL	6	20	50	0.0500	
Benzyl alcohol	0.9337	0.9466	40.00	40.55	ug/mL	1	20	50	0.0500	
1,2-Dichlorobenzene	1.4387	1.5218	40.00	42.31	ug/mL	6	20	50	0.0500	
2-Methylphenol	1.0976	1.1411	40.00	41.58	ug/mL	4	20	50	0.7000	
bis(2-Chloroisopropyl) ether	1.5687	1.6484	40.00	42.03	ug/mL	5	20	50	0.0100	
4-Methylphenol	1.5993	1.5990	40.00	39.99	ug/mL	0	20	50	0.6000	
N-Nitroso-di-n-propylamine	0.7703	0.7820	40.00	40.61	ug/mL	2	20	50	0.5000	
Hexachloroethane	0.6262	0.6446	40.00	41.18	ug/mL	3	20	50	0.3000	
Nitrobenzene	0.4126	0.4265	40.00	41.35	ug/mL	3	20	50	0.2000	
Isophorone	0.7479	0.7834	40.00	41.90	ug/mL	5	20	50	0.4000	
2-Nitrophenol	0.2302	0.2441	40.00	42.42	ug/mL	6	20	50	0.1000	
2,4-Dimethylphenol	0.3624	0.3833	40.00	42.30	ug/mL	6	20	50	0.2000	
bis(2-Chloroethoxy)methane	0.4618	0.4889	20.00	21.17	ug/mL	6	20	50	0.3000	
Benzoic acid	0.2398	0.1980	90.00	74.31	ug/mL	-17	20	50	0.0500	
2,4-Dichlorophenol	0.3295	0.3503	40.00	42.52	ug/mL	6	20	50	0.2000	
1,2,4-Trichlorobenzene	0.3641	0.3665	40.00	40.26	ug/mL	1	20	50	0.0500	
Naphthalene	1.1629	1.1845	20.00	19.77	ug/mL	-1	20	50	0.7000	
4-Chloroaniline	0.4486	0.5123	40.00	45.69	ug/mL	14	20	50	0.0100	
Hexachlorobutadiene	0.1984	0.1960	40.00	39.52	ug/mL	-1	20	50	0.0100	
4-Chloro-3-methylphenol	0.3443	0.3723	40.00	43.26	ug/mL	8	20	50	0.2000	
2-Methylnaphthalene	0.8065	0.8751	20.00	21.70	ug/mL	9	20	50	0.4000	
Hexachlorocyclopentadiene	0.3768	0.3235	40.00	34.34	ug/mL	-14	20	50	0.0500	
2,4,6-Trichlorophenol	0.4325	0.4488	40.00	41.50	ug/mL	4	20	50	0.2000	
2,4,5-Trichlorophenol	0.4485	0.4831	40.00	43.09	ug/mL	8	20	50	0.2000	
2-Chloronaphthalene	1.2943	1.3684	20.00	21.15	ug/mL	6	20	50	0.8000	
2-Nitroaniline	0.4233	0.4147	40.00	39.19	ug/mL	-2	20	50	0.0100	
Dimethylphthalate	1.4431	1.4377	40.00	39.85	ug/mL	0	20	50	0.0100	
2,6-Dinitrotoluene	0.3797	0.3768	40.00	39.70	ug/mL	-1	20	50	0.2000	
Acenaphthylene	2.1242	2.2074	20.00	20.78	ug/mL	4	20	50	0.9000	
3-Nitroaniline	0.4228	0.4087	40.00	38.66	ug/mL	-3	20	50	0.0100	
Acenaphthene	1.4065	1.3727	20.00	19.52	ug/mL	-2	20	50	0.9000	
2,4-Dinitrophenol	0.2205	0.1756	40.00	31.86	ug/mL	-20	20	50	0.0100	
4-Nitrophenol	0.2119	0.1801	40.00	34.00	ug/mL	-15	20	50	0.0100	
Dibenzofuran	1.8387	1.9171	20.00	20.85	ug/mL	4	20	50	0.8000	
2,4-Dinitrotoluene	0.5027	0.4966	40.00	39.52	ug/mL	-1	20	50	0.2000	
Diethylphthalate	1.5820	1.6270	20.00	20.57	ug/mL	3	20	50	0.0100	
Fluorene	1.6152	1.6631	20.00	20.59	ug/mL	3	20	50	0.9000	
4-Chlorophenyl-phenylether	0.7461	0.8034	20.00	21.54	ug/mL	8	20	50	0.4000	
4-Nitroaniline	0.4233	0.4250	40.00	40.17	ug/mL	0	20	50	0.0100	
4,6-Dinitro-2-methylphenol	0.1610	0.1473	40.00	36.60	ug/mL	-9	20	50	0.0100	
N-Nitrosodiphenylamine	0.6416	0.6881	20.00	21.45	ug/mL	7	20	50	0.0100	
Azobenzene	0.8467	0.8929	20.00	21.09	ug/mL	5	20	50	0.0500	
4-Bromophenyl-phenylether	0.2451	0.2717	20.00	22.18	ug/mL	11	20	50	0.1000	

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Max Closing %D	Min RF	Flags
Hexachlorobenzene	0.2436	0.2573	40.00	42.25	ug/mL	6	20	50	0.1000	
Pentachlorophenol	0.1662	0.1616	40.00	38.90	ug/mL	-3	20	50	0.0500	
Phenanthrene	1.2354	1.2225	20.00	19.79	ug/mL	-1	20	50	0.7000	
Anthracene	1.2105	1.2724	20.00	21.02	ug/mL	5	20	50	0.7000	
Carbazole	1.0500	1.0560	40.00	40.23	ug/mL	1	20	50	0.0100	
Di-n-butylphthalate	1.3895	1.5114	20.00	21.76	ug/mL	9	20	50	0.0100	
Fluoranthene	1.3754	1.4203	20.00	20.65	ug/mL	3	20	50	0.6000	
Pyrene	1.3907	1.5366	20.00	22.10	ug/mL	10	20	50	0.6000	
Butylbenzylphthalate	0.6921	0.7754	20.00	22.41	ug/mL	12	20	50	0.0100	
3,3'-Dichlorobenzidine	0.4339	0.3954	40.00	36.45	ug/mL	-9	20	50	0.0100	
Benzo(a)anthracene	1.2918	1.3433	20.00	20.80	ug/mL	4	20	50	0.8000	
bis(2-Ethylhexyl)phthalate	0.9098	1.0576	20.00	23.25	ug/mL	16	20	50	0.0100	
Chrysene	1.1175	1.1554	20.00	20.68	ug/mL	3	20	50	0.7000	
Di-n-octylphthalate	1.6144	1.8622	20.00	23.07	ug/mL	15	20	50	0.0100	
Benzo(b)fluoranthene	1.2140	1.2239	20.00	20.16	ug/mL	1	20	50	0.7000	
Benzo(k)fluoranthene	1.1321	1.1629	20.00	20.54	ug/mL	3	20	50	0.7000	
Benzo(a)pyrene	1.1841	1.1917	20.00	20.13	ug/mL	1	20	50	0.7000	
Indeno(1,2,3-cd)pyrene	1.2368	1.2563	20.00	20.32	ug/mL	2	20	50	0.5000	
Dibenz(a,h)anthracene	1.0210	1.0741	20.00	21.04	ug/mL	5	20	50	0.4000	
Benzo(g,h,i)perylene	1.0284	0.9437	20.00	18.35	ug/mL	-8	20	50	0.5000	
2-Fluorophenol	1.4688	1.4518	20.00	19.77	ug/mL	-1	20	50	0.0500	
Phenol-d5	1.8369	1.8577	20.00	20.23	ug/mL	1	20	50	0.0500	
Nitrobenzene-d5	0.5401	0.5531	20.00	20.48	ug/mL	2	20	50	0.0500	
2-Fluorobiphenyl	1.8002	1.8633	20.00	19.79	ug/mL	-1	20	50	0.0500	
2,4,6-Tribromophenol	0.2089	0.2308	20.00	22.10	ug/mL	10	20	50	0.0500	
Terphenyl-d14	1.0878	1.2380	20.00	22.76	ug/mL	14	20	50	0.0500	

ISTD (ICAL xea08)	ICAL Abund	Abund	%Drift
1,4-Dichlorobenzene-d4	1581036	1613343	2.04
Naphthalene-d8	5526268	5597792	1.29
Acenaphthene-d10	3016194	3307425	9.66
Phenanthrene-d10	5671250	5917949	4.35
Chrysene-d12	5790188	5680275	-1.90
Perylene-d12	5903440	5622602	-4.76

ISTD (ICAL xea08)	ICAL RT	RT	Drift
1,4-Dichlorobenzene-d4	6.12	6.12	0.00
Naphthalene-d8	7.64	7.63	-0.01
Acenaphthene-d10	9.82	9.82	0.00
Phenanthrene-d10	11.70	11.69	-0.01
Chrysene-d12	15.18	15.17	-0.01
Perylene-d12	18.23	18.22	-0.01

PMM 05/26/16 [Aniline]: Picked or reassigned peak. [general version]

Analyst: PMM Date: 05/27/16 Reviewer: LW Date: 06/29/16

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 MSBNA Soil
EPA 8270D

Inst : MSBNA05 Run Name : CCV IDF : 1.0
Seqnum : 546212333018.1 File : xeq18 Time : 26-MAY-2016 22:11
Cal : 546189808001 Caldate : 10-MAY-2016
Standards: S28768

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Max Closing %D	Min RF	Flags
N-Nitrosodimethylamine	0.6247	0.5782	40.00	37.03	ug/mL	-7	20	50	0.0500	
Phenol	1.6912	1.7033	40.00	40.29	ug/mL	1	20	50	0.8000	
bis(2-Chloroethyl)ether	1.2437	1.2947	40.00	41.64	ug/mL	4	20	50	0.7000	
2-Chlorophenol	1.4328	1.4815	40.00	41.36	ug/mL	3	20	50	0.8000	
1,3-Dichlorobenzene	1.5156	1.5930	40.00	42.04	ug/mL	5	20	50	0.0500	
1,4-Dichlorobenzene	1.4691	1.5434	40.00	42.02	ug/mL	5	20	50	0.0500	
Benzyl alcohol	0.9337	0.9438	40.00	40.43	ug/mL	1	20	50	0.0500	
1,2-Dichlorobenzene	1.4387	1.4963	40.00	41.60	ug/mL	4	20	50	0.0500	
2-Methylphenol	1.0976	1.1502	40.00	41.92	ug/mL	5	20	50	0.7000	
bis(2-Chloroisopropyl) ether	1.5687	1.6203	40.00	41.31	ug/mL	3	20	50	0.0100	
4-Methylphenol	1.5993	1.5794	40.00	39.50	ug/mL	-1	20	50	0.6000	
N-Nitroso-di-n-propylamine	0.7703	0.7749	40.00	40.24	ug/mL	1	20	50	0.5000	
Hexachloroethane	0.6262	0.5693	40.00	36.37	ug/mL	-9	20	50	0.3000	
Nitrobenzene	0.4126	0.4262	40.00	41.32	ug/mL	3	20	50	0.2000	
Isophorone	0.7479	0.7970	40.00	42.63	ug/mL	7	20	50	0.4000	
2-Nitrophenol	0.2302	0.2469	40.00	42.91	ug/mL	7	20	50	0.1000	
2,4-Dimethylphenol	0.3624	0.3969	40.00	43.80	ug/mL	10	20	50	0.2000	
bis(2-Chloroethoxy)methane	0.4618	0.4981	20.00	21.57	ug/mL	8	20	50	0.3000	
Benzoic acid	0.2398	0.2414	90.00	90.60	ug/mL	1	20	50	0.0500	
2,4-Dichlorophenol	0.3295	0.3546	40.00	43.05	ug/mL	8	20	50	0.2000	
1,2,4-Trichlorobenzene	0.3641	0.3661	40.00	40.22	ug/mL	1	20	50	0.0500	
Naphthalene	1.1629	1.1934	20.00	19.95	ug/mL	0	20	50	0.7000	
4-Chloroaniline	0.4486	0.5244	40.00	46.76	ug/mL	17	20	50	0.0100	
Hexachlorobutadiene	0.1984	0.1892	40.00	38.14	ug/mL	-5	20	50	0.0100	
4-Chloro-3-methylphenol	0.3443	0.3762	40.00	43.70	ug/mL	9	20	50	0.2000	
2-Methylnaphthalene	0.8065	0.8731	20.00	21.65	ug/mL	8	20	50	0.4000	
Hexachlorocyclopentadiene	0.3768	0.0743	40.00	7.889	ug/mL	**-80**	20	50	0.0500	c- ***
2,4,6-Trichlorophenol	0.4325	0.4452	40.00	41.18	ug/mL	3	20	50	0.2000	
2,4,5-Trichlorophenol	0.4485	0.4778	40.00	42.61	ug/mL	7	20	50	0.2000	
2-Chloronaphthalene	1.2943	1.3846	20.00	21.40	ug/mL	7	20	50	0.8000	
2-Nitroaniline	0.4233	0.4208	40.00	39.77	ug/mL	-1	20	50	0.0100	
Dimethylphthalate	1.4431	1.4428	40.00	39.99	ug/mL	0	20	50	0.0100	
2,6-Dinitrotoluene	0.3797	0.3794	40.00	39.97	ug/mL	0	20	50	0.2000	
Acenaphthylene	2.1242	2.2207	20.00	20.91	ug/mL	5	20	50	0.9000	
3-Nitroaniline	0.4228	0.4228	40.00	40.00	ug/mL	0	20	50	0.0100	m
Acenaphthene	1.4065	1.3655	20.00	19.42	ug/mL	-3	20	50	0.9000	
2,4-Dinitrophenol	0.2205	0.1254	40.00	22.76	ug/mL	**-43**	20	50	0.0100	c- ***
4-Nitrophenol	0.2119	0.1808	40.00	34.12	ug/mL	-15	20	50	0.0100	
Dibenzofuran	1.8387	1.9102	20.00	20.78	ug/mL	4	20	50	0.8000	
2,4-Dinitrotoluene	0.5027	0.4995	40.00	39.74	ug/mL	-1	20	50	0.2000	
Diethylphthalate	1.5820	1.6236	20.00	20.53	ug/mL	3	20	50	0.0100	
Fluorene	1.6152	1.6386	20.00	20.29	ug/mL	1	20	50	0.9000	
4-Chlorophenyl-phenylether	0.7461	0.7822	20.00	20.97	ug/mL	5	20	50	0.4000	
4-Nitroaniline	0.4233	0.4119	40.00	38.93	ug/mL	-3	20	50	0.0100	
4,6-Dinitro-2-methylphenol	0.1610	0.1198	40.00	29.78	ug/mL	**-26**	20	50	0.0100	c- ***
N-Nitrosodiphenylamine	0.6416	0.7043	20.00	21.95	ug/mL	10	20	50	0.0100	
Azobenzene	0.8467	0.9068	20.00	21.42	ug/mL	7	20	50	0.0500	
4-Bromophenyl-phenylether	0.2451	0.2594	20.00	21.17	ug/mL	6	20	50	0.1000	

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Max Closing %D	Min RF	Flags
Hexachlorobenzene	0.2436	0.2492	40.00	40.93	ug/mL	2	20	50	0.1000	
Pentachlorophenol	0.1662	0.1598	40.00	38.46	ug/mL	-4	20	50	0.0500	
Phenanthrene	1.2354	1.2224	20.00	19.79	ug/mL	-1	20	50	0.7000	
Anthracene	1.2105	1.2502	20.00	20.65	ug/mL	3	20	50	0.7000	
Carbazole	1.0500	1.0564	40.00	40.24	ug/mL	1	20	50	0.0100	
Di-n-butylphthalate	1.3895	1.5147	20.00	21.80	ug/mL	9	20	50	0.0100	
Fluoranthene	1.3754	1.3539	20.00	19.69	ug/mL	-2	20	50	0.6000	
Pyrene	1.3907	1.5655	20.00	22.51	ug/mL	13	20	50	0.6000	
Butylbenzylphthalate	0.6921	0.7705	20.00	22.26	ug/mL	11	20	50	0.0100	
3,3'-Dichlorobenzidine	0.4339	0.4474	40.00	41.24	ug/mL	3	20	50	0.0100	
Benzo(a)anthracene	1.2918	1.3201	20.00	20.44	ug/mL	2	20	50	0.8000	
bis(2-Ethylhexyl)phthalate	0.9098	1.0490	20.00	23.06	ug/mL	15	20	50	0.0100	
Chrysene	1.1175	1.1504	20.00	20.59	ug/mL	3	20	50	0.7000	
Di-n-octylphthalate	1.6144	1.8925	20.00	23.44	ug/mL	17	20	50	0.0100	
Benzo(b)fluoranthene	1.2140	1.2066	20.00	19.88	ug/mL	-1	20	50	0.7000	
Benzo(k)fluoranthene	1.1321	1.1269	20.00	19.91	ug/mL	0	20	50	0.7000	
Benzo(a)pyrene	1.1841	1.1576	20.00	19.55	ug/mL	-2	20	50	0.7000	
Indeno(1,2,3-cd)pyrene	1.2368	1.1465	20.00	18.54	ug/mL	-7	20	50	0.5000	
Dibenz(a,h)anthracene	1.0210	0.9734	20.00	19.07	ug/mL	-5	20	50	0.4000	
Benzo(g,h,i)perylene	1.0284	0.9129	20.00	17.75	ug/mL	-11	20	50	0.5000	
2-Fluorophenol	1.4688	1.4396	20.00	19.60	ug/mL	-2	20	50	0.0500	
Phenol-d5	1.8369	1.8402	20.00	20.04	ug/mL	0	20	50	0.0500	
Nitrobenzene-d5	0.5401	0.5532	20.00	20.49	ug/mL	2	20	50	0.0500	
2-Fluorobiphenyl	1.8002	1.8880	20.00	20.12	ug/mL	1	20	50	0.0500	
2,4,6-Tribromophenol	0.2089	0.2212	20.00	21.18	ug/mL	6	20	50	0.0500	
Terphenyl-d14	1.0878	1.2376	20.00	22.76	ug/mL	14	20	50	0.0500	

ISTD (ICAL xea08)	ICAL Abund	Abund	%Drift
1,4-Dichlorobenzene-d4	1581036	1798467	13.75
Naphthalene-d8	5526268	6035536	9.22
Acenaphthene-d10	3016194	3508335	16.32
Phenanthrene-d10	5671250	6160845	8.63
Chrysene-d12	5790188	5684904	-1.82
Perylene-d12	5903440	5634153	-4.56

ISTD (ICAL xea08)	ICAL RT	RT	Drift
1,4-Dichlorobenzene-d4	6.12	6.13	0.01
Naphthalene-d8	7.64	7.64	0.00
Acenaphthene-d10	9.82	9.82	0.00
Phenanthrene-d10	11.70	11.70	0.00
Chrysene-d12	15.18	15.18	0.00
Perylene-d12	18.23	18.24	0.01

ICK 05/27/16 [Aniline]: Picked or reassigned peak. [general version]

ICK 05/27/16 [3-Nitroaniline]: Picked or reassigned peak. [general version]

LW 05/27/16 : Closing CCV limits are +/-50% [general version]

Analyst: PMM Date: 05/27/16 Reviewer: LW Date: 06/29/16

-=low bias c=CCV m=manual integration

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 MSBNA Soil
EPA 8270D

Inst : MSBNA05 Run Name : CCV IDF : 1.0
Seqnum : 546213750005.1 File : xer05 Time : 27-MAY-2016 12:20
Cal : 546189808001 Caldate : 10-MAY-2016
Standards: S28768

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Max Closing %D	Min RF	Flags
N-Nitrosodimethylamine	0.6247	0.6009	40.00	38.48	ug/mL	-4	20	50	0.0500	
Phenol	1.6912	1.7271	40.00	40.85	ug/mL	2	20	50	0.8000	
bis(2-Chloroethyl)ether	1.2437	1.3210	40.00	42.49	ug/mL	6	20	50	0.7000	
2-Chlorophenol	1.4328	1.4760	40.00	41.21	ug/mL	3	20	50	0.8000	
1,3-Dichlorobenzene	1.5156	1.5901	40.00	41.97	ug/mL	5	20	50	0.0500	
1,4-Dichlorobenzene	1.4691	1.5547	40.00	42.33	ug/mL	6	20	50	0.0500	
Benzyl alcohol	0.9337	0.9549	40.00	40.91	ug/mL	2	20	50	0.0500	
1,2-Dichlorobenzene	1.4387	1.5102	40.00	41.99	ug/mL	5	20	50	0.0500	
2-Methylphenol	1.0976	1.1432	40.00	41.66	ug/mL	4	20	50	0.7000	
bis(2-Chloroisopropyl) ether	1.5687	1.6447	40.00	41.94	ug/mL	5	20	50	0.0100	
4-Methylphenol	1.5993	1.5669	40.00	39.19	ug/mL	-2	20	50	0.6000	
N-Nitroso-di-n-propylamine	0.7703	0.7678	40.00	39.87	ug/mL	0	20	50	0.5000	
Hexachloroethane	0.6262	0.6406	40.00	40.92	ug/mL	2	20	50	0.3000	
Nitrobenzene	0.4126	0.4309	40.00	41.78	ug/mL	4	20	50	0.2000	
Isophorone	0.7479	0.8022	40.00	42.91	ug/mL	7	20	50	0.4000	
2-Nitrophenol	0.2302	0.2515	40.00	43.71	ug/mL	9	20	50	0.1000	
2,4-Dimethylphenol	0.3624	0.3935	40.00	43.43	ug/mL	9	20	50	0.2000	
bis(2-Chloroethoxy)methane	0.4618	0.4983	20.00	21.58	ug/mL	8	20	50	0.3000	
Benzoic acid	0.2398	0.2840	90.00	106.6	ug/mL	18	20	50	0.0500	
2,4-Dichlorophenol	0.3295	0.3582	40.00	43.48	ug/mL	9	20	50	0.2000	
1,2,4-Trichlorobenzene	0.3641	0.3700	40.00	40.64	ug/mL	2	20	50	0.0500	
Naphthalene	1.1629	1.1974	20.00	20.03	ug/mL	0	20	50	0.7000	
4-Chloroaniline	0.4486	0.5218	40.00	46.53	ug/mL	16	20	50	0.0100	
Hexachlorobutadiene	0.1984	0.1947	40.00	39.25	ug/mL	-2	20	50	0.0100	
4-Chloro-3-methylphenol	0.3443	0.3753	40.00	43.60	ug/mL	9	20	50	0.2000	
2-Methylnaphthalene	0.8065	0.8843	20.00	21.93	ug/mL	10	20	50	0.4000	
Hexachlorocyclopentadiene	0.3768	0.2996	40.00	31.81	ug/mL	-20	20	50	0.0500	
2,4,6-Trichlorophenol	0.4325	0.4525	40.00	41.84	ug/mL	5	20	50	0.2000	
2,4,5-Trichlorophenol	0.4485	0.4691	40.00	41.84	ug/mL	5	20	50	0.2000	m
2-Chloronaphthalene	1.2943	1.4012	20.00	21.65	ug/mL	8	20	50	0.8000	
2-Nitroaniline	0.4233	0.4144	40.00	39.16	ug/mL	-2	20	50	0.0100	
Dimethylphthalate	1.4431	1.4426	40.00	39.99	ug/mL	0	20	50	0.0100	
2,6-Dinitrotoluene	0.3797	0.3785	40.00	39.87	ug/mL	0	20	50	0.2000	
Acenaphthylene	2.1242	2.2241	20.00	20.94	ug/mL	5	20	50	0.9000	
3-Nitroaniline	0.4228	0.3991	40.00	37.75	ug/mL	-6	20	50	0.0100	m
Acenaphthene	1.4065	1.3906	20.00	19.77	ug/mL	-1	20	50	0.9000	
2,4-Dinitrophenol	0.2205	0.1804	40.00	32.72	ug/mL	-18	20	50	0.0100	
4-Nitrophenol	0.2119	0.1776	40.00	33.52	ug/mL	-16	20	50	0.0100	m
Dibenzofuran	1.8387	1.9351	20.00	21.05	ug/mL	5	20	50	0.8000	
2,4-Dinitrotoluene	0.5027	0.4979	40.00	39.62	ug/mL	-1	20	50	0.2000	
Diethylphthalate	1.5820	1.6085	20.00	20.34	ug/mL	2	20	50	0.0100	
Fluorene	1.6152	1.6628	20.00	20.59	ug/mL	3	20	50	0.9000	
4-Chlorophenyl-phenylether	0.7461	0.7858	20.00	21.06	ug/mL	5	20	50	0.4000	
4-Nitroaniline	0.4233	0.3503	40.00	33.10	ug/mL	-17	20	50	0.0100	m
4,6-Dinitro-2-methylphenol	0.1610	0.1525	40.00	37.88	ug/mL	-5	20	50	0.0100	
N-Nitrosodiphenylamine	0.6416	0.6958	20.00	21.69	ug/mL	8	20	50	0.0100	
Azobenzene	0.8467	0.9081	20.00	21.45	ug/mL	7	20	50	0.0500	
4-Bromophenyl-phenylether	0.2451	0.2665	20.00	21.75	ug/mL	9	20	50	0.1000	

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Max Closing %D	Min RF	Flags
Hexachlorobenzene	0.2436	0.2537	40.00	41.66	ug/mL	4	20	50	0.1000	
Pentachlorophenol	0.1662	0.1656	40.00	39.86	ug/mL	0	20	50	0.0500	
Phenanthrene	1.2354	1.2291	20.00	19.90	ug/mL	-1	20	50	0.7000	
Anthracene	1.2105	1.2682	20.00	20.95	ug/mL	5	20	50	0.7000	
Carbazole	1.0500	1.0639	40.00	40.53	ug/mL	1	20	50	0.0100	
Di-n-butylphthalate	1.3895	1.5114	20.00	21.75	ug/mL	9	20	50	0.0100	
Fluoranthene	1.3754	1.4001	20.00	20.36	ug/mL	2	20	50	0.6000	
Pyrene	1.3907	1.5235	20.00	21.91	ug/mL	10	20	50	0.6000	
Butylbenzylphthalate	0.6921	0.7659	20.00	22.13	ug/mL	11	20	50	0.0100	
3,3'-Dichlorobenzidine	0.4339	0.4159	40.00	38.34	ug/mL	-4	20	50	0.0100	
Benzo(a)anthracene	1.2918	1.3215	20.00	20.46	ug/mL	2	20	50	0.8000	
bis(2-Ethylhexyl)phthalate	0.9098	1.0305	20.00	22.65	ug/mL	13	20	50	0.0100	
Chrysene	1.1175	1.1576	20.00	20.72	ug/mL	4	20	50	0.7000	
Di-n-octylphthalate	1.6144	1.8364	20.00	22.75	ug/mL	14	20	50	0.0100	
Benzo(b)fluoranthene	1.2140	1.2120	20.00	19.97	ug/mL	0	20	50	0.7000	
Benzo(k)fluoranthene	1.1321	1.1738	20.00	20.74	ug/mL	4	20	50	0.7000	
Benzo(a)pyrene	1.1841	1.2007	20.00	20.28	ug/mL	1	20	50	0.7000	
Indeno(1,2,3-cd)pyrene	1.2368	1.3045	20.00	21.09	ug/mL	5	20	50	0.5000	
Dibenz(a,h)anthracene	1.0210	1.1023	20.00	21.59	ug/mL	8	20	50	0.4000	
Benzo(g,h,i)perylene	1.0284	1.0358	20.00	20.15	ug/mL	1	20	50	0.5000	
2-Fluorophenol	1.4688	1.4727	20.00	20.05	ug/mL	0	20	50	0.0500	
Phenol-d5	1.8369	1.8586	20.00	20.24	ug/mL	1	20	50	0.0500	
Nitrobenzene-d5	0.5401	0.5650	20.00	20.92	ug/mL	5	20	50	0.0500	
2-Fluorobiphenyl	1.8002	1.8668	20.00	19.84	ug/mL	-1	20	50	0.0500	
2,4,6-Tribromophenol	0.2089	0.2269	20.00	21.72	ug/mL	9	20	50	0.0500	
Terphenyl-d14	1.0878	1.2310	20.00	22.63	ug/mL	13	20	50	0.0500	

ISTD (ICAL xea08)	ICAL Abund	Abund	%Drift
1,4-Dichlorobenzene-d4	1581036	1734072	9.68
Naphthalene-d8	5526268	5829008	5.48
Acenaphthene-d10	3016194	3423605	13.51
Phenanthrene-d10	5671250	6079488	7.20
Chrysene-d12	5790188	5893339	1.78
Perylene-d12	5903440	5895204	-0.14

ISTD (ICAL xea08)	ICAL RT	RT	Drift
1,4-Dichlorobenzene-d4	6.12	6.13	0.01
Naphthalene-d8	7.64	7.64	0.00
Acenaphthene-d10	9.82	9.82	0.00
Phenanthrene-d10	11.70	11.69	-0.01
Chrysene-d12	15.18	15.17	-0.01
Perylene-d12	18.23	18.23	0.00

KKL 05/27/16 [Aniline]: Picked or reassigned peak. [general version]

KKL 05/27/16 [2,4,5-Trichlorophenol]: Corrected automatically drawn baseline. [general version]

KKL 05/27/16 [3-Nitroaniline]: Picked or reassigned peak. [general version]

KKL 05/27/16 [4-Nitrophenol]: Corrected automatically drawn baseline. [general version]

KKL 05/27/16 [4-Nitroaniline]: Corrected automatically drawn baseline. [general version]

Analyst: ICK Date: 05/27/16 Reviewer: LW Date: 06/29/16

m=manual integration

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 MSBNA Soil
EPA 8270D

Inst : MSBNA05 Run Name : CCV IDF : 1.0
Seqnum : 546213750015.1 File : xer15 Time : 28-MAY-2016 00:05
Cal : 546189808001 Caldate : 10-MAY-2016
Standards: S28768

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Max Closing %D	Min RF	Flags
N-Nitrosodimethylamine	0.6247	0.5804	40.00	37.17	ug/mL	-7	20	50	0.0500	***
Phenol	1.6912	1.7236	40.00	40.77	ug/mL	2	20	50	0.8000	***
bis(2-Chloroethyl)ether	1.2437	1.2824	40.00	41.24	ug/mL	3	20	50	0.7000	***
2-Chlorophenol	1.4328	1.4875	40.00	41.53	ug/mL	4	20	50	0.8000	***
1,3-Dichlorobenzene	1.5156	1.5806	40.00	41.72	ug/mL	4	20	50	0.0500	***
1,4-Dichlorobenzene	1.4691	1.5324	40.00	41.72	ug/mL	4	20	50	0.0500	***
Benzyl alcohol	0.9337	0.9759	40.00	41.81	ug/mL	5	20	50	0.0500	***
1,2-Dichlorobenzene	1.4387	1.4853	40.00	41.30	ug/mL	3	20	50	0.0500	***
2-Methylphenol	1.0976	1.1579	40.00	42.20	ug/mL	5	20	50	0.7000	***
bis(2-Chloroisopropyl) ether	1.5687	1.6552	40.00	42.21	ug/mL	6	20	50	0.0100	***
4-Methylphenol	1.5993	1.5830	40.00	39.59	ug/mL	-1	20	50	0.6000	***
N-Nitroso-di-n-propylamine	0.7703	0.7950	40.00	41.28	ug/mL	3	20	50	0.5000	***
Hexachloroethane	0.6262	0.5745	40.00	36.70	ug/mL	-8	20	50	0.3000	***
Nitrobenzene	0.4126	0.4347	40.00	42.14	ug/mL	5	20	50	0.2000	***
Isophorone	0.7479	0.8221	40.00	43.97	ug/mL	10	20	50	0.4000	***
2-Nitrophenol	0.2302	0.2504	40.00	43.52	ug/mL	9	20	50	0.1000	***
2,4-Dimethylphenol	0.3624	0.3950	40.00	43.60	ug/mL	9	20	50	0.2000	***
bis(2-Chloroethoxy)methane	0.4618	0.5094	20.00	22.06	ug/mL	10	20	50	0.3000	***
Benzoic acid	0.2398	0.2915	90.00	109.4	ug/mL	**22**	20	50	0.0500	c+ ***
2,4-Dichlorophenol	0.3295	0.3570	40.00	43.33	ug/mL	8	20	50	0.2000	***
1,2,4-Trichlorobenzene	0.3641	0.3709	40.00	40.74	ug/mL	2	20	50	0.0500	***
Naphthalene	1.1629	1.2060	20.00	20.20	ug/mL	1	20	50	0.7000	***
4-Chloroaniline	0.4486	0.5315	40.00	47.39	ug/mL	18	20	50	0.0100	***
Hexachlorobutadiene	0.1984	0.1947	40.00	39.25	ug/mL	-2	20	50	0.0100	***
4-Chloro-3-methylphenol	0.3443	0.3821	40.00	44.39	ug/mL	11	20	50	0.2000	***
2-Methylnaphthalene	0.8065	0.8878	20.00	22.02	ug/mL	10	20	50	0.4000	***
Hexachlorocyclopentadiene	0.3768	0.0769	40.00	8.161	ug/mL	**-80**	20	50	0.0500	c- ***
2,4,6-Trichlorophenol	0.4325	0.4500	40.00	41.62	ug/mL	4	20	50	0.2000	***
2,4,5-Trichlorophenol	0.4485	0.4801	40.00	42.82	ug/mL	7	20	50	0.2000	***
2-Chloronaphthalene	1.2943	1.4122	20.00	21.82	ug/mL	9	20	50	0.8000	***
2-Nitroaniline	0.4233	0.4295	40.00	40.59	ug/mL	1	20	50	0.0100	***
Dimethylphthalate	1.4431	1.4656	40.00	40.63	ug/mL	2	20	50	0.0100	***
2,6-Dinitrotoluene	0.3797	0.3834	40.00	40.39	ug/mL	1	20	50	0.2000	***
Acenaphthylene	2.1242	2.2309	20.00	21.01	ug/mL	5	20	50	0.9000	***
3-Nitroaniline	0.4228	0.4467	40.00	42.25	ug/mL	6	20	50	0.0100	m ***
Acenaphthene	1.4065	1.3836	20.00	19.67	ug/mL	-2	20	50	0.9000	***
2,4-Dinitrophenol	0.2205	0.0931	40.00	16.89	ug/mL	**-58**	20	50	0.0100	c- ***
4-Nitrophenol	0.2119	0.1867	40.00	35.23	ug/mL	-12	20	50	0.0100	***
Dibenzofuran	1.8387	1.9425	20.00	21.13	ug/mL	6	20	50	0.8000	***
2,4-Dinitrotoluene	0.5027	0.5013	40.00	39.89	ug/mL	0	20	50	0.2000	***
Diethylphthalate	1.5820	1.6304	20.00	20.61	ug/mL	3	20	50	0.0100	***
Fluorene	1.6152	1.6448	20.00	20.37	ug/mL	2	20	50	0.9000	***
4-Chlorophenyl-phenylether	0.7461	0.7922	20.00	21.24	ug/mL	6	20	50	0.4000	***
4-Nitroaniline	0.4233	0.4257	40.00	40.23	ug/mL	1	20	50	0.0100	***
4,6-Dinitro-2-methylphenol	0.1610	0.0974	40.00	24.21	ug/mL	**-39**	20	50	0.0100	c- ***
N-Nitrosodiphenylamine	0.6416	0.7221	20.00	22.51	ug/mL	13	20	50	0.0100	***
Azobenzene	0.8467	0.9337	20.00	22.06	ug/mL	10	20	50	0.0500	***
4-Bromophenyl-phenylether	0.2451	0.2680	20.00	21.87	ug/mL	9	20	50	0.1000	***

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Max Closing %D	Min RF	Flags
Hexachlorobenzene	0.2436	0.2548	40.00	41.83	ug/mL	5	20	50	0.1000	***
Pentachlorophenol	0.1662	0.1654	40.00	39.82	ug/mL	0	20	50	0.0500	***
Phenanthrene	1.2354	1.2315	20.00	19.94	ug/mL	0	20	50	0.7000	***
Anthracene	1.2105	1.2677	20.00	20.94	ug/mL	5	20	50	0.7000	***
Carbazole	1.0500	1.0013	40.00	38.15	ug/mL	-5	20	50	0.0100	***
Di-n-butylphthalate	1.3895	1.5205	20.00	21.89	ug/mL	9	20	50	0.0100	***
Fluoranthene	1.3754	1.3629	20.00	19.82	ug/mL	-1	20	50	0.6000	***
Pyrene	1.3907	1.5498	20.00	22.29	ug/mL	11	20	50	0.6000	***
Butylbenzylphthalate	0.6921	0.7669	20.00	22.16	ug/mL	11	20	50	0.0100	***
3,3'-Dichlorobenzidine	0.4339	0.4468	40.00	41.19	ug/mL	3	20	50	0.0100	***
Benzo(a)anthracene	1.2918	1.3375	20.00	20.71	ug/mL	4	20	50	0.8000	***
bis(2-Ethylhexyl)phthalate	0.9098	1.0204	20.00	22.43	ug/mL	12	20	50	0.0100	***
Chrysene	1.1175	1.1611	20.00	20.78	ug/mL	4	20	50	0.7000	***
Di-n-octylphthalate	1.6144	1.8919	20.00	23.44	ug/mL	17	20	50	0.0100	***
Benzo(b)fluoranthene	1.2140	1.2266	20.00	20.21	ug/mL	1	20	50	0.7000	***
Benzo(k)fluoranthene	1.1321	1.1673	20.00	20.62	ug/mL	3	20	50	0.7000	***
Benzo(a)pyrene	1.1841	1.2042	20.00	20.34	ug/mL	2	20	50	0.7000	***
Indeno(1,2,3-cd)pyrene	1.2368	1.2101	20.00	19.57	ug/mL	-2	20	50	0.5000	***
Dibenz(a,h)anthracene	1.0210	1.0318	20.00	20.21	ug/mL	1	20	50	0.4000	***
Benzo(g,h,i)perylene	1.0284	0.9482	20.00	18.44	ug/mL	-8	20	50	0.5000	***
2-Fluorophenol	1.4688	1.4419	20.00	19.63	ug/mL	-2	20	50	0.0500	***
Phenol-d5	1.8369	1.8754	20.00	20.42	ug/mL	2	20	50	0.0500	***
Nitrobenzene-d5	0.5401	0.5624	20.00	20.83	ug/mL	4	20	50	0.0500	***
2-Fluorobiphenyl	1.8002	1.8885	20.00	20.13	ug/mL	1	20	50	0.0500	***
2,4,6-Tribromophenol	0.2089	0.2251	20.00	21.55	ug/mL	8	20	50	0.0500	***
Terphenyl-d14	1.0878	1.2445	20.00	22.88	ug/mL	14	20	50	0.0500	***

ISTD (ICAL xea08)	ICAL Abund	Abund	%Drift
1,4-Dichlorobenzene-d4	1581036	1869059	18.22
Naphthalene-d8	5526268	6275174	13.55
Acenaphthene-d10	3016194	3695805	22.53
Phenanthrene-d10	5671250	6450915	13.75
Chrysene-d12	5790188	6054788	4.57
Perylene-d12	5903440	5975023	1.21

ISTD (ICAL xea08)	ICAL RT	RT	Drift
1,4-Dichlorobenzene-d4	6.12	6.13	0.01
Naphthalene-d8	7.64	7.64	0.00
Acenaphthene-d10	9.82	9.83	0.01
Phenanthrene-d10	11.70	11.70	0.00
Chrysene-d12	15.18	15.18	0.00
Perylene-d12	18.23	18.25	0.02

KMH 05/28/16 [Aniline]: Picked or reassigned peak. [general version]

KMH 05/28/16 [3-Nitroaniline]: Picked or reassigned peak. [general version]

LW 06/29/16 : Injected within 12 hours of the opening CCV [general version]

out of clock

Analyst: PMM Date: 06/29/16 Reviewer: LW Date: 06/29/16

+=high bias -=low bias c=CCV m=manual integration

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 MSBNA Soil
EPA 8270D

Inst : MSBNA07 Run Name : CCV IDF : 1.0
Seqnum : 566212319008.1 File : zeq08 Time : 26-MAY-2016 20:29
Cal : 566163756001 Caldate : 22-APR-2016
Standards: S28768

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Max Closing %D	Min RF	Flags
N-Nitrosodimethylamine	0.7071	0.5853	40.00	33.11	ug/mL	-17	20	50	0.0500	
Phenol	1.5612	1.4586	40.00	37.37	ug/mL	-7	20	50	0.8000	
bis(2-Chloroethyl)ether	1.2268	1.3105	40.00	42.73	ug/mL	7	20	50	0.7000	
2-Chlorophenol	1.4823	1.4537	40.00	39.23	ug/mL	-2	20	50	0.8000	
1,3-Dichlorobenzene	1.5697	1.6089	40.00	41.00	ug/mL	2	20	50	0.0500	
1,4-Dichlorobenzene	1.5773	1.6252	40.00	41.21	ug/mL	3	20	50	0.0500	
Benzyl alcohol	0.9326	0.8206	40.00	35.20	ug/mL	-12	20	50	0.0500	
1,2-Dichlorobenzene	1.4834	1.5194	40.00	40.97	ug/mL	2	20	50	0.0500	
2-Methylphenol	1.0281	1.0183	40.00	39.62	ug/mL	-1	20	50	0.7000	
bis(2-Chloroisopropyl) ether	1.7668	1.8592	40.00	42.09	ug/mL	5	20	50	0.0100	
4-Methylphenol	1.6189	1.4153	40.00	34.97	ug/mL	-13	20	50	0.6000	
N-Nitroso-di-n-propylamine	0.7239	0.6264	40.00	34.61	ug/mL	-13	20	50	0.5000	
Hexachloroethane	0.5327	0.5243	40.00	39.37	ug/mL	-2	20	50	0.3000	
Nitrobenzene	0.3160	0.3143	40.00	39.78	ug/mL	-1	20	50	0.2000	m
Isophorone	0.6041	0.6124	40.00	40.55	ug/mL	1	20	50	0.4000	
2-Nitrophenol	0.2283	0.2209	40.00	38.71	ug/mL	-3	20	50	0.1000	
2,4-Dimethylphenol	0.3160	0.2944	40.00	37.27	ug/mL	-7	20	50	0.2000	
bis(2-Chloroethoxy)methane	0.3959	0.3814	20.00	19.27	ug/mL	-4	20	50	0.3000	
Benzoic acid	0.2677	0.2094	90.00	70.37	ug/mL	**-22**	20	50	0.0500	c- m ***
2,4-Dichlorophenol	0.3097	0.3140	40.00	40.55	ug/mL	1	20	50	0.2000	
1,2,4-Trichlorobenzene	0.3277	0.3341	40.00	40.78	ug/mL	2	20	50	0.0500	
Naphthalene	1.1343	1.0660	20.00	18.79	ug/mL	-6	20	50	0.7000	
4-Chloroaniline	0.4382	0.4367	40.00	39.86	ug/mL	0	20	50	0.0100	
Hexachlorobutadiene	0.1675	0.1773	40.00	42.33	ug/mL	6	20	50	0.0100	
4-Chloro-3-methylphenol	0.2824	0.2761	40.00	39.11	ug/mL	-2	20	50	0.2000	
2-Methylnaphthalene	0.7728	0.7551	20.00	19.54	ug/mL	-2	20	50	0.4000	
Hexachlorocyclopentadiene	0.3379	0.2893	40.00	34.26	ug/mL	-14	20	50	0.0500	
2,4,6-Trichlorophenol	0.4256	0.4169	40.00	39.18	ug/mL	-2	20	50	0.2000	
2,4,5-Trichlorophenol	0.4354	0.4526	40.00	41.59	ug/mL	4	20	50	0.2000	
2-Chloronaphthalene	1.2805	1.2475	20.00	19.48	ug/mL	-3	20	50	0.8000	
2-Nitroaniline	0.3254	0.3122	40.00	38.37	ug/mL	-4	20	50	0.0100	
Dimethylphthalate	1.4167	1.4308	40.00	40.40	ug/mL	1	20	50	0.0100	
2,6-Dinitrotoluene	0.3682	0.3540	40.00	38.46	ug/mL	-4	20	50	0.2000	
Acenaphthylene	2.1871	2.0619	20.00	18.86	ug/mL	-6	20	50	0.9000	
3-Nitroaniline	0.3818	0.3535	40.00	37.04	ug/mL	-7	20	50	0.0100	
Acenaphthene	1.3543	1.2367	20.00	18.26	ug/mL	-9	20	50	0.9000	
2,4-Dinitrophenol	0.2019	0.1536	40.00	30.45	ug/mL	**-24**	20	50	0.0100	c- ***
4-Nitrophenol	0.1465	0.1072	40.00	29.26	ug/mL	**-27**	20	50	0.0100	c- ***
Dibenzofuran	1.7586	1.7508	20.00	19.91	ug/mL	0	20	50	0.8000	
2,4-Dinitrotoluene	0.4573	0.4401	40.00	38.49	ug/mL	-4	20	50	0.2000	
Diethylphthalate	1.3917	1.3928	20.00	20.02	ug/mL	0	20	50	0.0100	
Fluorene	1.5205	1.4653	20.00	19.27	ug/mL	-4	20	50	0.9000	
4-Chlorophenyl-phenylether	0.7302	0.7183	20.00	19.67	ug/mL	-2	20	50	0.4000	
4-Nitroaniline	0.3449	0.3015	40.00	34.97	ug/mL	-13	20	50	0.0100	
4,6-Dinitro-2-methylphenol	0.1545	0.1417	40.00	36.69	ug/mL	-8	20	50	0.0100	
N-Nitrosodiphenylamine	0.6150	0.6096	20.00	19.82	ug/mL	-1	20	50	0.0100	
Azobenzene	0.6536	0.6839	20.00	20.93	ug/mL	5	20	50	0.0500	
4-Bromophenyl-phenylether	0.2311	0.2332	20.00	20.19	ug/mL	1	20	50	0.1000	

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Max Closing %D	Min RF	Flags
Hexachlorobenzene	0.2421	0.2604	40.00	43.02	ug/mL	8	20	50	0.1000	
Pentachlorophenol	0.1727	0.1487	40.00	34.45	ug/mL	-14	20	50	0.0500	
Phenanthrene	1.1400	1.0900	20.00	19.12	ug/mL	-4	20	50	0.7000	
Anthracene	1.1366	1.1099	20.00	19.53	ug/mL	-2	20	50	0.7000	
Carbazole	0.9145	0.9521	40.00	41.65	ug/mL	4	20	50	0.0100	
Di-n-butylphthalate	1.3094	1.3479	20.00	20.59	ug/mL	3	20	50	0.0100	
Fluoranthene	1.3164	1.2866	20.00	19.55	ug/mL	-2	20	50	0.6000	
Pyrene	1.5086	1.4667	20.00	19.44	ug/mL	-3	20	50	0.6000	i ***
Butylbenzylphthalate	0.6762	0.6510	20.00	19.25	ug/mL	-4	20	50	0.0100	i ***
3,3'-Dichlorobenzidine	0.4387	0.4018	40.00	36.64	ug/mL	-8	20	50	0.0100	i ***
Benzo(a)anthracene	1.2753	1.1946	20.00	18.73	ug/mL	-6	20	50	0.8000	i ***
bis(2-Ethylhexyl)phthalate	0.8229	0.9194	20.00	22.35	ug/mL	12	20	50	0.0100	i ***
Chrysene	1.0581	1.0300	20.00	19.47	ug/mL	-3	20	50	0.7000	i ***
Di-n-octylphthalate	1.6884	1.6736	20.00	19.82	ug/mL	-1	20	50	0.0100	i ***
Benzo(b)fluoranthene	1.3044	1.1978	20.00	18.37	ug/mL	-8	20	50	0.7000	i ***
Benzo(k)fluoranthene	1.1798	1.1423	20.00	19.36	ug/mL	-3	20	50	0.7000	i ***
Benzo(a)pyrene	1.2354	1.1496	20.00	18.61	ug/mL	-7	20	50	0.7000	i ***
Indeno(1,2,3-cd)pyrene	1.3912	1.2697	20.00	18.25	ug/mL	-9	20	50	0.5000	i ***
Dibenz(a,h)anthracene	1.1500	1.1035	20.00	19.19	ug/mL	-4	20	50	0.4000	i ***
Benzo(g,h,i)perylene	1.1006	0.9942	20.00	18.07	ug/mL	-10	20	50	0.5000	i ***
2-Fluorophenol	1.5606	1.1890	20.00	15.24	ug/mL	**-24**	20	50	0.0500	c- ***
Phenol-d5	1.7723	1.5822	20.00	17.85	ug/mL	-11	20	50	0.0500	
Nitrobenzene-d5	0.4118	0.3938	20.00	19.13	ug/mL	-4	20	50	0.0500	
2-Fluorobiphenyl	1.8945	1.8423	20.00	19.45	ug/mL	-3	20	50	0.0500	
2,4,6-Tribromophenol	0.1849	0.1910	20.00	20.66	ug/mL	3	20	50	0.0500	
Terphenyl-d14	1.1980	1.2018	20.00	20.06	ug/mL	0	20	50	0.0500	i ***

ISTD (ICAL zdm08)	ICAL Abund	Abund	%Drift
1,4-Dichlorobenzene-d4	923637	1207757	30.76
Naphthalene-d8	3264864	4350316	33.25
Acenaphthene-d10	1698108	2278859	34.20
Phenanthrene-d10	2995337	3931238	31.25
Chrysene-d12	2754055	3715263	34.90
Perylene-d12	2653024	3378177	27.33

ISTD (ICAL zdm08)	ICAL RT	RT	Drift
1,4-Dichlorobenzene-d4	6.21	6.06	-0.15
Naphthalene-d8	7.71	7.55	-0.16
Acenaphthene-d10	9.87	9.71	-0.16
Phenanthrene-d10	11.73	11.56	-0.17
Chrysene-d12	15.18	14.96	**-0.22 ***
Perylene-d12	18.22	17.85	**-0.37 ***

ICK 05/26/16 [Aniline]: Picked or reassigned peak. [general version]

ICK 05/26/16 [Nitrobenzene]: Picked or reassigned peak. [general version]

ICK 05/26/16 [Benzoic acid]: Corrected automatically drawn baseline. [general version]

Analyst: PMM Date: 05/27/16 Reviewer: LW Date: 06/29/16

-=low bias c=CCV i=ISTD failure m=manual integration

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 MSBNA Soil
EPA 8270D

Inst : MSBNA07 Run Name : CCV IDF : 1.0
Seqnum : 566212319025.1 File : zeq25 Time : 27-MAY-2016 07:31
Cal : 566163756001 Caldate : 22-APR-2016
Standards: S28768

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Max Closing %D	Min RF	Flags
N-Nitrosodimethylamine	0.7071	0.5959	40.00	33.71	ug/mL	-16	20	50	0.0500	
Phenol	1.5612	1.4882	40.00	38.13	ug/mL	-5	20	50	0.8000	
bis(2-Chloroethyl)ether	1.2268	1.3135	40.00	42.83	ug/mL	7	20	50	0.7000	m
2-Chlorophenol	1.4823	1.4571	40.00	39.32	ug/mL	-2	20	50	0.8000	
1,3-Dichlorobenzene	1.5697	1.6052	40.00	40.90	ug/mL	2	20	50	0.0500	
1,4-Dichlorobenzene	1.5773	1.6003	40.00	40.58	ug/mL	1	20	50	0.0500	
Benzyl alcohol	0.9326	0.8310	40.00	35.64	ug/mL	-11	20	50	0.0500	
1,2-Dichlorobenzene	1.4834	1.4810	40.00	39.93	ug/mL	0	20	50	0.0500	
2-Methylphenol	1.0281	1.0639	40.00	41.39	ug/mL	3	20	50	0.7000	
bis(2-Chloroisopropyl) ether	1.7668	1.9183	40.00	43.43	ug/mL	9	20	50	0.0100	
4-Methylphenol	1.6189	1.4523	40.00	35.88	ug/mL	-10	20	50	0.6000	
N-Nitroso-di-n-propylamine	0.7239	0.6437	40.00	35.57	ug/mL	-11	20	50	0.5000	
Hexachloroethane	0.5327	0.4374	40.00	32.85	ug/mL	-18	20	50	0.3000	
Nitrobenzene	0.3160	0.3240	40.00	41.02	ug/mL	3	20	50	0.2000	m
Isophorone	0.6041	0.6323	40.00	41.87	ug/mL	5	20	50	0.4000	
2-Nitrophenol	0.2283	0.2148	40.00	37.65	ug/mL	-6	20	50	0.1000	
2,4-Dimethylphenol	0.3160	0.3128	40.00	39.60	ug/mL	-1	20	50	0.2000	
bis(2-Chloroethoxy)methane	0.3959	0.3934	20.00	19.88	ug/mL	-1	20	50	0.3000	
Benzoic acid	0.2677	0.1997	90.00	67.12	ug/mL	**-25**	20	50	0.0500	c- ***
2,4-Dichlorophenol	0.3097	0.3091	40.00	39.92	ug/mL	0	20	50	0.2000	
1,2,4-Trichlorobenzene	0.3277	0.3269	40.00	39.89	ug/mL	0	20	50	0.0500	
Naphthalene	1.1343	1.0607	20.00	18.70	ug/mL	-6	20	50	0.7000	
4-Chloroaniline	0.4382	0.4435	40.00	40.48	ug/mL	1	20	50	0.0100	
Hexachlorobutadiene	0.1675	0.1670	40.00	39.88	ug/mL	0	20	50	0.0100	
4-Chloro-3-methylphenol	0.2824	0.2857	40.00	40.48	ug/mL	1	20	50	0.2000	
2-Methylnaphthalene	0.7728	0.7399	20.00	19.15	ug/mL	-4	20	50	0.4000	
Hexachlorocyclopentadiene	0.3379	0.0401	40.00	4.751	ug/mL	**-88**	20	50	0.0500	c- crf ***
2,4,6-Trichlorophenol	0.4256	0.4158	40.00	39.08	ug/mL	-2	20	50	0.2000	
2,4,5-Trichlorophenol	0.4354	0.4521	40.00	41.54	ug/mL	4	20	50	0.2000	
2-Chloronaphthalene	1.2805	1.2584	20.00	19.66	ug/mL	-2	20	50	0.8000	
2-Nitroaniline	0.3254	0.3292	40.00	40.47	ug/mL	1	20	50	0.0100	
Dimethylphthalate	1.4167	1.4223	40.00	40.16	ug/mL	0	20	50	0.0100	
2,6-Dinitrotoluene	0.3682	0.3537	40.00	38.43	ug/mL	-4	20	50	0.2000	
Acenaphthylene	2.1871	2.0956	20.00	19.16	ug/mL	-4	20	50	0.9000	
3-Nitroaniline	0.3818	0.3806	40.00	39.88	ug/mL	0	20	50	0.0100	
Acenaphthene	1.3543	1.2095	20.00	17.86	ug/mL	-11	20	50	0.9000	
2,4-Dinitrophenol	0.2019	0.0428	40.00	8.479	ug/mL	**-79**	20	50	0.0100	c- ***
4-Nitrophenol	0.1465	0.1152	40.00	31.46	ug/mL	**-21**	20	50	0.0100	c- ***
Dibenzofuran	1.7586	1.7545	20.00	19.95	ug/mL	0	20	50	0.8000	
2,4-Dinitrotoluene	0.4573	0.4334	40.00	37.91	ug/mL	-5	20	50	0.2000	
Diethylphthalate	1.3917	1.3869	20.00	19.93	ug/mL	0	20	50	0.0100	
Fluorene	1.5205	1.4471	20.00	19.04	ug/mL	-5	20	50	0.9000	
4-Chlorophenyl-phenylether	0.7302	0.7041	20.00	19.28	ug/mL	-4	20	50	0.4000	
4-Nitroaniline	0.3449	0.3103	40.00	36.00	ug/mL	-10	20	50	0.0100	m
4,6-Dinitro-2-methylphenol	0.1545	0.0671	40.00	17.36	ug/mL	**-57**	20	50	0.0100	c- ***
N-Nitrosodiphenylamine	0.6150	0.6141	20.00	19.97	ug/mL	0	20	50	0.0100	
Azobenzene	0.6536	0.7125	20.00	21.80	ug/mL	9	20	50	0.0500	
4-Bromophenyl-phenylether	0.2311	0.2282	20.00	19.75	ug/mL	-1	20	50	0.1000	

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Max Closing %D	Min RF	Flags
Hexachlorobenzene	0.2421	0.2547	40.00	42.08	ug/mL	5	20	50	0.1000	
Pentachlorophenol	0.1727	0.1453	40.00	33.67	ug/mL	-16	20	50	0.0500	
Phenanthrene	1.1400	1.0895	20.00	19.11	ug/mL	-4	20	50	0.7000	
Anthracene	1.1366	1.1150	20.00	19.62	ug/mL	-2	20	50	0.7000	
Carbazole	0.9145	1.0079	40.00	44.09	ug/mL	10	20	50	0.0100	
Di-n-butylphthalate	1.3094	1.3940	20.00	21.29	ug/mL	6	20	50	0.0100	
Fluoranthene	1.3164	1.3234	20.00	20.11	ug/mL	1	20	50	0.6000	
Pyrene	1.5086	1.5090	20.00	20.00	ug/mL	0	20	50	0.6000	i ***
Butylbenzylphthalate	0.6762	0.6841	20.00	20.23	ug/mL	1	20	50	0.0100	i ***
3,3'-Dichlorobenzidine	0.4387	0.4489	40.00	40.93	ug/mL	2	20	50	0.0100	i ***
Benzo(a)anthracene	1.2753	1.2042	20.00	18.89	ug/mL	-6	20	50	0.8000	i ***
bis(2-Ethylhexyl)phthalate	0.8229	0.9524	20.00	23.15	ug/mL	16	20	50	0.0100	i ***
Chrysene	1.0581	1.0108	20.00	19.11	ug/mL	-4	20	50	0.7000	i ***
Di-n-octylphthalate	1.6884	1.9325	20.00	22.89	ug/mL	14	20	50	0.0100	i ***
Benzo(b)fluoranthene	1.3044	1.2265	20.00	18.81	ug/mL	-6	20	50	0.7000	i ***
Benzo(k)fluoranthene	1.1798	1.1905	20.00	20.18	ug/mL	1	20	50	0.7000	i ***
Benzo(a)pyrene	1.2354	1.1573	20.00	18.73	ug/mL	-6	20	50	0.7000	i ***
Indeno(1,2,3-cd)pyrene	1.3912	1.0207	20.00	14.67	ug/mL	**-27**	20	50	0.5000	c- i ***
Dibenz(a,h)anthracene	1.1500	0.9083	20.00	15.80	ug/mL	**-21**	20	50	0.4000	c- i ***
Benzo(g,h,i)perylene	1.1006	0.7120	20.00	12.94	ug/mL	**-35**	20	50	0.5000	c- i ***
2-Fluorophenol	1.5606	1.2695	20.00	16.27	ug/mL	-19	20	50	0.0500	
Phenol-d5	1.7723	1.6145	20.00	18.22	ug/mL	-9	20	50	0.0500	
Nitrobenzene-d5	0.4118	0.3971	20.00	19.28	ug/mL	-4	20	50	0.0500	
2-Fluorobiphenyl	1.8945	1.8493	20.00	19.52	ug/mL	-2	20	50	0.0500	
2,4,6-Tribromophenol	0.1849	0.1885	20.00	20.39	ug/mL	2	20	50	0.0500	
Terphenyl-d14	1.1980	1.2347	20.00	20.61	ug/mL	3	20	50	0.0500	i ***

ISTD (ICAL zdm08)	ICAL Abund	Abund	%Drift
1,4-Dichlorobenzene-d4	923637	1325858	43.55
Naphthalene-d8	3264864	4787140	46.63
Acenaphthene-d10	1698108	2510033	47.81
Phenanthrene-d10	2995337	4294095	43.36
Chrysene-d12	2754055	3986287	44.74
Perylene-d12	2653024	3389151	27.75

ISTD (ICAL zdm08)	ICAL RT	RT	Drift
1,4-Dichlorobenzene-d4	6.21	6.06	-0.15
Naphthalene-d8	7.71	7.55	-0.16
Acenaphthene-d10	9.87	9.71	-0.16
Phenanthrene-d10	11.73	11.56	-0.17
Chrysene-d12	15.18	14.97	**-0.21 ***
Perylene-d12	18.22	17.86	**-0.36 ***

PMM 05/27/16 [Aniline]: Picked or reassigned peak. [general version]

PMM 05/27/16 [Nitrobenzene]: Picked or reassigned peak. [general version]

PMM 05/27/16 [bis(2-Chloroethyl)ether]: Corrected automatically drawn baseline. [general version]

PMM 05/27/16 [4-Nitroaniline]: Corrected automatically drawn baseline. [general version]

Analyst: PMM Date: 05/27/16 Reviewer: LW Date: 06/29/16

-=low bias c=CCV crf=CCV min RF failure i=ISTD failure m=manual integration

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 MSBNA Soil
EPA 8270D

Inst : MSBNA07 Run Name : CCV IDF : 1.0
Seqnum : 566213784003.1 File : zer03 Time : 27-MAY-2016 11:51
Cal : 566163756001 Caldate : 22-APR-2016
Standards: S28768

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Max Closing %D	Min RF	Flags
N-Nitrosodimethylamine	0.7071	0.5939	40.00	33.60	ug/mL	-16	20	50	0.0500	
Phenol	1.5612	1.4954	40.00	38.32	ug/mL	-4	20	50	0.8000	
bis(2-Chloroethyl)ether	1.2268	1.2977	40.00	42.31	ug/mL	6	20	50	0.7000	
2-Chlorophenol	1.4823	1.4875	40.00	40.14	ug/mL	0	20	50	0.8000	
1,3-Dichlorobenzene	1.5697	1.6176	40.00	41.22	ug/mL	3	20	50	0.0500	
1,4-Dichlorobenzene	1.5773	1.6142	40.00	40.94	ug/mL	2	20	50	0.0500	
Benzyl alcohol	0.9326	0.8375	40.00	35.92	ug/mL	-10	20	50	0.0500	
1,2-Dichlorobenzene	1.4834	1.4839	40.00	40.01	ug/mL	0	20	50	0.0500	
2-Methylphenol	1.0281	1.0508	40.00	40.88	ug/mL	2	20	50	0.7000	
bis(2-Chloroisopropyl) ether	1.7668	1.8964	40.00	42.93	ug/mL	7	20	50	0.0100	
4-Methylphenol	1.6189	1.4616	40.00	36.11	ug/mL	-10	20	50	0.6000	
N-Nitroso-di-n-propylamine	0.7239	0.6443	40.00	35.60	ug/mL	-11	20	50	0.5000	
Hexachloroethane	0.5327	0.5362	40.00	40.27	ug/mL	1	20	50	0.3000	
Nitrobenzene	0.3160	0.3215	40.00	40.70	ug/mL	2	20	50	0.2000	m
Isophorone	0.6041	0.6187	40.00	40.97	ug/mL	2	20	50	0.4000	
2-Nitrophenol	0.2283	0.2183	40.00	38.24	ug/mL	-4	20	50	0.1000	
2,4-Dimethylphenol	0.3160	0.3002	40.00	38.00	ug/mL	-5	20	50	0.2000	
bis(2-Chloroethoxy)methane	0.3959	0.3797	20.00	19.18	ug/mL	-4	20	50	0.3000	
Benzoic acid	0.2677	0.1789	90.00	60.14	ug/mL	**-33**	20	50	0.0500	c- ***
2,4-Dichlorophenol	0.3097	0.3085	40.00	39.85	ug/mL	0	20	50	0.2000	
1,2,4-Trichlorobenzene	0.3277	0.3275	40.00	39.97	ug/mL	0	20	50	0.0500	
Naphthalene	1.1343	1.0455	20.00	18.43	ug/mL	-8	20	50	0.7000	
4-Chloroaniline	0.4382	0.4356	40.00	39.77	ug/mL	-1	20	50	0.0100	
Hexachlorobutadiene	0.1675	0.1678	40.00	40.07	ug/mL	0	20	50	0.0100	
4-Chloro-3-methylphenol	0.2824	0.2800	40.00	39.66	ug/mL	-1	20	50	0.2000	
2-Methylnaphthalene	0.7728	0.7300	20.00	18.89	ug/mL	-6	20	50	0.4000	
Hexachlorocyclopentadiene	0.3379	0.2742	40.00	32.47	ug/mL	-19	20	50	0.0500	
2,4,6-Trichlorophenol	0.4256	0.4151	40.00	39.01	ug/mL	-2	20	50	0.2000	
2,4,5-Trichlorophenol	0.4354	0.4315	40.00	39.65	ug/mL	-1	20	50	0.2000	
2-Chloronaphthalene	1.2805	1.2549	20.00	19.60	ug/mL	-2	20	50	0.8000	
2-Nitroaniline	0.3254	0.3267	40.00	40.16	ug/mL	0	20	50	0.0100	
Dimethylphthalate	1.4167	1.4283	40.00	40.33	ug/mL	1	20	50	0.0100	
2,6-Dinitrotoluene	0.3682	0.3537	40.00	38.43	ug/mL	-4	20	50	0.2000	
Acenaphthylene	2.1871	2.0694	20.00	18.92	ug/mL	-5	20	50	0.9000	
3-Nitroaniline	0.3818	0.3527	40.00	36.95	ug/mL	-8	20	50	0.0100	
Acenaphthene	1.3543	1.2067	20.00	17.82	ug/mL	-11	20	50	0.9000	
2,4-Dinitrophenol	0.2019	0.1373	40.00	27.20	ug/mL	**-32**	20	50	0.0100	c- ***
4-Nitrophenol	0.1465	0.1175	40.00	32.09	ug/mL	-20	20	50	0.0100	
Dibenzofuran	1.7586	1.7529	20.00	19.93	ug/mL	0	20	50	0.8000	
2,4-Dinitrotoluene	0.4573	0.4377	40.00	38.28	ug/mL	-4	20	50	0.2000	
Diethylphthalate	1.3917	1.3895	20.00	19.97	ug/mL	0	20	50	0.0100	
Fluorene	1.5205	1.4595	20.00	19.20	ug/mL	-4	20	50	0.9000	
4-Chlorophenyl-phenylether	0.7302	0.7041	20.00	19.29	ug/mL	-4	20	50	0.4000	
4-Nitroaniline	0.3449	0.3256	40.00	37.76	ug/mL	-6	20	50	0.0100	
4,6-Dinitro-2-methylphenol	0.1545	0.1317	40.00	34.10	ug/mL	-15	20	50	0.0100	i ***
N-Nitrosodiphenylamine	0.6150	0.6010	20.00	19.55	ug/mL	-2	20	50	0.0100	i ***
Azobenzene	0.6536	0.6948	20.00	21.26	ug/mL	6	20	50	0.0500	i ***
4-Bromophenyl-phenylether	0.2311	0.2271	20.00	19.65	ug/mL	-2	20	50	0.1000	i ***

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Max Closing %D	Min RF	Flags
Hexachlorobenzene	0.2421	0.2504	40.00	41.37	ug/mL	3	20	50	0.1000	i ***
Pentachlorophenol	0.1727	0.1442	40.00	33.40	ug/mL	-16	20	50	0.0500	i ***
Phenanthrene	1.1400	1.0859	20.00	19.05	ug/mL	-5	20	50	0.7000	i ***
Anthracene	1.1366	1.1093	20.00	19.52	ug/mL	-2	20	50	0.7000	i ***
Carbazole	0.9145	0.9742	40.00	42.61	ug/mL	7	20	50	0.0100	i ***
Di-n-butylphthalate	1.3094	1.3737	20.00	20.98	ug/mL	5	20	50	0.0100	i ***
Fluoranthene	1.3164	1.2957	20.00	19.69	ug/mL	-2	20	50	0.6000	i ***
Pyrene	1.5086	1.4062	20.00	18.64	ug/mL	-7	20	50	0.6000	i ***
Butylbenzylphthalate	0.6762	0.6373	20.00	18.85	ug/mL	-6	20	50	0.0100	i ***
3,3'-Dichlorobenzidine	0.4387	0.3907	40.00	35.62	ug/mL	-11	20	50	0.0100	i ***
Benzo(a)anthracene	1.2753	1.1853	20.00	18.59	ug/mL	-7	20	50	0.8000	i ***
bis(2-Ethylhexyl)phthalate	0.8229	0.8914	20.00	21.66	ug/mL	8	20	50	0.0100	i ***
Chrysene	1.0581	1.0233	20.00	19.34	ug/mL	-3	20	50	0.7000	i ***
Di-n-octylphthalate	1.6884	1.6424	20.00	19.46	ug/mL	-3	20	50	0.0100	i ***
Benzo(b)fluoranthene	1.3044	1.1964	20.00	18.34	ug/mL	-8	20	50	0.7000	i ***
Benzo(k)fluoranthene	1.1798	1.1619	20.00	19.70	ug/mL	-2	20	50	0.7000	i ***
Benzo(a)pyrene	1.2354	1.1775	20.00	19.06	ug/mL	-5	20	50	0.7000	i ***
Indeno(1,2,3-cd)pyrene	1.3912	1.2524	20.00	18.00	ug/mL	-10	20	50	0.5000	i ***
Dibenz(a,h)anthracene	1.1500	1.0908	20.00	18.97	ug/mL	-5	20	50	0.4000	i ***
Benzo(g,h,i)perylene	1.1006	0.8931	20.00	16.23	ug/mL	-19	20	50	0.5000	i ***
2-Fluorophenol	1.5606	1.2648	20.00	16.21	ug/mL	-19	20	50	0.0500	
Phenol-d5	1.7723	1.6125	20.00	18.20	ug/mL	-9	20	50	0.0500	
Nitrobenzene-d5	0.4118	0.3944	20.00	19.15	ug/mL	-4	20	50	0.0500	
2-Fluorobiphenyl	1.8945	1.8360	20.00	19.38	ug/mL	-3	20	50	0.0500	
2,4,6-Tribromophenol	0.1849	0.1868	20.00	20.20	ug/mL	1	20	50	0.0500	
Terphenyl-d14	1.1980	1.1409	20.00	19.05	ug/mL	-5	20	50	0.0500	i ***

ISTD (ICAL zdm08)	ICAL Abund	Abund	%Drift
1,4-Dichlorobenzene-d4	923637	1161239	25.72
Naphthalene-d8	3264864	4260808	30.50
Acenaphthene-d10	1698108	2189473	28.94
Phenanthrene-d10	2995337	3775737	26.05
Chrysene-d12	2754055	3752549	36.26
Perylene-d12	2653024	3418380	28.85

ISTD (ICAL zdm08)	ICAL RT	RT	Drift
1,4-Dichlorobenzene-d4	6.21	6.05	-0.16
Naphthalene-d8	7.71	7.55	-0.16
Acenaphthene-d10	9.87	9.70	-0.17
Phenanthrene-d10	11.73	11.55	**-0.18 ***
Chrysene-d12	15.18	14.96	**-0.22 ***
Perylene-d12	18.22	17.84	**-0.38 ***

ICK 05/27/16 [Aniline]: Picked or reassigned peak. [general version]

ICK 05/27/16 [Nitrobenzene]: Picked or reassigned peak. [general version]

Analyst: ICK Date: 05/27/16 Reviewer: LW Date: 06/29/16

-=low bias c=CCV i=ISTD failure m=manual integration

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 MSBNA Soil
EPA 8270D

Inst : MSBNA07 Run Name : CCV IDF : 1.0
Seqnum : 566213784016.1 File : zer16 Time : 27-MAY-2016 22:45
Cal : 566163756001 Caldate : 22-APR-2016
Standards: S28768

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Max Closing %D	Min RF	Flags
N-Nitrosodimethylamine	0.7071	0.5969	40.00	33.77	ug/mL	-16	20	50	0.0500	
Phenol	1.5612	1.5017	40.00	38.48	ug/mL	-4	20	50	0.8000	
bis(2-Chloroethyl)ether	1.2268	1.3258	40.00	43.23	ug/mL	8	20	50	0.7000	
2-Chlorophenol	1.4823	1.4475	40.00	39.06	ug/mL	-2	20	50	0.8000	
1,3-Dichlorobenzene	1.5697	1.5993	40.00	40.76	ug/mL	2	20	50	0.0500	
1,4-Dichlorobenzene	1.5773	1.6018	40.00	40.62	ug/mL	2	20	50	0.0500	
Benzyl alcohol	0.9326	0.8469	40.00	36.33	ug/mL	-9	20	50	0.0500	
1,2-Dichlorobenzene	1.4834	1.4914	40.00	40.22	ug/mL	1	20	50	0.0500	
2-Methylphenol	1.0281	1.0426	40.00	40.56	ug/mL	1	20	50	0.7000	
bis(2-Chloroisopropyl) ether	1.7668	1.9089	40.00	43.22	ug/mL	8	20	50	0.0100	
4-Methylphenol	1.6189	1.4527	40.00	35.89	ug/mL	-10	20	50	0.6000	
N-Nitroso-di-n-propylamine	0.7239	0.6495	40.00	35.89	ug/mL	-10	20	50	0.5000	
Hexachloroethane	0.5327	0.4517	40.00	33.92	ug/mL	-15	20	50	0.3000	
Nitrobenzene	0.3160	0.3342	40.00	42.31	ug/mL	6	20	50	0.2000	m
Isophorone	0.6041	0.6410	40.00	42.44	ug/mL	6	20	50	0.4000	
2-Nitrophenol	0.2283	0.2199	40.00	38.53	ug/mL	-4	20	50	0.1000	m
2,4-Dimethylphenol	0.3160	0.3079	40.00	38.98	ug/mL	-3	20	50	0.2000	
bis(2-Chloroethoxy)methane	0.3959	0.3867	20.00	19.53	ug/mL	-2	20	50	0.3000	
Benzoic acid	0.2677	0.1995	90.00	67.06	ug/mL	**-25**	20	50	0.0500	c- ***
2,4-Dichlorophenol	0.3097	0.3111	40.00	40.18	ug/mL	0	20	50	0.2000	
1,2,4-Trichlorobenzene	0.3277	0.3262	40.00	39.82	ug/mL	0	20	50	0.0500	
Naphthalene	1.1343	1.0716	20.00	18.89	ug/mL	-6	20	50	0.7000	
4-Chloroaniline	0.4382	0.4458	40.00	40.70	ug/mL	2	20	50	0.0100	
Hexachlorobutadiene	0.1675	0.1693	40.00	40.44	ug/mL	1	20	50	0.0100	
4-Chloro-3-methylphenol	0.2824	0.2850	40.00	40.37	ug/mL	1	20	50	0.2000	
2-Methylnaphthalene	0.7728	0.7561	20.00	19.57	ug/mL	-2	20	50	0.4000	
Hexachlorocyclopentadiene	0.3379	0.0491	40.00	5.807	ug/mL	**-85**	20	50	0.0500	c- crf ***
2,4,6-Trichlorophenol	0.4256	0.4163	40.00	39.12	ug/mL	-2	20	50	0.2000	
2,4,5-Trichlorophenol	0.4354	0.4464	40.00	41.02	ug/mL	3	20	50	0.2000	
2-Chloronaphthalene	1.2805	1.2482	20.00	19.50	ug/mL	-3	20	50	0.8000	
2-Nitroaniline	0.3254	0.3337	40.00	41.02	ug/mL	3	20	50	0.0100	
Dimethylphthalate	1.4167	1.4246	40.00	40.23	ug/mL	1	20	50	0.0100	
2,6-Dinitrotoluene	0.3682	0.3512	40.00	38.16	ug/mL	-5	20	50	0.2000	
Acenaphthylene	2.1871	2.0859	20.00	19.07	ug/mL	-5	20	50	0.9000	
3-Nitroaniline	0.3818	0.3831	40.00	40.14	ug/mL	0	20	50	0.0100	
Acenaphthene	1.3543	1.2097	20.00	17.86	ug/mL	-11	20	50	0.9000	
2,4-Dinitrophenol	0.2019	0.0634	40.00	12.56	ug/mL	**-69**	20	50	0.0100	c- ***
4-Nitrophenol	0.1465	0.1178	40.00	32.17	ug/mL	-20	20	50	0.0100	
Dibenzofuran	1.7586	1.7497	20.00	19.90	ug/mL	-1	20	50	0.8000	
2,4-Dinitrotoluene	0.4573	0.4335	40.00	37.92	ug/mL	-5	20	50	0.2000	
Diethylphthalate	1.3917	1.3694	20.00	19.68	ug/mL	-2	20	50	0.0100	
Fluorene	1.5205	1.4351	20.00	18.88	ug/mL	-6	20	50	0.9000	
4-Chlorophenyl-phenylether	0.7302	0.6992	20.00	19.15	ug/mL	-4	20	50	0.4000	
4-Nitroaniline	0.3449	0.3413	40.00	39.58	ug/mL	-1	20	50	0.0100	
4,6-Dinitro-2-methylphenol	0.1545	0.0884	40.00	22.88	ug/mL	**-43**	20	50	0.0100	c- ***
N-Nitrosodiphenylamine	0.6150	0.6115	20.00	19.89	ug/mL	-1	20	50	0.0100	
Azobenzene	0.6536	0.7151	20.00	21.88	ug/mL	9	20	50	0.0500	
4-Bromophenyl-phenylether	0.2311	0.2250	20.00	19.48	ug/mL	-3	20	50	0.1000	

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Max Closing %D	Min RF	Flags
Hexachlorobenzene	0.2421	0.2509	40.00	41.45	ug/mL	4	20	50	0.1000	
Pentachlorophenol	0.1727	0.1440	40.00	33.37	ug/mL	-17	20	50	0.0500	
Phenanthrene	1.1400	1.0910	20.00	19.14	ug/mL	-4	20	50	0.7000	
Anthracene	1.1366	1.1087	20.00	19.51	ug/mL	-2	20	50	0.7000	
Carbazole	0.9145	1.0214	40.00	44.68	ug/mL	12	20	50	0.0100	
Di-n-butylphthalate	1.3094	1.3829	20.00	21.12	ug/mL	6	20	50	0.0100	
Fluoranthene	1.3164	1.3224	20.00	20.09	ug/mL	0	20	50	0.6000	
Pyrene	1.5086	1.4274	20.00	18.92	ug/mL	-5	20	50	0.6000	i ***
Butylbenzylphthalate	0.6762	0.6462	20.00	19.11	ug/mL	-4	20	50	0.0100	i ***
3,3'-Dichlorobenzidine	0.4387	0.4551	40.00	41.50	ug/mL	4	20	50	0.0100	i ***
Benzo(a)anthracene	1.2753	1.1915	20.00	18.69	ug/mL	-7	20	50	0.8000	i ***
bis(2-Ethylhexyl)phthalate	0.8229	0.9024	20.00	21.93	ug/mL	10	20	50	0.0100	i ***
Chrysene	1.0581	1.0078	20.00	19.05	ug/mL	-5	20	50	0.7000	i ***
Di-n-octylphthalate	1.6884	1.7347	20.00	20.55	ug/mL	3	20	50	0.0100	i ***
Benzo(b)fluoranthene	1.3044	1.2254	20.00	18.79	ug/mL	-6	20	50	0.7000	i ***
Benzo(k)fluoranthene	1.1798	1.1665	20.00	19.77	ug/mL	-1	20	50	0.7000	i ***
Benzo(a)pyrene	1.2354	1.1901	20.00	19.27	ug/mL	-4	20	50	0.7000	i ***
Indeno(1,2,3-cd)pyrene	1.3912	1.1669	20.00	16.78	ug/mL	-16	20	50	0.5000	i ***
Dibenz(a,h)anthracene	1.1500	1.0212	20.00	17.76	ug/mL	-11	20	50	0.4000	i ***
Benzo(g,h,i)perylene	1.1006	0.8390	20.00	15.25	ug/mL	**-24**	20	50	0.5000	c- i ***
2-Fluorophenol	1.5606	1.2706	20.00	16.28	ug/mL	-19	20	50	0.0500	
Phenol-d5	1.7723	1.6451	20.00	18.57	ug/mL	-7	20	50	0.0500	
Nitrobenzene-d5	0.4118	0.4067	20.00	19.75	ug/mL	-1	20	50	0.0500	
2-Fluorobiphenyl	1.8945	1.8357	20.00	19.38	ug/mL	-3	20	50	0.0500	
2,4,6-Tribromophenol	0.1849	0.1860	20.00	20.11	ug/mL	1	20	50	0.0500	
Terphenyl-d14	1.1980	1.1693	20.00	19.52	ug/mL	-2	20	50	0.0500	i ***

ISTD (ICAL zdm08)	ICAL Abund	Abund	%Drift
1,4-Dichlorobenzene-d4	923637	1296613	40.38
Naphthalene-d8	3264864	4652900	42.51
Acenaphthene-d10	1698108	2443979	43.92
Phenanthrene-d10	2995337	4181186	39.59
Chrysene-d12	2754055	4099829	48.87
Perylene-d12	2653024	3640045	37.20

ISTD (ICAL zdm08)	ICAL RT	RT	Drift
1,4-Dichlorobenzene-d4	6.21	6.05	-0.16
Naphthalene-d8	7.71	7.55	-0.16
Acenaphthene-d10	9.87	9.71	-0.16
Phenanthrene-d10	11.73	11.56	-0.17
Chrysene-d12	15.18	14.96	**-0.22 ***
Perylene-d12	18.22	17.85	**-0.37 ***

KMH 05/28/16 [Aniline]: Picked or reassigned peak. [general version]

KMH 05/28/16 [Nitrobenzene]: Picked or reassigned peak. [general version]

KMH 05/28/16 [2-Nitrophenol]: Picked or reassigned peak. [general version]

Analyst: PMM Date: 06/29/16 Reviewer: LW Date: 06/29/16

-=low bias c=CCV crf=CCV min RF failure i=ISTD failure m=manual integration

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 MSBNA Soil
EPA 8270D

Inst : MSBNA09 Run Name : CCV IDF : 1.0
Seqnum : 586212309003.1 File : req03 Time : 26-MAY-2016 11:11
Cal : 586198243002 Caldate : 16-MAY-2016
Standards: S28768

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Max Closing %D	Min RF	Flags
N-Nitrosodimethylamine	0.7251	0.7542	40.00	41.60	ug/mL	4	20	50	0.0500	
Phenol	1.6300	1.7972	40.00	44.10	ug/mL	10	20	50	0.8000	
bis(2-Chloroethyl)ether	1.2721	1.5019	40.00	47.23	ug/mL	18	20	50	0.7000	
2-Chlorophenol	1.4834	1.4770	40.00	39.83	ug/mL	0	20	50	0.8000	
1,3-Dichlorobenzene	1.5823	1.5389	40.00	38.90	ug/mL	-3	20	50	0.0500	
1,4-Dichlorobenzene	1.6112	1.5554	40.00	38.62	ug/mL	-3	20	50	0.0500	
Benzyl alcohol	0.9653	1.0925	40.00	45.27	ug/mL	13	20	50	0.0500	
1,2-Dichlorobenzene	1.5087	1.4656	40.00	38.86	ug/mL	-3	20	50	0.0500	
2-Methylphenol	1.1197	1.2110	40.00	43.26	ug/mL	8	20	50	0.7000	
bis(2-Chloroisopropyl) ether	1.7848	2.2234	40.00	49.83	ug/mL	**25**	20	50	0.0100	c+ ***
4-Methylphenol	1.6322	1.7079	40.00	41.86	ug/mL	5	20	50	0.6000	
N-Nitroso-di-n-propylamine	0.9363	1.0844	40.00	46.33	ug/mL	16	20	50	0.5000	
Hexachloroethane	0.5904	0.6303	40.00	42.70	ug/mL	7	20	50	0.3000	
Nitrobenzene	0.3324	0.4104	40.00	49.39	ug/mL	**23**	20	50	0.2000	c+ ***
Isophorone	0.6891	0.8255	40.00	47.92	ug/mL	20	20	50	0.4000	
2-Nitrophenol	0.1956	0.2111	40.00	43.17	ug/mL	8	20	50	0.1000	
2,4-Dimethylphenol	0.3372	0.3986	40.00	47.29	ug/mL	18	20	50	0.2000	
bis(2-Chloroethoxy)methane	0.3926	0.4899	20.00	24.95	ug/mL	**25**	20	50	0.3000	c+ ***
Benzoic acid	0.1773	0.2467	90.00	111.3	ug/mL	**24**	20	50	0.0500	c+ ***
2,4-Dichlorophenol	0.3059	0.3115	40.00	40.73	ug/mL	2	20	50	0.2000	
1,2,4-Trichlorobenzene	0.3040	0.3088	40.00	40.62	ug/mL	2	20	50	0.0500	
Naphthalene	1.0571	1.1223	20.00	21.23	ug/mL	6	20	50	0.7000	
4-Chloroaniline	0.4434	0.4867	40.00	43.91	ug/mL	10	20	50	0.0100	
Hexachlorobutadiene	0.1659	0.1679	40.00	40.47	ug/mL	1	20	50	0.0100	
4-Chloro-3-methylphenol	0.3266	0.3631	40.00	44.46	ug/mL	11	20	50	0.2000	
2-Methylnaphthalene	0.7501	0.8010	20.00	21.36	ug/mL	7	20	50	0.4000	
Hexachlorocyclopentadiene	0.2922	0.3148	40.00	43.10	ug/mL	8	20	50	0.0500	
2,4,6-Trichlorophenol	0.3998	0.4393	40.00	43.95	ug/mL	10	20	50	0.2000	
2,4,5-Trichlorophenol	0.4417	0.4830	40.00	43.74	ug/mL	9	20	50	0.2000	
2-Chloronaphthalene	1.3134	1.4136	20.00	21.53	ug/mL	8	20	50	0.8000	
2-Nitroaniline	0.3797	0.5041	40.00	53.10	ug/mL	**33**	20	50	0.0100	c+ ***
Dimethylphthalate	1.6143	1.6550	40.00	41.01	ug/mL	3	20	50	0.0100	
2,6-Dinitrotoluene	0.3773	0.3739	40.00	39.64	ug/mL	-1	20	50	0.2000	
Acenaphthylene	2.1232	2.4901	20.00	23.46	ug/mL	17	20	50	0.9000	
3-Nitroaniline	0.3986	0.4441	40.00	44.57	ug/mL	11	20	50	0.0100	
Acenaphthene	1.3837	1.5859	20.00	22.92	ug/mL	15	20	50	0.9000	
2,4-Dinitrophenol	0.1604	0.1680	40.00	43.19	ug/mL	8	20	50	0.0100	
4-Nitrophenol	0.2014	0.2311	40.00	45.91	ug/mL	15	20	50	0.0100	
Dibenzofuran	1.9218	2.1796	20.00	22.68	ug/mL	13	20	50	0.8000	
2,4-Dinitrotoluene	0.5194	0.5233	40.00	40.30	ug/mL	1	20	50	0.2000	
Diethylphthalate	1.8364	1.9911	20.00	21.68	ug/mL	8	20	50	0.0100	
Fluorene	1.6576	1.7847	20.00	21.53	ug/mL	8	20	50	0.9000	
4-Chlorophenyl-phenylether	0.7817	0.8755	20.00	22.40	ug/mL	12	20	50	0.4000	
4-Nitroaniline	0.4004	0.4640	40.00	46.35	ug/mL	16	20	50	0.0100	
4,6-Dinitro-2-methylphenol	0.1392	0.1377	40.00	39.56	ug/mL	-1	20	50	0.0100	
N-Nitrosodiphenylamine	0.6367	0.6549	20.00	20.57	ug/mL	3	20	50	0.0100	
Azobenzene	0.7316	0.8910	20.00	24.36	ug/mL	**22**	20	50	0.0500	c+ ***
4-Bromophenyl-phenylether	0.2263	0.2120	20.00	18.74	ug/mL	-6	20	50	0.1000	

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Max Closing %D	Min RF	Flags
Hexachlorobenzene	0.2102	0.1902	40.00	36.18	ug/mL	-10	20	50	0.1000	
Pentachlorophenol	0.1266	0.1175	40.00	37.10	ug/mL	-7	20	50	0.0500	
Phenanthrene	1.2125	1.1962	20.00	19.73	ug/mL	-1	20	50	0.7000	
Anthracene	1.2190	1.2350	20.00	20.26	ug/mL	1	20	50	0.7000	
Carbazole	1.0596	1.1557	40.00	43.63	ug/mL	9	20	50	0.0100	
Di-n-butylphthalate	1.5729	1.7284	20.00	21.98	ug/mL	10	20	50	0.0100	
Fluoranthene	1.3465	1.4285	20.00	21.22	ug/mL	6	20	50	0.6000	
Pyrene	1.5844	1.8373	20.00	23.19	ug/mL	16	20	50	0.6000	
Butylbenzylphthalate	0.7276	0.8417	20.00	23.13	ug/mL	16	20	50	0.0100	
3,3'-Dichlorobenzidine	0.4035	0.4113	40.00	40.78	ug/mL	2	20	50	0.0100	
Benzo(a)anthracene	1.2567	1.3175	20.00	20.97	ug/mL	5	20	50	0.8000	
bis(2-Ethylhexyl)phthalate	0.9316	1.0796	20.00	23.18	ug/mL	16	20	50	0.0100	
Chrysene	1.1623	1.2465	20.00	21.45	ug/mL	7	20	50	0.7000	
Di-n-octylphthalate	2.0389	2.2243	20.00	21.82	ug/mL	9	20	50	0.0100	
Benzo(b)fluoranthene	1.2077	1.2581	20.00	20.84	ug/mL	4	20	50	0.7000	
Benzo(k)fluoranthene	1.2117	1.2120	20.00	20.00	ug/mL	0	20	50	0.7000	
Benzo(a)pyrene	1.1454	1.2289	20.00	21.46	ug/mL	7	20	50	0.7000	
Indeno(1,2,3-cd)pyrene	1.1544	1.2947	20.00	22.43	ug/mL	12	20	50	0.5000	
Dibenz(a,h)anthracene	0.9746	1.0973	20.00	22.52	ug/mL	13	20	50	0.4000	
Benzo(g,h,i)perylene	0.9405	0.9859	20.00	20.97	ug/mL	5	20	50	0.5000	
2-Fluorophenol	1.3725	1.5870	20.00	23.13	ug/mL	16	20	50	0.0500	
Phenol-d5	1.7017	1.9224	20.00	22.59	ug/mL	13	20	50	0.0500	
Nitrobenzene-d5	0.4262	0.5248	20.00	24.63	ug/mL	**23**	20	50	0.0500	c+ ***
2-Fluorobiphenyl	1.8748	2.1119	20.00	22.53	ug/mL	13	20	50	0.0500	
2,4,6-Tribromophenol	0.1867	0.1969	20.00	21.10	ug/mL	5	20	50	0.0500	
Terphenyl-d14	1.2324	1.3031	20.00	21.15	ug/mL	6	20	50	0.0500	

ISTD (ICAL reg09)	ICAL Abund	Abund	%Drift
1,4-Dichlorobenzene-d4	837764	1061658	26.73
Naphthalene-d8	3631586	4130287	13.73
Acenaphthene-d10	1966533	2145122	9.08
Phenanthrene-d10	4064903	4509354	10.93
Chrysene-d12	3496403	3792322	8.46
Perylene-d12	2927888	3453636	17.96

ISTD (ICAL reg09)	ICAL RT	RT	Drift
1,4-Dichlorobenzene-d4	6.25	6.25	0.00
Naphthalene-d8	7.75	7.75	0.01
Acenaphthene-d10	9.91	9.91	0.00
Phenanthrene-d10	11.76	11.76	0.00
Chrysene-d12	15.22	15.23	0.01
Perylene-d12	18.29	18.29	0.00

PMM 05/26/16 [Aniline]: Picked or reassigned peak. [general version]

Analyst: PMM Date: 05/27/16 Reviewer: LW Date: 06/29/16

+=high bias c=CCV

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 MSBNA Soil
EPA 8270D

Inst : MSBNA09 Run Name : CCV IDF : 1.0
Seqnum : 586212309017.1 File : req17 Time : 26-MAY-2016 22:13
Cal : 586198243002 Caldate : 16-MAY-2016
Standards: S28768

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Max Closing %D	Min RF	Flags
N-Nitrosodimethylamine	0.7251	0.7283	40.00	40.18	ug/mL	0	20	50	0.0500	
Phenol	1.6300	1.7943	40.00	44.03	ug/mL	10	20	50	0.8000	
bis(2-Chloroethyl)ether	1.2721	1.4882	40.00	46.80	ug/mL	17	20	50	0.7000	
2-Chlorophenol	1.4834	1.4750	40.00	39.77	ug/mL	-1	20	50	0.8000	
1,3-Dichlorobenzene	1.5823	1.5535	40.00	39.27	ug/mL	-2	20	50	0.0500	
1,4-Dichlorobenzene	1.6112	1.5651	40.00	38.86	ug/mL	-3	20	50	0.0500	
Benzyl alcohol	0.9653	1.1015	40.00	45.65	ug/mL	14	20	50	0.0500	
1,2-Dichlorobenzene	1.5087	1.4723	40.00	39.04	ug/mL	-2	20	50	0.0500	
2-Methylphenol	1.1197	1.2182	40.00	43.52	ug/mL	9	20	50	0.7000	
bis(2-Chloroisopropyl) ether	1.7848	2.1884	40.00	49.04	ug/mL	**23**	20	50	0.0100	c+ ***
4-Methylphenol	1.6322	1.7322	40.00	42.45	ug/mL	6	20	50	0.6000	
N-Nitroso-di-n-propylamine	0.9363	1.0965	40.00	46.84	ug/mL	17	20	50	0.5000	
Hexachloroethane	0.5904	0.5772	40.00	39.10	ug/mL	-2	20	50	0.3000	
Nitrobenzene	0.3324	0.4011	40.00	48.27	ug/mL	**21**	20	50	0.2000	c+ ***
Isophorone	0.6891	0.8507	40.00	49.38	ug/mL	**23**	20	50	0.4000	c+ ***
2-Nitrophenol	0.1956	0.2121	40.00	43.39	ug/mL	8	20	50	0.1000	
2,4-Dimethylphenol	0.3372	0.4037	40.00	47.90	ug/mL	20	20	50	0.2000	
bis(2-Chloroethoxy)methane	0.3926	0.4956	20.00	25.24	ug/mL	**26**	20	50	0.3000	c+ ***
Benzoic acid	0.1773	0.2912	90.00	125.8	ug/mL	**40**	20	50	0.0500	c+ ***
2,4-Dichlorophenol	0.3059	0.3140	40.00	41.05	ug/mL	3	20	50	0.2000	
1,2,4-Trichlorobenzene	0.3040	0.3077	40.00	40.48	ug/mL	1	20	50	0.0500	
Naphthalene	1.0571	1.1007	20.00	20.82	ug/mL	4	20	50	0.7000	
4-Chloroaniline	0.4434	0.4945	40.00	44.62	ug/mL	12	20	50	0.0100	
Hexachlorobutadiene	0.1659	0.1649	40.00	39.76	ug/mL	-1	20	50	0.0100	
4-Chloro-3-methylphenol	0.3266	0.3768	40.00	46.14	ug/mL	15	20	50	0.2000	
2-Methylnaphthalene	0.7501	0.8108	20.00	21.62	ug/mL	8	20	50	0.4000	
Hexachlorocyclopentadiene	0.2922	0.0829	40.00	11.35	ug/mL	**-72**	20	50	0.0500	c- ***
2,4,6-Trichlorophenol	0.3998	0.4399	40.00	44.01	ug/mL	10	20	50	0.2000	
2,4,5-Trichlorophenol	0.4417	0.4809	40.00	43.55	ug/mL	9	20	50	0.2000	
2-Chloronaphthalene	1.3134	1.3967	20.00	21.27	ug/mL	6	20	50	0.8000	
2-Nitroaniline	0.3797	0.5007	40.00	52.75	ug/mL	**32**	20	50	0.0100	c+ ***
Dimethylphthalate	1.6143	1.6915	40.00	41.91	ug/mL	5	20	50	0.0100	
2,6-Dinitrotoluene	0.3773	0.3829	40.00	40.59	ug/mL	1	20	50	0.2000	
Acenaphthylene	2.1232	2.4724	20.00	23.29	ug/mL	16	20	50	0.9000	
3-Nitroaniline	0.3986	0.4655	40.00	46.72	ug/mL	17	20	50	0.0100	
Acenaphthene	1.3837	1.5144	20.00	21.89	ug/mL	9	20	50	0.9000	
2,4-Dinitrophenol	0.1604	0.0953	40.00	32.29	ug/mL	-19	20	50	0.0100	
4-Nitrophenol	0.2014	0.2444	40.00	48.56	ug/mL	**21**	20	50	0.0100	c+ ***
Dibenzofuran	1.9218	2.1794	20.00	22.68	ug/mL	13	20	50	0.8000	
2,4-Dinitrotoluene	0.5194	0.5430	40.00	41.81	ug/mL	5	20	50	0.2000	
Diethylphthalate	1.8364	2.0768	20.00	22.62	ug/mL	13	20	50	0.0100	
Fluorene	1.6576	1.8248	20.00	22.02	ug/mL	10	20	50	0.9000	
4-Chlorophenyl-phenylether	0.7817	0.8740	20.00	22.36	ug/mL	12	20	50	0.4000	
4-Nitroaniline	0.4004	0.4799	40.00	47.95	ug/mL	20	20	50	0.0100	
4,6-Dinitro-2-methylphenol	0.1392	0.0964	40.00	27.71	ug/mL	**-31**	20	50	0.0100	c- ***
N-Nitrosodiphenylamine	0.6367	0.6539	20.00	20.54	ug/mL	3	20	50	0.0100	
Azobenzene	0.7316	0.8601	20.00	23.51	ug/mL	18	20	50	0.0500	
4-Bromophenyl-phenylether	0.2263	0.2126	20.00	18.79	ug/mL	-6	20	50	0.1000	

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Max Closing %D	Min RF	Flags
Hexachlorobenzene	0.2102	0.1893	40.00	36.03	ug/mL	-10	20	50	0.1000	
Pentachlorophenol	0.1266	0.1267	40.00	40.01	ug/mL	0	20	50	0.0500	
Phenanthrene	1.2125	1.1954	20.00	19.72	ug/mL	-1	20	50	0.7000	
Anthracene	1.2190	1.2284	20.00	20.16	ug/mL	1	20	50	0.7000	
Carbazole	1.0596	1.1494	40.00	43.39	ug/mL	8	20	50	0.0100	
Di-n-butylphthalate	1.5729	1.7182	20.00	21.85	ug/mL	9	20	50	0.0100	
Fluoranthene	1.3465	1.4313	20.00	21.26	ug/mL	6	20	50	0.6000	
Pyrene	1.5844	2.1262	20.00	26.84	ug/mL	**34**	20	50	0.6000	c+ ***
Butylbenzylphthalate	0.7276	0.9447	20.00	25.97	ug/mL	**30**	20	50	0.0100	c+ ***
3,3'-Dichlorobenzidine	0.4035	0.4304	40.00	42.67	ug/mL	7	20	50	0.0100	
Benzo(a)anthracene	1.2567	1.3188	20.00	20.99	ug/mL	5	20	50	0.8000	
bis(2-Ethylhexyl)phthalate	0.9316	1.2290	20.00	26.39	ug/mL	**32**	20	50	0.0100	c+ ***
Chrysene	1.1623	1.2221	20.00	21.03	ug/mL	5	20	50	0.7000	
Di-n-octylphthalate	2.0389	4.4179	20.00	43.34	ug/mL	**117**	20	50	0.0100	c+ ***
Benzo(b)fluoranthene	1.2077	1.5351	20.00	25.42	ug/mL	**27**	20	50	0.7000	c+ ***
Benzo(k)fluoranthene	1.2117	1.5442	20.00	25.49	ug/mL	**27**	20	50	0.7000	c+ ***
Benzo(a)pyrene	1.1454	1.2524	20.00	21.87	ug/mL	9	20	50	0.7000	
Indeno(1,2,3-cd)pyrene	1.1544	0.5859	20.00	10.15	ug/mL	**-49**	20	50	0.5000	c- ***
Dibenz(a,h)anthracene	0.9746	0.5346	20.00	10.97	ug/mL	**-45**	20	50	0.4000	c- ***
Benzo(g,h,i)perylene	0.9405	0.3758	20.00	7.992	ug/mL	**-60**	20	50	0.5000	c- crf ***
2-Fluorophenol	1.3725	1.5758	20.00	22.96	ug/mL	15	20	50	0.0500	
Phenol-d5	1.7017	1.8999	20.00	22.33	ug/mL	12	20	50	0.0500	
Nitrobenzene-d5	0.4262	0.5150	20.00	24.17	ug/mL	**21**	20	50	0.0500	c+ ***
2-Fluorobiphenyl	1.8748	2.0851	20.00	22.24	ug/mL	11	20	50	0.0500	
2,4,6-Tribromophenol	0.1867	0.2073	20.00	22.21	ug/mL	11	20	50	0.0500	
Terphenyl-d14	1.2324	1.4751	20.00	23.94	ug/mL	20	20	50	0.0500	

ISTD (ICAL reg09)	ICAL Abund	Abund	%Drift
1,4-Dichlorobenzene-d4	837764	993660	18.61
Naphthalene-d8	3631586	3893231	7.20
Acenaphthene-d10	1966533	2119487	7.78
Phenanthrene-d10	4064903	4632873	13.97
Chrysene-d12	3496403	3322621	-4.97
Perylene-d12	2927888	1668765	-43.00

ISTD (ICAL reg09)	ICAL RT	RT	Drift
1,4-Dichlorobenzene-d4	6.25	6.25	0.00
Naphthalene-d8	7.75	7.75	0.01
Acenaphthene-d10	9.91	9.91	0.00
Phenanthrene-d10	11.76	11.76	0.00
Chrysene-d12	15.22	15.22	0.00
Perylene-d12	18.29	18.29	0.00

ICK 05/27/16 [Aniline]: Picked or reassigned peak. [general version]

Analyst: PMM Date: 05/27/16 Reviewer: LW Date: 06/29/16

+=high bias -=low bias c=CCV crf=CCV min RF failure

Logbooks & Sequences

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 546212333

Date : 05/26/16 Reference : xea08
Sequence : MSBNA05 xeq Analyzed : 05/11/16 00:08

#	Type	Sample ID	DCBZ14D4	NAPHD8	ACEND10	PHEND10	CHYD12	PERYD12
		ICAL STD	1581036	5526268	3016194	5671250	5790188	5903440
		LOWER LIMIT	790518	2763134	1508097	2835625	2895094	2951720
		UPPER LIMIT	3162072	11052536	6032388	11342500	11580376	11806880
003	CCV	CCV	1613343	5597792	3307425	5917949	5680275	5622602
004	BLANK	QC837118	1435454	5062993	3192951	5164946	5083548	4834705
005	LCS	QC837119	1539650	5338826	3513843	5804961	5441446	5400872
015	MSS	277038-001	1718969	5827441	3788554	6041634	6077053	5954448
016	MS	QC837120	1717725	5928839	3899853	6235786	5941796	5961495
017	MSD	QC837121	1640420	5682965	3699942	5996136	5459413	5418046
018	CCV	CCV	1798467	6035536	3508335	6160845	5684904	5634153

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 546212333

Date : 05/26/16 Reference : xea08
Sequence : MSBNA05 xeq Analyzed : 05/11/16 00:08

#	Type	Sample ID	DCBZ14D4 RT	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		ICAL STD	6.12	7.64	9.82	11.70	15.18	18.23
		LOWER LIMIT	5.96	7.47	9.66	11.53	15.01	18.06
		UPPER LIMIT	6.29	7.81	9.99	11.87	15.34	18.39
003	CCV	CCV	6.12	7.63	9.82	11.69	15.17	18.22
018	CCV	CCV	6.13	7.64	9.82	11.70	15.18	18.24

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 546212333

Date : 05/26/16
Sequence : MSBNA05 xeq

Reference : xeq03
Analyzed : 05/26/16 11:44

#	Type	Sample ID	DCBZ14D4 RT	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		CCV+CCV/BS+CCV/LCS+ICV+ICV/BS+ICV/CCV+ICV/LCS+RCCV+RICV STD	6.12	7.63	9.82	11.69	15.17	18.22
		LOWER LIMIT	5.96	7.47	9.65	11.53	15.00	18.05
		UPPER LIMIT	6.29	7.80	9.99	11.86	15.33	18.38
004	BLANK	QC837118	6.12	7.63	9.81	11.69	15.16	18.21
005	LCS	QC837119	6.13	7.64	9.82	11.69	15.17	18.22
015	MSS	277038-001	6.12	7.63	9.82	11.69	15.17	18.24
016	MS	QC837120	6.13	7.64	9.83	11.70	15.18	18.25
017	MSD	QC837121	6.13	7.64	9.83	11.70	15.18	18.25

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 546213750

Date : 05/27/16 Reference : xea08
Sequence : MSBNA05 xer Analyzed : 05/11/16 00:08

#	Type	Sample ID	DCBZ14D4	NAPHD8	ACEND10	PHEND10	CHYD12	PERYD12
		ICAL STD	1581036	5526268	3016194	5671250	5790188	5903440
		LOWER LIMIT	790518	2763134	1508097	2835625	2895094	2951720
		UPPER LIMIT	3162072	11052536	6032388	11342500	11580376	11806880
005	CCV	CCV	1734072	5829008	3423605	6079488	5893339	5895204
006	BLANK	QC837118	1489959	5308402	3361308	5716535	5880787	5805010
007	LCS	QC837119	1536264	5464714	3681633	6195465	5829547	5900856
008	SAMPLE	277038-002	1738082	5898543	3778835	6091370	6025206	6059111
009	MSS	277038-001	1612415	5665113	3593980	6105071	6154658	6131789
010	SAMPLE	277038-004	1772969	6028539	3917560	6337366	6429861	6562698
011	SAMPLE	277038-005	1809678	6071973	3882769	6208871	6025751	5966696
012	SAMPLE	277038-006	1732756	5980445	3784105	6088912	6000313	5944616
013	SAMPLE	277038-007	1761524	6043247	3912182	6238802	6136511	6119250
014	SAMPLE	277038-008	1814553	6086318	3966759	6397348	6207036	6086802
015	CCV	CCV	1869059	6275174	3695805	6450915	6054788	5975023

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 546213750

Date : 05/27/16 Reference : xea08
Sequence : MSBNA05 xer Analyzed : 05/11/16 00:08

#	Type	Sample ID	DCBZ14D4 RT	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		ICAL STD	6.12	7.64	9.82	11.70	15.18	18.23
		LOWER LIMIT	5.96	7.47	9.66	11.53	15.01	18.06
		UPPER LIMIT	6.29	7.81	9.99	11.87	15.34	18.39
005	CCV	CCV	6.13	7.64	9.82	11.69	15.17	18.23
015	CCV	CCV	6.13	7.64	9.83	11.70	15.18	18.25

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 546213750

Date : 05/27/16
Sequence : MSBNA05 xer

Reference : xer05
Analyzed : 05/27/16 12:20

#	Type	Sample ID	DCBZ14D4 RT	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		CCV+CCV/BS+CCV/LCS+ICV+ICV/BS+ICV/CCV+ICV/LCS+RCCV+RICV STD	6.13	7.64	9.82	11.69	15.17	18.23
		LOWER LIMIT	5.96	7.47	9.66	11.53	15.00	18.06
		UPPER LIMIT	6.29	7.81	9.99	11.86	15.34	18.39
006	BLANK	QC837118	6.13	7.63	9.82	11.69	15.16	18.22
007	LCS	QC837119	6.13	7.64	9.83	11.70	15.17	18.23
008	SAMPLE	277038-002	6.12	7.63	9.82	11.69	15.17	18.23
009	MSS	277038-001	6.13	7.63	9.82	11.69	15.17	18.24
010	SAMPLE	277038-004	6.13	7.64	9.82	11.70	15.17	18.25
011	SAMPLE	277038-005	6.12	7.64	9.82	11.70	15.17	18.24
012	SAMPLE	277038-006	6.13	7.64	9.82	11.69	15.17	18.24
013	SAMPLE	277038-007	6.13	7.64	9.82	11.70	15.17	18.24
014	SAMPLE	277038-008	6.13	7.64	9.82	11.70	15.17	18.25

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 566212319

Date : 05/26/16 Reference : zdm08
Sequence : MSBNA07 zeq Analyzed : 04/22/16 23:48

#	Type	Sample ID	DCBZ14D4	NAPHD8	ACEND10	PHEND10	CHYD12	PERYD12
		ICAL STD	923637	3264864	1698108	2995337	2754055	2653024
		LOWER LIMIT	461819	1632432	849054	1497669	1377028	1326512
		UPPER LIMIT	1847274	6529728	3396216	5990674	5508110	5306048
008	CCV	CCV	1207757	4350316	2278859	3931238	3715263	3378177
009	SAMPLE	277038-007	1189824	4509043	2718670	4358092	3781611	3464137
010	SAMPLE	277038-008	1149123	4462421	2728305	4335464	3731421	3257403
011	SAMPLE	277038-009	1118585	4556881	2769723	4445936	3933027	3494436
012	SAMPLE	277038-010	1164628	4468455	2769147	4476974	4035626	3646452
013	SAMPLE	277038-011	1133853	4476554	2721957	4429786	3925980	3516060
014	SAMPLE	277038-012	1110577	4473546	2707182	4313848	3966919	3552217
015	SAMPLE	277036-001	1155086	4513781	2780643	4457740	3967095	3480917
016	MSS	277036-002	1170289	4531910	2785682	4404019	4002827	3538203
017	SAMPLE	277036-003	1124890	4485869	2760998	4444804	3935659	3406689
018	SAMPLE	277036-004	1164213	4477491	2747531	4422523	3927262	3365276
019	SAMPLE	277036-005	1169502	4559424	2811034	4451152	4046175	3541201
020	SAMPLE	277036-006	1172308	4474568	2755689	4485656	4007422	3439662
021	SAMPLE	277036-007	1166781	4472588	2781008	4456318	3892984	3214769
022	SAMPLE	277036-008	1149048	4559021	2810975	4437950	3941490	3215938
023	SAMPLE	277036-009	1129259	4486869	2742785	4380737	3927042	3306070
024	SAMPLE	277036-010	1373397	5296783	3283351	5224326	4695657	3847845
025	CCV	CCV	1325858	4787140	2510033	4294095	3986287	3389151

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 566212319

Date : 05/26/16 Reference : zdm08
Sequence : MSBNA07 zeq Analyzed : 04/22/16 23:48

#	Type	Sample ID	DCBZ14D4 RT	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		ICAL STD	6.21	7.71	9.87	11.73	15.18	18.22
		LOWER LIMIT	6.04	7.54	9.70	11.56	15.01	18.05
		UPPER LIMIT	6.38	7.88	10.04	11.90	15.34	18.38
008	CCV	CCV	6.06	7.55	9.71	11.56	14.96 *	17.85 *
025	CCV	CCV	6.06	7.55	9.71	11.56	14.97 *	17.86 *

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 566212319

Date : 05/26/16
Sequence : MSBNA07 zeq

Reference : zeq08
Analyzed : 05/26/16 20:29

#	Type	Sample ID	DCBZ14D4 RT	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		CCV+CCV/BS+CCV/LCS+ICV+ICV/BS+ICV/CCV+ICV/LCS+RCCV+RICV STD	6.06	7.55	9.71	11.56	14.96	17.85
		LOWER LIMIT	5.89	7.38	9.54	11.39	14.79	17.69
		UPPER LIMIT	6.22	7.71	9.87	11.72	15.13	18.02
009	SAMPLE	277038-007	6.06	7.55	9.71	11.56	14.96	17.86
010	SAMPLE	277038-008	6.06	7.55	9.70	11.56	14.96	17.86
011	SAMPLE	277038-009	6.06	7.55	9.70	11.56	14.96	17.86
012	SAMPLE	277038-010	6.06	7.55	9.70	11.56	14.96	17.86
013	SAMPLE	277038-011	6.06	7.55	9.70	11.56	14.96	17.86
014	SAMPLE	277038-012	6.06	7.55	9.70	11.56	14.96	17.86
015	SAMPLE	277036-001	6.06	7.55	9.71	11.56	14.97	17.87
016	MSS	277036-002	6.06	7.55	9.71	11.56	14.97	17.87
017	SAMPLE	277036-003	6.06	7.55	9.71	11.56	14.97	17.87
018	SAMPLE	277036-004	6.06	7.55	9.71	11.56	14.97	17.87
019	SAMPLE	277036-005	6.06	7.55	9.71	11.56	14.97	17.87
020	SAMPLE	277036-006	6.06	7.55	9.71	11.56	14.97	17.87
021	SAMPLE	277036-007	6.06	7.55	9.71	11.56	14.97	17.87
022	SAMPLE	277036-008	6.06	7.55	9.71	11.56	14.97	17.87
023	SAMPLE	277036-009	6.06	7.55	9.71	11.56	14.96	17.86
024	SAMPLE	277036-010	6.06	7.55	9.71	11.56	14.96	17.86

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 566213784

Date : 05/27/16 Reference : zdm08
Sequence : MSBNA07 zer Analyzed : 04/22/16 23:48

#	Type	Sample ID	DCBZ14D4	NAPHD8	ACEND10	PHEND10	CHYD12	PERYD12
		ICAL STD	923637	3264864	1698108	2995337	2754055	2653024
		LOWER LIMIT	461819	1632432	849054	1497669	1377028	1326512
		UPPER LIMIT	1847274	6529728	3396216	5990674	5508110	5306048
003	CCV	CCV	1161239	4260808	2189473	3775737	3752549	3418380
008	MS	QC837120	1017668	3711158	2211787	3478500	2989163	2634469
009	MSD	QC837121	996090	3736726	2239369	3559389	3070519	2745163
010	SAMPLE	277038-006	1123444	4420089	2677704	4368641	3958709	3542345
011	SAMPLE	277038-003	1143922	4432090	2707573	4474614	4279216	3827103
012	SAMPLE	277038-009	1137825	4421019	2728428	4537925	4291038	3897075
013	SAMPLE	277038-010	1141360	4484061	2751593	4568615	4370237	3909686
014	SAMPLE	277038-011	1144881	4430467	2748868	4497945	4284026	3786693
015	SAMPLE	277038-012	1140509	4490249	2741021	4570239	4327139	3898655
016	CCV	CCV	1296613	4652900	2443979	4181186	4099829	3640045

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 566213784

Date : 05/27/16 Reference : zdm08
Sequence : MSBNA07 zer Analyzed : 04/22/16 23:48

#	Type	Sample ID	DCBZ14D4 RT	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		ICAL STD	6.21	7.71	9.87	11.73	15.18	18.22
		LOWER LIMIT	6.04	7.54	9.70	11.56	15.01	18.05
		UPPER LIMIT	6.38	7.88	10.04	11.90	15.34	18.38
003	CCV	CCV	6.05	7.55	9.70	11.55 *	14.96 *	17.84 *
016	CCV	CCV	6.05	7.55	9.71	11.56	14.96 *	17.85 *

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 566213784

Date : 05/27/16
Sequence : MSBNA07 zer

Reference : zer03
Analyzed : 05/27/16 11:51

#	Type	Sample ID	DCBZ14D4 RT	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		CCV+CCV/BS+CCV/LCS+ICV+ICV/BS+ICV/CCV+ICV/LCS+RCCV+RICV STD	6.05	7.55	9.70	11.55	14.96	17.84
		LOWER LIMIT	5.89	7.38	9.54	11.38	14.79	17.67
		UPPER LIMIT	6.22	7.71	9.87	11.72	15.12	18.01
008	MS	QC837120	6.06	7.55	9.70	11.56	14.96	17.85
009	MSD	QC837121	6.06	7.55	9.70	11.56	14.96	17.85
010	SAMPLE	277038-006	6.05	7.54	9.70	11.55	14.95	17.85
011	SAMPLE	277038-003	6.05	7.54	9.70	11.55	14.95	17.85
012	SAMPLE	277038-009	6.05	7.54	9.70	11.55	14.95	17.85
013	SAMPLE	277038-010	6.05	7.54	9.70	11.55	14.95	17.84
014	SAMPLE	277038-011	6.05	7.54	9.70	11.55	14.95	17.85
015	SAMPLE	277038-012	6.05	7.54	9.70	11.55	14.95	17.85

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 586212309

Date : 05/26/16 Reference : reg09
Sequence : MSBNA09 req Analyzed : 05/16/16 21:59

#	Type	Sample ID	DCBZ14D4	NAPHD8	ACEND10	PHEND10	CHYD12	PERYD12
		ICAL STD	837764	3631586	1966533	4064903	3496403	2927888
		LOWER LIMIT	418882	1815793	983267	2032452	1748202	1463944
		UPPER LIMIT	1675528	7263172	3933066	8129806	6992806	5855776
003	CCV	CCV	1061658	4130287	2145122	4509354	3792322	3453636
011	SAMPLE	277036-010	1011534	3755706	2259922	4284602	3736560	2069398
012	SAMPLE	277038-002	356627 *	2802562	2418358	4498138	3695009	2209101
013	SAMPLE	277038-003	977692	3663988	2145295	4144547	3517271	1900848
014	SAMPLE	277038-004	728116	4134870	2476707	4636646	3626457	1987130
015	SAMPLE	277038-005	1017350	3762020	2283611	4269890	3423261	1624340
016	SAMPLE	277038-006	637270	4078091	2337612	4405507	3425136	1968086
017	CCV	CCV	993660	3893231	2119487	4632873	3322621	1668765

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 586212309

Date : 05/26/16 Reference : reg09
Sequence : MSBNA09 req Analyzed : 05/16/16 21:59

#	Type	Sample ID	DCBZ14D4 RT	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		ICAL STD	6.25	7.75	9.91	11.76	15.22	18.29
		LOWER LIMIT	6.08	7.58	9.74	11.60	15.05	18.12
		UPPER LIMIT	6.42	7.91	10.08	11.93	15.39	18.45
003	CCV	CCV	6.25	7.75	9.91	11.76	15.23	18.29
017	CCV	CCV	6.25	7.75	9.91	11.76	15.22	18.29

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 586212309

Date : 05/26/16
Sequence : MSBNA09 req

Reference : req03
Analyzed : 05/26/16 11:11

#	Type	Sample ID	DCBZ14D4 RT	NAPHD8 RT	ACEND10 RT	PHEND10 RT	CHYD12 RT	PERYD12 RT
		CCV+CCV/BS+CCV/LCS+ICV+ICV/BS+ICV/CCV+ICV/LCS+RCCV+RICV STD	6.25	7.75	9.91	11.76	15.23	18.29
		LOWER LIMIT	6.08	7.58	9.74	11.60	15.06	18.13
		UPPER LIMIT	6.42	7.91	10.08	11.93	15.39	18.46
011	SAMPLE	277036-010	6.25	7.75	9.90	11.76	15.22	18.30
012	SAMPLE	277038-002	6.25	7.74	9.90	11.76	15.22	18.29
013	SAMPLE	277038-003	6.25	7.74	9.90	11.76	15.22	18.29
014	SAMPLE	277038-004	6.25	7.75	9.90	11.76	15.23	18.30
015	SAMPLE	277038-005	6.25	7.75	9.90	11.76	15.22	18.29
016	SAMPLE	277038-006	6.25	7.75	9.90	11.76	15.22	18.29

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 546189808

Instrument : MSBNA05 Begun : 05/10/16 19:28
Method : EPA 8270D SOP Version : bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	xea01	IB	IB			05/10/16 19:28	1.0		?t
002	xea02	TUN	DFTPP/PEM			05/10/16 19:56	1.0	1	
003	xea03	ICAL	ICAL			05/10/16 20:33	1.0	2	
004	xea04	ICAL	ICAL			05/10/16 21:14	1.0	3	
005	xea05	ICAL	ICAL			05/10/16 21:57	1.0	4	
006	xea06	ICAL	ICAL			05/10/16 22:41	1.0	5	
007	xea07	ICAL	ICAL			05/10/16 23:25	1.0	6	
008	xea08	ICAL	ICAL			05/11/16 00:08	1.0	7	
009	xea09	ICAL	ICAL			05/11/16 00:51	1.0	8	
010	xea10	ICAL	ICAL			05/11/16 01:31	1.0	9	
011	xea11	ICAL	ICAL			05/11/16 02:13	1.0	10	
012	xea12	ICV	ICV			05/11/16 02:55	1.0	11	1:BZD=120
013	xea13	IB	IB			05/11/16 19:01	1.0		<<t
014	xea14	TUN	DFTPP/PEM			05/11/16 19:29	1.0	1	t
015	xea15	TUN	DFTPP/PEM			05/11/16 19:45	1.0	1	
016	xea16	ICV	ICV			05/11/16 20:11	1.0	11 12	

KMH 05/11/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 16.

Standards used: 1=S29605 2=S28846 3=S28847 4=S28848 5=S28849 6=S28850 7=S28851 8=S28852 9=S28853 10=S28854 11=S29716 12=S28660

Flags used: <<t=out of clock ?t=missing tune t=tune failure

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 546212333

Instrument : MSBNA05 Begun : 05/26/16 10:53
Method : EPA 8270D SOP Version : bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	xeq01	IB	IB			05/26/16 10:53	1.0		?t
002	xeq02	TUN	DFTPP/PEM			05/26/16 11:20	1.0	1	
003	xeq03	CCV	CCV			05/26/16 11:44	1.0	2	
004	xeq04	BLANK	QC837118	Soil	235475	05/26/16 12:28	1.0	3	
005	xeq05	LCS	QC837119	Soil	235475	05/26/16 13:06	1.0	3	
006	xeq06	BLANK	QC837123	Water	235477	05/26/16 13:49	1.0	3	
007	xeq07	BS	QC837124	Water	235477	05/26/16 14:30	1.0	3	spk
008	xeq08	BSD	QC837125	Water	235477	05/26/16 15:10	1.0	3	spk
009	xeq09	BLANK	QC836720	Soil	235371	05/26/16 15:54	1.0	3	
010	xeq10	LCS	QC836721	Soil	235371	05/26/16 16:32	1.0	3	
011	xeq11	BLANK	QC836932	Soil	235426	05/26/16 17:23	1.0	3	
012	xeq12	LCS	QC836933	Soil	235426	05/26/16 18:00	1.0	3	
013	xeq13	MS	QC836934	Soil	235426	05/26/16 18:38	1.0	3	
014	xeq14	MSD	QC836935	Soil	235426	05/26/16 19:18	1.0	3	
015	xeq15	MSS	277038-001	Soil	235475	05/26/16 20:09	1.0	3	
016	xeq16	MS	QC837120	Soil	235475	05/26/16 20:50	1.0	3	
017	xeq17	MSD	QC837121	Soil	235475	05/26/16 21:32	1.0	3	
018	xeq18	CCV	CCV			05/26/16 22:11	1.0	2	

ICK 05/26/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 9.

PMM 05/27/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 10 through 18.

Standards used: 1=S29605 2=S28768 3=S29766
Flags used: ?t=missing tune spk=5% spike rule
Page 1 of 1

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 546213750

Instrument : MSBNA05 Begun : 05/27/16 10:30
Method : EPA 8270D SOP Version : bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	xer01	IB	IB			05/27/16 10:30	1.0		?t
002	xer02	TUN	DFTPP/PEM			05/27/16 10:58	1.0	1	t
003	xer03	CCV	CCV			05/27/16 11:23	1.0	2	t
004	xer04	TUN	DFTPP/PEM			05/27/16 11:58	1.0	1	
005	xer05	CCV	CCV			05/27/16 12:20	1.0	2	
006	xer06	BLANK	QC837118	Soil	235475	05/27/16 15:45	1.0	3	
007	xer07	LCS	QC837119	Soil	235475	05/27/16 16:27	1.0	3	
008	xer08	SAMPLE	277038-002	Soil	235475	05/27/16 17:12	2.0	3	
009	xer09	MSS	277038-001	Soil	235475	05/27/16 19:25	1.0	3	
010	xer10	SAMPLE	277038-004	Soil	235475	05/27/16 20:14	1.0	3	
011	xer11	SAMPLE	277038-005	Soil	235475	05/27/16 20:59	8.33	3	
012	xer12	SAMPLE	277038-006	Soil	235475	05/27/16 21:46	2.0	3	high NT
013	xer13	SAMPLE	277038-007	Soil	235475	05/27/16 22:32	1.0	3	
014	xer14	SAMPLE	277038-008	Soil	235475	05/27/16 23:18	1.0	3	
015	xer15	CCV	CCV			05/28/16 00:05	1.0	2	<<t

ICK 05/27/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 8.

KMH 05/28/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 15.

Standards used: 1=S29605 2=S28768 3=S29766

Flags used: <<t=out of clock ?t=missing tune t=tune failure

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 566163756

Instrument : MSBNA07 Begun : 04/22/16 17:16
Method : EPA 8270D SOP Version : bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	zdm01	IB	IB			04/22/16 17:16	1.0		?t
002	zdm02	TUN	DFTPP/PEM			04/22/16 17:45	1.0	1	
003	zdm03	ICAL	ICAL			04/22/16 20:45	1.0	2	
004	zdm04	ICAL	ICAL			04/22/16 21:20	1.0	3	
005	zdm05	ICAL	ICAL			04/22/16 21:57	1.0	4	
006	zdm06	ICAL	ICAL			04/22/16 22:34	1.0	5	
007	zdm07	ICAL	ICAL			04/22/16 23:11	1.0	6	
008	zdm08	ICAL	ICAL			04/22/16 23:48	1.0	7	
009	zdm09	ICAL	ICAL			04/23/16 00:25	1.0	8	
010	zdm10	ICAL	ICAL			04/23/16 01:01	1.0	9	
011	zdm11	ICAL	ICAL			04/23/16 01:38	1.0	10	
012	zdm12	ICV	ICV			04/23/16 02:15	1.0	11	

KMH 04/23/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 12.

Standards used: 1=S29605 2=S28846 3=S28847 4=S28848 5=S28849 6=S28850 7=S28851 8=S28852 9=S28853 10=S28854 11=S29716
Flags used: ?t=missing tune

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 566212319

Instrument : MSBNA07 Begun : 05/26/16 10:39
Method : EPA 8270D SOP Version : bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	zeq01	IB	IB			05/26/16 10:39	1.0		?t
002	zeq02	TUN	DFTPP/PEM			05/26/16 11:08	1.0	1	
003	zeq03	CCV	CCV			05/26/16 11:26	1.0	2	cc-
004	zeq04	TUN	DFTPP/PEM			05/26/16 17:48	1.0	1	
005	zeq05	CCV	CCV			05/26/16 18:06	1.0	2	cc-
006	zeq06	TUN	DFTPP/PEM			05/26/16 19:55	1.0	1	t
007	zeq07	TUN	DFTPP/PEM			05/26/16 20:10	1.0	1	
008	zeq08	CCV	CCV			05/26/16 20:29	1.0	2	
009	zeq09	SAMPLE	277038-007	Soil	235475	05/26/16 21:27	1.0	3	
010	zeq10	SAMPLE	277038-008	Soil	235475	05/26/16 22:04	1.0	3	
011	zeq11	SAMPLE	277038-009	Soil	235475	05/26/16 22:43	20.0	3	
012	zeq12	SAMPLE	277038-010	Soil	235475	05/26/16 23:21	10.0	3	
013	zeq13	SAMPLE	277038-011	Soil	235475	05/26/16 23:58	5.0	3	
014	zeq14	SAMPLE	277038-012	Soil	235475	05/27/16 00:37	8.33	3	
015	zeq15	SAMPLE	277036-001	Soil	235371	05/27/16 01:15	8.33	3	
016	zeq16	MSS	277036-002	Soil	235371	05/27/16 01:52	10.0	3	
017	zeq17	SAMPLE	277036-003	Soil	235371	05/27/16 02:30	5.0	3	
018	zeq18	SAMPLE	277036-004	Soil	235371	05/27/16 03:08	5.0	3	
019	zeq19	SAMPLE	277036-005	Soil	235371	05/27/16 03:46	20.0	3	
020	zeq20	SAMPLE	277036-006	Soil	235371	05/27/16 04:23	10.0	3	
021	zeq21	SAMPLE	277036-007	Soil	235371	05/27/16 05:02	10.0	3	
022	zeq22	SAMPLE	277036-008	Soil	235426	05/27/16 05:40	10.0	3	
023	zeq23	SAMPLE	277036-009	Soil	235426	05/27/16 06:17	10.0	3	
024	zeq24	SAMPLE	277036-010	Soil	235475	05/27/16 06:53	10.0	3	
025	zeq25	CCV	CCV			05/27/16 07:31	1.0	2	
026	zeq26	SAMPLE	277048-005	Soil	235371	05/27/16 08:08	1.0	3	cs
027	zeq27	SAMPLE	277100-001	Water	235370	05/27/16 08:45	1.0	3	cs <<t
028	zeq28	SAMPLE	277050-008	Water	235370	05/27/16 09:21	10.0	3	cs <<t , diluted (client history)

PMM 05/27/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 28.

PMM 05/27/16 : Using third TUN/CCV set, reopened for TUN clock.

ICK 05/27/16 : Adjusted TUN after runs 5 and 6.

Standards used: 1=S29605 2=S28768 3=S29766

Flags used: -=low bias <<t=out of clock ?t=missing tune cc=CCV CCC failure cs=CCV SPCC failure t=tune failure

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 566213784

Instrument : MSBNA07 Begun : 05/27/16 11:04
Method : EPA 8270D SOP Version : bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	zer01	IB	IB			05/27/16 11:04	1.0		?t
002	zer02	TUN	DFTPP/PEM			05/27/16 11:33	1.0	1	
003	zer03	CCV	CCV			05/27/16 11:51	1.0	2	
004	zer04	SAMPLE	277105-001	Soil	235475	05/27/16 12:35	150.0	3	
005	zer05	SAMPLE	277105-001	Soil	235475	05/27/16 13:29	100.0	3	
006	zer06	SAMPLE	277105-002	Soil	235475	05/27/16 14:06	50.0	3	
007	zer07	SAMPLE	277105-002	Soil	235475	05/27/16 15:23	50.0	3	
008	zer08	MS	QC837120	Soil	235475	05/27/16 15:59	1.0	3	1:MEPH4=67
009	zer09	MSD	QC837121	Soil	235475	05/27/16 16:36	1.0	3	1:MEPH4=59
010	zer10	SAMPLE	277038-006	Soil	235475	05/27/16 17:14	2.0	3	high NT
011	zer11	SAMPLE	277038-003	Soil	235475	05/27/16 19:29	5.0	3	
012	zer12	SAMPLE	277038-009	Soil	235475	05/27/16 20:15	20.0	3	
013	zer13	SAMPLE	277038-010	Soil	235475	05/27/16 20:51	10.0	3	
014	zer14	SAMPLE	277038-011	Soil	235475	05/27/16 21:28	5.0	3	
015	zer15	SAMPLE	277038-012	Soil	235475	05/27/16 22:07	8.33	3	
016	zer16	CCV	CCV			05/27/16 22:45	1.0	2	

ICK 05/27/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 10.

KMH 05/28/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 16.

Standards used: 1=S29605 2=S28768 3=S29766

Flags used: ?t=missing tune

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 586198243

Instrument : MSBNA09 Begun : 05/16/16 16:03
Method : EPA 8270C, EPA 8270D SOP Version : bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	reg01	IB	IB			05/16/16 16:03	1.0		?t
002	reg02	TUN	DFTPP/PEM			05/16/16 16:29	1.0	1	t
003	reg03	TUN	DFTPP/PEM			05/16/16 18:53	1.0	1	
004	reg04	ICAL	ICAL			05/16/16 19:29	1.0	2	
005	reg05	ICAL	ICAL			05/16/16 19:59	1.0	3	
006	reg06	ICAL	ICAL			05/16/16 20:29	1.0	4	
007	reg07	ICAL	ICAL			05/16/16 20:59	1.0	5	
008	reg08	ICAL	ICAL			05/16/16 21:29	1.0	6	
009	reg09	ICAL	ICAL			05/16/16 21:59	1.0	7	
010	reg10	ICAL	ICAL			05/16/16 22:30	1.0	8	
011	reg11	ICAL	ICAL			05/16/16 23:01	1.0	9	
012	reg12	ICAL	ICAL			05/16/16 23:32	1.0	10	
013	reg13	ICV	ICV			05/17/16 00:02	1.0	11	1:BZD=130
014	reg14	IB	IB			05/17/16 00:29	1.0		
015	reg15	ICAL	ICAL			05/17/16 00:42	1.0	12	
016	reg16	ICAL	ICAL			05/17/16 00:56	1.0	13	
017	reg17	ICAL	ICAL			05/17/16 01:10	1.0	14	
018	reg18	ICAL	ICAL			05/17/16 01:24	1.0	15	
019	reg19	ICAL	ICAL			05/17/16 01:37	1.0	16	
020	reg20	ICAL	ICAL			05/17/16 01:51	1.0	17	
021	reg21	ICAL	ICAL			05/17/16 02:05	1.0	18	
022	reg22	ICAL	ICAL			05/17/16 02:19	1.0	19	
023	reg23	ICV	ICV			05/17/16 02:32	1.0	20	

PMM 05/17/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 23.

Standards used: 1=S29605 2=S28846 3=S28847 4=S28848 5=S28849 6=S28850 7=S28851 8=S28852 9=S28853 10=S28854 11=S29716 12=S29198 13=S29199 14=S29200 15=S29201 16=S29202 17=S29203 18=S29204 19=S29205 20=S29206

Flags used: ?t=missing tune t=tune failure

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 586212309

Instrument : MSBNA09 Begun : 05/26/16 10:29
Method : EPA 8270D SOP Version : bna_rv13

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	req01	IB	IB			05/26/16 10:29	1.0		?t
002	req02	TUN	DFTPP/PEM			05/26/16 10:55	1.0	1	
003	req03	CCV	CCV			05/26/16 11:11	1.0	2	
004	req04	SAMPLE	277113-001	Soil	235475	05/26/16 13:02	5.0	3	1:FLA=61
005	req05	SAMPLE	277113-001	Soil	235475	05/26/16 13:43	8.33	3	
006	req06	SAMPLE	277132-001	Water	235477	05/26/16 14:42	50.0	3	spk
007	req07	BS	QC837124	Water	235477	05/26/16 15:54	1.0	3	spk
008	req08	BSD	QC837125	Water	235477	05/26/16 16:24	1.0	3	spk
009	req09	SAMPLE	276968-003	Soil	235426	05/26/16 17:24	6.25	3	
010	req10	SAMPLE	276968-006	Soil	235426	05/26/16 17:54	6.25	3	
011	req11	SAMPLE	277036-010	Soil	235475	05/26/16 18:55	10.0	3	
012	req12	SAMPLE	277038-002	Soil	235475	05/26/16 19:25	2.0	3	
013	req13	SAMPLE	277038-003	Soil	235475	05/26/16 19:55	5.0	3	
014	req14	SAMPLE	277038-004	Soil	235475	05/26/16 20:41	1.0	3	
015	req15	SAMPLE	277038-005	Soil	235475	05/26/16 21:12	8.33	3	
016	req16	SAMPLE	277038-006	Soil	235475	05/26/16 21:42	1.0	3	2:PH2F=64
017	req17	CCV	CCV			05/26/16 22:13	1.0	2	

ICK 05/26/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 7.

PMM 05/27/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 8 through 17.

Standards used: 1=S29605 2=S28768 3=S29766
Flags used: ?t=missing tune spk=5% spike rule
Page 1 of 1

SAMPLE PREPARATION SUMMARY

Batch # : 235475
Started By : MC1
Method : 3550B
Spike #1 ID : S29699
Prep Date : 25-MAY-2016 16:15
SOP Version : 8270_3550_rv15
Spike #2 ID : S29953
Analysis : 8060
Finished By : MC1
Units : g

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
277036-010		Soil	29.67	1	1	0.0337		.4				8270	
277038-001		Soil	30.29	1	1	0.03301		.4				8270	
277038-002		Soil	29.69	1	1	0.03368		.4				8270	
277038-003		Soil	29.83	1	1	0.03352		.4				8270	
277038-004		Soil	29.57	1	1	0.03382		.4				8270	
277038-005		Soil	30.45	1	1	0.03284		.4				8270	
277038-006		Soil	30.23	1	1	0.03308		.4				8270	
277038-007		Soil	29.82	1	1	0.03353		.4				8270	
277038-008		Soil	30.2	1	1	0.03311		.4				8270	
277038-009		Soil	29.56	1	1	0.03383		.4				8270	
277038-010		Soil	29.71	1	1	0.03366		.4				8270	
277038-011		Soil	30.22	1	1	0.03309		.4				8270	
277038-012		Soil	29.65	1	1	0.03373		.4				8270	
277105-001		Soil	29.84	1	1	0.03351		.4				8060, 8100	
277105-002		Soil	29.75	5	1	0.1681		.4				8100	
277113-001		Soil	30.13	1	1	0.03319		.4				8100	
277146-001		Soil	29.83	1	1	0.03352		.4				8270	
277153-001		Soil	29.77	1	1	0.03359		.4				8270	
277153-004		Soil	29.73	1	1	0.03364		.4				8270	
QC837118	BLANK	Soil	30.02	1	1	0.03331		.4				8270	
QC837119	LCS	Soil	29.82	1	1	0.03353		.4	1			8270	
QC837120	MS	Soil	30	1	1	0.03333		.4	1			8270	
QC837121	MSD	Soil	30.28	1	1	0.03303		.4	1			8270	

LW 05/26/16 : Paperwork, Blank and LCS reviewed

LW 06/17/16 : Reviewed for all but 277036 and 277038

Analyst: ICK Date: 05/26/16 Reviewer: LW Date: 06/29/16

BNA Soil Prep Log — Curtis & Tompkins, Ltd.

LIMS Batch No: 235475 — Extraction Method: ☒ EPA 3550b Sonication ☐ Other _____ — Page: 62 — **BK 3839**

LIMS Analysis 8270

Date Extracted: 5-25-16

	Sample #	Container ID	Weight of Sample (g)	Final Volume (mL)	Cleanup (x if needed)	Comments
	277 036 -10	G	29.67	☒ 1.0 ☐		
	277 038 -001		30.29	☒ 1.0 ☐		MSS
	-2		29.69	☒ 1.0 ☐		
	-3		29.83	☒ 1.0 ☐		
5	-4		29.57	☒ 1.0 ☐		
	-5		30.45	☒ 1.0 ☐		
	-6		30.23	☒ 1.0 ☐		
	-7		29.82	☒ 1.0 ☐		
	-8		30.2	☒ 1.0 ☐		
10	-9		29.56	☒ 1.0 ☐		sample was inside a plastic jar
	-10		29.71	☒ 1.0 ☐		
	-11		30.22	☒ 1.0 ☐		
	-12		29.65	☒ 1.0 ☐		
	277 105 -001	G	29.84	☒ 1.0 ☐		
15	-2	G	29.75	☐ 1.0 ☒ 5		Very viscous
	277 113-001	G	30.13	☒ 1.0 ☐		Rocky
	277 146-001	C	29.83	☒ 1.0 ☐		
	277 153-001	comp	29.77	☒ 1.0 ☐		comp 277 153 (A-H) at 300g
	4		29.73	☒ 1.0 ☐		(A-D)
20	MB BC837118	NA	30.02	☒ 1.0 ☐		
	LCS 19		29.82	☒ 1.0 ☐		
	MS 20		30.00	☒ 1.0 ☐		
	MSD 21		30.28	☒ 1.0 ☐		
				☐ 1.0 ☐		
				☐ 1.0 ☐		FZY 5/26/16

☐ MS/MSD not included due to: ☐ insufficent volume, or ☐ other (reason) _____

☒ Balance ID: Dish1 Has been calibrated? ☒ Yes ☐ No

	Mfg & Lot # / LIMS # / Time	Date/Initials
Baked, CH_2Cl_2-rinsed granular Na_2SO_4 used for QC & to dry samples	EM YB16L	5-25-16 VC
0.4 mL of surrogate solution was added to all samples	S 296699 A	
1.0 mL of matrix spiking solution was added to all spikes	S 299533 A	
≥100mL 1:1 CH_2Cl_2:Acetone was added to all: CH_2Cl_2	EM55341	
Acetone	FC160453	
Solvent was added at (time)	16:15	
☒ sonicated 3 times w/ ≥100mL ☐ soxhlet extractors on at:	✓	
soxhlets off at:	NA	
Extracts filtered through baked, CH_2Cl_2-rinsed powdered Na_2SO_4	EM0835 C506	
Concentrated to final volume at temperature (degrees C)	A75455-A66190	
Used thermometer(s) #	70°	
Relinquished to BNA department	✓	

05-25-16

Extraction Chemist / Date

Continued from page ____

Continued on page ____

5/26/16

Reviewed by / Date

Dilutions for 277038 MSBNA Soil
Curtis & Tompkins Laboratories

Type	Sample ID	IDFs
SAMPLE	277038-002	2X
SAMPLE	277038-003	5X
SAMPLE	277038-005	8.33X
SAMPLE	277038-006	2X
SAMPLE	277038-009	20X
SAMPLE	277038-010	10X
SAMPLE	277038-011	5X
SAMPLE	277038-012	8.33X

Case Narrative Addendum: Manual Integrations for 277038 MSBNA (Soil)

For MSS 277038-001 (MSBNA05 xeq15):
Benzo(a)anthracene: Picked or reassigned peak.
Benzo(k)fluoranthene: Picked or reassigned peak.
Chrysene: Corrected automatically drawn baseline.

For SAMPLE 277038-002 (MSBNA05 xer08):
Acenaphthene: Picked or reassigned peak.
Benzo(a)anthracene: Corrected automatically drawn baseline.
Benzo(k)fluoranthene: Picked or reassigned peak.
Chrysene: Corrected automatically drawn baseline.

For SAMPLE 277038-003 (MSBNA09 req13):
Anthracene: Picked or reassigned peak.
Benzo(a)anthracene: Corrected automatically drawn baseline.
Benzo(k)fluoranthene: Picked or reassigned peak.
Chrysene: Corrected automatically drawn baseline.

For SAMPLE 277038-004 (MSBNA05 xer10):
Benzo(a)anthracene: Picked or reassigned peak.
Benzo(k)fluoranthene: Picked or reassigned peak.
Chrysene: Corrected automatically drawn baseline.
2,4,6-Tribromophenol: Picked or reassigned peak.

For SAMPLE 277038-004 (MSBNA09 req14):
Anthracene: Picked or reassigned peak.
Benzo(a)anthracene: Corrected automatically drawn baseline.
Benzo(k)fluoranthene: Picked or reassigned peak.
Chrysene: Corrected automatically drawn baseline.
2-Fluorophenol: Corrected automatically drawn baseline.
Phenol-d5: Corrected automatically drawn baseline.

For SAMPLE 277038-005 (MSBNA09 req15):
Benzo(a)anthracene: Corrected automatically drawn baseline.
Chrysene: Corrected automatically drawn baseline.

For SAMPLE 277038-006 (MSBNA05 xer12):
2,4,6-Tribromophenol: Picked or reassigned peak.

For SAMPLE 277038-007 (MSBNA05 xer13):
2,4,6-Tribromophenol: Picked or reassigned peak.

For SAMPLE 277038-008 (MSBNA05 xer14):
Nitrobenzene-d5: Picked or reassigned peak.

For SAMPLE 277038-009 (MSBNA07 zeq11):
1,4-Dichlorobenzene-d4: Picked or reassigned peak.

For SAMPLE 277038-009 (MSBNA07 zer12):
1,4-Dichlorobenzene-d4: Picked or reassigned peak.

For SAMPLE 277038-010 (MSBNA07 zer13):
1,4-Dichlorobenzene-d4: Picked or reassigned peak.

For SAMPLE 277038-010 (MSBNA07 zeq12):

Benzo(a)anthracene: Corrected automatically drawn baseline.
Chrysene: Corrected automatically drawn baseline.

For SAMPLE 277038-011 (MSBNA07 zeq13):
Benzo(a)anthracene: Corrected automatically drawn baseline.
Chrysene: Corrected automatically drawn baseline.
1,4-Dichlorobenzene-d4: Picked or reassigned peak.

For SAMPLE 277038-012 (MSBNA07 zeq14):
Benzo(a)anthracene: Corrected automatically drawn baseline.
Benzo(b)fluoranthene: Corrected automatically drawn baseline.
Benzo(k)fluoranthene: Picked or reassigned peak.
Chrysene: Corrected automatically drawn baseline.
1,4-Dichlorobenzene-d4: Picked or reassigned peak.

For CCV (MSBNA07 zer16):
Aniline: Picked or reassigned peak.
Nitrobenzene: Picked or reassigned peak.
2-Nitrophenol: Picked or reassigned peak.

For CCV (MSBNA07 zer03):
Aniline: Picked or reassigned peak.
Nitrobenzene: Picked or reassigned peak.

For CCV (MSBNA05 xer05):
Aniline: Picked or reassigned peak.
3-Nitroaniline: Picked or reassigned peak.
4-Nitroaniline: Corrected automatically drawn baseline.
4-Nitrophenol: Corrected automatically drawn baseline.
2,4,5-Trichlorophenol: Corrected automatically drawn baseline.

For CCV (MSBNA07 zeq08):
Aniline: Picked or reassigned peak.
Benzoic acid: Corrected automatically drawn baseline.
Nitrobenzene: Picked or reassigned peak.

For CCV (MSBNA09 req17):
Aniline: Picked or reassigned peak.

For CCV (MSBNA05 xer15):
Aniline: Picked or reassigned peak.
3-Nitroaniline: Picked or reassigned peak.

For CCV (MSBNA09 req03):
Aniline: Picked or reassigned peak.

For CCV (MSBNA05 xeq03):
Aniline: Picked or reassigned peak.

For CCV (MSBNA07 zeq25):
Aniline: Picked or reassigned peak.
bis(2-Chloroethyl)ether: Corrected automatically drawn baseline.
4-Nitroaniline: Corrected automatically drawn baseline.
Nitrobenzene: Picked or reassigned peak.

For CCV (MSBNA05 xeq18):
Aniline: Picked or reassigned peak.
3-Nitroaniline: Picked or reassigned peak.

For LCS QC837119 (MSBNA05 xeq05):
Aniline: Picked or reassigned peak.

For MSD QC837121 (MSBNA05 xeq17):
Aniline: Picked or reassigned peak for spike & dup.
4-Chlorophenyl-phenylether: Picked or reassigned peak for spike.
N-Nitroso-di-n-propylamine: Corrected automatically drawn baseline for spike.
Nitrobenzene-d5: Picked or reassigned peak for dup.

For Calibration MSBNA07 (566163756001):
Acenaphthene: Corrected automatically drawn baseline in ICAL (zdm09).
Aniline: Picked or reassigned peak in multiple levels.
Aniline: Corrected automatically drawn baseline in multiple levels.
bis(2-Chloroethyl)ether: Corrected automatically drawn baseline in multiple levels.
Benzoic acid: Corrected automatically drawn baseline in ICAL (zdm05).
Benzo(k)fluoranthene: Picked or reassigned peak in multiple levels.
4-Chloroaniline: Corrected automatically drawn baseline in multiple levels.
2,4-Dimethylphenol: Picked or reassigned peak in multiple levels.
2,4-Dinitrotoluene: Picked or reassigned peak in multiple levels.
Isophorone: Picked or reassigned peak in multiple levels.
4-Methylphenol: Corrected automatically drawn baseline in multiple levels.
N-Nitrosodimethylamine: Picked or reassigned peak in ICAL (zdm06).
N-Nitrosodimethylamine: Corrected automatically drawn baseline in multiple levels.
N-Nitroso-di-n-propylamine: Picked or reassigned peak in multiple levels.
3-Nitroaniline: Corrected automatically drawn baseline in multiple levels.
4-Nitroaniline: Corrected automatically drawn baseline in multiple levels.
Nitrobenzene: Picked or reassigned peak in all levels.
2-Nitrophenol: Picked or reassigned peak in multiple levels.
4-Nitrophenol: Picked or reassigned peak in multiple levels.
Phenol: Picked or reassigned peak in ICAL (zdm11).
Phenol-d5: Picked or reassigned peak in ICAL (zdm11).
Pyridine: Corrected automatically drawn baseline in ICAL (zdm10).

For ICV (MSBNA07 zdm12):
Aniline: Picked or reassigned peak.
4-Chloroaniline: Corrected automatically drawn baseline.
2,4-Dimethylphenol: Picked or reassigned peak.
Nitrobenzene: Picked or reassigned peak.

For Calibration MSBNA05 (546189808001):
Aniline: Picked or reassigned peak in all levels.
Benzo(b)fluoranthene: Picked or reassigned peak in multiple levels.
Benzidine: Corrected automatically drawn baseline in ICAL (xea04).
Benzo(k)fluoranthene: Corrected automatically drawn baseline in multiple levels.
4-Chloroaniline: Corrected automatically drawn baseline in multiple levels.
4-Methylphenol: Corrected automatically drawn baseline in ICAL (xea11).
3-Nitroaniline: Picked or reassigned peak in multiple levels.
3-Nitroaniline: Corrected automatically drawn baseline in multiple levels.
4-Nitroaniline: Corrected automatically drawn baseline in ICAL (xea05).

For ICV (MSBNA05 xea12):
Aniline: Picked or reassigned peak.
3-Nitroaniline: Picked or reassigned peak.

For Calibration MSBNA09 (586198243002):
Aniline: Picked or reassigned peak in all levels.

bis(2-Chloroethyl)ether: Corrected automatically drawn baseline in multiple levels.
Benzoic acid: Corrected automatically drawn baseline in multiple levels.
Benzidine: Corrected automatically drawn baseline in ICAL (reg04).
4-Chloroaniline: Corrected automatically drawn baseline in ICAL (reg05).
4,6-Dinitro-2-methylphenol: Corrected automatically drawn baseline in ICAL (reg04).
2,4-Dinitrophenol: Corrected automatically drawn baseline in ICAL (reg05).
3-Nitroaniline: Corrected automatically drawn baseline in ICAL (reg06).
4-Nitroaniline: Corrected automatically drawn baseline in multiple levels.
4-Nitrophenol: Corrected automatically drawn baseline in multiple levels.
2,4,5-Trichlorophenol: Corrected automatically drawn baseline in ICAL (reg04).

For ICV (MSBNA09 reg13):
Aniline: Picked or reassigned peak.

CAS Registry Numbers for 277038 MSBNA Soil
Curtis & Tompkins Laboratories

Analyte	CAS RN
1,2,4-Trichlorobenzene	120-82-1
1,2-Dichlorobenzene	95-50-1
1,3-Dichlorobenzene	541-73-1
1,4-Dichlorobenzene	106-46-7
2,4,5-Trichlorophenol	95-95-4
2,4,6-Tribromophenol	118-79-6
2,4,6-Trichlorophenol	88-06-2
2,4-Dichlorophenol	120-83-2
2,4-Dimethylphenol	105-67-9
2,4-Dinitrophenol	51-28-5
2,4-Dinitrotoluene	121-14-2
2,6-Dinitrotoluene	606-20-2
2-Chloronaphthalene	91-58-7
2-Chlorophenol	95-57-8
2-Fluorobiphenyl	321-60-8
2-Fluorophenol	367-12-4
2-Methylnaphthalene	91-57-6
2-Methylphenol	95-48-7
2-Nitroaniline	88-74-4
2-Nitrophenol	88-75-5
3,3'-Dichlorobenzidine	91-94-1
3-Nitroaniline	99-09-2
4,6-Dinitro-2-methylphenol	534-52-1
4-Bromophenyl-phenylether	101-55-3
4-Chloro-3-methylphenol	59-50-7
4-Chloroaniline	106-47-8
4-Chlorophenyl-phenylether	7005-72-3
4-Methylphenol	106-44-5
4-Nitroaniline	100-01-6
4-Nitrophenol	100-02-7
Acenaphthene	83-32-9
Acenaphthylene	208-96-8
Anthracene	120-12-7
Azobenzene	103-33-3
Benzo(a)anthracene	56-55-3
Benzo(a)pyrene	50-32-8
Benzo(b)fluoranthene	205-99-2
Benzo(g,h,i)perylene	191-24-2
Benzo(k)fluoranthene	207-08-9
Benzoic acid	65-85-0
Benzyl alcohol	100-51-6
bis(2-Chloroethoxy)methane	111-91-1
bis(2-Chloroethyl)ether	111-44-4
bis(2-Chloroisopropyl) ether	108-60-1
bis(2-Ethylhexyl)phthalate	117-81-7
Butylbenzylphthalate	85-68-7
Carbazole	86-74-8
Chrysene	218-01-9
Di-n-butylphthalate	84-74-2
Di-n-octylphthalate	117-84-0
Dibenz(a,h)anthracene	53-70-3
Dibenzofuran	132-64-9
Diethylphthalate	84-66-2
Dimethylphthalate	131-11-3

Analyte	CAS RN
Fluoranthene	206-44-0
Fluorene	86-73-7
Hexachlorobenzene	118-74-1
Hexachlorobutadiene	87-68-3
Hexachlorocyclopentadiene	77-47-4
Hexachloroethane	67-72-1
Indeno(1,2,3-cd)pyrene	193-39-5
Isophorone	78-59-1
N-Nitroso-di-n-propylamine	621-64-7
N-Nitrosodimethylamine	62-75-9
N-Nitrosodiphenylamine	86-30-6
Naphthalene	91-20-3
Nitrobenzene	98-95-3
Nitrobenzene-d5	4165-60-0
Pentachlorophenol	87-86-5
Phenanthrene	85-01-8
Phenol	108-95-2
Phenol-d5	4165-62-2
Pyrene	129-00-0
Terphenyl-d14	1718-51-0

Laboratory Job Number 277038

ANALYTICAL REPORT

Pesticides

Matrix: Soil

Curtis & Tompkins, Ltd.

Organochlorine Pesticides

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8081B
Field ID:	BS-BERNARD-01-051916	Batch#:	235358
Lab ID:	277038-001	Sampled:	05/19/16
Matrix:	Soil	Received:	05/20/16
Units:	ug/Kg	Prepared:	05/23/16
Basis:	dry	Analyzed:	05/27/16
Diln Fac:	3.000		

Moisture: 9%

Analyte	Result	LOQ	DL
alpha-BHC	1.9 U	5.7	0.84
beta-BHC	3.9 U	5.7	1.6
gamma-BHC	1.9 U	5.7	0.72
delta-BHC	1.9 U	5.7	0.82
Heptachlor	1.9 U	5.7	0.82
Aldrin	1.9 U	5.7	0.87
Heptachlor epoxide	1.9 U	5.7	0.88
Endosulfan I	1.9 U	5.7	0.85
Dieldrin	3.8 U	5.7	1.4
4,4'-DDE	3.8 U	11	1.6
Endrin	3.8 U	11	1.6
Endosulfan II	3.8 U	11	1.4
Endosulfan sulfate	3.8 U	11	1.7
4,4'-DDD	3.8 U	11	1.1
Endrin ketone	3.8 U	11	1.1
Endrin aldehyde	3.8 U	11	1.9
4,4'-DDT	3.8 U	11	1.1
alpha-Chlordane	1.9 U	5.7	0.80
gamma-Chlordane	3.9 U	5.7	1.0
Methoxychlor	19 U	57	8.8
Toxaphene	100 U	200	39

Surrogate	%REC	Limits
TCMX	50	42-129
Decachlorobiphenyl	46	39-121

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Organochlorine Pesticides

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8081B
Field ID:	BS-BERNARD-02-051916	Batch#:	235358
Lab ID:	277038-002	Sampled:	05/19/16
Matrix:	Soil	Received:	05/20/16
Units:	ug/Kg	Prepared:	05/23/16
Basis:	dry	Analyzed:	05/27/16
Diln Fac:	3.000		

Moisture: 9%

Analyte	Result	LOQ	DL
alpha-BHC	1.9 U	5.7	0.84
beta-BHC	3.9 U	5.7	1.6
gamma-BHC	1.9 U	5.7	0.73
delta-BHC	1.9 U	5.7	0.82
Heptachlor	1.9 U	5.7	0.83
Aldrin	1.9 U	5.7	0.87
Heptachlor epoxide	1.9 U	5.7	0.88
Endosulfan I	1.9 U	5.7	0.85
Dieldrin	3.8 U	5.7	1.4
4,4'-DDE	3.8 U	11	1.6
Endrin	3.8 U	11	1.6
Endosulfan II	3.8 U	11	1.4
Endosulfan sulfate	3.8 U	11	1.7
4,4'-DDD	3.8 U	11	1.1
Endrin ketone	3.8 U	11	1.1
Endrin aldehyde	3.8 U	11	1.9
4,4'-DDT	3.8 U	11	1.1
alpha-Chlordane	1.9 U	5.7	0.80
gamma-Chlordane	3.9 U	5.7	1.0
Methoxychlor	19 U	57	8.8
Toxaphene	100 U	200	39

Surrogate	%REC	Limits
TCMX	53	42-129
Decachlorobiphenyl	51	39-121

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Organochlorine Pesticides

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8081B
Field ID:	BS-BERNARD-03-051916	Batch#:	235358
Lab ID:	277038-003	Sampled:	05/19/16
Matrix:	Soil	Received:	05/20/16
Units:	ug/Kg	Prepared:	05/23/16
Basis:	dry	Analyzed:	05/27/16
Diln Fac:	3.000		

Moisture: 8%

Analyte	Result	LOQ	DL
alpha-BHC	1.8 U	5.5	0.82
beta-BHC	3.8 U	5.5	1.5
gamma-BHC	1.8 U	5.5	0.71
delta-BHC	1.8 U	5.5	0.80
Heptachlor	1.8 U	5.5	0.80
Aldrin	1.8 U	5.5	0.85
Heptachlor epoxide	1.8 U	5.5	0.86
Endosulfan I	1.8 U	5.5	0.82
Dieldrin	3.7 U	5.5	1.4
4,4'-DDE	3.7 U	11	1.5
Endrin	3.7 U	11	1.6
Endosulfan II	3.7 U	11	1.4
Endosulfan sulfate	3.7 U	11	1.6
4,4'-DDD	3.7 U	11	1.1
Endrin ketone	3.7 U	11	1.0
Endrin aldehyde	3.7 U	11	1.9
4,4'-DDT	1.4 C J	11	1.1
alpha-Chlordane	0.93 C J	5.5	0.78
gamma-Chlordane	3.8 U	5.5	0.98
Methoxychlor	18 U	55	8.6
Toxaphene	97 U	190	38

Surrogate	%REC	Limits
TCMX	68	42-129
Decachlorobiphenyl	61	39-121

C= Presence confirmed, but RPD between columns exceeds 40%
J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Organochlorine Pesticides

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8081B
Field ID:	BS-BERNARD-04-051916	Batch#:	235358
Lab ID:	277038-004	Sampled:	05/19/16
Matrix:	Soil	Received:	05/20/16
Units:	ug/Kg	Prepared:	05/23/16
Basis:	dry	Analyzed:	05/27/16
Diln Fac:	3.000		

Moisture: 9%

Analyte	Result	LOQ	DL
alpha-BHC	1.9 U	5.7	0.84
beta-BHC	3.9 U	5.7	1.6
gamma-BHC	1.9 U	5.7	0.73
delta-BHC	1.9 U	5.7	0.82
Heptachlor	1.9 U	5.7	0.83
Aldrin	1.9 U	5.7	0.87
Heptachlor epoxide	1.9 U	5.7	0.89
Endosulfan I	1.9 U	5.7	0.85
Dieldrin	3.8 U	5.7	1.4
4,4'-DDE	3.8 U	11	1.6
Endrin	3.8 U	11	1.6
Endosulfan II	3.8 U	11	1.4
Endosulfan sulfate	3.8 U	11	1.7
4,4'-DDD	3.8 U	11	1.1
Endrin ketone	3.8 U	11	1.1
Endrin aldehyde	3.8 U	11	1.9
4,4'-DDT	1.7 C J	11	1.1
alpha-Chlordane	1.9 U	5.7	0.80
gamma-Chlordane	3.9 U	5.7	1.0
Methoxychlor	19 U	57	8.8
Toxaphene	100 U	200	39

Surrogate	%REC	Limits
TCMX	53	42-129
Decachlorobiphenyl	48	39-121

C= Presence confirmed, but RPD between columns exceeds 40%
J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Organochlorine Pesticides

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8081B
Field ID:	BS-BERNARD-05-051916	Batch#:	235358
Lab ID:	277038-005	Sampled:	05/19/16
Matrix:	Soil	Received:	05/20/16
Units:	ug/Kg	Prepared:	05/23/16
Basis:	dry	Analyzed:	05/27/16
Diln Fac:	3.000		

Moisture: 9%

Analyte	Result	LOQ	DL
alpha-BHC	1.9 U	5.6	0.83
beta-BHC	3.8 U	5.6	1.6
gamma-BHC	1.9 U	5.6	0.72
delta-BHC	1.9 U	5.6	0.81
Heptachlor	1.9 U	5.6	0.82
Aldrin	1.9 U	5.6	0.86
Heptachlor epoxide	1.9 U	5.6	0.87
Endosulfan I	1.9 U	5.6	0.84
Dieldrin	3.7 U	5.6	1.4
4,4'-DDE	3.7 U	11	1.5
Endrin	3.7 U	11	1.6
Endosulfan II	3.7 U	11	1.4
Endosulfan sulfate	3.7 U	11	1.7
4,4'-DDD	3.7 U	11	1.1
Endrin ketone	3.7 U	11	1.1
Endrin aldehyde	3.7 U	11	1.9
4,4'-DDT	2.1 C J	11	1.1
alpha-Chlordane	1.0 C J	5.6	0.79
gamma-Chlordane	3.8 U	5.6	1.0
Methoxychlor	19 U	56	8.7
Toxaphene	99 U	200	38

Surrogate	%REC	Limits
TCMX	61	42-129
Decachlorobiphenyl	68	39-121

C= Presence confirmed, but RPD between columns exceeds 40%
J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Organochlorine Pesticides

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8081B
Field ID:	BS-BERNARD-06-051916	Batch#:	235358
Lab ID:	277038-006	Sampled:	05/19/16
Matrix:	Soil	Received:	05/20/16
Units:	ug/Kg	Prepared:	05/23/16
Basis:	dry	Analyzed:	05/27/16
Diln Fac:	3.000		

Moisture: 11%

Analyte	Result	LOQ	DL
alpha-BHC	1.9 U	5.8	0.86
beta-BHC	4.0 U	5.8	1.6
gamma-BHC	1.9 U	5.8	0.74
delta-BHC	1.9 U	5.8	0.84
Heptachlor	1.9 U	5.8	0.85
Aldrin	1.9 U	5.8	0.89
Heptachlor epoxide	1.9 U	5.8	0.90
Endosulfan I	1.9 U	5.8	0.87
Dieldrin	3.9 U	5.8	1.5
4,4'-DDE	3.9 U	11	1.6
Endrin	3.9 U	11	1.7
Endosulfan II	3.9 U	11	1.5
Endosulfan sulfate	3.9 U	11	1.7
4,4'-DDD	3.9 U	11	1.2
Endrin ketone	3.9 U	11	1.1
Endrin aldehyde	3.9 U	11	1.9
4,4'-DDT	3.9 U	11	1.1
alpha-Chlordane	1.9 U	5.8	0.82
gamma-Chlordane	6.6 C	5.8	1.0
Methoxychlor	19 U	58	9.0
Toxaphene	100 U	200	40

Surrogate	%REC	Limits
TCMX	49	42-129
Decachlorobiphenyl	58	39-121

C= Presence confirmed, but RPD between columns exceeds 40%
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Organochlorine Pesticides

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8081B
Field ID:	BS-BERNARD-07-051916	Batch#:	235358
Lab ID:	277038-007	Sampled:	05/19/16
Matrix:	Soil	Received:	05/20/16
Units:	ug/Kg	Prepared:	05/23/16
Basis:	dry	Analyzed:	05/27/16
Diln Fac:	3.000		

Moisture: 9%

Analyte	Result	LOQ	DL
alpha-BHC	1.9 U	5.7	0.84
beta-BHC	3.9 U	5.7	1.6
gamma-BHC	1.9 U	5.7	0.73
delta-BHC	1.9 U	5.7	0.82
Heptachlor	1.9 U	5.7	0.83
Aldrin	1.9 U	5.7	0.87
Heptachlor epoxide	1.9 U	5.7	0.89
Endosulfan I	1.9 U	5.7	0.85
Dieldrin	3.8 U	5.7	1.4
4,4'-DDE	3.8 U	11	1.6
Endrin	3.8 U	11	1.6
Endosulfan II	3.8 U	11	1.4
Endosulfan sulfate	3.8 U	11	1.7
4,4'-DDD	3.8 U	11	1.1
Endrin ketone	3.8 U	11	1.1
Endrin aldehyde	3.8 U	11	1.9
4,4'-DDT	3.8 U	11	1.1
alpha-Chlordane	1.9 U	5.7	0.80
gamma-Chlordane	3.9 U	5.7	1.0
Methoxychlor	19 U	57	8.8
Toxaphene	100 U	200	39

Surrogate	%REC	Limits
TCMX	67	42-129
Decachlorobiphenyl	64	39-121

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Organochlorine Pesticides

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8081B
Field ID:	BS-BERNARD-08-051916	Batch#:	235358
Lab ID:	277038-008	Sampled:	05/19/16
Matrix:	Soil	Received:	05/20/16
Units:	ug/Kg	Prepared:	05/23/16
Basis:	dry	Analyzed:	05/27/16
Diln Fac:	3.000		

Moisture: 12%

Analyte	Result	LOQ	DL
alpha-BHC	1.9 U	5.8	0.86
beta-BHC	4.0 U	5.8	1.6
gamma-BHC	1.9 U	5.8	0.74
delta-BHC	1.9 U	5.8	0.84
Heptachlor	1.9 U	5.8	0.85
Aldrin	1.9 U	5.8	0.89
Heptachlor epoxide	1.9 U	5.8	0.90
Endosulfan I	1.9 U	5.8	0.87
Dieldrin	3.9 U	5.8	1.5
4,4'-DDE	3.9 U	11	1.6
Endrin	3.9 U	11	1.7
Endosulfan II	3.9 U	11	1.5
Endosulfan sulfate	3.9 U	11	1.7
4,4'-DDD	3.9 U	11	1.2
Endrin ketone	3.9 U	11	1.1
Endrin aldehyde	3.9 U	11	2.0
4,4'-DDT	3.9 U	11	1.1
alpha-Chlordane	1.9 U	5.8	0.82
gamma-Chlordane	7.2 C	5.8	1.0
Methoxychlor	19 U	58	9.0
Toxaphene	100 U	200	40

Surrogate	%REC	Limits
TCMX	63	42-129
Decachlorobiphenyl	64	39-121

C= Presence confirmed, but RPD between columns exceeds 40%
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Organochlorine Pesticides

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8081B
Field ID:	BS-BERNARD-09-051916	Batch#:	235358
Lab ID:	277038-009	Sampled:	05/19/16
Matrix:	Soil	Received:	05/20/16
Units:	ug/Kg	Prepared:	05/23/16
Basis:	dry	Analyzed:	05/27/16
Diln Fac:	3.000		

Moisture: 8%

Analyte	Result	LOQ	DL
alpha-BHC	1.9 U	5.6	0.82
beta-BHC	3.8 U	5.6	1.5
gamma-BHC	1.9 U	5.6	0.71
delta-BHC	1.9 U	5.6	0.81
Heptachlor	1.9 U	5.6	0.81
Aldrin	1.9 U	5.6	0.86
Heptachlor epoxide	1.9 U	5.6	0.87
Endosulfan I	1.9 U	5.6	0.83
Dieldrin	3.7 U	5.6	1.4
4,4'-DDE	9.9 J	11	1.5
Endrin	3.7 U	11	1.6
Endosulfan II	3.7 U	11	1.4
Endosulfan sulfate	3.7 U	11	1.7
4,4'-DDD	2.9 C J	11	1.1
Endrin ketone	3.7 U	11	1.0
Endrin aldehyde	3.7 U	11	1.9
4,4'-DDT	4.9 J	11	1.1
alpha-Chlordane	2.6 C J	5.6	0.78
gamma-Chlordane	3.8 U	5.6	0.99
Methoxychlor	19 U	56	8.7
Toxaphene	98 U	200	38

Surrogate	%REC	Limits
TCMX	61	42-129
Decachlorobiphenyl	55	39-121

C= Presence confirmed, but RPD between columns exceeds 40%
J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Organochlorine Pesticides

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8081B
Field ID:	BS-BERNARD-10-051916	Batch#:	235358
Lab ID:	277038-010	Sampled:	05/19/16
Matrix:	Soil	Received:	05/20/16
Units:	ug/Kg	Prepared:	05/23/16
Basis:	dry	Analyzed:	05/27/16
Diln Fac:	3.000		

Moisture: 9%

Analyte	Result	LOQ	DL
alpha-BHC	1.8 U	5.5	0.82
beta-BHC	3.8 U	5.5	1.5
gamma-BHC	1.8 U	5.5	0.71
delta-BHC	1.8 U	5.5	0.80
Heptachlor	1.8 U	5.5	0.81
Aldrin	1.8 U	5.5	0.85
Heptachlor epoxide	1.8 U	5.5	0.86
Endosulfan I	1.8 U	5.5	0.83
Dieldrin	3.7 U	5.5	1.4
4,4'-DDE	1.7 J	11	1.5
Endrin	3.7 U	11	1.6
Endosulfan II	3.7 U	11	1.4
Endosulfan sulfate	3.7 U	11	1.6
4,4'-DDD	3.6 J	11	1.1
Endrin ketone	3.7 U	11	1.0
Endrin aldehyde	3.7 U	11	1.9
4,4'-DDT	2.2 C J	11	1.1
alpha-Chlordane	1.4 C J	5.5	0.78
gamma-Chlordane	3.8 U	5.5	0.99
Methoxychlor	18 U	55	8.6
Toxaphene	98 U	200	38

Surrogate	%REC	Limits
TCMX	58	42-129
Decachlorobiphenyl	55	39-121

C= Presence confirmed, but RPD between columns exceeds 40%
J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Organochlorine Pesticides

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8081B
Field ID:	BS-BERNARD-11-051916	Batch#:	235428
Lab ID:	277038-011	Sampled:	05/19/16
Matrix:	Soil	Received:	05/20/16
Units:	ug/Kg	Prepared:	05/24/16
Basis:	dry	Analyzed:	05/27/16
Diln Fac:	3.000		

Moisture: 7%

Analyte	Result	LOQ	DL
alpha-BHC	1.8 U	5.4	0.80
beta-BHC	3.7 U	5.4	1.2
gamma-BHC	0.71 C J	5.4	0.70
delta-BHC	1.8 U	5.4	0.79
Heptachlor	1.8 U	5.4	0.72
Aldrin	1.8 U	5.4	0.83
Heptachlor epoxide	2.8 C J	5.4	0.85
Endosulfan I	1.8 U	5.4	0.81
Dieldrin	2.0 C J	5.4	1.4
4,4'-DDE	7.7 C J b	11	1.1
Endrin	3.0 C J	11	1.6
Endosulfan II	3.6 U	11	1.4
Endosulfan sulfate	3.6 U	11	1.1
4,4'-DDD	3.6 U	11	1.1
Endrin ketone	3.6 U	11	1.0
Endrin aldehyde	3.6 U	11	1.8
4,4'-DDT	16 C	11	1.4
alpha-Chlordane	5.7 C	5.4	0.58
gamma-Chlordane	6.4 C	5.4	0.56
Methoxychlor	18 U	54	8.4
Toxaphene	96 U	190	37

Surrogate	%REC	Limits
TCMX	74	42-129
Decachlorobiphenyl	71	39-121

C= Presence confirmed, but RPD between columns exceeds 40%
J= Estimated value
U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Organochlorine Pesticides

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8081B
Field ID:	BS-BERNARD-12-051916	Batch#:	235428
Lab ID:	277038-012	Sampled:	05/19/16
Matrix:	Soil	Received:	05/20/16
Units:	ug/Kg	Prepared:	05/24/16
Basis:	dry	Analyzed:	05/27/16
Diln Fac:	3.000		

Moisture: 6%

Analyte	Result	LOQ	DL
alpha-BHC	1.8 U	5.4	0.80
beta-BHC	3.7 U	5.4	1.2
gamma-BHC	1.8 U	5.4	0.69
delta-BHC	1.8 U	5.4	0.78
Heptachlor	1.8 U	5.4	0.72
Aldrin	1.8 U	5.4	0.83
Heptachlor epoxide	1.8 U	5.4	0.84
Endosulfan I	1.8 U	5.4	0.80
Dieldrin	3.6 U	5.4	1.4
4,4'-DDE	3.6 U	10	1.0
Endrin	3.6 U	10	1.6
Endosulfan II	1.7 C J	10	1.4
Endosulfan sulfate	3.6 U	10	1.1
4,4'-DDD	3.6 U	10	1.1
Endrin ketone	3.6 U	10	1.0
Endrin aldehyde	3.6 U	10	1.8
4,4'-DDT	5.6 J	10	1.0
alpha-Chlordane	5.1 C J	5.4	0.57
gamma-Chlordane	4.3 C J	5.4	0.55
Methoxychlor	18 U	54	8.3
Toxaphene	95 U	190	37

Surrogate	%REC	Limits
TCMX	61	42-129
Decachlorobiphenyl	54	39-121

C= Presence confirmed, but RPD between columns exceeds 40%
J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Organochlorine Pesticides

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8081B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC836659	Batch#:	235358
Matrix:	Soil	Prepared:	05/23/16
Units:	ug/Kg	Analyzed:	05/27/16

Analyte	Result	LOQ	DL
alpha-BHC	0.57 U	1.7	0.25
beta-BHC	1.2 U	1.7	0.48
gamma-BHC	0.57 U	1.7	0.22
delta-BHC	0.57 U	1.7	0.25
Heptachlor	0.57 U	1.7	0.25
Aldrin	0.57 U	1.7	0.26
Heptachlor epoxide	0.57 U	1.7	0.27
Endosulfan I	0.57 U	1.7	0.26
Dieldrin	1.1 U	1.7	0.44
4,4'-DDE	1.1 U	3.3	0.48
Endrin	1.1 U	3.3	0.50
Endosulfan II	1.1 U	3.3	0.44
Endosulfan sulfate	1.1 U	3.3	0.51
4,4'-DDD	1.1 U	3.3	0.35
Endrin ketone	1.1 U	3.3	0.32
Endrin aldehyde	1.1 U	3.3	0.58
4,4'-DDT	1.1 U	3.3	0.34
alpha-Chlordane	0.57 U	1.7	0.24
gamma-Chlordane	1.2 U	1.7	0.31
Methoxychlor	5.7 U	17	2.7
Toxaphene	30 U	61	12

Surrogate	%REC	Limits
TCMX	89	42-129
Decachlorobiphenyl	90	39-121

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Organochlorine Pesticides

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8081B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC836663	Batch#:	235358
Matrix:	Soil	Prepared:	05/23/16
Units:	ug/Kg	Analyzed:	05/27/16

Analyte	Spiked	Result	%REC	Limits
alpha-BHC	13.40	13.88	104	45-137
beta-BHC	13.40	12.80	96	50-136
gamma-BHC	13.40	13.74	103	49-135
delta-BHC	13.40	13.38	100	47-139
Heptachlor	13.40	13.79	103	47-136
Aldrin	13.40	13.78	103	45-136
Heptachlor epoxide	13.40	13.90	104	52-136
Endosulfan I	13.40	13.73	103	53-132
Dieldrin	13.40	14.48	108	56-136
4,4'-DDE	13.40	10.80	81	56-134
Endrin	13.40	14.03	105	57-140
Endosulfan II	13.40	11.76	88	53-134
Endosulfan sulfate	13.40	10.75	80	55-136
4,4'-DDD	13.40	13.19	98	56-139
Endrin ketone	13.40	12.40	93	55-136
Endrin aldehyde	13.40	5.970 b	45	35-137
4,4'-DDT	13.40	13.36	100	50-141
alpha-Chlordane	13.40	14.15	106	54-133
gamma-Chlordane	13.40	14.10	105	53-135
Methoxychlor	147.4	120.9	82	52-143

Surrogate	%REC	Limits
TCMX	102	42-129
Decachlorobiphenyl	86	39-121

b= See narrative

Curtis & Tompkins, Ltd.

Batch QC Report

Organochlorine Pesticides

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8081B
Field ID:	BS-BERNARD-05-051916	Batch#:	235358
MSS Lab ID:	277038-005	Sampled:	05/19/16
Matrix:	Soil	Received:	05/20/16
Units:	ug/Kg	Prepared:	05/23/16
Basis:	dry	Analyzed:	05/27/16
Diln Fac:	3.000		

Type: MS Moisture: 9%
Lab ID: QC836664

Analyte	MSS Result	Spiked	Result	%REC	Limits
alpha-BHC	<0.8289	14.77	10.93 b	74	45-137
beta-BHC	<1.553	14.77	8.850	60	50-136
gamma-BHC	<0.7172	14.77	9.548 b	65	49-135
delta-BHC	<0.8116	14.77	8.602	58	47-139
Heptachlor	<0.8166	14.77	8.935	61	47-136
Aldrin	<0.8608	14.77	9.236	63	45-136
Heptachlor epoxide	<0.8732	14.77	9.989	68	52-136
Endosulfan I	<0.8377	14.77	8.662	59	53-132
Dieldrin	<1.428	14.77	10.33	70	56-136
4,4'-DDE	<1.549	14.77	9.678	66	56-134
Endrin	<1.624	14.77	9.259	63	57-140
Endosulfan II	<1.428	14.77	7.963	54	53-134
Endosulfan sulfate	<1.660	14.77	8.798	60	55-136
4,4'-DDD	<1.127	14.77	9.101	62	56-139
Endrin ketone	<1.054	14.77	8.435	57	55-136
Endrin aldehyde	<1.883	14.77	8.572 b	58	35-137
4,4'-DDT	2.113	14.77	10.79	59	50-141
alpha-Chlordane	1.008	14.77	10.09	61	54-133
gamma-Chlordane	<0.9977	14.77	10.13	69	53-135
Methoxychlor	<8.698	162.4	104.2	64	52-143

Surrogate	%REC	Limits
TCMX	63	42-129
Decachlorobiphenyl	42	39-121

b= See narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Organochlorine Pesticides

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8081B
Field ID:	BS-BERNARD-05-051916	Batch#:	235358
MSS Lab ID:	277038-005	Sampled:	05/19/16
Matrix:	Soil	Received:	05/20/16
Units:	ug/Kg	Prepared:	05/23/16
Basis:	dry	Analyzed:	05/27/16
Diln Fac:	3.000		

Type: MSD Moisture: 9%
Lab ID: QC836665

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
alpha-BHC	14.82	11.70 b	79	45-137	6	30
beta-BHC	14.82	9.933	67	50-136	11	30
gamma-BHC	14.82	10.83 b	73	49-135	12	30
delta-BHC	14.82	9.321	63	47-139	8	30
Heptachlor	14.82	9.837	66	47-136	9	30
Aldrin	14.82	10.40	70	45-136	11	30
Heptachlor epoxide	14.82	11.58	78	52-136	14	30
Endosulfan I	14.82	9.493	64	53-132	9	30
Dieldrin	14.82	11.56	78	56-136	11	30
4,4'-DDE	14.82	11.08	75	56-134	13	30
Endrin	14.82	10.54	71	57-140	13	30
Endosulfan II	14.82	9.054	61	53-134	12	30
Endosulfan sulfate	14.82	9.933	67	55-136	12	30
4,4'-DDD	14.82	10.46	71	56-139	14	30
Endrin ketone	14.82	9.481	64	55-136	11	30
Endrin aldehyde	14.82	8.659 b	58	35-137	1	30
4,4'-DDT	14.82	12.40	69	50-141	14	30
alpha-Chlordane	14.82	10.68	65	54-133	5	30
gamma-Chlordane	14.82	11.98	81	53-135	16	30
Methoxychlor	163.0	121.1	74	52-143	15	30

Surrogate	%REC	Limits
TCMX	71	42-129
Decachlorobiphenyl	49	39-121

b= See narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Organochlorine Pesticides

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8081B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC836940	Batch#:	235428
Matrix:	Soil	Prepared:	05/24/16
Units:	ug/Kg	Analyzed:	05/25/16

Analyte	Result	LOQ	DL
alpha-BHC	0.29 U	0.86	0.12
beta-BHC	0.59 U	0.86	0.20
gamma-BHC	0.59 U	0.86	0.20
delta-BHC	0.29 U	0.86	0.10
Heptachlor	0.59 U	0.86	0.19
Aldrin	0.59 U	0.86	0.21
Heptachlor epoxide	0.33 C J	0.86	0.12
Endosulfan I	0.59 U	0.86	0.16
Dieldrin	0.57 U	0.86	0.23
4,4'-DDE	0.77 J	1.7	0.22
Endrin	0.60 C J	1.7	0.29
Endosulfan II	0.57 U	1.7	0.24
Endosulfan sulfate	0.57 U	1.7	0.24
4,4'-DDD	0.57 U	1.7	0.24
Endrin ketone	0.57 U	1.7	0.24
Endrin aldehyde	0.57 U	1.7	0.20
4,4'-DDT	0.57 U	1.7	0.22
alpha-Chlordane	0.29 U	0.86	0.13
gamma-Chlordane	0.59 U	0.86	0.18
Methoxychlor	2.9 U	8.6	1.3
Toxaphene	15 U	30	7.3

Surrogate	%REC	Limits
TCMX	92	42-129
Decachlorobiphenyl	107	39-121

C= Presence confirmed, but RPD between columns exceeds 40%
J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Organochlorine Pesticides

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8081B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC836941	Batch#:	235428
Matrix:	Soil	Prepared:	05/24/16
Units:	ug/Kg	Analyzed:	05/27/16

Analyte	Spiked	Result	%REC	Limits
alpha-BHC	13.45	12.90 b	96	45-137
beta-BHC	13.45	11.83	88	50-136
gamma-BHC	13.45	12.79 b	95	49-135
delta-BHC	13.45	12.21	91	47-139
Heptachlor	13.45	12.13	90	47-136
Aldrin	13.45	12.58	94	45-136
Heptachlor epoxide	13.45	13.66	102	52-136
Endosulfan I	13.45	12.59	94	53-132
Dieldrin	13.45	14.53	108	56-136
4,4'-DDE	13.45	13.80	103	56-134
Endrin	13.45	13.49	100	57-140
Endosulfan II	13.45	12.35	92	53-134
Endosulfan sulfate	13.45	12.20	91	55-136
4,4'-DDD	13.45	12.88	96	56-139
Endrin ketone	13.45	12.75	95	55-136
Endrin aldehyde	13.45	8.269 b	61	35-137
4,4'-DDT	13.45	16.95	126	50-141
alpha-Chlordane	13.45	12.78	95	54-133
gamma-Chlordane	13.45	13.22	98	53-135
Methoxychlor	148.0	139.1	94	52-143

Surrogate	%REC	Limits
TCMX	88	42-129
Decachlorobiphenyl	79	39-121

b= See narrative

89.0

Curtis & Tompkins, Ltd.

Batch QC Report

Organochlorine Pesticides

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8081B
Field ID:	BS-BERNARD-11-051916	Batch#:	235428
MSS Lab ID:	277038-011	Sampled:	05/19/16
Matrix:	Soil	Received:	05/20/16
Units:	ug/Kg	Prepared:	05/24/16
Basis:	dry	Analyzed:	05/27/16
Diln Fac:	3.000		

Type: MS Moisture: 7%
Lab ID: QC836942

Analyte	MSS Result	Spiked	Result	%REC	Limits
alpha-BHC	<0.8038	14.32	12.18 b	85	45-137
beta-BHC	<1.197	14.32	10.95	76	50-136
gamma-BHC	0.7070	14.32	11.44 b	75	49-135
delta-BHC	<0.7871	14.32	8.924	62	47-139
Heptachlor	<0.7237	14.32	9.527	67	47-136
Aldrin	<0.8348	14.32	10.93	76	45-136
Heptachlor epoxide	2.786	14.32	14.50	82	52-136
Endosulfan I	<0.8124	14.32	9.481	66	53-132
Dieldrin	2.040	14.32	22.65	144 *	56-136
4,4'-DDE	7.742	14.32	14.98	51 *	56-134
Endrin	2.976	14.32	12.37	66	57-140
Endosulfan II	<1.384	14.32	11.47	80	53-134
Endosulfan sulfate	<1.068	14.32	11.14	78	55-136
4,4'-DDD	<1.093	14.32	11.54	81	56-139
Endrin ketone	<1.022	14.32	10.06	70	55-136
Endrin aldehyde	<1.826	14.32	13.48 b	94	35-137
4,4'-DDT	15.78	14.32	32.74	118	50-141
alpha-Chlordane	5.720	14.32	10.10	31 *	54-133
gamma-Chlordane	6.402	14.32	17.52	78	53-135
Methoxychlor	<8.435	157.5	139.7	89	52-143

Surrogate	%REC	Limits
TCMX	73	42-129
Decachlorobiphenyl	53	39-121

*= Value outside of QC limits; see narrative
b= See narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Organochlorine Pesticides

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8081B
Field ID:	BS-BERNARD-11-051916	Batch#:	235428
MSS Lab ID:	277038-011	Sampled:	05/19/16
Matrix:	Soil	Received:	05/20/16
Units:	ug/Kg	Prepared:	05/24/16
Basis:	dry	Analyzed:	05/27/16
Diln Fac:	3.000		

Type: MSD Moisture: 7%
Lab ID: QC836943

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
alpha-BHC	14.28	13.99 b	98	45-137	14	30
beta-BHC	14.28	11.93	84	50-136	9	30
gamma-BHC	14.28	12.85 b	85	49-135	12	30
delta-BHC	14.28	11.58	81	47-139	26	30
Heptachlor	14.28	12.15	85	47-136	25	30
Aldrin	14.28	12.31	86	45-136	12	30
Heptachlor epoxide	14.28	14.05	79	52-136	3	30
Endosulfan I	14.28	10.97	77	53-132	15	30
Dieldrin	14.28	14.37	86	56-136	44 *	30
4,4'-DDE	14.28	15.48	54 *	56-134	4	30
Endrin	14.28	12.70	68	57-140	3	30
Endosulfan II	14.28	11.07	78	53-134	3	30
Endosulfan sulfate	14.28	12.49	88	55-136	12	30
4,4'-DDD	14.28	45.85	321 *	56-139	120 *	30
Endrin ketone	14.28	11.05	77	55-136	10	30
Endrin aldehyde	14.28	11.10 b	78	35-137	19	30
4,4'-DDT	14.28	20.07	30 *	50-141	48 *	30
alpha-Chlordane	14.28	12.56	48 *	54-133	22	30
gamma-Chlordane	14.28	15.14	61	53-135	14	30
Methoxychlor	157.0	155.5	99	52-143	11	30

Surrogate	%REC	Limits
TCMX	91	42-129
Decachlorobiphenyl	61	39-121

*= Value outside of QC limits; see narrative
b= See narrative
RPD= Relative Percent Difference

Confirmation Report for 277038 PEST Soil
Curtis & Tompkins Laboratories

Units: ug/Kg

Lab ID	Client ID	Analyte	Result	Confirmation	RPD	%D
277038-003	BS-BERNARD-03-051916	4,4'-DDT	1.405 J C	4.520	105	222
277038-003	BS-BERNARD-03-051916	alpha-Chlordane	0.9281 J C	3.936	124	324
277038-004	BS-BERNARD-04-051916	4,4'-DDT	1.721 J C	5.326	102	209
277038-005	BS-BERNARD-05-051916	4,4'-DDT	2.113 J C	4.512	72	114
277038-005	BS-BERNARD-05-051916	alpha-Chlordane	1.008 J C	4.451	126	341
277038-006	BS-BERNARD-06-051916	gamma-Chlordane	6.552 C	2.740	82	-58
277038-008	BS-BERNARD-08-051916	gamma-Chlordane	7.177 C	2.751	89	-62
277038-009	BS-BERNARD-09-051916	4,4'-DDE	9.902 J	11.27	13	14
277038-009	BS-BERNARD-09-051916	4,4'-DDD	2.858 J C	4.575	46	60
277038-009	BS-BERNARD-09-051916	4,4'-DDT	4.932 J	5.693	14	15
277038-009	BS-BERNARD-09-051916	alpha-Chlordane	2.636 J C	6.116	80	132
277038-010	BS-BERNARD-10-051916	4,4'-DDE	1.652 J	2.046	21	24
277038-010	BS-BERNARD-10-051916	4,4'-DDD	3.623 J	5.325	38	47
277038-010	BS-BERNARD-10-051916	4,4'-DDT	2.167 J C	4.130	62	91
277038-010	BS-BERNARD-10-051916	alpha-Chlordane	1.364 J C	4.562	108	235
277038-011	BS-BERNARD-11-051916	gamma-BHC	0.7070 J C	2.508	112	255
277038-011	BS-BERNARD-11-051916	Heptachlor epoxide	2.786 J C	4.551	48	63
277038-011	BS-BERNARD-11-051916	Dieldrin	2.040 J C	4.770	80	134
277038-011	BS-BERNARD-11-051916	4,4'-DDE	7.742 J C	1.676	129	-78
277038-011	BS-BERNARD-11-051916	Endrin	2.976 J C	17.41	142	485
277038-011	BS-BERNARD-11-051916	4,4'-DDT	15.78 C	5.945	91	-62
277038-011	BS-BERNARD-11-051916	alpha-Chlordane	5.720 C	1.996	97	-65
277038-011	BS-BERNARD-11-051916	gamma-Chlordane	6.402 C	35.87	139	460
277038-012	BS-BERNARD-12-051916	Endosulfan II	1.674 J C	2.846	52	70
277038-012	BS-BERNARD-12-051916	4,4'-DDT	5.566 J	4.124	30	-26
277038-012	BS-BERNARD-12-051916	alpha-Chlordane	5.142 J C	1.315	119	-74
277038-012	BS-BERNARD-12-051916	gamma-Chlordane	4.278 J C	30.91	151	623

C=RPD between columns exceeds 40% J=estimated

Initial & Continuing Calibration Data

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 277038 PEST Soil: EPA 8081B

Inst : GC23
Calnum : 806207922001
Units : pg/uL

Name : GC23_144
Date : 23-MAY-2016 21:50

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	144_010	806207922010	ISOPEST_1/2	23-MAY-2016 21:50	S29540 (2X)
L2	144_011	806207922011	ISOPEST_1	23-MAY-2016 22:09	S29540
L3	144_012	806207922012	ISOPEST_2	23-MAY-2016 22:27	S29541
L4	144_013	806207922013	ISOPEST_3	23-MAY-2016 22:45	S29542
L5	144_014	806207922014	ISOPEST_4	23-MAY-2016 23:03	S29543
L6	144_015	806207922015	ISOPEST_5	23-MAY-2016 23:21	S29544
L7	144_016	806207922016	ISOPEST_6	23-MAY-2016 23:39	S29545
L8	144_017	806207922017	ISOPEST_7	23-MAY-2016 23:57	S29546

Analyte	Ch	L1	L2	L3	L4	L5	L6	L7	L8	Type	X	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
alpha-BHC	A		8463.5	9835.6	12500	11543	10748	8051.6		QUAD	A	-14002	14618.8	-125.910	10190	0.999	0.990	20	
gamma-BHC	A		7492.5	8713.4	11012	9984.7	9347.8	6984.0		QUAD	A	-11240	12653.3	-109.050	8922.4	0.999	0.990	20	
beta-BHC	A		3408.0	3124.4	3674.9	4111.4	4260.2	3859.8		QUAD	A	-6037.5	4766.83	-15.5305	3739.8	0.999	0.990	20	
delta-BHC	A		7008.5	8629.0	10692	9399.5	8714.1	6253.6		QUAD	A	-9609.1	12076.2	-112.830	8449.4	0.999	0.990	20	
Heptachlor	A		6967.5	7964.8	10029	8912.6	8244.8	5989.8		QUAD	A	-9090.0	11360.0	-103.962	8018.0	0.999	0.990	20	
Aldrin	A		6657.0	7694.6	9521.8	8584.8	7916.5	5725.1		QUAD	A	-9065.9	10951.5	-101.068	7683.3	0.999	0.990	20	
Heptachlor epoxide	A		5370.5	6054.4	7790.1	7324.5	6886.2	5240.1		QUAD	A	-9554.0	9254.62	-76.5265	6444.3	0.999	0.990	20	
gamma-Chlordane	A		5160.0	5853.2	7587.3	7313.6	6915.2	5224.8		QUAD	A	-10933	9343.39	-77.9994	6342.4	0.999	0.990	20	
alpha-Chlordane	A		4962.0	5492.8	7150.0	7105.3	6746.8	5107.3		QUAD	A	-11670	9109.68	-75.3242	6094.0	0.999	0.990	20	
4,4'-DDE	A		4945.0	6064.3	6911.6	5503.6	4989.6	3453.0		QUAD	A	-1686.9	6919.26	-34.6343	5311.2	0.995	0.990	20	
Endosulfan I	A		4735.5	5355.8	7045.2	7055.9	6792.0	5227.0		QUAD	A	-12196	9044.59	-71.3862	6035.2	0.999	0.990	20	
Dieldrin	A	5228.5	5119.5	6388.1	7171.6	5623.3	5042.6			QUAD	A	-11446	8894.82	-72.8918	5762.3	0.998	0.990	20	
Endrin	A		3583.3	4403.5	5607.5	4761.3	4259.0	3087.0		QUAD	A	-7327.4	5990.14	-28.4078	4283.6	0.996	0.990	20	
4,4'-DDD	A	3583.0	3395.3	4099.9	5461.4	4773.5	4354.5	3160.3		QUAD	A	-8146.2	6009.96	-27.7399	4118.3	0.998	0.990	20	
Endosulfan II	A	3874.5	3614.0	4237.1	5687.9	4946.6	4523.4	3329.1		QUAD	A	-7934.8	6183.33	-27.8121	4316.1	0.998	0.990	20	
4,4'-DDT	A	4040.5	3590.5	4379.0	5915.7	5022.0	4559.5	3257.2		QUAD	A	-7888.5	6363.16	-30.3510	4394.9	0.997	0.990	20	
Endrin aldehyde	A	3026.5	2680.0	3099.7	4545.2	4276.2	3997.5	3036.5		QUAD	A	-10199	5334.54	-21.9542	3523.1	0.998	0.990	20	
Methoxychlor	A	1863.5	1695.6	2033.3	2018.2	1431.9	1239.3			AVRG	R		5.84E-4		1713.6	19	0.990	20	
Endosulfan sulfate	A		3146.0	3584.9	5075.9	4704.8	4331.9	3364.5		QUAD	A	-13055	5902.23	-24.1232	4034.7	0.998	0.990	20	
Endrin ketone	A		3578.5	4291.4	5903.0	5024.2	4518.1	3257.2		QUAD	A	-10303	6425.22	-30.7579	4428.7	0.996	0.990	20	
TCMX	A		5576.5	6065.4	7383.6	6933.8	6638.5	5012.0		QUAD	A	-16323	8769.22	-35.9374	6268.3	1.000	0.990	20	
Decachlorobiphenyl	A		2260.0	2448.7	3393.5	3530.0	3321.7	2990.5		QUAD	A	-10362	4083.11	-9.90124	2990.7	0.999	0.990	20	
alpha-BHC	B	1914.0	1567.0	2179.0	2112.6	2211.2	2337.0	2390.2	1934.2	AVRG	R		4.81E-4		2080.6	13	0.990	20	
gamma-BHC	B	1871.0	1480.5	1986.2	1944.4	2042.7	2149.0	2146.4	1673.4	AVRG	R		5.23E-4		1911.7	12	0.990	20	
beta-BHC	B	901.00	678.50	899.80	835.70	846.70	907.20	967.24	862.17	AVRG	R		0.00116		862.29	10	0.990	20	

Analyte	Ch	L1	L2	L3	L4	L5	L6	L7	L8	Type	X	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
delta-BHC	B	1738.0	1252.5	1642.2	1669.7	1723.1	1774.2	1699.6	1255.5	AVRG	R		6.27E-4		1594.4	13	0.990	20	
Heptachlor	B	2118.0	1517.0	2168.8	2104.1	2210.0	2327.6	2119.2	1572.8	AVRG	R		4.96E-4		2017.2	15	0.990	20	
Aldrin	B	2139.0	1807.5	2570.8	2503.5	2597.5	2677.2	2315.7	1646.8	AVRG	R		4.38E-4		2282.2	17	0.990	20	
Heptachlor epoxide	B	1879.0	1522.5	1922.4	1843.1	1882.3	1947.0	1738.9	1249.5	AVRG	R		5.72E-4		1748.1	14	0.990	20	
gamma-Chlordane	B	2044.0	1602.0	2041.6	2005.9	2073.1	2139.4	1906.1	1376.9	AVRG	R		5.27E-4		1898.6	14	0.990	20	
alpha-Chlordane	B	1918.0	1492.0	1945.2	1887.1	1954.2	2046.8	1846.1	1328.4	AVRG	R		5.55E-4		1802.2	14	0.990	20	
4,4'-DDE	B	1819.0	1366.8	1960.5	1910.5	1791.1	1793.8	1392.8		AVRG	R		5.82E-4		1719.2	14	0.990	20	
Endosulfan I	B	1584.0	1241.0	1595.0	1542.8	1576.0	1680.1	1548.5	1155.3	AVRG	R		6.71E-4		1490.3	13	0.990	20	
Dieldrin	B	1804.5	1476.3	1920.6	1871.3	1749.4	1741.2	1348.6		AVRG	R		5.88E-4		1701.7	12	0.990	20	
Endrin	B	1314.5	960.00	1374.6	1343.7	1319.8	1293.9	1054.8		AVRG	R		8.08E-4		1237.3	13	0.990	20	
4,4'-DDD	B	1201.5	824.00	1250.2	1227.3	1233.6	1233.1	1022.2	713.72	AVRG	R		9.19E-4		1088.2	19	0.990	20	
Endosulfan II	B	1098.5	800.75	1127.9	1101.3	1105.0	1119.0	975.10	701.30	AVRG	R		9.96E-4		1003.6	16	0.990	20	
4,4'-DDT	B	1458.5	1003.8	1576.9	1566.9	1525.7	1511.0	1231.2		AVRG	R		7.09E-4		1410.6	15	0.990	20	
Endrin aldehyde	B	919.50	664.25	934.20	915.60	938.80	966.74	877.82	639.66	AVRG	R		0.00117		857.07	15	0.990	20	
Methoxychlor	B	560.60	383.45	573.80	529.52	449.88	420.80			AVRG	R		0.00206		486.34	16	0.990	20	
Endosulfan sulfate	B	1110.5	776.75	1174.3	1150.8	1171.0	1232.3	1175.8	906.24	AVRG	R		9.20E-4		1087.2	15	0.990	20	
Endrin ketone	B	967.50	662.00	984.30	955.35	967.65	988.62	894.00	646.32	AVRG	R		0.00113		883.22	16	0.990	20	
TCMX	B	1671.5	1291.8	1735.8	1707.6	1797.8	1894.0	1937.7	1571.2	AVRG	R		5.88E-4		1700.9	12	0.990	20	
Decachlorobiphenyl	B	1012.0	747.25	1075.8	1074.0	1112.2	1142.8	1144.2	930.57	AVRG	R		9.71E-4		1029.9	13	0.990	20	
Average EPA 8081B	A														(n=23)	18			
Average EPA 8081B	B														(n=23)	14			

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D
alpha-BHC	A			2.0000	8	5.0000	-10	10.000	4	20.000	1	25.000	-2	50.000	0		
gamma-BHC	A			2.0000	6	5.0000	-10	10.000	6	20.000	1	25.000	-2	50.000	0		
beta-BHC	A			2.0000	**36**	5.0000	-8	10.000	-7	20.000	-1	25.000	3	50.000	0		
delta-BHC	A			2.0000	0	5.0000	-9	10.000	7	20.000	1	25.000	-2	50.000	2		
Heptachlor	A			2.0000	3	5.0000	-10	10.000	7	20.000	1	25.000	-2	50.000	1		
Aldrin	A			2.0000	4	5.0000	-9	10.000	5	20.000	2	25.000	-2	50.000	1		
Heptachlor epoxide	A			2.0000	12	5.0000	-11	10.000	3	20.000	1	25.000	-1	50.000	0		
gamma-Chlordane	A			2.0000	16	5.0000	-11	10.000	2	20.000	1	25.000	-1	50.000	0		
alpha-Chlordane	A			2.0000	**21**	5.0000	-11	10.000	-1	20.000	1	25.000	0	50.000	0		
4,4'-DDE	A			4.0000	**-21**	10.000	-5	20.000	14	40.000	0	50.000	-5	100.00	**-100**		
Endosulfan I	A			2.0000	**22**	5.0000	-11	10.000	-1	20.000	1	25.000	0	50.000	0		
Dieldrin	A	2.0000	**26**	4.0000	-7	10.000	-8	20.000	5	40.000	-2	50.000	1				
Endrin	A			4.0000	-8	10.000	-10	20.000	12	40.000	2	50.000	-5	100.00	**-100**		
4,4'-DDD	A	2.0000	**29**	4.0000	-8	10.000	-15	20.000	9	40.000	2	50.000	-3	100.00	1		
Endosulfan II	A	2.0000	**28**	4.0000	-8	10.000	-15	20.000	9	40.000	2	50.000	-3	100.00	1		
4,4'-DDT	A	2.0000	**27**	4.0000	-11	10.000	-15	20.000	11	40.000	2	50.000	-4	100.00	**-100**		
Endrin aldehyde	A	2.0000	**54**	4.0000	0	10.000	-20	20.000	4	40.000	2	50.000	-1	100.00	0		
Methoxychlor	A	10.000	9	20.000	-1	50.000	19	100.00	18	200.00	-16	250.00	**-28**				
Endosulfan sulfate	A			4.0000	11	10.000	-14	20.000	6	40.000	2	50.000	-3	100.00	0		
Endrin ketone	A			4.0000	-2	10.000	-14	20.000	12	40.000	2	50.000	-5	100.00	**-100**		
TCMX	A			4.0000	12	10.000	-9	20.000	2	40.000	0	50.000	0	100.00	0		
Decachlorobiphenyl	A			4.0000	20	10.000	-13	20.000	1	40.000	3	50.000	-2	100.00	0		
alpha-BHC	B	1.0000	-8	2.0000	**-25**	5.0000	5	10.000	2	20.000	6	25.000	12	50.000	15	100.00	-7
gamma-BHC	B	1.0000	-2	2.0000	**-23**	5.0000	4	10.000	2	20.000	7	25.000	12	50.000	12	100.00	-12
beta-BHC	B	1.0000	4	2.0000	**-21**	5.0000	4	10.000	-3	20.000	-2	25.000	5	50.000	12	100.00	0
delta-BHC	B	1.0000	9	2.0000	**-21**	5.0000	3	10.000	5	20.000	8	25.000	11	50.000	7	100.00	**-21**
Heptachlor	B	1.0000	5	2.0000	**-25**	5.0000	8	10.000	4	20.000	10	25.000	15	50.000	5	100.00	**-22**
Aldrin	B	1.0000	-6	2.0000	**-21**	5.0000	13	10.000	10	20.000	14	25.000	17	50.000	1	100.00	**-28**
Heptachlor epoxide	B	1.0000	7	2.0000	-13	5.0000	10	10.000	5	20.000	8	25.000	11	50.000	-1	100.00	**-29**
gamma-Chlordane	B	1.0000	8	2.0000	-16	5.0000	8	10.000	6	20.000	9	25.000	13	50.000	0	100.00	**-27**
alpha-Chlordane	B	1.0000	6	2.0000	-17	5.0000	8	10.000	5	20.000	8	25.000	14	50.000	2	100.00	**-26**
4,4'-DDE	B	2.0000	6	4.0000	**-21**	10.000	14	20.000	11	40.000	4	50.000	4	100.00	-19		
Endosulfan I	B	1.0000	6	2.0000	-17	5.0000	7	10.000	4	20.000	6	25.000	13	50.000	4	100.00	**-22**
Dieldrin	B	2.0000	6	4.0000	-13	10.000	13	20.000	10	40.000	3	50.000	2	100.00	**-21**		
Endrin	B	2.0000	6	4.0000	**-22**	10.000	11	20.000	9	40.000	7	50.000	5	100.00	-15		
4,4'-DDD	B	2.0000	10	4.0000	**-24**	10.000	15	20.000	13	40.000	13	50.000	13	100.00	-6	200.00	**-34**
Endosulfan II	B	2.0000	9	4.0000	-20	10.000	12	20.000	10	40.000	10	50.000	11	100.00	-3	200.00	**-30**
4,4'-DDT	B	2.0000	3	4.0000	**-29**	10.000	12	20.000	11	40.000	8	50.000	7	100.00	-13		
Endrin aldehyde	B	2.0000	7	4.0000	**-22**	10.000	9	20.000	7	40.000	10	50.000	13	100.00	2	200.00	**-25**
Methoxychlor	B	10.000	15	20.000	**-21**	50.000	18	100.00	9	200.00	-7	250.00	-13				
Endosulfan sulfate	B	2.0000	2	4.0000	**-29**	10.000	8	20.000	6	40.000	8	50.000	13	100.00	8	200.00	-17
Endrin ketone	B	2.0000	10	4.0000	**-25**	10.000	11	20.000	8	40.000	10	50.000	12	100.00	1	200.00	**-27**

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D
TCMX	B	2.0000	-2	4.0000	**-24**	10.000	2	20.000	0	40.000	6	50.000	11	100.00	14	200.00	-8
Decachlorobiphenyl	B	2.0000	-2	4.0000	**-27**	10.000	4	20.000	4	40.000	8	50.000	11	100.00	11	200.00	-10

BJP 05/24/16 : Corrected automatically drawn baseline for all channels in multiple levels.

BJP 05/24/16 : Separated from coeluting peak for all channels in multiple levels.

BJP 05/24/16 : Dropped various points for optimal r^2/%RSD.

Analyst: BJP Date: 05/24/16 Reviewer: EAH Date: 05/24/16

X=A: Instrument response = a0 + amount * a1 + amount^2 * a2 (invert equation before quantitating); X=R: Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor; QUAD=Quadratic regression

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 277038 PEST Soil
EPA 8081B

Inst : GC23 Name : GC23_144
Calnum : 806207922001 Cal Date : 23-MAY-2016

ICV 806207922021 (144_021 24-MAY-2016) stds: S29465

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
alpha-BHC	A	20.00	22.01	pg/uL	10	20	
gamma-BHC	A	20.00	21.69	pg/uL	8	20	
beta-BHC	A	20.00	22.50	pg/uL	12	20	
delta-BHC	A	20.00	21.82	pg/uL	9	20	
Heptachlor	A	20.00	21.61	pg/uL	8	20	
Aldrin	A	20.00	21.49	pg/uL	7	20	
Heptachlor epoxide	A	20.00	22.52	pg/uL	13	20	
gamma-Chlordane	A	20.00	21.94	pg/uL	10	20	
alpha-Chlordane	A	20.00	22.32	pg/uL	12	20	
4,4'-DDE	A	20.00	25.82	pg/uL	**29**	20	v+ ***
Endosulfan I	A	20.00	21.93	pg/uL	10	20	
Dieldrin	A	20.00	23.25	pg/uL	**16**	20	
Endrin	A	20.00	23.08	pg/uL	15	20	
4,4'-DDD	A	20.00	23.97	pg/uL	**20**	20	
Endosulfan II	A	20.00	25.22	pg/uL	**26**	20	v+ ***
4,4'-DDT	A	20.00	23.99	pg/uL	**20**	20	
Endrin aldehyde	A	20.00	24.31	pg/uL	**22**	20	v+ ***
Methoxychlor	A	200.0	170.2	pg/uL	-15	20	
Endosulfan sulfate	A	20.00	22.22	pg/uL	11	20	
Endrin ketone	A	20.00	24.97	pg/uL	**25**	20	v+ ***
alpha-BHC	B	20.00	19.23	pg/uL	-4	20	
gamma-BHC	B	20.00	18.72	pg/uL	-6	20	
beta-BHC	B	20.00	17.80	pg/uL	-11	20	
delta-BHC	B	20.00	18.56	pg/uL	-7	20	
Heptachlor	B	20.00	18.56	pg/uL	-7	20	
Aldrin	B	20.00	20.21	pg/uL	1	20	
Heptachlor epoxide	B	20.00	19.28	pg/uL	-4	20	
gamma-Chlordane	B	20.00	19.03	pg/uL	-5	20	
alpha-Chlordane	B	20.00	19.20	pg/uL	-4	20	
4,4'-DDE	B	20.00	18.72	pg/uL	-6	20	
Endosulfan I	B	20.00	18.65	pg/uL	-7	20	
Dieldrin	B	20.00	18.95	pg/uL	-5	20	
Endrin	B	20.00	18.51	pg/uL	-7	20	
4,4'-DDD	B	20.00	18.13	pg/uL	-9	20	
Endosulfan II	B	20.00	18.86	pg/uL	-6	20	
4,4'-DDT	B	20.00	16.92	pg/uL	-15	20	
Endrin aldehyde	B	20.00	18.78	pg/uL	-6	20	
Methoxychlor	B	200.0	154.9	pg/uL	**-23**	20	v- ***
Endosulfan sulfate	B	20.00	16.18	pg/uL	**-19**	20	
Endrin ketone	B	20.00	16.86	pg/uL	**-16**	20	
Average EPA 8081B	A	n=21			15		
Average EPA 8081B	B	n=21			8		

Analyst: BJP Date: 05/24/16 Reviewer: EAH Date: 05/24/16

+=high bias -=low bias v=ICV

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 277038 PEST Soil: EPA 8081B

Inst : GC30
Calnum : 356203640001
Units : pg/uL

Name : gc30_141
Date : 20-MAY-2016 21:46
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	141_009	356203640009	ISOPEST_1/2	20-MAY-2016 21:46	S29540 (2X)
L2	141_010	356203640010	ISOPEST_1	20-MAY-2016 22:02	S29540
L3	141_011	356203640011	ISOPEST_2	20-MAY-2016 22:18	S29541
L4	141_012	356203640012	ISOPEST_3	20-MAY-2016 22:34	S29542
L5	141_013	356203640013	ISOPEST_4	20-MAY-2016 22:50	S29543
L6	141_014	356203640014	ISOPEST_5	20-MAY-2016 23:06	S29544
L7	141_015	356203640015	ISOPEST_6	20-MAY-2016 23:22	S29545
L8	141_016	356203640016	ISOPEST_7	20-MAY-2016 23:38	S29546

Analyte	Ch	L1	L2	L3	L4	L5	L6	L7	L8	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
alpha-BHC	A	4843.0	5052.5	6131.4	5824.0	6385.8	6024.0	4910.8	3429.1	AVRG		1.88E-4		5325.1	18	0.990	20	
gamma-BHC	A	4516.0	4655.0	5512.6	5293.5	5944.0	5629.5	4683.6	3346.8	AVRG		2.02E-4		4947.6	17	0.990	20	
beta-BHC	A	1882.0	1816.5	1987.0	1753.5	2203.9	2203.1	2214.0	1902.9	AVRG		5.01E-4		1995.4	9	0.990	20	
delta-BHC	A	4634.0	4688.0	5559.8	5243.6	6004.7	5717.4	4802.7	3432.4	AVRG		2.00E-4		5010.3	16	0.990	20	
Heptachlor	A	4563.0	4548.5	5342.2	5097.1	5901.6	5564.0	4751.1	3441.3	AVRG		2.04E-4		4901.1	16	0.990	20	
Aldrin	A	4254.0	4229.5	4879.0	4721.8	5567.3	5297.4	4617.5	3422.4	AVRG		2.16E-4		4623.6	15	0.990	20	
Heptachlor epoxide	A	3628.0	3654.0	4101.6	3908.1	4697.3	4563.3	4058.5	3119.7	AVRG		2.52E-4		3966.3	13	0.990	20	
gamma-Chlordane	A	3699.0	3650.0	4117.4	3968.8	4879.7	4781.3	4434.2	3429.3	AVRG		2.43E-4		4120.0	13	0.990	20	
alpha-Chlordane	A	3479.0	3478.5	3916.2	3768.5	4626.9	4528.8	4241.5	3332.8	AVRG		2.55E-4		3921.5	13	0.990	20	
4,4'-DDE	A	3433.5	3463.5	4130.5	4026.0	4352.3	4084.8	3369.1	2322.7	AVRG		2.74E-4		3647.8	18	0.990	20	
Endosulfan I	A	3441.0	3431.5	3816.4	3656.7	4545.5	4423.0	4120.8	3233.7	AVRG		2.61E-4		3833.6	13	0.990	20	
Dieldrin	A	3674.0	3767.0	4406.8	4229.8	4451.4	4223.3	3358.2	2298.1	AVRG		2.63E-4		3801.1	19	0.990	20	
Endrin	A	3257.5	3312.3	3789.4	3713.6	4005.1	3835.8	3121.9	2213.4	AVRG		2.94E-4		3406.1	17	0.990	20	
4,4'-DDD	A	2693.5	2727.0	3094.5	3131.9	3617.8	3574.1	3124.3	2216.9	AVRG		3.31E-4		3022.5	15	0.990	20	
Endosulfan II	A	2795.5	2852.5	3192.1	3165.4	3710.2	3649.7	3170.7	2323.2	AVRG		3.22E-4		3107.4	15	0.990	20	
4,4'-DDT	A	2729.5	2860.3	3239.1	3207.9	3925.7	3832.2	3454.4	2506.3	AVRG		3.11E-4		3219.4	16	0.990	20	
Endrin aldehyde	A	2054.5	2023.3	2340.6	2412.6	2804.7	2868.8	2598.4	1923.5	AVRG		4.20E-4		2378.3	15	0.990	20	
Methoxychlor	A	1296.4	1361.7	1540.4	1414.7	1268.0	1185.2	861.30		AVRG		7.84E-4		1275.4	17	0.990	20	
Endosulfan sulfate	A	2392.5	2422.0	2665.3	2713.4	3144.9	3184.9	2908.8	2132.6	AVRG		3.71E-4		2695.5	14	0.990	20	
Endrin ketone	A	2794.5	2842.3	3170.4	3277.3	3484.7	3428.1	2866.2	1998.8	AVRG		3.35E-4		2982.8	16	0.990	20	
TCMX	A	2744.5	2870.3	3482.1	3183.6	3364.3	3134.6	2519.6	1743.7	AVRG		3.47E-4		2880.3	19	0.990	20	
Decachlorobiphenyl	A	2172.5	2136.5	2193.9	2274.4	2572.6	2806.2	2757.5	2049.9	AVRG		4.22E-4		2370.4	13	0.990	20	
alpha-BHC	B	2592.0	2536.0	2606.2	2688.1	2822.4	2875.8	2631.0	2008.0	AVRG		3.85E-4		2594.9	10	0.990	20	
gamma-BHC	B	2349.0	2320.0	2381.2	2419.2	2575.6	2663.5	2456.3	1909.4	AVRG		4.19E-4		2384.3	9	0.990	20	
beta-BHC	B	980.00	932.50	952.20	881.00	915.20	930.36	977.98	940.43	AVRG		0.00107		938.71	3	0.990	20	

Analyte	Ch	L1	L2	L3	L4	L5	L6	L7	L8	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
delta-BHC	B	2561.0	2436.0	2379.2	2430.1	2590.1	2615.5	2416.1	1851.6	AVRG		4.15E-4		2410.0	10	0.990	20	
Heptachlor	B	2360.0	2351.0	2347.6	2338.9	2460.3	2526.7	2384.3	1850.0	AVRG		4.30E-4		2327.3	9	0.990	20	
Aldrin	B	2259.0	2246.0	2257.4	2276.3	2400.0	2465.2	2352.1	1857.8	AVRG		4.42E-4		2264.2	8	0.990	20	
Heptachlor epoxide	B	1981.0	1971.0	1975.6	1877.6	1971.0	2062.4	1993.2	1666.7	AVRG		5.16E-4		1937.3	6	0.990	20	
gamma-Chlordane	B	2079.0	2070.5	2045.4	2008.0	2126.3	2193.4	2202.7	1836.4	AVRG		4.83E-4		2070.2	6	0.990	20	
alpha-Chlordane	B	1995.0	1957.0	1941.6	1870.4	1981.8	2039.4	2069.4	1759.8	AVRG		5.12E-4		1951.8	5	0.990	20	
4,4'-DDE	B	1866.5	1956.0	1890.5	1942.7	2072.9	2075.7	1805.8	1315.7	AVRG		5.36E-4		1865.7	13	0.990	20	
Endosulfan I	B	1923.0	1919.0	1862.6	1820.8	1877.2	1931.6	1904.1	1610.6	AVRG		5.39E-4		1856.1	6	0.990	20	
Dieldrin	B	2079.0	2067.0	2029.0	2072.1	2159.1	2127.6	1769.2	1264.3	AVRG		5.14E-4		1945.9	15	0.990	20	
Endrin	B	1751.5	1786.3	1803.3	1776.5	1879.1	1875.1	1621.3	1175.6	AVRG		5.85E-4		1708.6	13	0.990	20	
4,4'-DDD	B	1426.0	1474.5	1467.7	1461.3	1617.7	1622.4	1518.4	1160.2	AVRG		6.81E-4		1468.5	10	0.990	20	
Endosulfan II	B	1662.0	1659.5	1653.0	1646.4	1764.8	1752.8	1567.4	1181.6	AVRG		6.21E-4		1610.9	11	0.990	20	
4,4'-DDT	B	1612.5	1597.5	1599.0	1620.9	1787.5	1811.6	1663.7	1266.0	AVRG		6.17E-4		1619.8	10	0.990	20	
Endrin aldehyde	B	1244.5	1263.0	1237.2	1245.3	1361.4	1364.5	1305.1	1049.9	AVRG		7.94E-4		1258.9	8	0.990	20	
Methoxychlor	B	712.50	718.35	718.80	714.60	708.55	663.77	512.60		AVRG		0.00147		678.45	11	0.990	20	
Endosulfan sulfate	B	1376.5	1396.0	1361.7	1342.9	1449.7	1467.1	1461.4	1190.3	AVRG		7.24E-4		1380.7	7	0.990	20	
Endrin ketone	B	1811.5	1821.5	1781.8	1737.4	1896.3	1878.2	1723.0	1321.3	AVRG		5.73E-4		1746.4	10	0.990	20	
TCMX	B	1601.0	1591.3	1621.0	1644.2	1680.4	1709.5	1529.3	1163.7	AVRG		6.38E-4		1567.5	11	0.990	20	
Decachlorobiphenyl	B	1364.0	1366.3	1339.8	1293.1	1422.2	1469.1	1556.6	1284.0	AVRG		7.21E-4		1386.9	7	0.990	20	
Average EPA 8081B	A													(n=23)	15			
Average EPA 8081B	B													(n=23)	9			

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D
alpha-BHC	A	1.0000	-9	2.0000	-5	5.0000	15	10.000	9	20.000	20	25.000	13	50.000	-8	100.00	**-36**
gamma-BHC	A	1.0000	-9	2.0000	-6	5.0000	11	10.000	7	20.000	20	25.000	14	50.000	-5	100.00	**-32**
beta-BHC	A	1.0000	-6	2.0000	-9	5.0000	0	10.000	-12	20.000	10	25.000	10	50.000	11	100.00	-5
delta-BHC	A	1.0000	-8	2.0000	-6	5.0000	11	10.000	5	20.000	20	25.000	14	50.000	-4	100.00	**-31**
Heptachlor	A	1.0000	-7	2.0000	-7	5.0000	9	10.000	4	20.000	20	25.000	14	50.000	-3	100.00	**-30**
Aldrin	A	1.0000	-8	2.0000	-9	5.0000	6	10.000	2	20.000	20	25.000	15	50.000	0	100.00	**-26**
Heptachlor epoxide	A	1.0000	-9	2.0000	-8	5.0000	3	10.000	-1	20.000	18	25.000	15	50.000	2	100.00	**-21**
gamma-Chlordane	A	1.0000	-10	2.0000	-11	5.0000	0	10.000	-4	20.000	18	25.000	16	50.000	8	100.00	-17
alpha-Chlordane	A	1.0000	-11	2.0000	-11	5.0000	0	10.000	-4	20.000	18	25.000	15	50.000	8	100.00	-15
4,4'-DDE	A	2.0000	-6	4.0000	-5	10.000	13	20.000	10	40.000	19	50.000	12	100.00	-8	200.00	**-36**
Endosulfan I	A	1.0000	-10	2.0000	-10	5.0000	0	10.000	-5	20.000	19	25.000	15	50.000	7	100.00	-16
Dieldrin	A	2.0000	-3	4.0000	-1	10.000	16	20.000	11	40.000	17	50.000	11	100.00	-12	200.00	**-40**
Endrin	A	2.0000	-4	4.0000	-3	10.000	11	20.000	9	40.000	18	50.000	13	100.00	-8	200.00	**-35**
4,4'-DDD	A	2.0000	-11	4.0000	-10	10.000	2	20.000	4	40.000	20	50.000	18	100.00	3	200.00	**-27**
Endosulfan II	A	2.0000	-10	4.0000	-8	10.000	3	20.000	2	40.000	19	50.000	17	100.00	2	200.00	**-25**
4,4'-DDT	A	2.0000	-15	4.0000	-11	10.000	1	20.000	0	40.000	**22**	50.000	19	100.00	7	200.00	**-22**
Endrin aldehyde	A	2.0000	-14	4.0000	-15	10.000	-2	20.000	1	40.000	18	50.000	**21**	100.00	9	200.00	-19
Methoxychlor	A	10.000	2	20.000	7	50.000	**21**	100.00	11	200.00	-1	250.00	-7	500.00	**-32**		
Endosulfan sulfate	A	2.0000	-11	4.0000	-10	10.000	-1	20.000	1	40.000	17	50.000	18	100.00	8	200.00	**-21**
Endrin ketone	A	2.0000	-6	4.0000	-5	10.000	6	20.000	10	40.000	17	50.000	15	100.00	-4	200.00	**-33**
TCMX	A	2.0000	-5	4.0000	0	10.000	**21**	20.000	11	40.000	17	50.000	9	100.00	-13	200.00	**-39**
Decachlorobiphenyl	A	2.0000	-8	4.0000	-10	10.000	-7	20.000	-4	40.000	9	50.000	18	100.00	16	200.00	-14
alpha-BHC	B	1.0000	0	2.0000	-2	5.0000	0	10.000	4	20.000	9	25.000	11	50.000	1	100.00	**-23**
gamma-BHC	B	1.0000	-1	2.0000	-3	5.0000	0	10.000	1	20.000	8	25.000	12	50.000	3	100.00	-20
beta-BHC	B	1.0000	4	2.0000	-1	5.0000	1	10.000	-6	20.000	-3	25.000	-1	50.000	4	100.00	0
delta-BHC	B	1.0000	6	2.0000	1	5.0000	-1	10.000	1	20.000	7	25.000	9	50.000	0	100.00	**-23**
Heptachlor	B	1.0000	1	2.0000	1	5.0000	1	10.000	0	20.000	6	25.000	9	50.000	2	100.00	**-21**
Aldrin	B	1.0000	0	2.0000	-1	5.0000	0	10.000	1	20.000	6	25.000	9	50.000	4	100.00	-18
Heptachlor epoxide	B	1.0000	2	2.0000	2	5.0000	2	10.000	-3	20.000	2	25.000	6	50.000	3	100.00	-14
gamma-Chlordane	B	1.0000	0	2.0000	0	5.0000	-1	10.000	-3	20.000	3	25.000	6	50.000	6	100.00	-11
alpha-Chlordane	B	1.0000	2	2.0000	0	5.0000	-1	10.000	-4	20.000	2	25.000	4	50.000	6	100.00	-10
4,4'-DDE	B	2.0000	0	4.0000	5	10.000	1	20.000	4	40.000	11	50.000	11	100.00	-3	200.00	**-29**
Endosulfan I	B	1.0000	4	2.0000	3	5.0000	0	10.000	-2	20.000	1	25.000	4	50.000	3	100.00	-13
Dieldrin	B	2.0000	7	4.0000	6	10.000	4	20.000	6	40.000	11	50.000	9	100.00	-9	200.00	**-35**
Endrin	B	2.0000	3	4.0000	5	10.000	6	20.000	4	40.000	10	50.000	10	100.00	-5	200.00	**-31**
4,4'-DDD	B	2.0000	-3	4.0000	0	10.000	0	20.000	0	40.000	10	50.000	10	100.00	3	200.00	**-21**
Endosulfan II	B	2.0000	3	4.0000	3	10.000	3	20.000	2	40.000	10	50.000	9	100.00	-3	200.00	**-27**
4,4'-DDT	B	2.0000	0	4.0000	-1	10.000	-1	20.000	0	40.000	10	50.000	12	100.00	3	200.00	**-22**
Endrin aldehyde	B	2.0000	-1	4.0000	0	10.000	-2	20.000	-1	40.000	8	50.000	8	100.00	4	200.00	-17
Methoxychlor	B	10.000	5	20.000	6	50.000	6	100.00	5	200.00	4	250.00	-2	500.00	**-24**		
Endosulfan sulfate	B	2.0000	0	4.0000	1	10.000	-1	20.000	-3	40.000	5	50.000	6	100.00	6	200.00	-14
Endrin ketone	B	2.0000	4	4.0000	4	10.000	2	20.000	-1	40.000	9	50.000	8	100.00	-1	200.00	**-24**

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D
TCMX	B	2.0000	2	4.0000	2	10.000	3	20.000	5	40.000	7	50.000	9	100.00	-2	200.00	**-26**
Decachlorobiphenyl	B	2.0000	-2	4.0000	-1	10.000	-3	20.000	-7	40.000	3	50.000	6	100.00	12	200.00	-7

BJP 05/23/16 : Dropped points for optimal RSD's.

BJP 05/23/16 : Corrected automatically drawn baseline for all channels in multiple levels.

BJP 05/23/16 : Separated from coeluting peak for all channels in multiple levels.

Analyst: BJP Date: 05/23/16 Reviewer: EAH Date: 05/23/16

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

356203640001

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 277038 PEST Soil
EPA 8081B

Inst : GC30 Name : gc30_141
Calnum : 356203640001 Cal Date : 20-MAY-2016

ICV 356203640020 (141_020 21-MAY-2016) stds: S29465

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
alpha-BHC	A	20.00	22.42	pg/uL	12	20	
gamma-BHC	A	20.00	21.94	pg/uL	10	20	
beta-BHC	A	20.00	19.98	pg/uL	0	20	
delta-BHC	A	20.00	21.24	pg/uL	6	20	
Heptachlor	A	20.00	21.80	pg/uL	9	20	
Aldrin	A	20.00	21.76	pg/uL	9	20	
Heptachlor epoxide	A	20.00	21.65	pg/uL	8	20	
gamma-Chlordane	A	20.00	21.09	pg/uL	5	20	
alpha-Chlordane	A	20.00	21.08	pg/uL	5	20	
4,4'-DDE	A	20.00	22.34	pg/uL	12	20	
Endosulfan I	A	20.00	20.63	pg/uL	3	20	
Dieldrin	A	20.00	22.21	pg/uL	11	20	
Endrin	A	20.00	21.59	pg/uL	8	20	
4,4'-DDD	A	20.00	20.04	pg/uL	0	20	
Endosulfan II	A	20.00	20.61	pg/uL	3	20	
4,4'-DDT	A	20.00	19.63	pg/uL	-2	20	
Endrin aldehyde	A	20.00	20.43	pg/uL	2	20	
Methoxychlor	A	200.0	180.2	pg/uL	-10	20	
Endosulfan sulfate	A	20.00	18.03	pg/uL	-10	20	
Endrin ketone	A	20.00	20.22	pg/uL	1	20	
alpha-BHC	B	20.00	21.69	pg/uL	8	20	
gamma-BHC	B	20.00	21.00	pg/uL	5	20	
beta-BHC	B	20.00	19.10	pg/uL	-5	20	
delta-BHC	B	20.00	20.22	pg/uL	1	20	
Heptachlor	B	20.00	20.69	pg/uL	3	20	
Aldrin	B	20.00	20.60	pg/uL	3	20	
Heptachlor epoxide	B	20.00	20.53	pg/uL	3	20	
gamma-Chlordane	B	20.00	19.94	pg/uL	0	20	
alpha-Chlordane	B	20.00	19.90	pg/uL	0	20	
4,4'-DDE	B	20.00	20.52	pg/uL	3	20	
Endosulfan I	B	20.00	19.70	pg/uL	-2	20	
Dieldrin	B	20.00	20.47	pg/uL	2	20	
Endrin	B	20.00	20.60	pg/uL	3	20	
4,4'-DDD	B	20.00	18.98	pg/uL	-5	20	
Endosulfan II	B	20.00	19.79	pg/uL	-1	20	
4,4'-DDT	B	20.00	19.62	pg/uL	-2	20	
Endrin aldehyde	B	20.00	20.44	pg/uL	2	20	
Methoxychlor	B	200.0	202.3	pg/uL	1	20	
Endosulfan sulfate	B	20.00	17.91	pg/uL	-10	20	
Endrin ketone	B	20.00	19.64	pg/uL	-2	20	
Average EPA 8081B	A	n=21			7		
Average EPA 8081B	B	n=21			3		

Analyst: BJP Date: 05/23/16 Reviewer: EAH Date: 05/23/16

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 277038 PEST Soil: EPA 8081B

Inst : GC30
Calnum : 356212292001
Units : pg/uL

Name : GC30_147
Date : 27-MAY-2016 00:01
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	147_016	356212292016	ISOPEST_1/2	27-MAY-2016 00:01	S29540 (2X)
L2	147_017	356212292017	ISOPEST_1	27-MAY-2016 00:17	S29540
L3	147_018	356212292018	ISOPEST_2	27-MAY-2016 00:33	S29541
L4	147_019	356212292019	ISOPEST_3	27-MAY-2016 00:49	S29542
L5	147_020	356212292020	ISOPEST_4	27-MAY-2016 01:04	S29543
L6	147_021	356212292021	ISOPEST_5	27-MAY-2016 01:20	S29544
L7	147_022	356212292022	ISOPEST_6	27-MAY-2016 01:36	S29545
L8	147_023	356212292023	ISOPEST_7	27-MAY-2016 01:52	S29546

Analyte	Ch	L1	L2	L3	L4	L5	L6	L7	L8	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
alpha-BHC	A	5968.0	6118.0	7131.0	7435.5	7323.9	7230.6	5585.3		AVRG		1.50E-4		6684.6	11	0.990	20	
gamma-BHC	A	5729.0	5674.5	6509.2	6884.3	6970.6	6868.3	5434.2		AVRG		1.59E-4		6295.7	11	0.990	20	
beta-BHC	A	2476.0	2315.5	2289.6	2320.6	2759.4	2857.8	2780.2	2141.9	AVRG		4.01E-4		2492.6	11	0.990	20	
delta-BHC	A	6020.0	5744.0	6593.2	7024.3	7144.4	7040.7	5669.2		AVRG		1.55E-4		6462.3	10	0.990	20	
Heptachlor	A	5823.0	5815.0	6389.2	6703.1	6871.7	6832.5	5529.4		AVRG		1.59E-4		6280.6	9	0.990	20	
Aldrin	A	5221.0	5214.5	5850.8	6284.8	6579.5	6600.5	5430.6		AVRG		1.70E-4		5883.1	10	0.990	20	
Heptachlor epoxide	A	4646.0	4549.5	4985.2	5301.9	5729.4	5831.0	4941.4		AVRG		1.95E-4		5140.6	10	0.990	20	
gamma-Chlordane	A	4904.0	4553.0	5049.4	5487.0	6139.1	6240.3	5512.6	3834.8	AVRG		1.92E-4		5215.0	15	0.990	20	
alpha-Chlordane	A	4499.0	4433.0	4791.6	5147.6	5838.0	6007.4	5282.8	3717.3	AVRG		2.01E-4		4964.6	15	0.990	20	
4,4'-DDE	A	4503.5	4447.0	5108.7	5381.0	5333.6	5184.8	3988.3		AVRG		2.06E-4		4849.6	11	0.990	20	
Endosulfan I	A	4583.0	4239.5	4588.2	4973.9	5707.7	5865.5	5102.3	3654.6	AVRG		2.07E-4		4839.3	15	0.990	20	
Dieldrin	A	4776.0	4797.0	5507.0	5692.6	5415.1	5230.9	3967.5		AVRG		1.98E-4		5055.2	12	0.990	20	
Endrin	A	4280.5	4172.3	4793.8	5038.7	4937.2	4808.7	3753.3		AVRG		2.20E-4		4540.6	11	0.990	20	
4,4'-DDD	A	3589.5	3458.5	3978.9	4494.6	4709.2	4593.2	3761.0		AVRG		2.45E-4		4083.5	13	0.990	20	
Endosulfan II	A	3860.0	3413.3	3975.9	4511.1	4658.2	4549.9	3760.1		AVRG		2.44E-4		4104.1	12	0.990	20	
4,4'-DDT	A	3777.5	3471.3	3877.7	4566.3	4992.6	4607.6	4159.7		AVRG		2.38E-4		4207.5	13	0.990	20	
Endrin aldehyde	A	2689.5	2587.0	2862.7	3374.9	3649.5	3675.0	3194.5		AVRG		3.18E-4		3147.6	14	0.990	20	
Methoxychlor	A	1855.7	1801.5	1989.4	1863.3	1557.2	1429.2			AVRG		5.72E-4		1749.4	12	0.990	20	
Endosulfan sulfate	A	3223.0	3134.8	3441.6	3886.5	4222.8	4226.9	3621.8		AVRG		2.72E-4		3679.6	12	0.990	20	
Endrin ketone	A	3748.0	3633.0	4098.9	4579.2	4500.0	4312.7	3445.4		AVRG		2.47E-4		4045.3	11	0.990	20	
TCMX	A	3143.5	3279.3	3518.7	3629.2	3571.5	3490.1	2716.5		AVRG		3.00E-4		3335.5	10	0.990	20	
Decachlorobiphenyl	A	2791.5	2625.5	2807.8	3307.7	3830.9	3851.3	3518.5		AVRG		3.08E-4		3247.6	16	0.990	20	
alpha-BHC	B	2626.0	2750.5	2861.0	1916.2	3307.3	3464.3	2206.1	2246.1	AVRG		3.74E-4		2672.2	20	0.990	20	
gamma-BHC	B	2493.0	2533.0	2589.2	1745.1	3044.3	3223.7	2024.5	2116.8	AVRG		4.05E-4		2471.2	20	0.990	20	
beta-BHC	B	1044.0	1037.0	1032.4	694.10	1059.7	1136.4	709.22	1093.6	AVRG		0.00102		975.81	18	0.990	20	

Analyte	Ch	L1	L2	L3	L4	L5	L6	L7	L8	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
delta-BHC	B	2722.0	2641.5	2665.6	1682.0	3035.1	3215.4			AVRG		3.76E-4		2660.3	20	0.990	20	
Heptachlor	B	2735.0	2493.5	2572.2	1592.3	2878.8	2986.5			AVRG		3.93E-4		2543.1	20	0.990	20	
Aldrin	B	2398.0	2435.0	2478.8	1731.0	2802.6	2962.8	1905.1	2033.6	AVRG		4.27E-4		2343.3	18	0.990	20	
Heptachlor epoxide	B	2094.0	2086.5	2109.6	1504.3	2299.5	2436.1	1573.5	1839.3	AVRG		5.02E-4		1992.8	17	0.990	20	
gamma-Chlordane	B	2199.0	2246.5	2288.2	1589.0	2476.9	2652.3	1723.1	2044.0	AVRG		4.65E-4		2152.4	17	0.990	20	
alpha-Chlordane	B	2095.0	2149.5	2136.8	1513.8	2319.6	2481.4	1622.3	1961.9	AVRG		4.91E-4		2035.0	16	0.990	20	
4,4'-DDE	B	2063.5	2109.3	2173.9	1513.0	2414.8	2494.6	1481.8		AVRG		4.91E-4		2035.8	20	0.990	20	
Endosulfan I	B	2148.0	2162.0	2104.2	1450.0	2194.6	2325.2	1498.0	1819.4	AVRG		5.10E-4		1962.7	17	0.990	20	
Dieldrin	B	2169.0	2202.0	2293.4	1676.6	2495.2	2533.5	1537.1		AVRG		4.70E-4		2129.5	18	0.990	20	
Endrin	B	1939.5	1924.8	2046.4	1434.0	2185.9	2247.4	1348.2		AVRG		5.33E-4		1875.2	19	0.990	20	
4,4'-DDD	B	1548.5	1659.3	1714.3	1188.9	1883.3	1956.6	1218.2	1302.0	AVRG		6.41E-4		1558.9	19	0.990	20	
Endosulfan II	B	1797.0	1866.8	1902.2	1361.1	2035.2	2120.7	1321.7	1335.3	AVRG		5.82E-4		1717.5	19	0.990	20	
4,4'-DDT	B	1762.5	1824.3	1893.4	1320.6	2114.9	2225.7	1364.1	1409.9	AVRG		5.75E-4		1739.4	20	0.990	20	
Endrin aldehyde	B	1295.0	1375.8	1365.8	1018.7	1505.4	1592.2	1036.0	1160.7	AVRG		7.73E-4		1293.7	16	0.990	20	
Methoxychlor	B	827.20	846.30	886.22	635.51	807.60	787.40			AVRG		0.00125		798.37	11	0.990	20	
Endosulfan sulfate	B	1560.0	1620.0	1613.8	1144.1	1700.0	1816.5	1170.6	1337.9	AVRG		6.69E-4		1495.4	17	0.990	20	
Endrin ketone	B	2025.5	2091.0	2094.6	1505.3	2187.8	2302.1	1425.0	1480.1	AVRG		5.29E-4		1888.9	19	0.990	20	
TCMX	B	1791.5	1752.8	1737.5	1133.8	1940.3	2009.5	1277.3	1344.7	AVRG		6.16E-4		1623.4	20	0.990	20	
Decachlorobiphenyl	B	1599.0	1586.3	1613.4	1269.2	1699.0	1861.2	1362.0	1448.5	AVRG		6.43E-4		1554.8	12	0.990	20	
Average EPA 8081B	A													(n=23)	12			
Average EPA 8081B	B													(n=23)	18			

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D
alpha-BHC	A	1.0000	-11	2.0000	-8	5.0000	7	10.000	11	20.000	10	25.000	8	50.000	-16		
gamma-BHC	A	1.0000	-9	2.0000	-10	5.0000	3	10.000	9	20.000	11	25.000	9	50.000	-14		
beta-BHC	A	1.0000	-1	2.0000	-7	5.0000	-8	10.000	-7	20.000	11	25.000	15	50.000	12	100.00	-14
delta-BHC	A	1.0000	-7	2.0000	-11	5.0000	2	10.000	9	20.000	11	25.000	9	50.000	-12		
Heptachlor	A	1.0000	-7	2.0000	-7	5.0000	2	10.000	7	20.000	9	25.000	9	50.000	-12		
Aldrin	A	1.0000	-11	2.0000	-11	5.0000	-1	10.000	7	20.000	12	25.000	12	50.000	-8		
Heptachlor epoxide	A	1.0000	-10	2.0000	-11	5.0000	-3	10.000	3	20.000	11	25.000	13	50.000	-4		
gamma-Chlordane	A	1.0000	-6	2.0000	-13	5.0000	-3	10.000	5	20.000	18	25.000	20	50.000	6	100.00	**-26**
alpha-Chlordane	A	1.0000	-9	2.0000	-11	5.0000	-3	10.000	4	20.000	18	25.000	**21**	50.000	6	100.00	**-25**
4,4'-DDE	A	2.0000	-7	4.0000	-8	10.000	5	20.000	11	40.000	10	50.000	7	100.00	-18		
Endosulfan I	A	1.0000	-5	2.0000	-12	5.0000	-5	10.000	3	20.000	18	25.000	**21**	50.000	5	100.00	**-24**
Dieldrin	A	2.0000	-6	4.0000	-5	10.000	9	20.000	13	40.000	7	50.000	3	100.00	**-22**		
Endrin	A	2.0000	-6	4.0000	-8	10.000	6	20.000	11	40.000	9	50.000	6	100.00	-17		
4,4'-DDD	A	2.0000	-12	4.0000	-15	10.000	-3	20.000	10	40.000	15	50.000	12	100.00	-8		
Endosulfan II	A	2.0000	-6	4.0000	-17	10.000	-3	20.000	10	40.000	14	50.000	11	100.00	-8		
4,4'-DDT	A	2.0000	-10	4.0000	-17	10.000	-8	20.000	9	40.000	19	50.000	10	100.00	-1		
Endrin aldehyde	A	2.0000	-15	4.0000	-18	10.000	-9	20.000	7	40.000	16	50.000	17	100.00	1		
Methoxychlor	A	10.000	6	20.000	3	50.000	14	100.00	7	200.00	-11	250.00	-18				
Endosulfan sulfate	A	2.0000	-12	4.0000	-15	10.000	-6	20.000	6	40.000	15	50.000	15	100.00	-2		
Endrin ketone	A	2.0000	-7	4.0000	-10	10.000	1	20.000	13	40.000	11	50.000	7	100.00	-15		
TCMX	A	2.0000	-6	4.0000	-2	10.000	5	20.000	9	40.000	7	50.000	5	100.00	-19		
Decachlorobiphenyl	A	2.0000	-14	4.0000	-19	10.000	-14	20.000	2	40.000	18	50.000	19	100.00	8		
alpha-BHC	B	1.0000	-2	2.0000	3	5.0000	7	10.000	**-28**	20.000	**24**	25.000	**30**	50.000	-17	100.00	-16
gamma-BHC	B	1.0000	1	2.0000	3	5.0000	5	10.000	**-29**	20.000	**23**	25.000	**30**	50.000	-18	100.00	-14
beta-BHC	B	1.0000	7	2.0000	6	5.0000	6	10.000	**-29**	20.000	9	25.000	16	50.000	**-27**	100.00	12
delta-BHC	B	1.0000	2	2.0000	-1	5.0000	0	10.000	**-37**	20.000	14	25.000	**21**				
Heptachlor	B	1.0000	8	2.0000	-2	5.0000	1	10.000	**-37**	20.000	13	25.000	17				
Aldrin	B	1.0000	2	2.0000	4	5.0000	6	10.000	**-26**	20.000	20	25.000	**26**	50.000	-19	100.00	-13
Heptachlor epoxide	B	1.0000	5	2.0000	5	5.0000	6	10.000	**-25**	20.000	15	25.000	**22**	50.000	**-21**	100.00	-8
gamma-Chlordane	B	1.0000	2	2.0000	4	5.0000	6	10.000	**-26**	20.000	15	25.000	**23**	50.000	-20	100.00	-5
alpha-Chlordane	B	1.0000	3	2.0000	6	5.0000	5	10.000	**-26**	20.000	14	25.000	**22**	50.000	-20	100.00	-4
4,4'-DDE	B	2.0000	1	4.0000	4	10.000	7	20.000	**-26**	40.000	19	50.000	**23**	100.00	**-27**		
Endosulfan I	B	1.0000	9	2.0000	10	5.0000	7	10.000	**-26**	20.000	12	25.000	18	50.000	**-24**	100.00	-7
Dieldrin	B	2.0000	2	4.0000	3	10.000	8	20.000	**-21**	40.000	17	50.000	19	100.00	**-28**		
Endrin	B	2.0000	3	4.0000	3	10.000	9	20.000	**-24**	40.000	17	50.000	20	100.00	**-28**		
4,4'-DDD	B	2.0000	-1	4.0000	6	10.000	10	20.000	**-24**	40.000	**21**	50.000	**26**	100.00	**-22**	200.00	-16
Endosulfan II	B	2.0000	5	4.0000	9	10.000	11	20.000	**-21**	40.000	18	50.000	**23**	100.00	**-23**	200.00	**-22**
4,4'-DDT	B	2.0000	1	4.0000	5	10.000	9	20.000	**-24**	40.000	**22**	50.000	**28**	100.00	**-22**	200.00	-19
Endrin aldehyde	B	2.0000	0	4.0000	6	10.000	6	20.000	**-21**	40.000	16	50.000	**23**	100.00	-20	200.00	-10
Methoxychlor	B	10.000	4	20.000	6	50.000	11	100.00	-20	200.00	1	250.00	-1				
Endosulfan sulfate	B	2.0000	4	4.0000	8	10.000	8	20.000	**-23**	40.000	14	50.000	**21**	100.00	**-22**	200.00	-11
Endrin ketone	B	2.0000	7	4.0000	11	10.000	11	20.000	-20	40.000	16	50.000	**22**	100.00	**-25**	200.00	**-22**

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D	L8	%D
TCMX	B	2.0000	10	4.0000	8	10.000	7	20.000	**-30**	40.000	20	50.000	**24**	100.00	**-21**	200.00	-17
Decachlorobiphenyl	B	2.0000	3	4.0000	2	10.000	4	20.000	-18	40.000	9	50.000	20	100.00	-12	200.00	-7

BJP 05/27/16 : Dropped various points for optimal rsd's.

BJP 05/27/16 : Corrected automatically drawn baseline for all channels in multiple levels.

BJP 05/27/16 : Separated from coeluting peak for all channels in multiple levels.

Analyst: BJP Date: 05/27/16 Reviewer: EAH Date: 05/27/16

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

356212292001

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 277038 PEST Soil
EPA 8081B

Inst : GC30 Name : GC30_147
Calnum : 356212292001 Cal Date : 27-MAY-2016

ICV 356212292025 (147_025 27-MAY-2016) stds: S29465

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
alpha-BHC	A	20.00	22.51	pg/uL	13	20	
gamma-BHC	A	20.00	22.35	pg/uL	12	20	
beta-BHC	A	20.00	22.67	pg/uL	13	20	
delta-BHC	A	20.00	22.20	pg/uL	11	20	
Heptachlor	A	20.00	21.91	pg/uL	10	20	
Aldrin	A	20.00	22.64	pg/uL	13	20	
Heptachlor epoxide	A	20.00	22.84	pg/uL	14	20	
gamma-Chlordane	A	20.00	23.59	pg/uL	**18**	20	
alpha-Chlordane	A	20.00	23.95	pg/uL	**20**	20	
4,4'-DDE	A	20.00	24.92	pg/uL	**25**	20	v+ ***
Endosulfan I	A	20.00	23.44	pg/uL	**17**	20	
Dieldrin	A	20.00	23.97	pg/uL	**20**	20	
Endrin	A	20.00	23.75	pg/uL	**19**	20	
4,4'-DDD	A	20.00	23.28	pg/uL	**16**	20	
Endosulfan II	A	20.00	23.06	pg/uL	15	20	
4,4'-DDT	A	20.00	23.27	pg/uL	**16**	20	
Endrin aldehyde	A	20.00	24.51	pg/uL	**23**	20	v+ ***
Methoxychlor	A	200.0	174.5	pg/uL	-13	20	
Endosulfan sulfate	A	20.00	21.00	pg/uL	5	20	
Endrin ketone	A	20.00	23.25	pg/uL	**16**	20	
alpha-BHC	B	20.00	25.09	pg/uL	**25**	20	v+ ***
gamma-BHC	B	20.00	24.34	pg/uL	**22**	20	v+ ***
beta-BHC	B	20.00	22.21	pg/uL	11	20	
delta-BHC	B	20.00	23.00	pg/uL	15	20	
Heptachlor	B	20.00	22.40	pg/uL	12	20	
Aldrin	B	20.00	24.01	pg/uL	**20**	20	
Heptachlor epoxide	B	20.00	23.73	pg/uL	**19**	20	
gamma-Chlordane	B	20.00	23.57	pg/uL	**18**	20	
alpha-Chlordane	B	20.00	23.42	pg/uL	**17**	20	
4,4'-DDE	B	20.00	23.59	pg/uL	**18**	20	
Endosulfan I	B	20.00	22.95	pg/uL	15	20	
Dieldrin	B	20.00	23.18	pg/uL	**16**	20	
Endrin	B	20.00	22.59	pg/uL	13	20	
4,4'-DDD	B	20.00	23.67	pg/uL	**18**	20	
Endosulfan II	B	20.00	23.98	pg/uL	**20**	20	
4,4'-DDT	B	20.00	23.37	pg/uL	**17**	20	
Endrin aldehyde	B	20.00	24.89	pg/uL	**24**	20	v+ ***
Methoxychlor	B	200.0	214.3	pg/uL	7	20	
Endosulfan sulfate	B	20.00	21.09	pg/uL	5	20	
Endrin ketone	B	20.00	23.25	pg/uL	**16**	20	
Average EPA 8081B	A	n=21			16		
Average EPA 8081B	B	n=21			17		

Analyst: BJP Date: 05/27/16 Reviewer: EAH Date: 05/27/16

+=high bias v=ICV

CURTIS & TOMPKINS PERFORMANCE EVALUATION FOR 277038 PEST Soil
EPA 8081B

Inst : GC23 Run Name : PEM IDF : 1.0
Seqnum : 806207922006 File : 144_006 Time : 23-MAY-2016 20:38

Standards: S29649

Analyte	Ch	Area	% Breakdown	Limit	Flags
4,4'-DDT	A	274098	1	15	
4,4'-DDE	A	975			
4,4'-DDD	A	1390			
Endrin	A	184792	7	15	
Endrin aldehyde	A	4234			
Endrin ketone	A	10120			
4,4'-DDT	B	84477	1	15	
4,4'-DDE	B	547			
4,4'-DDD	B	732			
Endrin	B	42708	6	15	
Endrin aldehyde	B	1550			
Endrin ketone	B	1367			

Analyst: BJP Date: 05/24/16 Reviewer: EAH Date: 05/24/16

CURTIS & TOMPKINS PERFORMANCE EVALUATION FOR 277038 PEST Soil
EPA 8081B

Inst : GC23 Run Name : PEM IDF : 1.0
Seqnum : 806213639002 File : 148_002 Time : 27-MAY-2016 08:57

Standards: S29649

Analyte	Ch	Area	% Breakdown	Limit	Flags
4,4'-DDT	A	284830	1	15	
4,4'-DDE	A	564			
4,4'-DDD	A	3725			
Endrin	A	197170	9	15	
Endrin aldehyde	A	5831			
Endrin ketone	A	14219			
4,4'-DDT	B	107214	1	15	
4,4'-DDE	B	150			
4,4'-DDD	B	717			
Endrin	B	62262	6	15	
Endrin aldehyde	B	1522			
Endrin ketone	B	2231			

Analyst: BJP Date: 05/27/16 Reviewer: TKM Date: 05/27/16

CURTIS & TOMPKINS PERFORMANCE EVALUATION FOR 277038 PEST Soil
EPA 8081B

Inst : GC23 Run Name : PEM IDF : 1.0
Seqnum : 806213639015 File : 148_015 Time : 27-MAY-2016 13:00

Standards: S29649

Analyte	Ch	Area	% Breakdown	Limit	Flags
4,4'-DDT	A	285995	3	15	
4,4'-DDE	A	944			
4,4'-DDD	A	8286			
Endrin	A	198506	9	15	
Endrin aldehyde	A	5565			
Endrin ketone	A	13759			
4,4'-DDT	B	102676	2	15	
4,4'-DDE	B	179			
4,4'-DDD	B	2226			
Endrin	B	60975	4	15	
Endrin aldehyde	B	871			
Endrin ketone	B	1557			

Analyst: BJP Date: 05/27/16 Reviewer: TKM Date: 05/27/16

CURTIS & TOMPKINS PERFORMANCE EVALUATION FOR 277038 PEST Soil
EPA 8081B

Inst : GC23 Run Name : PEM IDF : 1.0
Seqnum : 806213639020 File : 148_020 Time : 27-MAY-2016 14:46

Standards: S29649

Analyte	Ch	Area	% Breakdown	Limit	Flags
4,4'-DDT	A	290696	4	15	
4,4'-DDE	A	1034			
4,4'-DDD	A	10158			
Endrin	A	204104	10	15	
Endrin aldehyde	A	6939			
Endrin ketone	A	16202			
4,4'-DDT	B	79684	2	15	
4,4'-DDE	B	288			
4,4'-DDD	B	1676			
Endrin	B	46848	5	15	
Endrin aldehyde	B	923			
Endrin ketone	B	1382			

Analyst: BJP Date: 05/27/16 Reviewer: TKM Date: 05/27/16

CURTIS & TOMPKINS PERFORMANCE EVALUATION FOR 277038 PEST Soil
EPA 8081B

Inst : GC30 Run Name : PEM IDF : 1.0
Seqnum : 356203640005 File : 141_005 Time : 20-MAY-2016 19:54

Standards: S29649

Analyte	Ch	Area	% Breakdown	Limit	Flags
4,4'-DDT	A	273674	2	15	
4,4'-DDE	A	1475			
4,4'-DDD	A	4120			
Endrin	A	158445	2	15	
Endrin aldehyde	A	1180			
Endrin ketone	A	2240			
4,4'-DDT	B	161760	1	15	
4,4'-DDE	B	613			
4,4'-DDD	B	1375			
Endrin	B	86341	4	15	
Endrin aldehyde	B	1392			
Endrin ketone	B	1959			

Analyst: BJP Date: 05/23/16 Reviewer: EAH Date: 05/23/16

CURTIS & TOMPKINS PERFORMANCE EVALUATION FOR 277038 PEST Soil
EPA 8081B

Inst : GC30 Run Name : PEM IDF : 1.0
Seqnum : 356210796002 File : 146_002 Time : 25-MAY-2016 09:32

Standards: S29649

Analyte	Ch	Area	% Breakdown	Limit	Flags
4,4'-DDT	A	276967	2	15	
4,4'-DDE	A	1040			
4,4'-DDD	A	4950			
Endrin	A	160451	2	15	
Endrin aldehyde	A	919			
Endrin ketone	A	2297			
4,4'-DDT	B	183634	1	15	
4,4'-DDE	B	582			
4,4'-DDD	B	1685			
Endrin	B	100904	2	15	
Endrin aldehyde	B	666			
Endrin ketone	B	1651			

Analyst: BJP Date: 05/25/16 Reviewer: EAH Date: 05/25/16

CURTIS & TOMPKINS PERFORMANCE EVALUATION FOR 277038 PEST Soil
EPA 8081B

Inst : GC30 Run Name : PEM IDF : 1.0
Seqnum : 356210796009 File : 146_009 Time : 25-MAY-2016 14:02

Standards: S29649

Analyte	Ch	Area	% Breakdown	Limit	Flags
4,4'-DDT	A	307117	2	15	
4,4'-DDE	A	879			
4,4'-DDD	A	5497			
Endrin	A	178631	2	15	
Endrin aldehyde	A	812			
Endrin ketone	A	2564			
4,4'-DDT	B	188348	1	15	
4,4'-DDE	B	294			
4,4'-DDD	B	1951			
Endrin	B	103356	2	15	
Endrin aldehyde	B	641			
Endrin ketone	B	1795			

Analyst: BJP Date: 05/25/16 Reviewer: EAH Date: 05/25/16

CURTIS & TOMPKINS PERFORMANCE EVALUATION FOR 277038 PEST Soil
EPA 8081B

Inst : GC30 Run Name : PEM IDF : 1.0
Seqnum : 356212292013 File : 147_013 Time : 26-MAY-2016 23:13

Standards: S29649

Analyte	Ch	Area	% Breakdown	Limit	Flags
4,4'-DDT	A	372172	1	15	
4,4'-DDE	A	1426			
4,4'-DDD	A	3895			
Endrin	A	218243	5	15	
Endrin aldehyde	A	9282			
Endrin ketone	A	2942			
4,4'-DDT	B	190846	1	15	
4,4'-DDE	B	747			
4,4'-DDD	B	1220			
Endrin	B	106355	3	15	
Endrin aldehyde	B	1462			
Endrin ketone	B	1342			

Analyst: BJP Date: 05/27/16 Reviewer: EAH Date: 05/27/16

CURTIS & TOMPKINS PERFORMANCE EVALUATION FOR 277038 PEST Soil
EPA 8081B

Inst : GC30 Run Name : PEM IDF : 1.0
Seqnum : 356213639002 File : 148_002 Time : 27-MAY-2016 08:55

Standards: S29649

Analyte	Ch	Area	% Breakdown	Limit	Flags
4,4'-DDT	A	343082	2	15	
4,4'-DDE	A	2137			
4,4'-DDD	A	3973			
Endrin	A	206168	6	15	
Endrin aldehyde	A	10201			
Endrin ketone	A	2944			
4,4'-DDT	B	194701	1	15	
4,4'-DDE	B	370			
4,4'-DDD	B	999			
Endrin	B	108596	3	15	
Endrin aldehyde	B	1656			
Endrin ketone	B	1342			

Analyst: BJP Date: 05/27/16 Reviewer: TKM Date: 05/27/16

CURTIS & TOMPKINS PERFORMANCE EVALUATION FOR 277038 PEST Soil
EPA 8081B

Inst : GC30 Run Name : PEM IDF : 1.0
Seqnum : 356213639015 File : 148_015 Time : 27-MAY-2016 12:34

Standards: S29649

Analyte	Ch	Area	% Breakdown	Limit	Flags
4,4'-DDT	A	307366	6	15	
4,4'-DDE	A	1566			
4,4'-DDD	A	19279			
Endrin	A	205892	2	15	
Endrin aldehyde	A	926			
Endrin ketone	A	3127			
4,4'-DDT	B	152662	6	15	
4,4'-DDE	B	260			
4,4'-DDD	B	8780			
Endrin	B	89803	2	15	
Endrin aldehyde	B	332			
Endrin ketone	B	1429			

Analyst: BJP Date: 05/27/16 Reviewer: TKM Date: 05/27/16

CURTIS & TOMPKINS PERFORMANCE EVALUATION FOR 277038 PEST Soil
EPA 8081B

Inst : GC30 Run Name : PEM IDF : 1.0
Seqnum : 356213639022 File : 148_022 Time : 27-MAY-2016 14:46

Standards: S29649

Analyte	Ch	Area	% Breakdown	Limit	Flags
4,4'-DDT	A	332776	7	15	
4,4'-DDE	A	1569			
4,4'-DDD	A	24901			
Endrin	A	216981	2	15	
Endrin aldehyde	A	677			
Endrin ketone	A	3045			
4,4'-DDT	B	66060	10	15	
4,4'-DDE	B	433			
4,4'-DDD	B	6508			
Endrin	B	37497	3	15	
Endrin aldehyde	B	246			
Endrin ketone	B	912			

Analyst: BJP Date: 05/27/16 Reviewer: TKM Date: 05/27/16

CURTIS & TOMPKINS PERFORMANCE EVALUATION FOR 277038 PEST Soil
EPA 8081B

Inst : GC30 Run Name : PEM IDF : 1.0
Seqnum : 356213639033 File : 148_033 Time : 27-MAY-2016 22:08

Standards: S29649

Analyte	Ch	Area	% Breakdown	Limit	Flags
4,4'-DDT	A	332129	10	15	
4,4'-DDE	A	1392			
4,4'-DDD	A	34077			
Endrin	A	222945	2	15	
Endrin aldehyde	A	656			
Endrin ketone	A	3418			
4,4'-DDT	B	67990	10	15	
4,4'-DDE	B	421			
4,4'-DDD	B	6961			
Endrin	B	38507	2	15	
Endrin aldehyde	B	196			
Endrin ketone	B	654			

Analyst: RFC Date: 05/31/16 Reviewer: EAH Date: 05/31/16

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 PEST Soil
EPA 8081B

Inst : GC23 Run Name : ISOPEST_3 IDF : 1.0
Seqnum : 806213639003.1 File : 148_003 Time : 27-MAY-2016 09:15
Cal : 806207922001 Caldate : 23-MAY-2016
Standards: S29898

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
alpha-BHC	A	10190	12348	10.00	10.32	pg/uL	3	20	
gamma-BHC	A	8922.4	11060	10.00	10.60	pg/uL	6	20	
beta-BHC	A	3739.8	3670.7	10.00	9.246	pg/uL	-8	20	
delta-BHC	A	8449.4	11172	10.00	11.22	pg/uL	12	20	
Heptachlor	A	8018.0	10267	10.00	10.93	pg/uL	9	20	
Aldrin	A	7683.3	9558.1	10.00	10.59	pg/uL	6	20	
Heptachlor epoxide	A	6444.3	7866.5	10.00	10.43	pg/uL	4	20	
gamma-Chlordane	A	6342.4	7712.9	10.00	10.31	pg/uL	3	20	
alpha-Chlordane	A	6094.0	7309.1	10.00	10.16	pg/uL	2	20	
4,4'-DDE	A	5311.2	6876.4	20.00	22.70	pg/uL	13	20	v+ ***
Endosulfan I	A	6035.2	7217.8	10.00	10.14	pg/uL	1	20	
Dieldrin	A	5762.3	7151.9	20.00	20.97	pg/uL	5	20	
Endrin	A	4283.6	5364.3	20.00	21.28	pg/uL	6	20	
4,4'-DDD	A	4118.3	5444.5	20.00	21.63	pg/uL	8	20	
Endosulfan II	A	4316.1	5640.5	20.00	21.63	pg/uL	8	20	v+ ***
4,4'-DDT	A	4394.9	6322.4	20.00	23.82	pg/uL	19	20	
Endrin aldehyde	A	3523.1	4714.8	20.00	21.49	pg/uL	7	20	v+ ***
Methoxychlor	A	1713.6	2047.7	100.0	119.5	pg/uL	19	20	
Endosulfan sulfate	A	4034.7	4928.9	20.00	20.66	pg/uL	3	20	
Endrin ketone	A	4428.7	5824.1	20.00	22.06	pg/uL	10	20	v+ ***
TCMX	A	6268.3	7135.3	20.00	19.73	pg/uL	-1	20	
Decachlorobiphenyl	A	2990.7	3382.8	20.00	20.09	pg/uL	0	20	
alpha-BHC	B	2080.6	2025.5	10.00	9.735	pg/uL	-3	20	
gamma-BHC	B	1911.7	1847.8	10.00	9.666	pg/uL	-3	20	
beta-BHC	B	862.29	790.10	10.00	9.163	pg/uL	-8	20	
delta-BHC	B	1594.4	1564.1	10.00	9.810	pg/uL	-2	20	
Heptachlor	B	2017.2	2022.3	10.00	10.03	pg/uL	0	20	
Aldrin	B	2282.2	2313.1	10.00	10.14	pg/uL	1	20	
Heptachlor epoxide	B	1748.1	1719.1	10.00	9.834	pg/uL	-2	20	
gamma-Chlordane	B	1898.6	1823.6	10.00	9.605	pg/uL	-4	20	
alpha-Chlordane	B	1802.2	1696.9	10.00	9.416	pg/uL	-6	20	
4,4'-DDE	B	1719.2	1747.3	20.00	20.33	pg/uL	2	20	
Endosulfan I	B	1490.3	1459.3	10.00	9.792	pg/uL	-2	20	
Dieldrin	B	1701.7	1713.4	20.00	20.14	pg/uL	1	20	
Endrin	B	1237.3	1260.2	20.00	20.37	pg/uL	2	20	
4,4'-DDD	B	1088.2	1170.8	20.00	21.52	pg/uL	8	20	
Endosulfan II	B	1003.6	1047.4	20.00	20.87	pg/uL	4	20	
4,4'-DDT	B	1410.6	1379.5	20.00	19.56	pg/uL	-2	20	
Endrin aldehyde	B	857.07	929.70	20.00	21.69	pg/uL	8	20	
Methoxychlor	B	486.34	504.24	100.0	103.7	pg/uL	4	20	v- ***
Endosulfan sulfate	B	1087.2	1071.4	20.00	19.71	pg/uL	-1	20	
Endrin ketone	B	883.22	936.15	20.00	21.20	pg/uL	6	20	
TCMX	B	1700.9	1509.4	20.00	17.75	pg/uL	-11	20	
Decachlorobiphenyl	B	1029.9	915.15	20.00	17.77	pg/uL	-11	20	
Average EPA 8081B	A	(n=23)					7		
Average EPA 8081B	B	(n=23)					4		

BJP 05/27/16 : Corrected automatically drawn baseline for all channels.

[general version]

BJP 05/27/16 : Separated from coeluting peak for all channels. [general version]

Analyst: BJP Date: 05/27/16 Reviewer: TKM Date: 05/27/16

+=high bias -=low bias v=ICV

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 PEST Soil
EPA 8081B

Inst : GC23 Run Name : ISOPEST_3 IDF : 1.0
Seqnum : 806213639016.1 File : 148_016 Time : 27-MAY-2016 13:18
Cal : 806207922001 Caldate : 23-MAY-2016
Standards: S29898

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
alpha-BHC	A	10190	13460	10.00	11.26	pg/uL	13	20	
gamma-BHC	A	8922.4	11923	10.00	11.44	pg/uL	14	20	
beta-BHC	A	3739.8	4068.1	10.00	10.14	pg/uL	1	20	
delta-BHC	A	8449.4	11387	10.00	11.45	pg/uL	14	20	
Heptachlor	A	8018.0	11220	10.00	11.99	pg/uL	20	20	
Aldrin	A	7683.3	10472	10.00	11.64	pg/uL	16	20	
Heptachlor epoxide	A	6444.3	8570.7	10.00	11.36	pg/uL	14	20	
gamma-Chlordane	A	6342.4	8404.7	10.00	11.22	pg/uL	12	20	
alpha-Chlordane	A	6094.0	8025.2	10.00	11.11	pg/uL	11	20	
4,4'-DDE	A	5311.2	7393.9	20.00	24.66	pg/uL	**23**	20	c+ v+ ***
Endosulfan I	A	6035.2	7830.6	10.00	10.95	pg/uL	10	20	
Dieldrin	A	5762.3	7579.8	20.00	22.47	pg/uL	12	20	
Endrin	A	4283.6	5908.6	20.00	23.59	pg/uL	18	20	
4,4'-DDD	A	4118.3	5910.0	20.00	23.59	pg/uL	18	20	
Endosulfan II	A	4316.1	6025.6	20.00	23.19	pg/uL	16	20	v+ ***
4,4'-DDT	A	4394.9	6402.7	20.00	24.14	pg/uL	**21**	20	c+ ***
Endrin aldehyde	A	3523.1	4887.9	20.00	22.28	pg/uL	11	20	v+ ***
Methoxychlor	A	1713.6	2096.8	100.0	122.4	pg/uL	**22**	20	c+ ***
Endosulfan sulfate	A	4034.7	5312.6	20.00	22.23	pg/uL	11	20	
Endrin ketone	A	4428.7	6135.3	20.00	23.30	pg/uL	16	20	v+ ***
TCMX	A	6268.3	7760.3	20.00	21.44	pg/uL	7	20	
Decachlorobiphenyl	A	2990.7	3570.9	20.00	21.11	pg/uL	6	20	
alpha-BHC	B	2080.6	2164.2	10.00	10.40	pg/uL	4	20	
gamma-BHC	B	1911.7	2009.6	10.00	10.51	pg/uL	5	20	
beta-BHC	B	862.29	841.40	10.00	9.758	pg/uL	-2	20	
delta-BHC	B	1594.4	1768.1	10.00	11.09	pg/uL	11	20	
Heptachlor	B	2017.2	2139.6	10.00	10.61	pg/uL	6	20	
Aldrin	B	2282.2	2319.2	10.00	10.16	pg/uL	2	20	
Heptachlor epoxide	B	1748.1	1887.5	10.00	10.80	pg/uL	8	20	
gamma-Chlordane	B	1898.6	1987.9	10.00	10.47	pg/uL	5	20	
alpha-Chlordane	B	1802.2	1858.8	10.00	10.31	pg/uL	3	20	
4,4'-DDE	B	1719.2	1917.6	20.00	22.31	pg/uL	12	20	
Endosulfan I	B	1490.3	1608.2	10.00	10.79	pg/uL	8	20	
Dieldrin	B	1701.7	1898.1	20.00	22.31	pg/uL	12	20	
Endrin	B	1237.3	1498.3	20.00	24.22	pg/uL	**21**	20	c+ ***
4,4'-DDD	B	1088.2	1311.5	20.00	24.10	pg/uL	**21**	20	c+ ***
Endosulfan II	B	1003.6	1165.7	20.00	23.23	pg/uL	16	20	
4,4'-DDT	B	1410.6	1458.3	20.00	20.68	pg/uL	3	20	
Endrin aldehyde	B	857.07	1018.2	20.00	23.76	pg/uL	19	20	
Methoxychlor	B	486.34	548.74	100.0	112.8	pg/uL	13	20	v- ***
Endosulfan sulfate	B	1087.2	1171.5	20.00	21.55	pg/uL	8	20	
Endrin ketone	B	883.22	1015.1	20.00	22.99	pg/uL	15	20	
TCMX	B	1700.9	1660.3	20.00	19.52	pg/uL	-2	20	
Decachlorobiphenyl	B	1029.9	1068.1	20.00	20.74	pg/uL	4	20	
Average EPA 8081B	A	(n=23)					14		
Average EPA 8081B	B	(n=23)					9		

BJP 05/27/16 : Corrected automatically drawn baseline for all channels.

[general version]

BJP 05/27/16 : Separated from coeluting peak for all channels. [general version]

Analyst: BJP Date: 05/27/16 Reviewer: TKM Date: 05/27/16

+=high bias -=low bias c=CCV v=ICV

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 PEST Soil
EPA 8081B

Inst : GC23 Run Name : ISOPEST_3 IDF : 1.0
Seqnum : 806213639021.1 File : 148_021 Time : 27-MAY-2016 15:04
Cal : 806207922001 Caldate : 23-MAY-2016
Standards: S29898

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
alpha-BHC	A	10190	13771	10.00	11.52	pg/uL	15	20	
gamma-BHC	A	8922.4	12110	10.00	11.62	pg/uL	16	20	
beta-BHC	A	3739.8	4182.7	10.00	10.39	pg/uL	4	20	
delta-BHC	A	8449.4	11748	10.00	11.83	pg/uL	18	20	
Heptachlor	A	8018.0	11411	10.00	12.21	pg/uL	**22**	20	c+ ***
Aldrin	A	7683.3	10646	10.00	11.84	pg/uL	18	20	
Heptachlor epoxide	A	6444.3	8770.3	10.00	11.63	pg/uL	16	20	
gamma-Chlordane	A	6342.4	8596.3	10.00	11.47	pg/uL	15	20	
alpha-Chlordane	A	6094.0	8176.3	10.00	11.32	pg/uL	13	20	
4,4'-DDE	A	5311.2	7519.8	20.00	25.14	pg/uL	**26**	20	c+ v+ ***
Endosulfan I	A	6035.2	8036.4	10.00	11.23	pg/uL	12	20	
Dieldrin	A	5762.3	7741.1	20.00	23.04	pg/uL	15	20	
Endrin	A	4283.6	6028.0	20.00	24.11	pg/uL	**21**	20	c+ ***
4,4'-DDD	A	4118.3	6105.8	20.00	24.43	pg/uL	**22**	20	c+ ***
Endosulfan II	A	4316.1	6079.8	20.00	23.41	pg/uL	17	20	v+ ***
4,4'-DDT	A	4394.9	6682.1	20.00	25.29	pg/uL	**26**	20	c+ ***
Endrin aldehyde	A	3523.1	5057.8	20.00	23.06	pg/uL	15	20	v+ ***
Methoxychlor	A	1713.6	2145.7	100.0	125.2	pg/uL	**25**	20	c+ ***
Endosulfan sulfate	A	4034.7	5535.5	20.00	23.16	pg/uL	16	20	
Endrin ketone	A	4428.7	6230.6	20.00	23.68	pg/uL	18	20	v+ ***
TCMX	A	6268.3	7980.9	20.00	22.06	pg/uL	10	20	
Decachlorobiphenyl	A	2990.7	3831.1	20.00	22.53	pg/uL	13	20	
alpha-BHC	B	2080.6	1735.5	10.00	8.341	pg/uL	-17	20	
gamma-BHC	B	1911.7	1573.6	10.00	8.231	pg/uL	-18	20	
beta-BHC	B	862.29	663.60	10.00	7.696	pg/uL	**-23**	20	c- ***
delta-BHC	B	1594.4	1286.8	10.00	8.071	pg/uL	-19	20	
Heptachlor	B	2017.2	1551.1	10.00	7.689	pg/uL	**-23**	20	c- ***
Aldrin	B	2282.2	1944.5	10.00	8.520	pg/uL	-15	20	
Heptachlor epoxide	B	1748.1	1441.8	10.00	8.248	pg/uL	-18	20	
gamma-Chlordane	B	1898.6	1507.2	10.00	7.938	pg/uL	**-21**	20	c- ***
alpha-Chlordane	B	1802.2	1410.8	10.00	7.828	pg/uL	**-22**	20	c- ***
4,4'-DDE	B	1719.2	1317.0	20.00	15.32	pg/uL	**-23**	20	c- ***
Endosulfan I	B	1490.3	1198.4	10.00	8.041	pg/uL	-20	20	
Dieldrin	B	1701.7	1440.8	20.00	16.93	pg/uL	-15	20	
Endrin	B	1237.3	1089.3	20.00	17.61	pg/uL	-12	20	
4,4'-DDD	B	1088.2	890.20	20.00	16.36	pg/uL	-18	20	
Endosulfan II	B	1003.6	859.15	20.00	17.12	pg/uL	-14	20	
4,4'-DDT	B	1410.6	969.10	20.00	13.74	pg/uL	**-31**	20	c- ***
Endrin aldehyde	B	857.07	757.30	20.00	17.67	pg/uL	-12	20	
Methoxychlor	B	486.34	394.85	100.0	81.19	pg/uL	-19	20	v- ***
Endosulfan sulfate	B	1087.2	837.00	20.00	15.40	pg/uL	**-23**	20	c- ***
Endrin ketone	B	883.22	746.20	20.00	16.90	pg/uL	-16	20	
TCMX	B	1700.9	1321.5	20.00	15.54	pg/uL	**-22**	20	c-
Decachlorobiphenyl	B	1029.9	790.30	20.00	15.35	pg/uL	**-23**	20	c-
Average EPA 8081B	A	(n=23)					17		
Average EPA 8081B	B	(n=23)					19		

BJP 05/27/16 : Corrected automatically drawn baseline for all channels.

[general version]

BJP 05/27/16 : Separated from coeluting peak for all channels. [general version]

Analyst: BJP Date: 05/27/16 Reviewer: TKM Date: 05/27/16

+=high bias -=low bias c=CCV v=ICV

806213639021.1

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 PEST Soil
EPA 8081B

Inst : GC30 Run Name : ISOPEST_3 IDF : 1.0
Seqnum : 356210796003.1 File : 146_003 Time : 25-MAY-2016 09:48
Cal : 356203640001 Caldate : 20-MAY-2016
Standards: S29898

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
alpha-BHC	A	5325.1	6647.0	10.00	12.48	pg/uL	**25**	20	c+ ***
gamma-BHC	A	4947.6	6069.5	10.00	12.27	pg/uL	**23**	20	c+ ***
beta-BHC	A	1995.4	1975.3	10.00	9.899	pg/uL	-1	20	
delta-BHC	A	5010.3	5960.4	10.00	11.90	pg/uL	19	20	
Heptachlor	A	4901.1	5814.2	10.00	11.86	pg/uL	19	20	
Aldrin	A	4623.6	5388.6	10.00	11.65	pg/uL	17	20	
Heptachlor epoxide	A	3966.3	4483.6	10.00	11.30	pg/uL	13	20	
gamma-Chlordane	A	4120.0	4513.9	10.00	10.96	pg/uL	10	20	
alpha-Chlordane	A	3921.5	4331.9	10.00	11.05	pg/uL	10	20	
4,4'-DDE	A	3647.8	4528.9	20.00	24.83	pg/uL	**24**	20	c+ ***
Endosulfan I	A	3833.6	4154.9	10.00	10.84	pg/uL	8	20	
Dieldrin	A	3801.1	4750.6	20.00	25.00	pg/uL	**25**	20	c+ ***
Endrin	A	3406.1	4096.0	20.00	24.05	pg/uL	20	20	
4,4'-DDD	A	3022.5	3523.1	20.00	23.31	pg/uL	17	20	
Endosulfan II	A	3107.4	3472.5	20.00	22.35	pg/uL	12	20	
4,4'-DDT	A	3219.4	3623.1	20.00	22.51	pg/uL	13	20	
Endrin aldehyde	A	2378.3	2831.8	20.00	23.81	pg/uL	19	20	
Methoxychlor	A	1275.4	1477.8	100.0	115.9	pg/uL	16	20	
Endosulfan sulfate	A	2695.5	3031.4	20.00	22.49	pg/uL	12	20	
Endrin ketone	A	2982.8	3575.9	20.00	23.98	pg/uL	20	20	
TCMX	A	2880.3	3214.8	20.00	22.32	pg/uL	12	20	
Decachlorobiphenyl	A	2370.4	2399.4	20.00	20.24	pg/uL	1	20	
alpha-BHC	B	2594.9	2905.9	10.00	11.20	pg/uL	12	20	
gamma-BHC	B	2384.3	2680.5	10.00	11.24	pg/uL	12	20	
beta-BHC	B	938.71	993.40	10.00	10.58	pg/uL	6	20	
delta-BHC	B	2410.0	2641.7	10.00	10.96	pg/uL	10	20	
Heptachlor	B	2327.3	2457.8	10.00	10.56	pg/uL	6	20	
Aldrin	B	2264.2	2468.8	10.00	10.90	pg/uL	9	20	
Heptachlor epoxide	B	1937.3	2092.3	10.00	10.80	pg/uL	8	20	
gamma-Chlordane	B	2070.2	2220.4	10.00	10.73	pg/uL	7	20	
alpha-Chlordane	B	1951.8	2062.4	10.00	10.57	pg/uL	6	20	
4,4'-DDE	B	1865.7	2163.6	20.00	23.19	pg/uL	16	20	
Endosulfan I	B	1856.1	1979.3	10.00	10.66	pg/uL	7	20	
Dieldrin	B	1945.9	2298.1	20.00	23.62	pg/uL	18	20	
Endrin	B	1708.6	1980.0	20.00	23.18	pg/uL	16	20	
4,4'-DDD	B	1468.5	1645.7	20.00	22.41	pg/uL	12	20	
Endosulfan II	B	1610.9	1802.6	20.00	22.38	pg/uL	12	20	
4,4'-DDT	B	1619.8	1789.4	20.00	22.09	pg/uL	10	20	
Endrin aldehyde	B	1258.9	1421.6	20.00	22.58	pg/uL	13	20	
Methoxychlor	B	678.45	769.15	100.0	113.4	pg/uL	13	20	
Endosulfan sulfate	B	1380.7	1481.1	20.00	21.45	pg/uL	7	20	
Endrin ketone	B	1746.4	1932.2	20.00	22.13	pg/uL	11	20	
TCMX	B	1567.5	1776.9	20.00	22.67	pg/uL	13	20	
Decachlorobiphenyl	B	1386.9	1454.8	20.00	20.98	pg/uL	5	20	
Average EPA 8081B	A	(n=23)					15		
Average EPA 8081B	B	(n=23)					10		

BJP 05/25/16 : Corrected automatically drawn baseline for all channels.

[general version]

BJP 05/25/16 : Separated from coeluting peak for all channels. [general version]

Analyst: BJP Date: 05/27/16 Reviewer: TKM Date: 05/27/16

+=high bias c=CCV

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 PEST Soil
EPA 8081B

Inst : GC30 Run Name : ISOPEST_3 IDF : 1.0
Seqnum : 356210796010.1 File : 146_010 Time : 25-MAY-2016 14:18
Cal : 356203640001 Caldate : 20-MAY-2016
Standards: S29898

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
alpha-BHC	A	5325.1	6822.4	10.00	12.81	pg/uL	**28**	20	c+ ***
gamma-BHC	A	4947.6	6231.8	10.00	12.60	pg/uL	**26**	20	c+ ***
beta-BHC	A	1995.4	2066.1	10.00	10.35	pg/uL	4	20	
delta-BHC	A	5010.3	6362.7	10.00	12.70	pg/uL	**27**	20	c+ ***
Heptachlor	A	4901.1	6052.7	10.00	12.35	pg/uL	**23**	20	c+ ***
Aldrin	A	4623.6	5563.8	10.00	12.03	pg/uL	20	20	
Heptachlor epoxide	A	3966.3	4653.2	10.00	11.73	pg/uL	17	20	
gamma-Chlordane	A	4120.0	4755.6	10.00	11.54	pg/uL	15	20	
alpha-Chlordane	A	3921.5	4446.9	10.00	11.34	pg/uL	13	20	
4,4'-DDE	A	3647.8	4753.9	20.00	26.06	pg/uL	**30**	20	c+ ***
Endosulfan I	A	3833.6	4293.7	10.00	11.20	pg/uL	12	20	
Dieldrin	A	3801.1	5020.5	20.00	26.42	pg/uL	**32**	20	c+ ***
Endrin	A	3406.1	4425.3	20.00	25.98	pg/uL	**30**	20	c+ ***
4,4'-DDD	A	3022.5	3880.2	20.00	25.68	pg/uL	**28**	20	c+ ***
Endosulfan II	A	3107.4	3853.6	20.00	24.80	pg/uL	**24**	20	c+ ***
4,4'-DDT	A	3219.4	4052.9	20.00	25.18	pg/uL	**26**	20	c+ ***
Endrin aldehyde	A	2378.3	3048.4	20.00	25.63	pg/uL	**28**	20	c+ ***
Methoxychlor	A	1275.4	1623.2	100.0	127.3	pg/uL	**27**	20	c+ ***
Endosulfan sulfate	A	2695.5	3334.9	20.00	24.74	pg/uL	**24**	20	c+ ***
Endrin ketone	A	2982.8	3924.5	20.00	26.31	pg/uL	**32**	20	c+ ***
TCMX	A	2880.3	3375.8	20.00	23.44	pg/uL	17	20	
Decachlorobiphenyl	A	2370.4	2531.1	20.00	21.36	pg/uL	7	20	
alpha-BHC	B	2594.9	3035.5	10.00	11.70	pg/uL	17	20	
gamma-BHC	B	2384.3	2783.0	10.00	11.67	pg/uL	17	20	
beta-BHC	B	938.71	1042.7	10.00	11.11	pg/uL	11	20	
delta-BHC	B	2410.0	2868.3	10.00	11.90	pg/uL	19	20	
Heptachlor	B	2327.3	2569.4	10.00	11.04	pg/uL	10	20	
Aldrin	B	2264.2	2586.3	10.00	11.42	pg/uL	14	20	
Heptachlor epoxide	B	1937.3	2202.3	10.00	11.37	pg/uL	14	20	
gamma-Chlordane	B	2070.2	2337.6	10.00	11.29	pg/uL	13	20	
alpha-Chlordane	B	1951.8	2195.3	10.00	11.25	pg/uL	12	20	
4,4'-DDE	B	1865.7	2373.6	20.00	25.44	pg/uL	**27**	20	c+ ***
Endosulfan I	B	1856.1	2111.0	10.00	11.37	pg/uL	14	20	
Dieldrin	B	1945.9	2503.4	20.00	25.73	pg/uL	**29**	20	c+ ***
Endrin	B	1708.6	2159.6	20.00	25.28	pg/uL	**26**	20	c+ ***
4,4'-DDD	B	1468.5	1851.9	20.00	25.22	pg/uL	**26**	20	c+ ***
Endosulfan II	B	1610.9	1982.6	20.00	24.61	pg/uL	**23**	20	c+ ***
4,4'-DDT	B	1619.8	2012.5	20.00	24.85	pg/uL	**24**	20	c+ ***
Endrin aldehyde	B	1258.9	1557.4	20.00	24.74	pg/uL	**24**	20	c+ ***
Methoxychlor	B	678.45	891.18	100.0	131.4	pg/uL	**31**	20	c+ ***
Endosulfan sulfate	B	1380.7	1649.9	20.00	23.90	pg/uL	19	20	
Endrin ketone	B	1746.4	2176.6	20.00	24.93	pg/uL	**25**	20	c+ ***
TCMX	B	1567.5	1817.8	20.00	23.19	pg/uL	16	20	
Decachlorobiphenyl	B	1386.9	1596.4	20.00	23.02	pg/uL	15	20	
Average EPA 8081B	A	(n=23)					22		
Average EPA 8081B	B	(n=23)					19		

BJP 05/25/16 : Corrected automatically drawn baseline for all channels.

[general version]

BJP 05/25/16 : Separated from coeluting peak for Ch. B. [general version]

Analyst: BJP Date: 05/27/16 Reviewer: TKM Date: 05/27/16

+=high bias c=CCV

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 PEST Soil
EPA 8081B

Inst : GC30 Run Name : ISOPEST_3 IDF : 1.0
Seqnum : 356213639003.1 File : 148_003 Time : 27-MAY-2016 09:11
Cal : 356212292001 Caldate : 27-MAY-2016
Standards: S29898

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
alpha-BHC	A	6684.6	7651.7	10.00	11.45	pg/uL	14	20	
gamma-BHC	A	6295.7	7097.4	10.00	11.27	pg/uL	13	20	
beta-BHC	A	2492.6	2350.1	10.00	9.428	pg/uL	-6	20	
delta-BHC	A	6462.3	7073.8	10.00	10.95	pg/uL	9	20	
Heptachlor	A	6280.6	6803.8	10.00	10.83	pg/uL	8	20	
Aldrin	A	5883.1	6355.5	10.00	10.80	pg/uL	8	20	
Heptachlor epoxide	A	5140.6	5382.6	10.00	10.47	pg/uL	5	20	
gamma-Chlordane	A	5215.0	5586.3	10.00	10.71	pg/uL	7	20	
alpha-Chlordane	A	4964.6	5198.1	10.00	10.47	pg/uL	5	20	
4,4'-DDE	A	4849.6	5382.6	20.00	22.20	pg/uL	11	20	v+ ***
Endosulfan I	A	4839.3	5038.4	10.00	10.41	pg/uL	4	20	
Dieldrin	A	5055.2	5604.4	20.00	22.17	pg/uL	11	20	
Endrin	A	4540.6	4997.5	20.00	22.01	pg/uL	10	20	
4,4'-DDD	A	4083.5	4274.5	20.00	20.94	pg/uL	5	20	
Endosulfan II	A	4104.1	4255.5	20.00	20.74	pg/uL	4	20	
4,4'-DDT	A	4207.5	4563.4	20.00	21.69	pg/uL	8	20	
Endrin aldehyde	A	3147.6	3375.5	20.00	21.45	pg/uL	7	20	v+ ***
Methoxychlor	A	1749.4	1760.0	100.0	100.6	pg/uL	1	20	
Endosulfan sulfate	A	3679.6	3623.7	20.00	19.70	pg/uL	-2	20	
Endrin ketone	A	4045.3	4159.2	20.00	20.56	pg/uL	3	20	
TCMX	A	3335.5	3671.0	20.00	22.01	pg/uL	10	20	
Decachlorobiphenyl	A	3247.6	2849.1	20.00	17.55	pg/uL	-12	20	
alpha-BHC	B	2672.2	3087.8	10.00	11.56	pg/uL	16	20	v+ ***
gamma-BHC	B	2471.2	2822.0	10.00	11.42	pg/uL	14	20	v+ ***
beta-BHC	B	975.81	1037.1	10.00	10.63	pg/uL	6	20	
delta-BHC	B	2660.3	2781.8	10.00	10.46	pg/uL	5	20	
Heptachlor	B	2543.1	2692.1	10.00	10.59	pg/uL	6	20	
Aldrin	B	2343.3	2588.1	10.00	11.04	pg/uL	10	20	
Heptachlor epoxide	B	1992.8	2223.2	10.00	11.16	pg/uL	12	20	
gamma-Chlordane	B	2152.4	2327.9	10.00	10.82	pg/uL	8	20	
alpha-Chlordane	B	2035.0	2193.2	10.00	10.78	pg/uL	8	20	
4,4'-DDE	B	2035.8	2319.9	20.00	22.79	pg/uL	14	20	
Endosulfan I	B	1962.7	2091.0	10.00	10.65	pg/uL	7	20	
Dieldrin	B	2129.5	2458.2	20.00	23.09	pg/uL	15	20	
Endrin	B	1875.2	2172.4	20.00	23.17	pg/uL	16	20	
4,4'-DDD	B	1558.9	1762.2	20.00	22.61	pg/uL	13	20	
Endosulfan II	B	1717.5	1918.1	20.00	22.34	pg/uL	12	20	
4,4'-DDT	B	1739.4	1979.8	20.00	22.76	pg/uL	14	20	
Endrin aldehyde	B	1293.7	1501.5	20.00	23.21	pg/uL	16	20	v+ ***
Methoxychlor	B	798.37	873.09	100.0	109.4	pg/uL	9	20	
Endosulfan sulfate	B	1495.4	1587.1	20.00	21.23	pg/uL	6	20	
Endrin ketone	B	1888.9	2075.4	20.00	21.97	pg/uL	10	20	
TCMX	B	1623.4	1842.5	20.00	22.70	pg/uL	13	20	
Decachlorobiphenyl	B	1554.8	1534.3	20.00	19.74	pg/uL	-1	20	
Average EPA 8081B	A	(n=23)					7		
Average EPA 8081B	B	(n=23)					10		

BJP 05/27/16 : Corrected automatically drawn baseline for all channels.

[general version]

BJP 05/27/16 : Separated from coeluting peak for Ch. B. [general version]

Analyst: BJP Date: 05/27/16 Reviewer: TKM Date: 05/27/16

+=high bias v=ICV

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 PEST Soil
EPA 8081B

Inst : GC30 Run Name : ISOPEST_3 IDF : 1.0
Seqnum : 356213639016.1 File : 148_016 Time : 27-MAY-2016 12:50
Cal : 356212292001 Caldate : 27-MAY-2016
Standards: S29898

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
alpha-BHC	A	6684.6	8034.6	10.00	12.02	pg/uL	20	20	
gamma-BHC	A	6295.7	7400.7	10.00	11.76	pg/uL	18	20	
beta-BHC	A	2492.6	2373.1	10.00	9.520	pg/uL	-5	20	
delta-BHC	A	6462.3	7223.9	10.00	11.18	pg/uL	12	20	
Heptachlor	A	6280.6	7123.8	10.00	11.34	pg/uL	13	20	
Aldrin	A	5883.1	6610.8	10.00	11.24	pg/uL	12	20	
Heptachlor epoxide	A	5140.6	5476.6	10.00	10.65	pg/uL	7	20	
gamma-Chlordane	A	5215.0	5605.5	10.00	10.75	pg/uL	7	20	
alpha-Chlordane	A	4964.6	5233.2	10.00	10.54	pg/uL	5	20	
4,4'-DDE	A	4849.6	5536.9	20.00	22.83	pg/uL	14	20	v+ ***
Endosulfan I	A	4839.3	5108.4	10.00	10.56	pg/uL	6	20	
Dieldrin	A	5055.2	5784.6	20.00	22.89	pg/uL	14	20	
Endrin	A	4540.6	5297.6	20.00	23.33	pg/uL	17	20	
4,4'-DDD	A	4083.5	4546.8	20.00	22.27	pg/uL	11	20	
Endosulfan II	A	4104.1	4214.4	20.00	20.54	pg/uL	3	20	
4,4'-DDT	A	4207.5	3933.5	20.00	18.70	pg/uL	-7	20	
Endrin aldehyde	A	3147.6	3317.7	20.00	21.08	pg/uL	5	20	v+ ***
Methoxychlor	A	1749.4	1794.1	100.0	102.6	pg/uL	3	20	
Endosulfan sulfate	A	3679.6	3648.2	20.00	19.83	pg/uL	-1	20	
Endrin ketone	A	4045.3	4221.4	20.00	20.87	pg/uL	4	20	
TCMX	A	3335.5	3643.3	20.00	21.85	pg/uL	9	20	
Decachlorobiphenyl	A	3247.6	2866.3	20.00	17.65	pg/uL	-12	20	
alpha-BHC	B	2672.2	2875.9	10.00	10.76	pg/uL	8	20	v+ ***
gamma-BHC	B	2471.2	2634.5	10.00	10.66	pg/uL	7	20	v+ ***
beta-BHC	B	975.81	969.00	10.00	9.930	pg/uL	-1	20	
delta-BHC	B	2660.3	2604.2	10.00	9.789	pg/uL	-2	20	
Heptachlor	B	2543.1	2463.0	10.00	9.685	pg/uL	-3	20	
Aldrin	B	2343.3	2369.9	10.00	10.11	pg/uL	1	20	
Heptachlor epoxide	B	1992.8	1986.7	10.00	9.969	pg/uL	0	20	
gamma-Chlordane	B	2152.4	2119.4	10.00	9.847	pg/uL	-2	20	
alpha-Chlordane	B	2035.0	1993.6	10.00	9.796	pg/uL	-2	20	
4,4'-DDE	B	2035.8	2124.2	20.00	20.87	pg/uL	4	20	
Endosulfan I	B	1962.7	1930.3	10.00	9.835	pg/uL	-2	20	
Dieldrin	B	2129.5	2242.1	20.00	21.06	pg/uL	5	20	
Endrin	B	1875.2	2015.7	20.00	21.50	pg/uL	7	20	
4,4'-DDD	B	1558.9	1727.3	20.00	22.16	pg/uL	11	20	
Endosulfan II	B	1717.5	1774.3	20.00	20.66	pg/uL	3	20	
4,4'-DDT	B	1739.4	1691.0	20.00	19.44	pg/uL	-3	20	
Endrin aldehyde	B	1293.7	1393.6	20.00	21.54	pg/uL	8	20	v+ ***
Methoxychlor	B	798.37	805.31	100.0	100.9	pg/uL	1	20	
Endosulfan sulfate	B	1495.4	1492.9	20.00	19.97	pg/uL	0	20	
Endrin ketone	B	1888.9	1938.8	20.00	20.53	pg/uL	3	20	
TCMX	B	1623.4	1729.4	20.00	21.30	pg/uL	7	20	
Decachlorobiphenyl	B	1554.8	1430.5	20.00	18.40	pg/uL	-8	20	
Average EPA 8081B	A	(n=23)					9		
Average EPA 8081B	B	(n=23)					4		

BJP 05/27/16 : Corrected automatically drawn baseline for all channels.

[general version]

BJP 05/27/16 : Separated from coeluting peak for Ch. B. [general version]

Analyst: BJP Date: 05/27/16 Reviewer: TKM Date: 05/27/16

+=high bias v=ICV

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 PEST Soil
EPA 8081B

Inst : GC30 Run Name : ISOPEST_3 IDF : 1.0
Seqnum : 356213639023.1 File : 148_023 Time : 27-MAY-2016 15:02
Cal : 356212292001 Caldate : 27-MAY-2016
Standards: S29898

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
alpha-BHC	A	6684.6	8622.8	10.00	12.90	pg/uL	**29**	20	c+ ***
gamma-BHC	A	6295.7	7909.1	10.00	12.56	pg/uL	**26**	20	c+ ***
beta-BHC	A	2492.6	2549.6	10.00	10.23	pg/uL	2	20	
delta-BHC	A	6462.3	7683.1	10.00	11.89	pg/uL	19	20	
Heptachlor	A	6280.6	7557.3	10.00	12.03	pg/uL	20	20	
Aldrin	A	5883.1	6970.3	10.00	11.85	pg/uL	18	20	
Heptachlor epoxide	A	5140.6	5799.2	10.00	11.28	pg/uL	13	20	
gamma-Chlordane	A	5215.0	5955.7	10.00	11.42	pg/uL	14	20	
alpha-Chlordane	A	4964.6	5519.6	10.00	11.12	pg/uL	11	20	
4,4'-DDE	A	4849.6	5822.8	20.00	24.01	pg/uL	20	20	v+ ***
Endosulfan I	A	4839.3	5400.7	10.00	11.16	pg/uL	12	20	
Dieldrin	A	5055.2	6091.5	20.00	24.10	pg/uL	20	20	
Endrin	A	4540.6	5599.1	20.00	24.66	pg/uL	**23**	20	c+ ***
4,4'-DDD	A	4083.5	4949.8	20.00	24.24	pg/uL	**21**	20	c+ ***
Endosulfan II	A	4104.1	4740.5	20.00	23.10	pg/uL	16	20	
4,4'-DDT	A	4207.5	4278.8	20.00	20.34	pg/uL	2	20	
Endrin aldehyde	A	3147.6	3623.7	20.00	23.02	pg/uL	15	20	v+ ***
Methoxychlor	A	1749.4	1856.7	100.0	106.1	pg/uL	6	20	
Endosulfan sulfate	A	3679.6	3955.4	20.00	21.50	pg/uL	7	20	
Endrin ketone	A	4045.3	4606.4	20.00	22.77	pg/uL	14	20	
TCMX	A	3335.5	4146.0	20.00	24.86	pg/uL	**24**	20	c+
Decachlorobiphenyl	A	3247.6	3191.4	20.00	19.65	pg/uL	-2	20	
alpha-BHC	B	2672.2	2950.8	10.00	11.04	pg/uL	10	20	v+ ***
gamma-BHC	B	2471.2	2690.9	10.00	10.89	pg/uL	9	20	v+ ***
beta-BHC	B	975.81	974.20	10.00	9.984	pg/uL	0	20	
delta-BHC	B	2660.3	2606.8	10.00	9.799	pg/uL	-2	20	
Heptachlor	B	2543.1	2524.1	10.00	9.925	pg/uL	-1	20	
Aldrin	B	2343.3	2386.4	10.00	10.18	pg/uL	2	20	
Heptachlor epoxide	B	1992.8	2058.9	10.00	10.33	pg/uL	3	20	
gamma-Chlordane	B	2152.4	2118.9	10.00	9.844	pg/uL	-2	20	
alpha-Chlordane	B	2035.0	2003.3	10.00	9.844	pg/uL	-2	20	
4,4'-DDE	B	2035.8	2099.6	20.00	20.63	pg/uL	3	20	
Endosulfan I	B	1962.7	1922.0	10.00	9.793	pg/uL	-2	20	
Dieldrin	B	2129.5	2237.7	20.00	21.02	pg/uL	5	20	
Endrin	B	1875.2	2049.2	20.00	21.86	pg/uL	9	20	
4,4'-DDD	B	1558.9	1707.0	20.00	21.90	pg/uL	9	20	
Endosulfan II	B	1717.5	1733.6	20.00	20.19	pg/uL	1	20	
4,4'-DDT	B	1739.4	1632.3	20.00	18.77	pg/uL	-6	20	
Endrin aldehyde	B	1293.7	1385.6	20.00	21.42	pg/uL	7	20	v+ ***
Methoxychlor	B	798.37	786.07	100.0	98.46	pg/uL	-2	20	
Endosulfan sulfate	B	1495.4	1496.9	20.00	20.02	pg/uL	0	20	
Endrin ketone	B	1888.9	1939.5	20.00	20.54	pg/uL	3	20	
TCMX	B	1623.4	1777.5	20.00	21.90	pg/uL	9	20	
Decachlorobiphenyl	B	1554.8	1426.4	20.00	18.35	pg/uL	-8	20	
Average EPA 8081B	A	(n=23)					15		
Average EPA 8081B	B	(n=23)					4		

BJP 05/27/16 : Corrected automatically drawn baseline for all channels.

[general version]

Analyst: BJP Date: 05/27/16 Reviewer: TKM Date: 05/27/16

+=high bias c=CCV v=ICV

356213639023.1

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 PEST Soil
EPA 8081B

Inst : GC30 Run Name : ISOPEST_3 IDF : 1.0
Seqnum : 356213639034.1 File : 148_034 Time : 27-MAY-2016 22:24
Cal : 356212292001 Caldate : 27-MAY-2016
Standards: S29898

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
alpha-BHC	A	6684.6	9904.0	10.00	14.82	pg/uL	**48**	20	c+ ***
gamma-BHC	A	6295.7	9215.8	10.00	14.64	pg/uL	**46**	20	c+ ***
beta-BHC	A	2492.6	3098.9	10.00	12.43	pg/uL	**24**	20	c+ ***
delta-BHC	A	6462.3	9182.3	10.00	14.21	pg/uL	**42**	20	c+ ***
Heptachlor	A	6280.6	8816.2	10.00	14.04	pg/uL	**40**	20	c+ ***
Aldrin	A	5883.1	8269.9	10.00	14.06	pg/uL	**41**	20	c+ ***
Heptachlor epoxide	A	5140.6	7056.5	10.00	13.73	pg/uL	**37**	20	c+ ***
gamma-Chlordane	A	5215.0	7282.1	10.00	13.96	pg/uL	**40**	20	c+ ***
alpha-Chlordane	A	4964.6	6806.2	10.00	13.71	pg/uL	**37**	20	c+ ***
4,4'-DDE	A	4849.6	6934.5	20.00	28.60	pg/uL	**43**	20	c+ v+ ***
Endosulfan I	A	4839.3	6717.8	10.00	13.88	pg/uL	**39**	20	c+ ***
Dieldrin	A	5055.2	7180.3	20.00	28.41	pg/uL	**42**	20	c+ ***
Endrin	A	4540.6	6635.0	20.00	29.22	pg/uL	**46**	20	c+ ***
4,4'-DDD	A	4083.5	6193.8	20.00	30.34	pg/uL	**52**	20	c+ ***
Endosulfan II	A	4104.1	5799.4	20.00	28.26	pg/uL	**41**	20	c+ ***
4,4'-DDT	A	4207.5	5392.9	20.00	25.63	pg/uL	**28**	20	c+ ***
Endrin aldehyde	A	3147.6	4452.1	20.00	28.29	pg/uL	**41**	20	c+ v+ ***
Methoxychlor	A	1749.4	2108.6	100.0	120.5	pg/uL	**21**	20	c+ ***
Endosulfan sulfate	A	3679.6	4815.3	20.00	26.17	pg/uL	**31**	20	c+ ***
Endrin ketone	A	4045.3	5541.2	20.00	27.40	pg/uL	**37**	20	c+ ***
TCMX	A	3335.5	5138.7	20.00	30.81	pg/uL	**54**	20	c+
Decachlorobiphenyl	A	3247.6	3948.6	20.00	24.32	pg/uL	**22**	20	c+
alpha-BHC	B	2672.2	3474.5	10.00	13.00	pg/uL	**30**	20	c+ v+ ***
gamma-BHC	B	2471.2	3176.9	10.00	12.86	pg/uL	**29**	20	c+ v+ ***
beta-BHC	B	975.81	1124.8	10.00	11.53	pg/uL	15	20	
delta-BHC	B	2660.3	3218.8	10.00	12.10	pg/uL	**21**	20	c+ ***
Heptachlor	B	2543.1	3069.4	10.00	12.07	pg/uL	**21**	20	c+ ***
Aldrin	B	2343.3	2890.4	10.00	12.33	pg/uL	**23**	20	c+ ***
Heptachlor epoxide	B	1992.8	2515.4	10.00	12.62	pg/uL	**26**	20	c+ ***
gamma-Chlordane	B	2152.4	2593.7	10.00	12.05	pg/uL	**21**	20	c+ ***
alpha-Chlordane	B	2035.0	2439.8	10.00	11.99	pg/uL	20	20	
4,4'-DDE	B	2035.8	2608.7	20.00	25.63	pg/uL	**28**	20	c+ ***
Endosulfan I	B	1962.7	2331.7	10.00	11.88	pg/uL	19	20	
Dieldrin	B	2129.5	2749.3	20.00	25.82	pg/uL	**29**	20	c+ ***
Endrin	B	1875.2	2534.6	20.00	27.03	pg/uL	**35**	20	c+ ***
4,4'-DDD	B	1558.9	2249.3	20.00	28.86	pg/uL	**44**	20	c+ ***
Endosulfan II	B	1717.5	2204.1	20.00	25.67	pg/uL	**28**	20	c+ ***
4,4'-DDT	B	1739.4	2026.3	20.00	23.30	pg/uL	16	20	
Endrin aldehyde	B	1293.7	1709.6	20.00	26.43	pg/uL	**32**	20	c+ v+ ***
Methoxychlor	B	798.37	953.76	100.0	119.5	pg/uL	19	20	
Endosulfan sulfate	B	1495.4	1845.1	20.00	24.68	pg/uL	**23**	20	c+ ***
Endrin ketone	B	1888.9	2382.2	20.00	25.22	pg/uL	**26**	20	c+ ***
TCMX	B	1623.4	1779.4	20.00	21.92	pg/uL	10	20	
Decachlorobiphenyl	B	1554.8	1729.4	20.00	22.25	pg/uL	11	20	
Average EPA 8081B	A	(n=23)					39		
Average EPA 8081B	B	(n=23)					24		

RFC 05/31/16 : Corrected automatically drawn baseline for all channels.

[general version]

RFC 05/31/16 : Separated from coeluting peak for all channels. [general version]

Analyst: RFC Date: 06/01/16 Reviewer: EAH Date: 06/01/16

+=high bias c=CCV v=ICV

Logbooks & Sequences

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 356203640

Instrument : GC30 Begun : 05/20/16 10:00
Method : EPA 8081B SOP Version : pesticides_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	141_001	X	HEX			05/20/16 10:00	1.0		
002	141_002	PEM	PEM			05/20/16 10:16	1.0	1	
003	141_003	CCV	ISOPEST_3			05/20/16 10:32	1.0	2	ac
004	141_004	X	HEX			05/20/16 19:33	1.0		
005	141_005	PEM	PEM			05/20/16 19:54	1.0	1	
006	141_006	X	HEX			05/20/16 20:59	1.0		
007	141_007	X	HEX			05/20/16 21:14	1.0		
008	141_008	IB	CALIB			05/20/16 21:30	1.0		
009	141_009	ICAL	ISOPEST_1/2			05/20/16 21:46	1.0	3	
010	141_010	ICAL	ISOPEST_1			05/20/16 22:02	1.0	3	
011	141_011	ICAL	ISOPEST_2			05/20/16 22:18	1.0	4	
012	141_012	ICAL	ISOPEST_3			05/20/16 22:34	1.0	5	
013	141_013	ICAL	ISOPEST_4			05/20/16 22:50	1.0	6	
014	141_014	ICAL	ISOPEST_5			05/20/16 23:06	1.0	7	
015	141_015	ICAL	ISOPEST_6			05/20/16 23:22	1.0	8	
016	141_016	ICAL	ISOPEST_7			05/20/16 23:38	1.0	9	
017	141_017	X	HEX			05/20/16 23:54	1.0		
018	141_018	ICV	PEST_ICV			05/21/16 00:10	1.0	10	
019	141_019	X	HEX			05/21/16 00:26	1.0		
020	141_020	ICV	PEST_ICV			05/21/16 00:42	1.0	10	
021	141_021	X	HEX			05/21/16 00:58	1.0		

BJP 05/23/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 21.

Standards used: 1=S29649 2=S29898 3=S29540 4=S29541 5=S29542 6=S29543 7=S29544 8=S29545 9=S29546 10=S29465
Flags used: ac=average CCV drift out
Page 1 of 1

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 356210796

Instrument : GC30 Begun : 05/25/16 09:16
Method : EPA 8081B SOP Version : pesticides_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	146_001	X	HEX			05/25/16 09:16	1.0		
002	146_002	PEM	PEM			05/25/16 09:32	1.0	1	
003	146_003	CCV	ISOPEST_3			05/25/16 09:48	1.0	2	
004	146_004	X	HEX			05/25/16 12:35	1.0		
005	146_005	CCV	CHLOR_150			05/25/16 12:51	1.0	3	
006	146_006	SAMPLE	277085-002	Soil	235428	05/25/16 13:14	1.0		>ac
007	146_007	LCS	QC836941	Soil	235428	05/25/16 13:30	1.0		
008	146_008	BLANK	QC836940	Soil	235428	05/25/16 13:46	1.0		
009	146_009	PEM	PEM			05/25/16 14:02	1.0	1	
010	146_010	CCV	ISOPEST_3			05/25/16 14:18	1.0	2	

BJP 05/25/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 10.

Standards used: 1=S29649 2=S29898 3=S28835
Flags used: >=closing ac=average CCV drift out
Page 1 of 1

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 356212292

Instrument : GC30 Begun : 05/26/16 10:12
Method : EPA 8081B SOP Version : pesticides_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	147_001	X	HEX			05/26/16 10:12	1.0		
002	147_002	PEM	PEM			05/26/16 10:28	1.0	1	
003	147_003	CCV	ISOPEST_3			05/26/16 10:44	1.0	2	ac
004	147_004	CCV	CHLOR_150			05/26/16 11:00	1.0	3	
005	147_005	X	HEX			05/26/16 13:10	1.0		
006	147_006	PEM	PEM			05/26/16 13:26	1.0	1	
007	147_007	CCV	ISOPEST_3			05/26/16 13:42	1.0	2	ac
008	147_008	X	HEX			05/26/16 18:16	1.0		
009	147_009	PEM	PEM			05/26/16 18:32	1.0	1	
010	147_010	CCV	ISOPEST_3			05/26/16 18:48	1.0	2	ac
011	147_011	X	HEX			05/26/16 22:41	1.0		
012	147_012	PEM	PEM			05/26/16 22:57	1.0	1	
013	147_013	PEM	PEM			05/26/16 23:13	1.0	1	
014	147_014	X	HEX			05/26/16 23:29	1.0		
015	147_015	IB	CALIB			05/26/16 23:45	1.0		
016	147_016	ICAL	ISOPEST_1/2			05/27/16 00:01	1.0	4	
017	147_017	ICAL	ISOPEST_1			05/27/16 00:17	1.0	4	
018	147_018	ICAL	ISOPEST_2			05/27/16 00:33	1.0	5	
019	147_019	ICAL	ISOPEST_3			05/27/16 00:49	1.0	6	
020	147_020	ICAL	ISOPEST_4			05/27/16 01:04	1.0	7	
021	147_021	ICAL	ISOPEST_5			05/27/16 01:20	1.0	8	
022	147_022	ICAL	ISOPEST_6			05/27/16 01:36	1.0	9	
023	147_023	ICAL	ISOPEST_7			05/27/16 01:52	1.0	10	
024	147_024	X	HEX			05/27/16 02:08	1.0		
025	147_025	ICV	PEST_ICV			05/27/16 02:24	1.0	11	
026	147_026	X	HEX			05/27/16 02:40	1.0		
027	147_027	X	PEST_ICV			05/27/16 02:55	1.0	11	
028	147_028	X	HEX			05/27/16 03:11	1.0		

BJP 05/27/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 28.

Standards used: 1=S29649 2=S29898 3=S28835 4=S29540 5=S29541 6=S29542 7=S29543 8=S29544 9=S29545 10=S29546 11=S29465
Flags used: ac=average CCV drift out

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 356213639

Instrument : GC30 Begun : 05/27/16 08:39
Method : EPA 8081B SOP Version : pesticides_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used
001	148_001	X	HEX			05/27/16 08:39	1.0	
002	148_002	PEM	PEM			05/27/16 08:55	1.0	1
003	148_003	CCV	ISOPEST_3			05/27/16 09:11	1.0	2
004	148_004	SAMPLE	277036-001	Soil	235358	05/27/16 09:39	3.0	
005	148_005	MSS	277036-002	Soil	235358	05/27/16 09:55	3.0	
006	148_006	SAMPLE	277036-003	Soil	235358	05/27/16 10:11	3.0	
007	148_007	SAMPLE	277036-004	Soil	235358	05/27/16 10:27	3.0	
008	148_008	SAMPLE	277036-005	Soil	235358	05/27/16 10:43	3.0	
009	148_009	SAMPLE	277036-006	Soil	235358	05/27/16 10:58	3.0	
010	148_010	SAMPLE	277036-007	Soil	235358	05/27/16 11:14	3.0	
011	148_011	SAMPLE	277036-008	Soil	235358	05/27/16 11:30	3.0	
012	148_012	SAMPLE	277036-009	Soil	235358	05/27/16 11:46	3.0	
013	148_013	SAMPLE	277036-010	Soil	235358	05/27/16 12:02	3.0	
014	148_014	LCS	QC836663	Soil	235358	05/27/16 12:18	1.0	
015	148_015	PEM	PEM			05/27/16 12:34	1.0	1
016	148_016	CCV	ISOPEST_3			05/27/16 12:50	1.0	2
017	148_017	MS	QC836664	Soil	235358	05/27/16 13:27	3.0	
018	148_018	MSD	QC836665	Soil	235358	05/27/16 13:43	3.0	
019	148_019	LCS	QC836941	Soil	235428	05/27/16 13:58	1.0	
020	148_020	MS	QC836942	Soil	235428	05/27/16 14:14	3.0	
021	148_021	MSD	QC836943	Soil	235428	05/27/16 14:30	3.0	
022	148_022	PEM	PEM			05/27/16 14:46	1.0	1
023	148_023	CCV	ISOPEST_3			05/27/16 15:02	1.0	2
024	148_024	MSS	277038-011	Soil	235428	05/27/16 16:51	3.0	
025	148_025	SAMPLE	277038-012	Soil	235428	05/27/16 17:07	3.0	
026	148_026	BLANK	QC836940	Soil	235428	05/27/16 17:23	1.0	
027	148_027	MS	QC836942	Soil	235428	05/27/16 17:49	3.0	
028	148_028	MSD	QC836943	Soil	235428	05/27/16 18:05	3.0	
029	148_029	X	HEX			05/27/16 21:04	1.0	
030	148_030	MSS	277038-011	Soil	235428	05/27/16 21:20	3.0	
031	148_031	MS	QC836942	Soil	235428	05/27/16 21:36	3.0	
032	148_032	MSD	QC836943	Soil	235428	05/27/16 21:52	3.0	
033	148_033	PEM	PEM			05/27/16 22:08	1.0	1
034	148_034	CCV	ISOPEST_3			05/27/16 22:24	1.0	2
035	148_035	X	HEX			05/27/16 22:40	1.0	

BJP 05/27/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 28.

RFC 05/31/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 29 through 35.

Standards used: 1=S29649 2=S29898

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 806207922

Instrument : GC23 Begun : 05/23/16 09:22
Method : EPA 8081B SOP Version : pesticides_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	144_001	X	HEX			05/23/16 09:22	1.0		
002	144_002	X	HEX			05/23/16 09:40	1.0		
003	144_003	PEM	PEM			05/23/16 09:58	1.0	1	
004	144_004	CCV	ISOPEST_3			05/23/16 10:16	1.0	2	ac
005	144_005	X	HEX			05/23/16 20:19	1.0		
006	144_006	PEM	PEM			05/23/16 20:38	1.0	1	
007	144_007	X	PEM			05/23/16 20:56	1.0	1	
008	144_008	X	HEX			05/23/16 21:14	1.0		
009	144_009	IB	CALIB			05/23/16 21:32	1.0		
010	144_010	ICAL	ISOPEST_1/2			05/23/16 21:50	1.0	3	
011	144_011	ICAL	ISOPEST_1			05/23/16 22:09	1.0	3	
012	144_012	ICAL	ISOPEST_2			05/23/16 22:27	1.0	4	
013	144_013	ICAL	ISOPEST_3			05/23/16 22:45	1.0	5	
014	144_014	ICAL	ISOPEST_4			05/23/16 23:03	1.0	6	
015	144_015	ICAL	ISOPEST_5			05/23/16 23:21	1.0	7	
016	144_016	ICAL	ISOPEST_6			05/23/16 23:39	1.0	8	
017	144_017	ICAL	ISOPEST_7			05/23/16 23:57	1.0	9	
018	144_018	X	HEX			05/24/16 00:16	1.0		
019	144_019	ICV	PEST_ICV			05/24/16 00:34	1.0	10	
020	144_020	X	HEX			05/24/16 00:52	1.0		
021	144_021	ICV	PEST_ICV			05/24/16 01:10	1.0	10	
022	144_022	X	HEX			05/24/16 01:28	1.0		

BJP 05/24/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 22.

Standards used: 1=S29649 2=S29898 3=S29540 4=S29541 5=S29542 6=S29543 7=S29544 8=S29545 9=S29546 10=S29465

Flags used: ac=average CCV drift out

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 806213639

Instrument : GC23 Begun : 05/27/16 08:39
Method : EPA 8081B SOP Version : pesticides_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used
001	148_001	X	HEX			05/27/16 08:39	1.0	
002	148_002	PEM	PEM			05/27/16 08:57	1.0	1
003	148_003	CCV	ISOPEST_3			05/27/16 09:15	1.0	2
004	148_004	SAMPLE	277038-001	Soil	235358	05/27/16 09:40	3.0	
005	148_005	SAMPLE	277038-002	Soil	235358	05/27/16 09:58	3.0	
006	148_006	SAMPLE	277038-003	Soil	235358	05/27/16 10:16	3.0	
007	148_007	SAMPLE	277038-004	Soil	235358	05/27/16 10:35	3.0	
008	148_008	MSS	277038-005	Soil	235358	05/27/16 10:53	3.0	
009	148_009	SAMPLE	277038-006	Soil	235358	05/27/16 11:11	3.0	
010	148_010	SAMPLE	277038-007	Soil	235358	05/27/16 11:29	3.0	
011	148_011	SAMPLE	277038-008	Soil	235358	05/27/16 11:47	3.0	
012	148_012	SAMPLE	277038-009	Soil	235358	05/27/16 12:05	3.0	
013	148_013	SAMPLE	277038-010	Soil	235358	05/27/16 12:24	3.0	
014	148_014	BLANK	QC836659	Soil	235358	05/27/16 12:42	1.0	
015	148_015	PEM	PEM			05/27/16 13:00	1.0	1
016	148_016	CCV	ISOPEST_3			05/27/16 13:18	1.0	2
017	148_017	MSS	277038-011	Soil	235428	05/27/16 13:52	3.0	
018	148_018	SAMPLE	277038-012	Soil	235428	05/27/16 14:10	3.0	
019	148_019	BLANK	QC836940	Soil	235428	05/27/16 14:28	1.0	
020	148_020	PEM	PEM			05/27/16 14:46	1.0	1
021	148_021	CCV	ISOPEST_3			05/27/16 15:04	1.0	2

BJP 05/27/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 21.

Standards used: 1=S29649 2=S29898

SAMPLE PREPARATION SUMMARY

Batch # : 235358
Started By : ARW
Method : 3550B
Spike #1 ID : S29678
Prep Date : 23-MAY-2016 11:35
SOP Version : PCB_3550_rv12
Spike #2 ID : S29442
Analysis : PCB
Finished By : ARW
Units : g
Spike #3 ID : S29489

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
277036-001		Soil	29.79	20	1	0.6714		.8				8081, PCB	
277036-002		Soil	29.86	20	1	0.6698		.8				8081, PCB	
277036-003		Soil	30.41	20	1	0.6577		.8				8081, PCB	
277036-004		Soil	29.99	20	1	0.6669		.8				8081, PCB	
277036-005		Soil	29.91	20	1	0.6687		.8				8081, PCB	
277036-006		Soil	30.24	20	1	0.6614		.8				8081, PCB	
277036-007		Soil	29.8	20	1	0.6711		.8				8081, PCB	
277036-008		Soil	30.46	20	1	0.6566		.8				8081, PCB	
277036-009		Soil	30.06	20	1	0.6653		.8				8081, PCB	
277036-010		Soil	29.93	20	1	0.6682		.8				8081, PCB	
277038-001		Soil	29.75	20	1	0.6723		.8				8081, PCB	
277038-002		Soil	29.71	20	1	0.6732		.8				8081, PCB	
277038-003		Soil	30.18	20	1	0.6627		.8				8081, PCB	
277038-004		Soil	29.58	20	1	0.6761		.8				8081, PCB	
277038-005		Soil	30.04	20	1	0.6658		.8				8081, PCB	
277038-006		Soil	29.66	20	1	0.6743		.8				8081, PCB	
277038-007		Soil	29.58	20	1	0.6761		.8				8081, PCB	
277038-008		Soil	29.99	20	1	0.6669		.8				8081, PCB	
277038-009		Soil	29.86	20	1	0.6698		.8				8081, PCB	
277038-010		Soil	30.37	20	1	0.6585		.8				8081, PCB	
QC836659	BLANK	Soil	29.68	20	1	0.6739		.8				PCB	
QC836660	LCS	Soil	30.04	20	1	0.6658		.8	1			PCB	
QC836661	MS	Soil	29.63	20	1	0.675		.8	1			PCB	
QC836662	MSD	Soil	29.52	20	1	0.6775		.8	1			PCB	
QC836663	LCS	Soil	29.86	20	1	0.6698		.8		.4		8081	
QC836664	MS	Soil	29.77	20	1	0.6718		.8		.4		8081	
QC836665	MSD	Soil	29.66	20	1	0.6743		.8		.4		8081	

TKM 05/27/16 : reviewed prep entry

JS1: 05/27/16 BJP: 05/27/16 TKM: 05/27/16

8081 Soil Prep Log Curtis & Tompkins, Ltd.

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Extraction Method:
☑ EPA 3550b Sonication
☐ _____

Cleanup Method:
☒ EPA 3620b Florisil

LIMS Batch No: 235358
Date Extracted: 5/23/16

Sample #	Container ID	Sample Wt (g)	Final Vol (mL)	Comments
277036-001	G	29.79	☑ 20.0 ☐	
2		29.86	☑ 20.0 ☐	
3		30.41	☑ 20.0 ☐	
4		29.99	☑ 20.0 ☐	
5		29.91	☑ 20.0 ☐	
6		30.24	☑ 20.0 ☐	
7		29.80	☑ 20.0 ☐	
8		30.46	☑ 20.0 ☐	
9		30.06	☑ 20.0 ☐	
10		29.73	☑ 20.0 ☐	
277038-001		29.75	☑ 20.0 ☐	
2		29.71	☑ 20.0 ☐	
3		30.18	☑ 20.0 ☐	
4		29.58	☑ 20.0 ☐	
5		30.04	☑ 20.0 ☐	MSS
6		29.66	☑ 20.0 ☐	
7		29.58	☑ 20.0 ☐	
8		29.99	☑ 20.0 ☐	
9		29.86	☑ 20.0 ☐	
10		30.37	☑ 20.0 ☐	
MB QC836659	VA	29.68	☑ 20.0 ☐	
LG 63		29.86	☑ 20.0 ☐	
MS 64		29.77	☑ 20.0 ☐	
MSD 65		29.66	☑ 20.0 ☐	
			☐ 20.0 ☐	

BOY 5/23/16

☐ MS/MSD not included due to: ☐ insufficent volume, or ☐ other (reason) _____

☑ Balance ID: Dish-1 Has been calibrated? ☑ Yes ☐ No

	Mfg & Lot # / LIMS # / Time	Initials / Date
Solvent-rinsed granular Na_2SO_4 weighed out for QC samples	EMY1316L	APW 5/23/16
dried with CH_2Cl_2-rinsed ☑ granular Na_2SO_4 ☐ powder	↓	
0.8 mL of surrogate solution was added to all samples	S29678D	
0.4 mL of spike solution was added to all spikes	S29489A	
1:1 CH_2Cl_2 (lot# EM55241):Acetone(lot# FS1604B) was added to all	/	
Solvent added at (time)	1135	
☑ sonicated 3 times w/ ≥100mL ☐ soxhlet extractors on at:	/	
soxhlets off at:	VA	
Extracts filtered through baked, CH_2Cl_2-rinsed powdered Na_2SO_4	FM0835C502	
Exchanged 2x with Hexane	FS1418B7	
Concentrated to final volume in boiling H2O bath	100	
☒ Florisil Cleanup Performed	/	
Extracts relinquished to Pesticide Group	/	

5/23/2016

Extraction Chemist / Date

Continued from page _____
Continued on page _____

5/23/16

Reviewed by / Date

PCB (8082) Soil Prep Log

LIMS Batch No: 235358
LIMS Analysis PCB (PIP)
Date Extracted: 5/27/2016

☑ EPA 3550b Sonication
☐ Other _____

Curtis & Tompkins, Ltd.
Page 1
BK 3850

Sample #	Container ID	Sample Wt (g)	Final Vol (mL)	Comments
277036-001	G	29.79	☐ 25.0 ☑ 20	
2		29.86	☐ 25.0 ☑ 20	MSS
3		30.41	☐ 25.0 ☑ 20	
4		29.99	☐ 25.0 ☑ 20	
5		29.91	☐ 25.0 ☑ 20	
6		30.24	☐ 25.0 ☑ 20	
7		29.80	☐ 25.0 ☑ 20	
8		30.46	☐ 25.0 ☑ 20	
9		30.06	☐ 25.0 ☑ 20	
10		29.93	☐ 25.0 ☑ 20	
277038-001		29.75	☐ 25.0 ☑ 20	
2		29.71	☐ 25.0 ☑ 20	
3		30.18	☐ 25.0 ☑ 20	
4		29.58	☐ 25.0 ☑ 20	
5		30.04	☐ 25.0 ☑ 20	
6		29.66	☐ 25.0 ☑ 20	
7		29.58	☐ 25.0 ☑ 20	
8		29.99	☐ 25.0 ☑ 20	
9		29.86	☐ 25.0 ☑ 20	
10		30.37	☐ 25.0 ☑ 20	
MB QC 836659	WA	29.68	☐ 25.0 ☑ 20	
LY 60		30.04	☐ 25.0 ☑ 20	
MS 61		29.63	☐ 25.0 ☑ 20	
MSD 62		29.52	☐ 25.0 ☑ 20	
			☐ 25.0 ☐	

BOY 5/23/16

☐ MS/MSD not included due to: ☐ insufficent volume, or ☐ other (reason) _____

☑ Balance ID: Dish 1 Has been calibrated? ☑ Yes ☐ No

	Mfg & Lot # / LIMS # / Time	Initials / Date
Solvent-rinsed granular Na_2SO_4 weighed out for QC samples	FMN816L	ARW 5/23/2016
dried with CH_2Cl_2-rinsed ☑ granular Na_2SO_4 ☐ powder	+	
0.8 mL of surrogate solution was added to all samples	S296787	
1.0 mL of matrix spiking solution was added to all spikes	29442F	
1:1 CH_2Cl_2 (lot# FM55741):Acetone(lot# FS160413) was added to all	—	
Solvent added at (time)	1135	
☑ sonicated 3 times w/ ≥100mL ☐ soxhlet extractors on at:	—	
Soxhlets off at:	WA	
Extracts filtered through baked, CH_2Cl_2-rinsed powdered Na_2SO_4	FM0835C806	
Solvent exchanged with Hexane, Lot#	FS161873	
Concentrated to final volume in boiling H2O bath	100	
EPA 3665A Clean-up: vortexed w/ H_2SO_4 Lot#	FS152524	
Centrifuged for 1 min; 5mL transferred to labelled vial	—	
Relinquished to PCB group	—	

5/23/2016

Extraction Chemist / Date

Continued from page ____
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5/23/16

Reviewed by / Date

Curtis & Tompkins, Ltd. **Florisil Cleanup** **EPA 3620B**

Prep Chemist: APW
Cleanup Date: 5/23/16

Benchbook # **BK 3730**
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	Sample #	Extraction Batch#	Initial Volume (mL)	Final Volume (mL)	Comments
	277036-001	255358	☑ 1.0 ☐	☑ 1.0 ☐	
	2		☑ 1.0 ☐	☑ 1.0 ☐	
	3		☑ 1.0 ☐	☑ 1.0 ☐	
	4		☑ 1.0 ☐	☑ 1.0 ☐	
5	5		☑ 1.0 ☐	☑ 1.0 ☐	
	6		☑ 1.0 ☐	☑ 1.0 ☐	
	7		☑ 1.0 ☐	☑ 1.0 ☐	
	8		☑ 1.0 ☐	☑ 1.0 ☐	
	9		☑ 1.0 ☐	☑ 1.0 ☐	
10	10		☑ 1.0 ☐	☑ 1.0 ☐	
	277038-001		☑ 1.0 ☐	☑ 1.0 ☐	
	2		☑ 1.0 ☐	☑ 1.0 ☐	
	3		☑ 1.0 ☐	☑ 1.0 ☐	
	4		☑ 1.0 ☐	☑ 1.0 ☐	
15	5		☑ 1.0 ☐	☑ 1.0 ☐	
	6		☑ 1.0 ☐	☑ 1.0 ☐	
	7		☑ 1.0 ☐	☑ 1.0 ☐	
	8		☑ 1.0 ☐	☑ 1.0 ☐	
	9		☑ 1.0 ☐	☑ 1.0 ☐	
20	10		☑ 1.0 ☐	☑ 1.0 ☐	
	MB QC836657		☑ 1.0 ☐	☑ 1.0 ☐	
	LCS 63		☑ 1.0 ☐	☑ 1.0 ☐	
	LCSD 64		☑ 1.0 ☐	☑ 1.0 ☐	
	MB 48		☑ 1.0 ☐	☑ 1.0 ☐	
25			☐ 1.0 ☐	☐ 1.0 ☐	
			☐ 1.0 ☐	☐ 1.0 ☐	
			☐ 1.0 ☐	☐ 1.0 ☐	
			☐ 1.0 ☐	☐ 1.0 ☐	
			☐ 1.0 ☐	☐ 1.0 ☐	
30			☐ 1.0 ☐	☐ 1.0 ☐	BOY 5/23/16

☑ Extracts were cleaned up using Florisil cartridges

Florisil cartridges/ columns rinsed 3x with Hexane

Extracts were eluted with 90 mL 9:1 Hexane/Acetone

Concentrated to volumes as noted above

	Mfg & Lot # / Time / Program	Initials / Date
	PES 3570520	APW 5/23/16
Hexane	FR 16/873	
Acetone	FC158567	

APW 5/23/16
Extraction Chemist / Date

Continued from page ____
Continued on page ____

5/23/16
Reviewed by / Date

SAMPLE PREPARATION SUMMARY

Batch # : 235428
Started By : MC1
Method : 3550B
Spike #1 ID : S29678
Prep Date : 24-MAY-2016 15:45
SOP Version : 8081_3550_rv15
Spike #2 ID : S29489
Analysis : 8081
Finished By : MC1
Units : g

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
277038-011		Soil	30.31	20	1	0.6598		.8				8081	
277038-012		Soil	30.32	20	1	0.6596		.8				8081	
277084-001		Soil	30.06	10	1	0.3327		.8				8081-LL	
277084-002		Soil	29.68	10	1	0.3369		.8				8081-LL	
277084-003		Soil	29.71	10	1	0.3366		.8				8081-LL	
277084-004		Soil	30.25	10	1	0.3306		.8				8081-LL	
277084-005		Soil	30.13	10	1	0.3319		.8				8081-LL	
277084-006		Soil	30.45	10	1	0.3284		.8				8081-LL	
277084-007		Soil	29.58	10	1	0.3381		.8				8081-LL	
277085-002		Soil	30.48	20	1	0.6562		.8				8081	
277113-001		Soil	29.96	20	1	0.6676		.8				8081	
277142-007		Soil	29.72	20	1	0.6729		.8				8081	Prepped 25-MAY-2016 13:39
277153-001		Soil	29.88	20	1	0.6693		.8				8081	Prepped 25-MAY-2016 13:39
277153-004		Soil	29.6	20	1	0.6757		.8				8081	Prepped 25-MAY-2016 13:39
QC836940	BLANK	Soil	29.75	10	1	0.3361		.8				8081	
QC836941	LCS	Soil	29.73	20	1	0.6727		.8	.4			8081	
QC836942	MS	Soil	30.03	20	1	0.666		.8	.4			8081	
QC836943	MSD	Soil	30.13	20	1	0.6638		.8	.4			8081	

EAH 05/25/16 : Reviewed without MS/MSD for 277085.

TKM 05/27/16 : reviewed prep entry for all jobs

Analyst: BJP Date: 05/25/16 Reviewer: EAH Date: 05/31/16

8081 Soil Prep Log — Curtis & Tompkins, Ltd.

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Extraction Method: ☑ EPA 3550b Sonication ☐ _____

Cleanup Method: ☒ EPA 3620b Florisil

LIMS Batch No: 235428

Date Extracted: 5-24-16

	Sample #	Container ID	Sample Wt (g)	Final Vol (mL)	Comments
	~~277031-001~~	~~B~~	~~30.16~~	☐ 20.0 ☐	MC 5.24
	277038-011	G	30.31	☒ 20.0 ☐	MSS
	" -12	"	30.32	☒ 20.0 ☐	Rocky
	277084001	D	30.06	☒ 20.0 ☒ 10 MC 5.24.16	Low level
5	-2		29.68	☐ 20.0 ☒ 10	
	-3		29.71	☐ 20.0 ☒ 10	
	-4		30.25	☐ 20.0 ☒ 10	
	-5		30.13	☐ 20.0 ☒ 10	
	-6		30.45	☐ 20.0 ☒ 10	
10	-7		29.58	☐ 20.0 ☒ 10	
	277085-002	A	30.48	☒ 20.0 ☐ MC 5.24	
	277113-001	G	29.96	☒ 20.0 ☐ 10	
	MB QC836940	NA	29.75	☐ 20.0 ☒ 10	
	LCS 1		29.73	☒ 20.0 ☐	
15	MS 2		30.03	☒ 20.0 ☐	
	MSD 3		30.13	☒ 20.0 ☐	
				☐ 20.0 ☐	
	~~277031-001~~	~~B~~	~~30.30~~	~~☐ 20.0 ☐~~	MC 5/25/16
	277142-007	A	29.72	☒ 20.0 ☐	MC @ 5/25/16 1339
20	277153-001	comp	29.86	☒ 20.0 ☐	comp of A-H @ 30g ea
	↓ 4	comp	29.60	☒ 20.0 ☐	comp of A-D @ 30g ea; very rocky
				☐ 20.0 ☐	
				☐ 20.0 ☐	
				☐ 20.0 ☐	
				☐ 20.0 ☐	MC 5/25/16

☐ MS/MSD not included due to: ☐ insufficent volume, or ☐ other (reason) _____

☑ Balance ID: Disk 1 Has been calibrated? ☑ Yes ☐ No

	Mfg & Lot # / LIMS # / Time	Initials / Date
Solvent-rinsed granular Na_2SO_4 weighed out for QC samples	EM YB16L	MC 5-24-16
dried with CH_2Cl_2-rinsed ☑ granular Na_2SO_4 ☐ powder	"	"
0.8 mL of surrogate solution was added to all samples	529678D	
0.4 mL of spike solution was added to all spikes	529489A	
1:1 CH_2Cl_2 (lot# EM55341):Acetone(lot# 160453) was added to all	"	
Solvent added at (time)	15:45/1339	
☒ sonicated 3 times w/ ≥100mL ☐ soxhlet extractors on at:	—	
soxhlets off at:	NG	
Extracts filtered through baked, CH_2Cl_2-rinsed powdered Na_2SO_4	EM YB16L	
Exchanged 2x with Hexane	FC16373	
Concentrated to final volume in boiling H2O bath	100°	
☒ Florisil Cleanup Performed	—	
Extracts relinquished to Pesticide Group	—	

05-24-16

Extraction Chemist / Date

Continued from page _____

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5/25/16

Reviewed by / Date

Curtis & Tompkins, Ltd. **Florisil Cleanup** **EPA 3620B**

Prep Chemist: MC
Cleanup Date: 5-24-16

Benchbook # **BK 3730**
Page 85

	Sample #	Extraction Batch#	Initial Volume (mL)	Final Volume (mL)	Comments
	277038-011	235428	☒ 1.0 ☐	☒ 1.0 ☐	MSS
	1 12		☒ 1.0 ☐	☒ 1.0 ☐	
	277084-001		☒ 1.0 ☐	☒ 1.0 ☐	
	-2		☒ 1.0 ☐	☒ 1.0 ☐	
5	-3		☒ 1.0 ☐	☒ 1.0 ☐	
	-4		☒ 1.0 ☐	☒ 1.0 ☐	
	-5		☒ 1.0 ☐	☒ 1.0 ☐	
	-6		☒ 1.0 ☐	☒ 1.0 ☐	
	-7		☒ 1.0 ☐	☒ 1.0 ☐	
10	277085-002		☒ 1.0 ☐	☒ 1.0 ☐	
	277113-001		☒ 1.0 ☐	☒ 1.0 ☐	
	MB QC 336940		☒ 1.0 ☐	☒ 1.0 ☐	
	LCS 1		☒ 1.0 ☐	☒ 1.0 ☐	
	MS 2		☒ 1.0 ☐	☒ 1.0 ☐	
15	MSD 3		☒ 1.0 ☐	☒ 1.0 ☐	
			☐ 1.0 ☐	☐ 1.0 ☐	
			☐ 1.0 ☐	☐ 1.0 ☐	
			☐ 1.0 ☐	☐ 1.0 ☐	
			☐ 1.0 ☐	☐ 1.0 ☐	
20			☐ 1.0 ☐	☐ 1.0 ☐	
			☐ 1.0 ☐	☐ 1.0 ☐	
			☐ 1.0 ☐	☐ 1.0 ☐	
			☐ 1.0 ☐	☐ 1.0 ☐	
			☐ 1.0 ☐	☐ 1.0 ☐	
25			☐ 1.0 ☐	☐ 1.0 ☐	
			☐ 1.0 ☐	☐ 1.0 ☐	
			☐ 1.0 ☐	☐ 1.0 ☐	
			☐ 1.0 ☐	☐ 1.0 ☐	
			☐ 1.0 ☐	☐ 1.0 ☐	
30			☐ 1.0 ☐	☐ 1.0 ☐	MC 5/25/16

☒ Extracts were cleaned up using Florisil cartridges
Florisil cartridges/ columns rinsed 3x with Hexane
Extracts were eluted with 9.0 mL ~~9:1~~ 8:2 Hexane/Acetone
Concentrated to volumes as noted above

	Mfg & Lot # / Time / Program	Initials / Date
Hexane	RES35 73105	MC-5.24.16
Acetone	FC16873	
	FC15 3567	

MC 05-24-16
Extraction Chemist / Date

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5/25/16
Reviewed by / Date

Curtis & Tompkins, Ltd. **Florisil Cleanup** **EPA 3620B**

Prep Chemist: BOY
Cleanup Date: 5/25/16

Benchbook # **BK 3730**
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Sample #	Extraction Batch#	Initial Volume (mL)	Final Volume (mL)	Comments
277142-007	235428	☑ 1.0 ☐	☑ 1.0 ☐	
277153-001	↓	☑ 1.0 ☐	☑ 1.0 ☐	
↓ 4	↓	☑ 1.0 ☐	☑ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	
		☐ 1.0 ☐	☐ 1.0 ☐	NRG 5/26/16

	Mfg & Lot # / Time / Program	Initials / Date
☑ Extracts were cleaned up using Florisil cartridges	RES3570526	BOY 5/25/16
Florisil cartridges/ columns rinsed 3x with Hexane	FC161873	
Extracts were eluted with 9.0 mL ~~9:1~~ 8:2 Hexane/Acetone — Hexane	↓	
Acetone	FC158567	
Concentrated to volumes as noted above	✓	

BOY 5/25/16
Extraction Chemist / Date

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Continued on page /

NRG 5/26/16
Reviewed by / Date

REPORTING SUMMARY FOR 277038 PEST Soil

Sample ID	Analyte	Inst ID	Ch	Date & Time
277038-001	alpha-BHC	GC23	B	05/27/16 09:40
277038-001	beta-BHC	GC23	B	05/27/16 09:40
277038-001	gamma-BHC	GC23	B	05/27/16 09:40
277038-001	delta-BHC	GC23	B	05/27/16 09:40
277038-001	Heptachlor	GC23	B	05/27/16 09:40
277038-001	Aldrin	GC23	B	05/27/16 09:40
277038-001	Heptachlor epoxide	GC23	B	05/27/16 09:40
277038-001	Endosulfan I	GC23	B	05/27/16 09:40
277038-001	Dieldrin	GC23	B	05/27/16 09:40
277038-001	4,4'-DDE	GC23	B	05/27/16 09:40
277038-001	Endrin	GC23	B	05/27/16 09:40
277038-001	Endosulfan II	GC23	B	05/27/16 09:40
277038-001	Endosulfan sulfate	GC23	B	05/27/16 09:40
277038-001	4,4'-DDD	GC23	B	05/27/16 09:40
277038-001	Endrin ketone	GC23	B	05/27/16 09:40
277038-001	Endrin aldehyde	GC23	B	05/27/16 09:40
277038-001	4,4'-DDT	GC23	B	05/27/16 09:40
277038-001	alpha-Chlordane	GC23	B	05/27/16 09:40
277038-001	gamma-Chlordane	GC23	B	05/27/16 09:40
277038-001	Methoxychlor	GC23	A	05/27/16 09:40
277038-001	Toxaphene	GC23	B	05/27/16 09:40
277038-001	TCMX	GC23	B	05/27/16 09:40
277038-001	Decachlorobiphenyl	GC23	B	05/27/16 09:40
277038-002	alpha-BHC	GC23	B	05/27/16 09:58
277038-002	beta-BHC	GC23	B	05/27/16 09:58
277038-002	gamma-BHC	GC23	B	05/27/16 09:58
277038-002	delta-BHC	GC23	B	05/27/16 09:58
277038-002	Heptachlor	GC23	B	05/27/16 09:58
277038-002	Aldrin	GC23	B	05/27/16 09:58
277038-002	Heptachlor epoxide	GC23	B	05/27/16 09:58
277038-002	Endosulfan I	GC23	B	05/27/16 09:58
277038-002	Dieldrin	GC23	B	05/27/16 09:58
277038-002	4,4'-DDE	GC23	B	05/27/16 09:58
277038-002	Endrin	GC23	B	05/27/16 09:58
277038-002	Endosulfan II	GC23	B	05/27/16 09:58
277038-002	Endosulfan sulfate	GC23	B	05/27/16 09:58
277038-002	4,4'-DDD	GC23	B	05/27/16 09:58
277038-002	Endrin ketone	GC23	B	05/27/16 09:58
277038-002	Endrin aldehyde	GC23	B	05/27/16 09:58
277038-002	4,4'-DDT	GC23	B	05/27/16 09:58
277038-002	alpha-Chlordane	GC23	B	05/27/16 09:58
277038-002	gamma-Chlordane	GC23	B	05/27/16 09:58
277038-002	Methoxychlor	GC23	A	05/27/16 09:58
277038-002	Toxaphene	GC23	B	05/27/16 09:58
277038-002	TCMX	GC23	B	05/27/16 09:58
277038-002	Decachlorobiphenyl	GC23	B	05/27/16 09:58
277038-003	alpha-BHC	GC23	B	05/27/16 10:16
277038-003	beta-BHC	GC23	B	05/27/16 10:16
277038-003	gamma-BHC	GC23	B	05/27/16 10:16
277038-003	delta-BHC	GC23	B	05/27/16 10:16
277038-003	Heptachlor	GC23	B	05/27/16 10:16
277038-003	Aldrin	GC23	B	05/27/16 10:16

Sample ID	Analyte	Inst ID	Ch	Date & Time
277038-003	Heptachlor epoxide	GC23	B	05/27/16 10:16
277038-003	Endosulfan I	GC23	B	05/27/16 10:16
277038-003	Dieldrin	GC23	B	05/27/16 10:16
277038-003	4,4'-DDE	GC23	B	05/27/16 10:16
277038-003	Endrin	GC23	B	05/27/16 10:16
277038-003	Endosulfan II	GC23	B	05/27/16 10:16
277038-003	Endosulfan sulfate	GC23	B	05/27/16 10:16
277038-003	4,4'-DDD	GC23	B	05/27/16 10:16
277038-003	Endrin ketone	GC23	B	05/27/16 10:16
277038-003	Endrin aldehyde	GC23	B	05/27/16 10:16
277038-003	4,4'-DDT	GC23	B	05/27/16 10:16
277038-003	alpha-Chlordane	GC23	B	05/27/16 10:16
277038-003	gamma-Chlordane	GC23	B	05/27/16 10:16
277038-003	Methoxychlor	GC23	A	05/27/16 10:16
277038-003	Toxaphene	GC23	B	05/27/16 10:16
277038-003	TCMX	GC23	B	05/27/16 10:16
277038-003	Decachlorobiphenyl	GC23	B	05/27/16 10:16
277038-004	alpha-BHC	GC23	B	05/27/16 10:35
277038-004	beta-BHC	GC23	B	05/27/16 10:35
277038-004	gamma-BHC	GC23	B	05/27/16 10:35
277038-004	delta-BHC	GC23	B	05/27/16 10:35
277038-004	Heptachlor	GC23	B	05/27/16 10:35
277038-004	Aldrin	GC23	B	05/27/16 10:35
277038-004	Heptachlor epoxide	GC23	B	05/27/16 10:35
277038-004	Endosulfan I	GC23	B	05/27/16 10:35
277038-004	Dieldrin	GC23	B	05/27/16 10:35
277038-004	4,4'-DDE	GC23	B	05/27/16 10:35
277038-004	Endrin	GC23	B	05/27/16 10:35
277038-004	Endosulfan II	GC23	B	05/27/16 10:35
277038-004	Endosulfan sulfate	GC23	B	05/27/16 10:35
277038-004	4,4'-DDD	GC23	B	05/27/16 10:35
277038-004	Endrin ketone	GC23	B	05/27/16 10:35
277038-004	Endrin aldehyde	GC23	B	05/27/16 10:35
277038-004	4,4'-DDT	GC23	B	05/27/16 10:35
277038-004	alpha-Chlordane	GC23	B	05/27/16 10:35
277038-004	gamma-Chlordane	GC23	B	05/27/16 10:35
277038-004	Methoxychlor	GC23	A	05/27/16 10:35
277038-004	Toxaphene	GC23	B	05/27/16 10:35
277038-004	TCMX	GC23	B	05/27/16 10:35
277038-004	Decachlorobiphenyl	GC23	B	05/27/16 10:35
277038-005	alpha-BHC	GC23	B	05/27/16 10:53
277038-005	beta-BHC	GC23	B	05/27/16 10:53
277038-005	gamma-BHC	GC23	B	05/27/16 10:53
277038-005	delta-BHC	GC23	B	05/27/16 10:53
277038-005	Heptachlor	GC23	B	05/27/16 10:53
277038-005	Aldrin	GC23	B	05/27/16 10:53
277038-005	Heptachlor epoxide	GC23	B	05/27/16 10:53
277038-005	Endosulfan I	GC23	B	05/27/16 10:53
277038-005	Dieldrin	GC23	B	05/27/16 10:53
277038-005	4,4'-DDE	GC23	B	05/27/16 10:53
277038-005	Endrin	GC23	B	05/27/16 10:53
277038-005	Endosulfan II	GC23	B	05/27/16 10:53

Sample ID	Analyte	Inst ID	Ch	Date & Time
277038-005	Endosulfan sulfate	GC23	B	05/27/16 10:53
277038-005	4,4'-DDD	GC23	B	05/27/16 10:53
277038-005	Endrin ketone	GC23	B	05/27/16 10:53
277038-005	Endrin aldehyde	GC23	B	05/27/16 10:53
277038-005	4,4'-DDT	GC23	B	05/27/16 10:53
277038-005	alpha-Chlordane	GC23	B	05/27/16 10:53
277038-005	gamma-Chlordane	GC23	B	05/27/16 10:53
277038-005	Methoxychlor	GC23	A	05/27/16 10:53
277038-005	Toxaphene	GC23	B	05/27/16 10:53
277038-005	TCMX	GC23	A	05/27/16 10:53
277038-005	Decachlorobiphenyl	GC23	A	05/27/16 10:53
277038-006	alpha-BHC	GC23	B	05/27/16 11:11
277038-006	beta-BHC	GC23	B	05/27/16 11:11
277038-006	gamma-BHC	GC23	B	05/27/16 11:11
277038-006	delta-BHC	GC23	B	05/27/16 11:11
277038-006	Heptachlor	GC23	B	05/27/16 11:11
277038-006	Aldrin	GC23	B	05/27/16 11:11
277038-006	Heptachlor epoxide	GC23	B	05/27/16 11:11
277038-006	Endosulfan I	GC23	B	05/27/16 11:11
277038-006	Dieldrin	GC23	B	05/27/16 11:11
277038-006	4,4'-DDE	GC23	B	05/27/16 11:11
277038-006	Endrin	GC23	B	05/27/16 11:11
277038-006	Endosulfan II	GC23	B	05/27/16 11:11
277038-006	Endosulfan sulfate	GC23	B	05/27/16 11:11
277038-006	4,4'-DDD	GC23	B	05/27/16 11:11
277038-006	Endrin ketone	GC23	B	05/27/16 11:11
277038-006	Endrin aldehyde	GC23	B	05/27/16 11:11
277038-006	4,4'-DDT	GC23	B	05/27/16 11:11
277038-006	alpha-Chlordane	GC23	B	05/27/16 11:11
277038-006	gamma-Chlordane	GC23	B	05/27/16 11:11
277038-006	Methoxychlor	GC23	A	05/27/16 11:11
277038-006	Toxaphene	GC23	B	05/27/16 11:11
277038-006	TCMX	GC23	A	05/27/16 11:11
277038-006	Decachlorobiphenyl	GC23	A	05/27/16 11:11
277038-007	alpha-BHC	GC23	B	05/27/16 11:29
277038-007	beta-BHC	GC23	B	05/27/16 11:29
277038-007	gamma-BHC	GC23	B	05/27/16 11:29
277038-007	delta-BHC	GC23	B	05/27/16 11:29
277038-007	Heptachlor	GC23	B	05/27/16 11:29
277038-007	Aldrin	GC23	B	05/27/16 11:29
277038-007	Heptachlor epoxide	GC23	B	05/27/16 11:29
277038-007	Endosulfan I	GC23	B	05/27/16 11:29
277038-007	Dieldrin	GC23	B	05/27/16 11:29
277038-007	4,4'-DDE	GC23	B	05/27/16 11:29
277038-007	Endrin	GC23	B	05/27/16 11:29
277038-007	Endosulfan II	GC23	B	05/27/16 11:29
277038-007	Endosulfan sulfate	GC23	B	05/27/16 11:29
277038-007	4,4'-DDD	GC23	B	05/27/16 11:29
277038-007	Endrin ketone	GC23	B	05/27/16 11:29
277038-007	Endrin aldehyde	GC23	B	05/27/16 11:29
277038-007	4,4'-DDT	GC23	B	05/27/16 11:29
277038-007	alpha-Chlordane	GC23	B	05/27/16 11:29

Sample ID	Analyte	Inst ID	Ch	Date & Time
277038-007	gamma-Chlordane	GC23	B	05/27/16 11:29
277038-007	Methoxychlor	GC23	A	05/27/16 11:29
277038-007	Toxaphene	GC23	B	05/27/16 11:29
277038-007	TCMX	GC23	B	05/27/16 11:29
277038-007	Decachlorobiphenyl	GC23	B	05/27/16 11:29
277038-008	alpha-BHC	GC23	B	05/27/16 11:47
277038-008	beta-BHC	GC23	B	05/27/16 11:47
277038-008	gamma-BHC	GC23	B	05/27/16 11:47
277038-008	delta-BHC	GC23	B	05/27/16 11:47
277038-008	Heptachlor	GC23	B	05/27/16 11:47
277038-008	Aldrin	GC23	B	05/27/16 11:47
277038-008	Heptachlor epoxide	GC23	B	05/27/16 11:47
277038-008	Endosulfan I	GC23	B	05/27/16 11:47
277038-008	Dieldrin	GC23	B	05/27/16 11:47
277038-008	4,4'-DDE	GC23	B	05/27/16 11:47
277038-008	Endrin	GC23	B	05/27/16 11:47
277038-008	Endosulfan II	GC23	B	05/27/16 11:47
277038-008	Endosulfan sulfate	GC23	B	05/27/16 11:47
277038-008	4,4'-DDD	GC23	B	05/27/16 11:47
277038-008	Endrin ketone	GC23	B	05/27/16 11:47
277038-008	Endrin aldehyde	GC23	B	05/27/16 11:47
277038-008	4,4'-DDT	GC23	B	05/27/16 11:47
277038-008	alpha-Chlordane	GC23	B	05/27/16 11:47
277038-008	gamma-Chlordane	GC23	B	05/27/16 11:47
277038-008	Methoxychlor	GC23	A	05/27/16 11:47
277038-008	Toxaphene	GC23	B	05/27/16 11:47
277038-008	TCMX	GC23	B	05/27/16 11:47
277038-008	Decachlorobiphenyl	GC23	B	05/27/16 11:47
277038-009	alpha-BHC	GC23	B	05/27/16 12:05
277038-009	beta-BHC	GC23	B	05/27/16 12:05
277038-009	gamma-BHC	GC23	B	05/27/16 12:05
277038-009	delta-BHC	GC23	B	05/27/16 12:05
277038-009	Heptachlor	GC23	B	05/27/16 12:05
277038-009	Aldrin	GC23	B	05/27/16 12:05
277038-009	Heptachlor epoxide	GC23	B	05/27/16 12:05
277038-009	Endosulfan I	GC23	B	05/27/16 12:05
277038-009	Dieldrin	GC23	B	05/27/16 12:05
277038-009	4,4'-DDE	GC23	B	05/27/16 12:05
277038-009	Endrin	GC23	B	05/27/16 12:05
277038-009	Endosulfan II	GC23	B	05/27/16 12:05
277038-009	Endosulfan sulfate	GC23	B	05/27/16 12:05
277038-009	4,4'-DDD	GC23	B	05/27/16 12:05
277038-009	Endrin ketone	GC23	B	05/27/16 12:05
277038-009	Endrin aldehyde	GC23	B	05/27/16 12:05
277038-009	4,4'-DDT	GC23	B	05/27/16 12:05
277038-009	alpha-Chlordane	GC23	B	05/27/16 12:05
277038-009	gamma-Chlordane	GC23	B	05/27/16 12:05
277038-009	Methoxychlor	GC23	A	05/27/16 12:05
277038-009	Toxaphene	GC23	B	05/27/16 12:05
277038-009	TCMX	GC23	B	05/27/16 12:05
277038-009	Decachlorobiphenyl	GC23	B	05/27/16 12:05

Sample ID	Analyte	Inst ID	Ch	Date & Time
277038-010	alpha-BHC	GC23	B	05/27/16 12:24
277038-010	beta-BHC	GC23	B	05/27/16 12:24
277038-010	gamma-BHC	GC23	B	05/27/16 12:24
277038-010	delta-BHC	GC23	B	05/27/16 12:24
277038-010	Heptachlor	GC23	B	05/27/16 12:24
277038-010	Aldrin	GC23	B	05/27/16 12:24
277038-010	Heptachlor epoxide	GC23	B	05/27/16 12:24
277038-010	Endosulfan I	GC23	B	05/27/16 12:24
277038-010	Dieldrin	GC23	B	05/27/16 12:24
277038-010	4,4'-DDE	GC23	B	05/27/16 12:24
277038-010	Endrin	GC23	B	05/27/16 12:24
277038-010	Endosulfan II	GC23	B	05/27/16 12:24
277038-010	Endosulfan sulfate	GC23	B	05/27/16 12:24
277038-010	4,4'-DDD	GC23	B	05/27/16 12:24
277038-010	Endrin ketone	GC23	B	05/27/16 12:24
277038-010	Endrin aldehyde	GC23	B	05/27/16 12:24
277038-010	4,4'-DDT	GC23	B	05/27/16 12:24
277038-010	alpha-Chlordane	GC23	B	05/27/16 12:24
277038-010	gamma-Chlordane	GC23	B	05/27/16 12:24
277038-010	Methoxychlor	GC23	A	05/27/16 12:24
277038-010	Toxaphene	GC23	B	05/27/16 12:24
277038-010	TCMX	GC23	B	05/27/16 12:24
277038-010	Decachlorobiphenyl	GC23	B	05/27/16 12:24
277038-011	alpha-BHC	GC23	B	05/27/16 13:52
277038-011	beta-BHC	GC23	A	05/27/16 13:52
277038-011	gamma-BHC	GC23	B	05/27/16 13:52
277038-011	delta-BHC	GC23	B	05/27/16 13:52
277038-011	Heptachlor	GC23	A	05/27/16 13:52
277038-011	Aldrin	GC23	B	05/27/16 13:52
277038-011	Heptachlor epoxide	GC23	B	05/27/16 13:52
277038-011	Endosulfan I	GC23	B	05/27/16 13:52
277038-011	Dieldrin	GC23	B	05/27/16 13:52
277038-011	4,4'-DDE	GC23	A	05/27/16 13:52
277038-011	Endrin	GC23	B	05/27/16 13:52
277038-011	Endosulfan II	GC23	B	05/27/16 13:52
277038-011	Endosulfan sulfate	GC23	A	05/27/16 13:52
277038-011	4,4'-DDD	GC23	B	05/27/16 13:52
277038-011	Endrin ketone	GC23	B	05/27/16 13:52
277038-011	Endrin aldehyde	GC23	B	05/27/16 13:52
277038-011	4,4'-DDT	GC30	B	05/27/16 21:20
277038-011	alpha-Chlordane	GC23	A	05/27/16 13:52
277038-011	gamma-Chlordane	GC23	A	05/27/16 13:52
277038-011	Methoxychlor	GC23	A	05/27/16 13:52
277038-011	Toxaphene	GC23	B	05/27/16 13:52
277038-011	TCMX	GC23	B	05/27/16 13:52
277038-011	Decachlorobiphenyl	GC23	B	05/27/16 13:52
277038-012	alpha-BHC	GC23	B	05/27/16 14:10
277038-012	beta-BHC	GC23	A	05/27/16 14:10
277038-012	gamma-BHC	GC23	B	05/27/16 14:10
277038-012	delta-BHC	GC23	B	05/27/16 14:10
277038-012	Heptachlor	GC23	A	05/27/16 14:10
277038-012	Aldrin	GC23	B	05/27/16 14:10

Sample ID	Analyte	Inst ID	Ch	Date & Time
277038-012	Heptachlor epoxide	GC23	B	05/27/16 14:10
277038-012	Endosulfan I	GC23	B	05/27/16 14:10
277038-012	Dieldrin	GC23	B	05/27/16 14:10
277038-012	4,4'-DDE	GC23	A	05/27/16 14:10
277038-012	Endrin	GC23	B	05/27/16 14:10
277038-012	Endosulfan II	GC23	B	05/27/16 14:10
277038-012	Endosulfan sulfate	GC23	A	05/27/16 14:10
277038-012	4,4'-DDD	GC23	B	05/27/16 14:10
277038-012	Endrin ketone	GC23	B	05/27/16 14:10
277038-012	Endrin aldehyde	GC23	B	05/27/16 14:10
277038-012	4,4'-DDT	GC23	A	05/27/16 14:10
277038-012	alpha-Chlordane	GC23	A	05/27/16 14:10
277038-012	gamma-Chlordane	GC23	A	05/27/16 14:10
277038-012	Methoxychlor	GC23	A	05/27/16 14:10
277038-012	Toxaphene	GC23	B	05/27/16 14:10
277038-012	TCMX	GC23	B	05/27/16 14:10
277038-012	Decachlorobiphenyl	GC23	B	05/27/16 14:10
QC836659	alpha-BHC	GC23	B	05/27/16 12:42
QC836659	beta-BHC	GC23	B	05/27/16 12:42
QC836659	gamma-BHC	GC23	B	05/27/16 12:42
QC836659	delta-BHC	GC23	B	05/27/16 12:42
QC836659	Heptachlor	GC23	B	05/27/16 12:42
QC836659	Aldrin	GC23	B	05/27/16 12:42
QC836659	Heptachlor epoxide	GC23	B	05/27/16 12:42
QC836659	Endosulfan I	GC23	B	05/27/16 12:42
QC836659	Dieldrin	GC23	B	05/27/16 12:42
QC836659	4,4'-DDE	GC23	B	05/27/16 12:42
QC836659	Endrin	GC23	B	05/27/16 12:42
QC836659	Endosulfan II	GC23	B	05/27/16 12:42
QC836659	Endosulfan sulfate	GC23	B	05/27/16 12:42
QC836659	4,4'-DDD	GC23	B	05/27/16 12:42
QC836659	Endrin ketone	GC23	B	05/27/16 12:42
QC836659	Endrin aldehyde	GC23	B	05/27/16 12:42
QC836659	4,4'-DDT	GC23	B	05/27/16 12:42
QC836659	alpha-Chlordane	GC23	B	05/27/16 12:42
QC836659	gamma-Chlordane	GC23	B	05/27/16 12:42
QC836659	Methoxychlor	GC23	A	05/27/16 12:42
QC836659	Toxaphene	GC23	B	05/27/16 12:42
QC836659	TCMX	GC23	B	05/27/16 12:42
QC836659	Decachlorobiphenyl	GC23	B	05/27/16 12:42
QC836663	alpha-BHC	GC30	A	05/27/16 12:18
QC836663	beta-BHC	GC30	A	05/27/16 12:18
QC836663	gamma-BHC	GC30	A	05/27/16 12:18
QC836663	delta-BHC	GC30	A	05/27/16 12:18
QC836663	Heptachlor	GC30	A	05/27/16 12:18
QC836663	Aldrin	GC30	A	05/27/16 12:18
QC836663	Heptachlor epoxide	GC30	A	05/27/16 12:18
QC836663	Endosulfan I	GC30	A	05/27/16 12:18
QC836663	Dieldrin	GC30	A	05/27/16 12:18
QC836663	4,4'-DDE	GC30	B	05/27/16 12:18
QC836663	Endrin	GC30	A	05/27/16 12:18
QC836663	Endosulfan II	GC30	A	05/27/16 12:18

Sample ID	Analyte	Inst ID	Ch	Date & Time
QC836663	Endosulfan sulfate	GC30	A	05/27/16 12:18
QC836663	4,4'-DDD	GC30	A	05/27/16 12:18
QC836663	Endrin ketone	GC30	A	05/27/16 12:18
QC836663	Endrin aldehyde	GC30	A	05/27/16 12:18
QC836663	4,4'-DDT	GC30	A	05/27/16 12:18
QC836663	alpha-Chlordane	GC30	A	05/27/16 12:18
QC836663	gamma-Chlordane	GC30	A	05/27/16 12:18
QC836663	Methoxychlor	GC30	A	05/27/16 12:18
QC836663	TCMX	GC30	A	05/27/16 12:18
QC836663	Decachlorobiphenyl	GC30	A	05/27/16 12:18
QC836664	alpha-BHC	GC30	B	05/27/16 13:27
QC836664	beta-BHC	GC30	B	05/27/16 13:27
QC836664	gamma-BHC	GC30	B	05/27/16 13:27
QC836664	delta-BHC	GC30	B	05/27/16 13:27
QC836664	Heptachlor	GC30	B	05/27/16 13:27
QC836664	Aldrin	GC30	B	05/27/16 13:27
QC836664	Heptachlor epoxide	GC30	B	05/27/16 13:27
QC836664	Endosulfan I	GC30	B	05/27/16 13:27
QC836664	Dieldrin	GC30	B	05/27/16 13:27
QC836664	4,4'-DDE	GC30	B	05/27/16 13:27
QC836664	Endrin	GC30	B	05/27/16 13:27
QC836664	Endosulfan II	GC30	B	05/27/16 13:27
QC836664	Endosulfan sulfate	GC30	B	05/27/16 13:27
QC836664	4,4'-DDD	GC30	B	05/27/16 13:27
QC836664	Endrin ketone	GC30	B	05/27/16 13:27
QC836664	Endrin aldehyde	GC30	B	05/27/16 13:27
QC836664	4,4'-DDT	GC30	B	05/27/16 13:27
QC836664	alpha-Chlordane	GC30	B	05/27/16 13:27
QC836664	gamma-Chlordane	GC30	B	05/27/16 13:27
QC836664	Methoxychlor	GC30	B	05/27/16 13:27
QC836664	TCMX	GC30	B	05/27/16 13:27
QC836664	Decachlorobiphenyl	GC30	B	05/27/16 13:27
QC836665	alpha-BHC	GC30	B	05/27/16 13:43
QC836665	beta-BHC	GC30	B	05/27/16 13:43
QC836665	gamma-BHC	GC30	B	05/27/16 13:43
QC836665	delta-BHC	GC30	B	05/27/16 13:43
QC836665	Heptachlor	GC30	B	05/27/16 13:43
QC836665	Aldrin	GC30	B	05/27/16 13:43
QC836665	Heptachlor epoxide	GC30	B	05/27/16 13:43
QC836665	Endosulfan I	GC30	B	05/27/16 13:43
QC836665	Dieldrin	GC30	B	05/27/16 13:43
QC836665	4,4'-DDE	GC30	B	05/27/16 13:43
QC836665	Endrin	GC30	B	05/27/16 13:43
QC836665	Endosulfan II	GC30	B	05/27/16 13:43
QC836665	Endosulfan sulfate	GC30	B	05/27/16 13:43
QC836665	4,4'-DDD	GC30	B	05/27/16 13:43
QC836665	Endrin ketone	GC30	B	05/27/16 13:43
QC836665	Endrin aldehyde	GC30	B	05/27/16 13:43
QC836665	4,4'-DDT	GC30	B	05/27/16 13:43
QC836665	alpha-Chlordane	GC30	B	05/27/16 13:43
QC836665	gamma-Chlordane	GC30	B	05/27/16 13:43
QC836665	Methoxychlor	GC30	B	05/27/16 13:43

Sample ID	Analyte	Inst ID	Ch	Date & Time
QC836665	TCMX	GC30	B	05/27/16 13:43
QC836665	Decachlorobiphenyl	GC30	B	05/27/16 13:43
QC836940	alpha-BHC	GC30	B	05/25/16 13:46
QC836940	beta-BHC	GC30	B	05/25/16 13:46
QC836940	gamma-BHC	GC30	B	05/25/16 13:46
QC836940	delta-BHC	GC30	B	05/25/16 13:46
QC836940	Heptachlor	GC30	B	05/25/16 13:46
QC836940	Aldrin	GC30	B	05/25/16 13:46
QC836940	Heptachlor epoxide	GC30	B	05/25/16 13:46
QC836940	Endosulfan I	GC30	B	05/25/16 13:46
QC836940	Dieldrin	GC30	B	05/25/16 13:46
QC836940	4,4'-DDE	GC30	B	05/25/16 13:46
QC836940	Endrin	GC30	B	05/25/16 13:46
QC836940	Endosulfan II	GC30	B	05/25/16 13:46
QC836940	Endosulfan sulfate	GC30	B	05/25/16 13:46
QC836940	4,4'-DDD	GC30	B	05/25/16 13:46
QC836940	Endrin ketone	GC30	B	05/25/16 13:46
QC836940	Endrin aldehyde	GC30	B	05/25/16 13:46
QC836940	4,4'-DDT	GC30	B	05/25/16 13:46
QC836940	alpha-Chlordane	GC30	B	05/25/16 13:46
QC836940	gamma-Chlordane	GC30	B	05/25/16 13:46
QC836940	Methoxychlor	GC30	B	05/25/16 13:46
QC836940	Toxaphene	GC30	B	05/25/16 13:46
QC836940	TCMX	GC30	B	05/25/16 13:46
QC836940	Decachlorobiphenyl	GC30	B	05/25/16 13:46
QC836941	alpha-BHC	GC30	B	05/27/16 13:58
QC836941	beta-BHC	GC30	B	05/27/16 13:58
QC836941	gamma-BHC	GC30	B	05/27/16 13:58
QC836941	delta-BHC	GC30	B	05/27/16 13:58
QC836941	Heptachlor	GC30	B	05/27/16 13:58
QC836941	Aldrin	GC30	B	05/27/16 13:58
QC836941	Heptachlor epoxide	GC30	B	05/27/16 13:58
QC836941	Endosulfan I	GC30	B	05/27/16 13:58
QC836941	Dieldrin	GC30	B	05/27/16 13:58
QC836941	4,4'-DDE	GC30	B	05/27/16 13:58
QC836941	Endrin	GC30	B	05/27/16 13:58
QC836941	Endosulfan II	GC30	B	05/27/16 13:58
QC836941	Endosulfan sulfate	GC30	B	05/27/16 13:58
QC836941	4,4'-DDD	GC30	B	05/27/16 13:58
QC836941	Endrin ketone	GC30	B	05/27/16 13:58
QC836941	Endrin aldehyde	GC30	B	05/27/16 13:58
QC836941	4,4'-DDT	GC30	B	05/27/16 13:58
QC836941	alpha-Chlordane	GC30	B	05/27/16 13:58
QC836941	gamma-Chlordane	GC30	B	05/27/16 13:58
QC836941	Methoxychlor	GC30	B	05/27/16 13:58
QC836941	TCMX	GC30	B	05/27/16 13:58
QC836941	Decachlorobiphenyl	GC30	B	05/27/16 13:58
QC836942	alpha-BHC	GC30	B	05/27/16 14:14
QC836942	beta-BHC	GC30	B	05/27/16 14:14
QC836942	gamma-BHC	GC30	B	05/27/16 14:14
QC836942	delta-BHC	GC30	B	05/27/16 14:14

Sample ID	Analyte	Inst ID	Ch	Date & Time
QC836942	Heptachlor	GC30	B	05/27/16 14:14
QC836942	Aldrin	GC30	B	05/27/16 14:14
QC836942	Heptachlor epoxide	GC30	B	05/27/16 14:14
QC836942	Endosulfan I	GC30	B	05/27/16 14:14
QC836942	Dieldrin	GC30	B	05/27/16 14:14
QC836942	4,4'-DDE	GC30	B	05/27/16 14:14
QC836942	Endrin	GC30	B	05/27/16 14:14
QC836942	Endosulfan II	GC30	B	05/27/16 14:14
QC836942	Endosulfan sulfate	GC30	B	05/27/16 14:14
QC836942	4,4'-DDD	GC30	B	05/27/16 14:14
QC836942	Endrin ketone	GC30	B	05/27/16 14:14
QC836942	Endrin aldehyde	GC30	B	05/27/16 14:14
QC836942	4,4'-DDT	GC30	B	05/27/16 14:14
QC836942	alpha-Chlordane	GC30	B	05/27/16 14:14
QC836942	gamma-Chlordane	GC30	B	05/27/16 14:14
QC836942	Methoxychlor	GC30	B	05/27/16 14:14
QC836942	TCMX	GC30	B	05/27/16 14:14
QC836942	Decachlorobiphenyl	GC30	B	05/27/16 14:14
QC836943	alpha-BHC	GC30	B	05/27/16 14:30
QC836943	beta-BHC	GC30	B	05/27/16 14:30
QC836943	gamma-BHC	GC30	B	05/27/16 14:30
QC836943	delta-BHC	GC30	B	05/27/16 14:30
QC836943	Heptachlor	GC30	B	05/27/16 14:30
QC836943	Aldrin	GC30	B	05/27/16 14:30
QC836943	Heptachlor epoxide	GC30	B	05/27/16 14:30
QC836943	Endosulfan I	GC30	B	05/27/16 14:30
QC836943	Dieldrin	GC30	B	05/27/16 14:30
QC836943	4,4'-DDE	GC30	B	05/27/16 14:30
QC836943	Endrin	GC30	B	05/27/16 14:30
QC836943	Endosulfan II	GC30	B	05/27/16 14:30
QC836943	Endosulfan sulfate	GC30	B	05/27/16 14:30
QC836943	4,4'-DDD	GC30	B	05/27/16 14:30
QC836943	Endrin ketone	GC30	B	05/27/16 14:30
QC836943	Endrin aldehyde	GC30	B	05/27/16 14:30
QC836943	4,4'-DDT	GC30	B	05/27/16 14:30
QC836943	alpha-Chlordane	GC30	B	05/27/16 14:30
QC836943	gamma-Chlordane	GC30	B	05/27/16 14:30
QC836943	Methoxychlor	GC30	B	05/27/16 14:30
QC836943	TCMX	GC30	B	05/27/16 14:30
QC836943	Decachlorobiphenyl	GC30	B	05/27/16 14:30

Dilutions for 277038 PEST Soil
Curtis & Tompkins Laboratories

Type	Sample ID	IDFs
SAMPLE	277038-001	3X
SAMPLE	277038-002	3X
SAMPLE	277038-003	3X
SAMPLE	277038-004	3X
SAMPLE	277038-005	3X
SAMPLE	277038-006	3X
SAMPLE	277038-007	3X
SAMPLE	277038-008	3X
SAMPLE	277038-009	3X
SAMPLE	277038-010	3X
SAMPLE	277038-011	3X
SAMPLE	277038-012	3X
MS	QC836664	3X
MSD	QC836665	3X
MS	QC836942	3X
MSD	QC836943	3X

Case Narrative Addendum: Manual Integrations for 277038 PEST (Soil)

For SAMPLE 277038-001 (GC23 148_004):
Corrected automatically drawn baseline for all channels.
Separated from coeluting peak for Ch. B.

For SAMPLE 277038-002 (GC23 148_005):
Corrected automatically drawn baseline for all channels.
Separated from coeluting peak for Ch. B.

For SAMPLE 277038-003 (GC23 148_006):
Corrected automatically drawn baseline for all channels.
Separated from coeluting peak for Ch. A.

For SAMPLE 277038-004 (GC23 148_007):
Corrected automatically drawn baseline for all channels.
Separated from coeluting peak for Ch. B.

For MSS 277038-005 (GC23 148_008):
Corrected automatically drawn baseline for all channels.
Separated from coeluting peak for all channels.

For SAMPLE 277038-006 (GC23 148_009):
Corrected automatically drawn baseline for all channels.

For SAMPLE 277038-007 (GC23 148_010):
Corrected automatically drawn baseline for all channels.
Separated from coeluting peak for all channels.

For SAMPLE 277038-008 (GC23 148_011):
Corrected automatically drawn baseline for all channels.
Separated from coeluting peak for Ch. B.

For SAMPLE 277038-009 (GC23 148_012):
Corrected automatically drawn baseline for all channels.
Separated from coeluting peak for all channels.

For SAMPLE 277038-010 (GC23 148_013):
Corrected automatically drawn baseline for all channels.
Separated from coeluting peak for all channels.

For MSS 277038-011 (GC23 148_017):
Corrected automatically drawn baseline for all channels.
Separated from coeluting peak for all channels.

For MSS 277038-011 (GC30 148_030):
Corrected automatically drawn baseline.
Separated from coeluting peak.

For SAMPLE 277038-012 (GC23 148_018):
Corrected automatically drawn baseline for all channels.
Separated from coeluting peak for all channels.

For CCV ISOPEST_3 (GC30 148_016):
Corrected automatically drawn baseline for all channels.
Separated from coeluting peak for Ch. B.

For CCV ISOPEST_3 (GC23 148_003):
Corrected automatically drawn baseline for all channels.
Separated from coeluting peak for all channels.

For CCV ISOPEST_3 (GC23 148_021):
Corrected automatically drawn baseline for all channels.
Separated from coeluting peak for all channels.

For CCV ISOPEST_3 (GC23 148_016):
Corrected automatically drawn baseline for all channels.
Separated from coeluting peak for all channels.

For CCV ISOPEST_3 (GC30 148_003):
Corrected automatically drawn baseline for all channels.
Separated from coeluting peak for Ch. B.

For CCV ISOPEST_3 (GC30 148_034):
Corrected automatically drawn baseline for all channels.
Separated from coeluting peak for all channels.

For CCV ISOPEST_3 (GC30 148_023):
Corrected automatically drawn baseline for all channels.

For CCV ISOPEST_3 (GC30 146_010):
Corrected automatically drawn baseline for all channels.
Separated from coeluting peak for Ch. B.

For CCV ISOPEST_3 (GC30 146_003):
Corrected automatically drawn baseline for all channels.
Separated from coeluting peak for all channels.

For PEM (GC30 148_022):
Corrected automatically drawn baseline for all channels.

For PEM (GC30 148_033):
Corrected automatically drawn baseline for all channels.
Separated from coeluting peak for Ch. A.

For PEM (GC23 148_002):
Corrected automatically drawn baseline for all channels.
Separated from coeluting peak for all channels.

For PEM (GC30 148_002):
Corrected automatically drawn baseline for all channels.

For PEM (GC30 146_002):
Corrected automatically drawn baseline for all channels.

For PEM (GC30 146_009):
Corrected automatically drawn baseline for all channels.

For PEM (GC23 148_020):
Corrected automatically drawn baseline for all channels.
Separated from coeluting peak for all channels.

For PEM (GC23 148_015):
Corrected automatically drawn baseline for all channels.
Separated from coeluting peak for all channels.

For PEM (GC30 148_015):
Corrected automatically drawn baseline for all channels.

For BLANK QC836659 (GC23 148_014):
Corrected automatically drawn baseline for all channels.
Separated from coeluting peak for Ch. B.

For LCS QC836663 (GC30 148_014):
Corrected automatically drawn baseline for all channels.
Separated from coeluting peak for Ch. B.

For MSD QC836665 (GC30 148_018):
Corrected automatically drawn baseline for all channels for spike & dup.
Separated from coeluting peak for all channels for spike & dup.

For BLANK QC836940 (GC30 146_008):
Corrected automatically drawn baseline for all channels.
Separated from coeluting peak for Ch. A.

For LCS QC836941 (GC30 148_019):
Corrected automatically drawn baseline for all channels.
Separated from coeluting peak for all channels.

For MSD QC836943 (GC30 148_021):
Corrected automatically drawn baseline for all channels for spike & dup.
Separated from coeluting peak for Ch. A for dup.
Separated from coeluting peak for all channels for spike.

For Calibration GC30 (356203640001):
Corrected automatically drawn baseline for all channels in multiple levels.
Separated from coeluting peak for all channels in multiple levels.

For ICV PEST_ICV (GC30 141_020):
Corrected automatically drawn baseline for all channels.
Separated from coeluting peak for Ch. B.

For Calibration GC23 (806207922001):
Corrected automatically drawn baseline for all channels in multiple levels.
Separated from coeluting peak for all channels in multiple levels.

For ICV PEST_ICV (GC23 144_021):
Corrected automatically drawn baseline for all channels.
Separated from coeluting peak for Ch. A.

For Calibration GC30 (356212292001):
Corrected automatically drawn baseline for all channels in multiple levels.
Separated from coeluting peak for all channels in multiple levels.

For ICV PEST_ICV (GC30 147_025):
Corrected automatically drawn baseline for all channels.
Separated from coeluting peak for all channels.

C-Flags for 277038 PEST Soil
Curtis & Tompkins Laboratories

Type	Sample ID	Analyte	Ch	Primary	Ch	Confirm	Inst	Analyzed
SAMPLE	277038-003	4,4'-DDT	B	1.292	A	4.158	GC23	05/27/16 10:16
SAMPLE	277038-003	alpha-Chlordane	B	0.8538	A	3.621	GC23	05/27/16 10:16
SAMPLE	277038-004	4,4'-DDT	B	1.566	A	4.847	GC23	05/27/16 10:35
SAMPLE	277038-005	4,4'-DDT	B	1.923	A	4.106	GC23	05/27/16 10:53
SAMPLE	277038-005	alpha-Chlordane	B	0.9176	A	4.050	GC23	05/27/16 10:53
SAMPLE	277038-006	gamma-Chlordane	B	5.831	A	2.439	GC23	05/27/16 11:11
SAMPLE	277038-008	gamma-Chlordane	B	6.316	A	2.421	GC23	05/27/16 11:47
SAMPLE	277038-009	4,4'-DDD	B	2.629	A	4.209	GC23	05/27/16 12:05
SAMPLE	277038-009	alpha-Chlordane	B	2.425	A	5.627	GC23	05/27/16 12:05
SAMPLE	277038-010	4,4'-DDT	B	1.972	A	3.758	GC23	05/27/16 12:24
SAMPLE	277038-010	alpha-Chlordane	B	1.241	A	4.151	GC23	05/27/16 12:24
SAMPLE	277038-011	gamma-BHC	B	0.6575	A	2.333	GC23	05/27/16 13:52
SAMPLE	277038-011	Heptachlor epoxide	B	2.591	A	4.232	GC23	05/27/16 13:52
SAMPLE	277038-011	Dieldrin	B	1.897	A	4.436	GC23	05/27/16 13:52
SAMPLE	277038-011	4,4'-DDE	A	7.200	B	1.559	GC23	05/27/16 13:52
SAMPLE	277038-011	Endrin	B	2.768	A	16.19	GC23	05/27/16 13:52
SAMPLE	277038-011	4,4'-DDT	B	14.68	A	5.529	GC30	05/27/16 21:20
SAMPLE	277038-011	alpha-Chlordane	A	5.320	B	1.856	GC23	05/27/16 13:52
SAMPLE	277038-011	gamma-Chlordane	A	5.954	B	33.36	GC23	05/27/16 13:52
SAMPLE	277038-012	Endosulfan II	B	1.573	A	2.676	GC23	05/27/16 14:10
SAMPLE	277038-012	alpha-Chlordane	A	4.833	B	1.236	GC23	05/27/16 14:10
SAMPLE	277038-012	gamma-Chlordane	A	4.021	B	29.06	GC23	05/27/16 14:10
BLANK	QC836940	Heptachlor epoxide	B	0.3340	A	0.9276	GC30	05/25/16 13:46
BLANK	QC836940	Endrin	B	0.6010	A	2.379	GC30	05/25/16 13:46

C-Flag = RPD between columns exceeds 40%

Lower Values Reported for 277038 PEST Soil
Curtis & Tompkins Laboratories

Type	Sample ID	Analyte	Ch	Primary	Ch	Confirm	Inst	Analyzed
SAMPLE	277038-003	4,4'-DDT	B	1.292	A	4.158	GC23	05/27/16 10:16
SAMPLE	277038-003	alpha-Chlordane	B	0.8538	A	3.621	GC23	05/27/16 10:16
SAMPLE	277038-004	4,4'-DDT	B	1.566	A	4.847	GC23	05/27/16 10:35
SAMPLE	277038-005	4,4'-DDT	B	1.923	A	4.106	GC23	05/27/16 10:53
SAMPLE	277038-005	alpha-Chlordane	B	0.9176	A	4.050	GC23	05/27/16 10:53
SAMPLE	277038-009	4,4'-DDE	B	9.110	A	10.37	GC23	05/27/16 12:05
SAMPLE	277038-009	4,4'-DDD	B	2.629	A	4.209	GC23	05/27/16 12:05
SAMPLE	277038-009	4,4'-DDT	B	4.537	A	5.237	GC23	05/27/16 12:05
SAMPLE	277038-009	alpha-Chlordane	B	2.425	A	5.627	GC23	05/27/16 12:05
SAMPLE	277038-010	4,4'-DDE	B	1.503	A	1.862	GC23	05/27/16 12:24
SAMPLE	277038-010	4,4'-DDD	B	3.297	A	4.846	GC23	05/27/16 12:24
SAMPLE	277038-010	4,4'-DDT	B	1.972	A	3.758	GC23	05/27/16 12:24
SAMPLE	277038-010	alpha-Chlordane	B	1.241	A	4.151	GC23	05/27/16 12:24
SAMPLE	277038-011	gamma-BHC	B	0.6575	A	2.333	GC23	05/27/16 13:52
SAMPLE	277038-011	Heptachlor epoxide	B	2.591	A	4.232	GC23	05/27/16 13:52
SAMPLE	277038-011	Dieldrin	B	1.897	A	4.436	GC23	05/27/16 13:52
SAMPLE	277038-011	Endrin	B	2.768	A	16.19	GC23	05/27/16 13:52
SAMPLE	277038-011	gamma-Chlordane	A	5.954	B	33.36	GC23	05/27/16 13:52
SAMPLE	277038-012	Endosulfan II	B	1.573	A	2.676	GC23	05/27/16 14:10
SAMPLE	277038-012	gamma-Chlordane	A	4.021	B	29.06	GC23	05/27/16 14:10
BLANK	QC836940	Heptachlor epoxide	B	0.3340	A	0.9276	GC30	05/25/16 13:46
BLANK	QC836940	Endrin	B	0.6010	A	2.379	GC30	05/25/16 13:46

CAS Registry Numbers for 277038 PEST Soil
Curtis & Tompkins Laboratories

Analyte	CAS RN
4,4'-DDD	72-54-8
4,4'-DDE	72-55-9
4,4'-DDT	50-29-3
Aldrin	309-00-2
alpha-BHC	319-84-6
alpha-Chlordane	5103-71-9
beta-BHC	319-85-7
Decachlorobiphenyl	2051-24-3
delta-BHC	319-86-8
Dieldrin	60-57-1
Endosulfan I	959-98-8
Endosulfan II	33213-65-9
Endosulfan sulfate	1031-07-8
Endrin	72-20-8
Endrin aldehyde	7421-93-4
Endrin ketone	53494-70-5
gamma-BHC	58-89-9
gamma-Chlordane	5103-74-2
Heptachlor	76-44-8
Heptachlor epoxide	1024-57-3
Methoxychlor	72-43-5
TCMX	877-09-8
Toxaphene	8001-35-2

Laboratory Job Number 277038

ANALYTICAL REPORT

PCBs

Matrix: Soil

Curtis & Tompkins, Ltd.

Polychlorinated Biphenyls (PCBs)

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8082A
Matrix:	Soil	Diln Fac:	1.000
Units:	ug/Kg	Sampled:	05/19/16
Basis:	dry	Received:	05/20/16

Field ID:	BS-BERNARD-01-051916	Batch#:	235358
Type:	SAMPLE	Prepared:	05/23/16
Lab ID:	277038-001	Analyzed:	05/27/16
Moisture:	9%		

Analyte	Result	LOQ	DL
Aroclor-1016	5.3 U	11	2.6
Aroclor-1221	14 U	21	7.1
Aroclor-1232	7.1 U	11	3.4
Aroclor-1242	7.1 U	11	3.2
Aroclor-1248	7.1 U	11	3.4
Aroclor-1254	5.3 U	11	2.7
Aroclor-1260	2.9 J	11	1.7

Surrogate	%REC	Limits
TCMX	79	44-130
Decachlorobiphenyl	78	25-135

Field ID:	BS-BERNARD-02-051916	Batch#:	235358
Type:	SAMPLE	Prepared:	05/23/16
Lab ID:	277038-002	Analyzed:	05/27/16
Moisture:	9%		

Analyte	Result	LOQ	DL
Aroclor-1016	5.3 U	11	2.6
Aroclor-1221	14 U	21	7.1
Aroclor-1232	7.1 U	11	3.4
Aroclor-1242	7.1 U	11	3.2
Aroclor-1248	7.1 U	11	3.4
Aroclor-1254	5.3 U	11	2.7
Aroclor-1260	5.3 U	11	1.7

Surrogate	%REC	Limits
TCMX	70	44-130
Decachlorobiphenyl	68	25-135

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Polychlorinated Biphenyls (PCBs)

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8082A
Matrix:	Soil	Dil'n Fac:	1.000
Units:	ug/Kg	Sampled:	05/19/16
Basis:	dry	Received:	05/20/16

Field ID:	BS-BERNARD-03-051916	Batch#:	235358
Type:	SAMPLE	Prepared:	05/23/16
Lab ID:	277038-003	Analyzed:	05/27/16
Moisture:	8%		

Analyte	Result	LOQ	DL
Aroclor-1016	5.2 U	10	2.6
Aroclor-1221	14 U	21	6.9
Aroclor-1232	6.9 U	10	3.4
Aroclor-1242	6.9 U	10	3.1
Aroclor-1248	6.9 U	10	3.3
Aroclor-1254	5.2 U	10	2.6
Aroclor-1260	5.0 J	10	1.7

Surrogate	%REC	Limits
TCMX	73	44-130
Decachlorobiphenyl	70	25-135

Field ID:	BS-BERNARD-04-051916	Batch#:	235358
Type:	SAMPLE	Prepared:	05/23/16
Lab ID:	277038-004	Analyzed:	05/27/16
Moisture:	9%		

Analyte	Result	LOQ	DL
Aroclor-1016	5.3 U	11	2.6
Aroclor-1221	14 U	21	7.1
Aroclor-1232	7.1 U	11	3.5
Aroclor-1242	7.1 U	11	3.2
Aroclor-1248	7.1 U	11	3.4
Aroclor-1254	5.3 U	11	2.7
Aroclor-1260	5.3 U	11	1.7

Surrogate	%REC	Limits
TCMX	87	44-130
Decachlorobiphenyl	86	25-135

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Polychlorinated Biphenyls (PCBs)

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8082A
Matrix:	Soil	Dln Fac:	1.000
Units:	ug/Kg	Sampled:	05/19/16
Basis:	dry	Received:	05/20/16

Field ID:	BS-BERNARD-05-051916	Batch#:	235358
Type:	SAMPLE	Prepared:	05/23/16
Lab ID:	277038-005	Analyzed:	05/27/16
Moisture:	9%		

Analyte	Result	LOQ	DL
Aroclor-1016	5.3 U	11	2.6
Aroclor-1221	14 U	21	7.0
Aroclor-1232	7.0 U	11	3.4
Aroclor-1242	7.0 U	11	3.1
Aroclor-1248	7.0 U	11	3.3
Aroclor-1254	5.3 U	11	2.7
Aroclor-1260	45	11	1.7

Surrogate	%REC	Limits
TCMX	84	44-130
Decachlorobiphenyl	76	25-135

Field ID:	BS-BERNARD-06-051916	Batch#:	235358
Type:	SAMPLE	Prepared:	05/23/16
Lab ID:	277038-006	Analyzed:	05/27/16
Moisture:	11%		

Analyte	Result	LOQ	DL
Aroclor-1016	5.5 U	11	2.7
Aroclor-1221	15 U	22	7.2
Aroclor-1232	7.3 U	11	3.5
Aroclor-1242	7.3 U	11	3.3
Aroclor-1248	7.3 U	11	3.5
Aroclor-1254	5.5 U	11	2.8
Aroclor-1260	5.5 U	11	1.8

Surrogate	%REC	Limits
TCMX	73	44-130
Decachlorobiphenyl	74	25-135

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Polychlorinated Biphenyls (PCBs)

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8082A
Matrix:	Soil	Dil'n Fac:	1.000
Units:	ug/Kg	Sampled:	05/19/16
Basis:	dry	Received:	05/20/16

Field ID:	BS-BERNARD-07-051916	Batch#:	235358
Type:	SAMPLE	Prepared:	05/23/16
Lab ID:	277038-007	Analyzed:	05/27/16
Moisture:	9%		

Analyte	Result	LOQ	DL
Aroclor-1016	5.3 U	11	2.6
Aroclor-1221	14 U	21	7.1
Aroclor-1232	7.1 U	11	3.5
Aroclor-1242	7.1 U	11	3.2
Aroclor-1248	7.1 U	11	3.4
Aroclor-1254	5.3 U	11	2.7
Aroclor-1260	5.3 U	11	1.7

Surrogate	%REC	Limits
TCMX	74	44-130
Decachlorobiphenyl	76	25-135

Field ID:	BS-BERNARD-08-051916	Batch#:	235358
Type:	SAMPLE	Prepared:	05/23/16
Lab ID:	277038-008	Analyzed:	05/27/16
Moisture:	12%		

Analyte	Result	LOQ	DL
Aroclor-1016	5.5 U	11	2.7
Aroclor-1221	15 U	22	7.2
Aroclor-1232	7.3 U	11	3.5
Aroclor-1242	7.3 U	11	3.3
Aroclor-1248	7.3 U	11	3.5
Aroclor-1254	5.5 U	11	2.8
Aroclor-1260	3.0 J	11	1.8

Surrogate	%REC	Limits
TCMX	86	44-130
Decachlorobiphenyl	92	25-135

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Polychlorinated Biphenyls (PCBs)

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8082A
Matrix:	Soil	Dln Fac:	1.000
Units:	ug/Kg	Sampled:	05/19/16
Basis:	dry	Received:	05/20/16

Field ID: BS-BERNARD-09-051916
Type: SAMPLE
Lab ID: 277038-009
Moisture: 8%

Batch#: 235358
Prepared: 05/23/16
Analyzed: 05/27/16

Analyte	Result	LOQ	DL
Aroclor-1016	5.2 U	10	2.6
Aroclor-1221	14 U	21	7.0
Aroclor-1232	7.0 U	10	3.4
Aroclor-1242	7.0 U	10	3.1
Aroclor-1248	7.0 U	10	3.3
Aroclor-1254	5.2 U	10	2.7
Aroclor-1260	36	10	1.7

Surrogate	%REC	Limits
TCMX	88	44-130
Decachlorobiphenyl	72	25-135

Field ID: BS-BERNARD-10-051916
Type: SAMPLE
Lab ID: 277038-010
Moisture: 9%

Batch#: 235358
Prepared: 05/23/16
Analyzed: 05/27/16

Analyte	Result	LOQ	DL
Aroclor-1016	5.2 U	10	2.6
Aroclor-1221	14 U	21	6.9
Aroclor-1232	6.9 U	10	3.4
Aroclor-1242	6.9 U	10	3.1
Aroclor-1248	6.9 U	10	3.3
Aroclor-1254	5.2 U	10	2.6
Aroclor-1260	5.1 J	10	1.7

Surrogate	%REC	Limits
TCMX	81	44-130
Decachlorobiphenyl	69	25-135

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Polychlorinated Biphenyls (PCBs)

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8082A
Matrix:	Soil	Dil'n Fac:	1.000
Units:	ug/Kg	Sampled:	05/19/16
Basis:	dry	Received:	05/20/16

Field ID:	BS-BERNARD-11-051916	Batch#:	235472
Type:	SAMPLE	Prepared:	05/25/16
Lab ID:	277038-011	Analyzed:	05/26/16
Moisture:	7%		

Analyte	Result	LOQ	DL
Aroclor-1016	6.4 U	13	3.1
Aroclor-1221	17 U	25	8.4
Aroclor-1232	8.5 U	13	4.1
Aroclor-1242	8.5 U	13	3.8
Aroclor-1248	8.5 U	13	4.0
Aroclor-1254	6.4 U	13	3.2
Aroclor-1260	7.7 J	13	2.0

Surrogate	%REC	Limits
TCMX	89	44-130
Decachlorobiphenyl	107	25-135

Field ID:	BS-BERNARD-12-051916	Batch#:	235472
Type:	SAMPLE	Prepared:	05/25/16
Lab ID:	277038-012	Analyzed:	05/26/16
Moisture:	6%		

Analyte	Result	LOQ	DL
Aroclor-1016	6.5 U	13	3.2
Aroclor-1221	17 U	26	8.6
Aroclor-1232	8.6 U	13	4.2
Aroclor-1242	8.6 U	13	3.9
Aroclor-1248	8.6 U	13	4.1
Aroclor-1254	6.5 U	13	3.3
Aroclor-1260	5.5 J	13	2.1

Surrogate	%REC	Limits
TCMX	74	44-130
Decachlorobiphenyl	87	25-135

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Polychlorinated Biphenyls (PCBs)

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8082A
Matrix:	Soil	Dil'n Fac:	1.000
Units:	ug/Kg	Sampled:	05/19/16
Basis:	dry	Received:	05/20/16

Type: BLANK
Lab ID: QC836659
Batch#: 235358

Prepared: 05/23/16
Analyzed: 05/26/16

Analyte	Result	LOQ	DL
Aroclor-1016	4.9 U	9.7	2.4
Aroclor-1221	13 U	19	6.4
Aroclor-1232	6.5 U	9.7	3.1
Aroclor-1242	6.5 U	9.7	2.9
Aroclor-1248	6.5 U	9.7	3.1
Aroclor-1254	4.9 U	9.7	2.5
Aroclor-1260	4.9 U	9.7	1.6

Surrogate	%REC	Limits
TCMX	93	44-130
Decachlorobiphenyl	118	25-135

Type: BLANK
Lab ID: QC837111
Batch#: 235472

Prepared: 05/25/16
Analyzed: 05/25/16

Analyte	Result	LOQ	DL
Aroclor-1016	6.1 U	12	3.0
Aroclor-1221	16 U	24	8.0
Aroclor-1232	8.1 U	12	3.9
Aroclor-1242	8.1 U	12	3.6
Aroclor-1248	8.1 U	12	3.8
Aroclor-1254	6.1 U	12	3.1
Aroclor-1260	6.1 U	12	2.0

Surrogate	%REC	Limits
TCMX	87	44-130
Decachlorobiphenyl	89	25-135

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Polychlorinated Biphenyls (PCBs)

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8082A
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC836660	Batch#:	235358
Matrix:	Soil	Prepared:	05/23/16
Units:	ug/Kg	Analyzed:	05/26/16

Analyte	Spiked	Result	%REC	Limits
Aroclor-1016	166.4	162.2	97	47-134
Aroclor-1260	166.4	187.2	112	53-140

Surrogate	%REC	Limits
TCMX	88	44-130
Decachlorobiphenyl	109	25-135

Curtis & Tompkins, Ltd.

Batch QC Report

Polychlorinated Biphenyls (PCBs)

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8082A
Field ID:	BS-BERNARD-14-051916	Batch#:	235358
MSS Lab ID:	277036-002	Sampled:	05/19/16
Matrix:	Soil	Received:	05/20/16
Units:	ug/Kg	Prepared:	05/23/16
Basis:	dry	Analyzed:	05/26/16
Diln Fac:	1.000		

Type: MS Moisture: 8%
Lab ID: QC836661

Analyte	MSS Result	Spiked	Result	%REC	Limits
Aroclor-1016	<2.584	183.4	101.1	55	47-134
Aroclor-1260	9.231	183.4	105.7	53	53-140

Surrogate	%REC	Limits
TCMX	47	44-130
Decachlorobiphenyl	46	25-135

Type: MSD Moisture: 8%
Lab ID: QC836662

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Aroclor-1016	184.1	135.1	73	47-134	28	30
Aroclor-1260	184.1	144.3	73	53-140	30	30

Surrogate	%REC	Limits
TCMX	63	44-130
Decachlorobiphenyl	65	25-135

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Polychlorinated Biphenyls (PCBs)

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3550B
Project#:	149831	Analysis:	EPA 8082A
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC837112	Batch#:	235472
Matrix:	Soil	Prepared:	05/25/16
Units:	ug/Kg	Analyzed:	05/25/16

Analyte	Spiked	Result	%REC	Limits
Aroclor-1016	167.8	159.9	95	47-134
Aroclor-1260	167.8	174.9	104	53-140

Surrogate	%REC	Limits
TCMX	87	44-130
Decachlorobiphenyl	94	25-135

Confirmation Report for 277038 PCBS Soil
Curtis & Tompkins Laboratories

Units: ug/Kg

Lab ID	Client ID	Analyte	Result	Confirmation	RPD	%D
277038-001	BS-BERNARD-01-051916	Aroclor-1260	2.897 J	2.394	19	-17
277038-003	BS-BERNARD-03-051916	Aroclor-1260	4.958 J	4.144	18	-16
277038-005	BS-BERNARD-05-051916	Aroclor-1260	44.52	42.90	4	-4
277038-008	BS-BERNARD-08-051916	Aroclor-1260	2.967 J	2.246	28	-24
277038-009	BS-BERNARD-09-051916	Aroclor-1260	35.55	27.89	24	-22
277038-010	BS-BERNARD-10-051916	Aroclor-1260	5.109 J	4.004	24	-22
277038-011	BS-BERNARD-11-051916	Aroclor-1260	7.686 J	7.961	4	4
277038-012	BS-BERNARD-12-051916	Aroclor-1260	5.543 J	5.867	6	6

J=estimated

Initial & Continuing Calibration Data

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 277038 PCBS Soil: EPA 8082A

Inst : GC16
Calnum : 236199254001
Units : pg/ul

Name : 1660_138
Date : 17-MAY-2016 21:14

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	138_015	236199254015	PCB10_2	17-MAY-2016 21:14	S29342
L2	138_016	236199254016	PCB25_5	17-MAY-2016 21:43	S29343
L3	138_017	236199254017	PCB100_20	17-MAY-2016 22:11	S29344
L4	138_018	236199254018	PCB250_50	17-MAY-2016 22:38	S29345
L5	138_019	236199254019	PCB500_100	17-MAY-2016 23:07	S29346
L6	138_020	236199254020	PCB750_150	17-MAY-2016 23:35	S29347
L7	138_021	236199254021	PCB1000_200	18-MAY-2016 00:03	S29348

Analyte	Ch	L1	L2	L3	L4	L5	L6	L7	Type	X	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
Aroclor-1016 Peak # 1	A	294.80	241.80	240.93	237.92	211.40	215.37	171.50	AVRG	R		0.00434		230.53	16	.99	20	
Aroclor-1016 Peak # 2	A	472.20	482.76	442.58	418.16	386.01	368.75	335.12	AVRG	R		0.00241		415.08	13	.99	20	
Aroclor-1016 Peak # 3	A	596.00	585.76	593.41	590.08	523.84	515.96	472.66	AVRG	R		0.00181		553.96	9	.99	20	
Aroclor-1016 Peak # 4	A	226.90	262.60	301.99	294.22	265.34	268.41	243.75	AVRG	R		0.00376		266.17	10	.99	20	
Aroclor-1016 Peak # 5	A	287.10	283.72	261.28	264.51	245.78	246.75	222.96	AVRG	R		0.00386		258.87	9	.99	20	
Aroclor-1260 Peak # 1	A	1032.8	1114.6	1039.4	957.12	820.23	899.66	783.12	AVRG	R		0.00105		949.56	13	.99	20	
Aroclor-1260 Peak # 2	A	630.10	637.04	664.75	611.91	543.32	609.30	537.17	AVRG	R		0.00165		604.80	8	.99	20	
Aroclor-1260 Peak # 3	A	486.30	540.40	551.13	510.87	449.99	510.19	444.26	AVRG	R		0.00200		499.02	8	.99	20	
Aroclor-1260 Peak # 4	A	1143.7	1139.7	1227.0	1147.4	1031.9	1194.8	1045.6	AVRG	R		8.83E-4		1132.9	6	.99	20	
Aroclor-1260 Peak # 5	A	447.20	559.32	565.89	520.44	482.36	590.38	514.77	AVRG	R		0.00190		525.77	10	.99	20	
TCMX	A	8130.5	7897.6	7897.2	8140.5	8104.5	8032.4	7476.1	AVRG	R		1.26E-4		7954.1	3	.99	20	
Decachlorobiphenyl	A	12402	11683	11849	10172	8518.2	9874.4	8198.6	AVRG	R		9.63E-5		10385	16	.99	20	
Aroclor-1016 Peak # 1	B	576.90	554.16	505.54	454.18	414.74	400.89	371.20	AVRG	R		0.00214		468.23	17	.99	20	
Aroclor-1016 Peak # 2	B	1662.3	1668.2	1559.5	1460.2	1340.4	1377.1	1236.3	AVRG	R		6.79E-4		1472.0	11	.99	20	
Aroclor-1016 Peak # 3	B	767.40	738.44	695.53	644.00	587.46	592.75	529.26	AVRG	R		0.00154		650.69	13	.99	20	
Aroclor-1016 Peak # 4	B	465.50	449.80	420.75	393.05	352.34	350.48	314.49	AVRG	R		0.00255		392.35	14	.99	20	
Aroclor-1016 Peak # 5	B	617.40	648.52	613.02	578.60	525.07	545.53	492.19	AVRG	R		0.00174		574.33	10	.99	20	
Aroclor-1260 Peak # 1	B	1628.8	1433.5	1290.2	1118.2	957.57	1042.6	912.87	QUAD	A	8136.79	1123.04	-0.20249	1197.7	0.995	.99	20	
Aroclor-1260 Peak # 2	B	1154.8	958.08	935.48	810.42	699.57	763.47	673.33	AVRG	R		0.00117		856.45	20	.99	20	
Aroclor-1260 Peak # 3	B	949.30	914.96	874.56	771.94	672.35	751.90	661.15	AVRG	R		0.00125		799.45	14	.99	20	
Aroclor-1260 Peak # 4	B	2108.9	2019.7	1960.9	1629.9	1496.8	1731.9	1508.7	AVRG	R		5.62E-4		1779.5	14	.99	20	
Aroclor-1260 Peak # 5	B	1133.4	1074.8	1010.8	890.41	774.97	919.01	802.66	AVRG	R		0.00106		943.72	14	.99	20	
TCMX	B	19451	19245	18047	18240	17954	17963	16799	AVRG	R		5.48E-5		18243	5	.99	20	
Decachlorobiphenyl	B	25627	23107	20361	16490	13628	16060		QUAD	A	86740.1	11708.0	23.18071	19212	0.991	.99	20	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D
Aroclor-1016 Peak # 1	A	10.000	**28**	25.000	5	100.00	5	250.00	3	500.00	-8	750.00	-7	1000.0	**-26**
Aroclor-1016 Peak # 2	A	10.000	14	25.000	16	100.00	7	250.00	1	500.00	-7	750.00	-11	1000.0	-19
Aroclor-1016 Peak # 3	A	10.000	8	25.000	6	100.00	7	250.00	7	500.00	-5	750.00	-7	1000.0	-15
Aroclor-1016 Peak # 4	A	10.000	-15	25.000	-1	100.00	13	250.00	11	500.00	0	750.00	1	1000.0	-8
Aroclor-1016 Peak # 5	A	10.000	11	25.000	10	100.00	1	250.00	2	500.00	-5	750.00	-5	1000.0	-14
Aroclor-1260 Peak # 1	A	10.000	9	25.000	17	100.00	9	250.00	1	500.00	-14	750.00	-5	1000.0	-18
Aroclor-1260 Peak # 2	A	10.000	4	25.000	5	100.00	10	250.00	1	500.00	-10	750.00	1	1000.0	-11
Aroclor-1260 Peak # 3	A	10.000	-3	25.000	8	100.00	10	250.00	2	500.00	-10	750.00	2	1000.0	-11
Aroclor-1260 Peak # 4	A	10.000	1	25.000	1	100.00	8	250.00	1	500.00	-9	750.00	5	1000.0	-8
Aroclor-1260 Peak # 5	A	10.000	-15	25.000	6	100.00	8	250.00	-1	500.00	-8	750.00	12	1000.0	-2
TCMX	A	2.0000	2	5.0000	-1	20.000	-1	50.000	2	100.00	2	150.00	1	200.00	-6
Decachlorobiphenyl	A	2.0000	19	5.0000	13	20.000	14	50.000	-2	100.00	-18	150.00	-5	200.00	**-21**
Aroclor-1016 Peak # 1	B	10.000	**23**	25.000	18	100.00	8	250.00	-3	500.00	-11	750.00	-14	1000.0	**-21**
Aroclor-1016 Peak # 2	B	10.000	13	25.000	13	100.00	6	250.00	-1	500.00	-9	750.00	-6	1000.0	-16
Aroclor-1016 Peak # 3	B	10.000	18	25.000	13	100.00	7	250.00	-1	500.00	-10	750.00	-9	1000.0	-19
Aroclor-1016 Peak # 4	B	10.000	19	25.000	15	100.00	7	250.00	0	500.00	-10	750.00	-11	1000.0	-20
Aroclor-1016 Peak # 5	B	10.000	7	25.000	13	100.00	7	250.00	1	500.00	-9	750.00	-5	1000.0	-14
Aroclor-1260 Peak # 1	B	10.000	**-27**	25.000	-1	100.00	10	250.00	1	500.00	-9	750.00	8	1000.0	-2
Aroclor-1260 Peak # 2	B	10.000	**35**	25.000	12	100.00	9	250.00	-5	500.00	-18	750.00	-11	1000.0	**-21**
Aroclor-1260 Peak # 3	B	10.000	19	25.000	14	100.00	9	250.00	-3	500.00	-16	750.00	-6	1000.0	-17
Aroclor-1260 Peak # 4	B	10.000	19	25.000	13	100.00	10	250.00	-8	500.00	-16	750.00	-3	1000.0	-15
Aroclor-1260 Peak # 5	B	10.000	20	25.000	14	100.00	7	250.00	-6	500.00	-18	750.00	-3	1000.0	-15
TCMX	B	2.0000	7	5.0000	5	20.000	-1	50.000	0	100.00	-2	150.00	-2	200.00	-8
Decachlorobiphenyl	B	2.0000	**-252**	5.0000	**-51**	20.000	**30**	50.000	13	100.00	-8	150.00	2		

JS1 05/19/16 : Corrected automatically drawn baseline in all levels.

Analyst: JS1 Date: 05/19/16 Reviewer: EAH Date: 05/20/16

X=A: Instrument response = a0 + amount * a1 + amount^2 * a2 (invert equation before quantitating); X=R: Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor; QUAD=Quadratic regression

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 277038 PCBS Soil
EPA 8082A

Inst : GC16 Name : 1660_138
Calnum : 236199254001 Cal Date : 17-MAY-2016

ICV 236199254024 (138_024 18-MAY-2016) stds: S29214

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Aroclor-1016	A	250.0	242.6	pg/ul	-3	20	
Aroclor-1260	A	250.0	274.3	pg/ul	10	20	
Aroclor-1016	B	250.0	244.8	pg/ul	-2	20	
Aroclor-1260	B	250.0	264.8	pg/ul	6	20	

Analyst: JS1 Date: 05/19/16 Reviewer: EAH Date: 05/19/16

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 PCBS Soil
EPA 8082A

Inst : GC16 Run Name : PCB500_100 IDF : 1.0
Seqnum : 236211112007.1 File : 146_007 Time : 25-MAY-2016 18:11
Cal : 236199254001 Caldate : 17-MAY-2016
Standards: S29824

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Aroclor-1016	A			500.0	438.7	pg/ul	-12	20	
Aroclor-1260	A			500.0	487.7	pg/ul	-2	20	
TCMX	A	7954.1	7478.5	100.0	94.02	pg/ul	-6	20	
Decachlorobiphenyl	A	10385	9971.3	100.0	96.01	pg/ul	-4	20	
Aroclor-1016	B			500.0	445.1	pg/ul	-11	20	
Aroclor-1260	B			500.0	466.2	pg/ul	-7	20	
TCMX	B	18243	17297	100.0	94.81	pg/ul	-5	20	
Decachlorobiphenyl	B	19212	16505	100.0	109.7	pg/ul	10	20	

JS1 05/25/16 : Corrected automatically drawn baseline. [general version]

Analyst: JS1 Date: 05/27/16 Reviewer: TKM Date: 05/27/16

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 PCBS Soil
EPA 8082A

Inst : GC16 Run Name : PCB500_100 IDF : 1.0
Seqnum : 236211112018.1 File : 146_018 Time : 25-MAY-2016 23:33
Cal : 236199254001 Caldate : 17-MAY-2016
Standards: S29824

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Aroclor-1016	A			500.0	506.1	pg/ul	1	20	
Aroclor-1260	A			500.0	572.4	pg/ul	14	20	
TCMX	A	7954.1	8377.3	100.0	105.3	pg/ul	5	20	
Decachlorobiphenyl	A	10385	10760	100.0	103.6	pg/ul	4	20	
Aroclor-1016	B			500.0	507.6	pg/ul	2	20	
Aroclor-1260	B			500.0	547.8	pg/ul	10	20	
TCMX	B	18243	18816	100.0	103.1	pg/ul	3	20	
Decachlorobiphenyl	B	19212	18049	100.0	118.8	pg/ul	19	20	

JS1 05/26/16 : Corrected automatically drawn baseline. [general version]

Analyst: JS1 Date: 05/27/16 Reviewer: TKM Date: 05/27/16

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 PCBS Soil
EPA 8082A

Inst : GC16 Run Name : PCB500_100 IDF : 1.0
Seqnum : 236212143015.1 File : 147_015 Time : 26-MAY-2016 15:21
Cal : 236199254001 Caldate : 17-MAY-2016
Standards: S29824

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Aroclor-1016	A			500.0	481.7	pg/ul	-4	20	
Aroclor-1260	A			500.0	534.9	pg/ul	7	20	
TCMX	A	7954.1	7993.9	100.0	100.5	pg/ul	1	20	
Decachlorobiphenyl	A	10385	10518	100.0	101.3	pg/ul	1	20	
Aroclor-1016	B			500.0	475.4	pg/ul	-5	20	
Aroclor-1260	B			500.0	506.3	pg/ul	1	20	
TCMX	B	18243	18703	100.0	102.5	pg/ul	3	20	
Decachlorobiphenyl	B	19212	17674	100.0	116.6	pg/ul	17	20	

JS1 05/26/16 : Corrected automatically drawn baseline. [general version]

Analyst: JS1 Date: 05/27/16 Reviewer: TKM Date: 05/27/16

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 PCBS Soil
EPA 8082A

Inst : GC16 Run Name : PCB500_100 IDF : 1.0
Seqnum : 236212143031.1 File : 147_031 Time : 26-MAY-2016 22:49
Cal : 236199254001 Caldate : 17-MAY-2016
Standards: S29824

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Aroclor-1016	A			500.0	421.1	pg/ul	-16	20	
Aroclor-1260	A			500.0	422.3	pg/ul	-16	20	
TCMX	A	7954.1	7048.0	100.0	88.61	pg/ul	-11	20	
Decachlorobiphenyl	A	10385	7530.3	100.0	72.51	pg/ul	**-27**	20	c-
Aroclor-1016	B			500.0	417.4	pg/ul	-17	20	
Aroclor-1260	B			500.0	396.6	pg/ul	**-21**	20	c- ***
TCMX	B	18243	16058	100.0	88.03	pg/ul	-12	20	
Decachlorobiphenyl	B	19212	12525	100.0	85.20	pg/ul	-15	20	

JS1 05/27/16 : Corrected automatically drawn baseline. [general version]

Analyst: JS1 Date: 05/27/16 Reviewer: TKM Date: 05/27/16

-=low bias c=CCV

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 PCBS Soil
EPA 8082A

Inst : GC16 Run Name : PCB500_100 IDF : 1.0
Seqnum : 236212143053.1 File : 147_053 Time : 27-MAY-2016 09:06
Cal : 236199254001 Caldate : 17-MAY-2016
Standards: S29824

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Aroclor-1016	A			500.0	421.8	pg/ul	-16	20	
Aroclor-1260	A			500.0	443.0	pg/ul	-11	20	
TCMX	A	7954.1	7113.0	100.0	89.43	pg/ul	-11	20	
Decachlorobiphenyl	A	10385	8277.3	100.0	79.70	pg/ul	-20	20	
Aroclor-1016	B			500.0	423.4	pg/ul	-15	20	
Aroclor-1260	B			500.0	421.8	pg/ul	-16	20	
TCMX	B	18243	16364	100.0	89.70	pg/ul	-10	20	
Decachlorobiphenyl	B	19212	13891	100.0	93.81	pg/ul	-6	20	

JS1 05/27/16 : Corrected automatically drawn baseline. [general version]

Analyst: JS1 Date: 05/27/16 Reviewer: TKM Date: 05/27/16

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 PCBS Soil
EPA 8082A

Inst : GC16 Run Name : PCB500_100 IDF : 1.0
Seqnum : 236212143065.1 File : 147_065 Time : 27-MAY-2016 14:46
Cal : 236199254001 Caldate : 17-MAY-2016
Standards: S29824

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Aroclor-1016	A			500.0	457.0	pg/ul	-9	20	
Aroclor-1260	A			500.0	466.6	pg/ul	-7	20	
TCMX	A	7954.1	7540.6	100.0	94.80	pg/ul	-5	20	
Decachlorobiphenyl	A	10385	8439.4	100.0	81.26	pg/ul	-19	20	
Aroclor-1016	B			500.0	447.4	pg/ul	-11	20	
Aroclor-1260	B			500.0	433.0	pg/ul	-13	20	
TCMX	B	18243	17287	100.0	94.76	pg/ul	-5	20	
Decachlorobiphenyl	B	19212	13997	100.0	94.47	pg/ul	-6	20	

JS1 05/27/16 : Corrected automatically drawn baseline. [general version]

Analyst: JS1 Date: 05/27/16 Reviewer: TKM Date: 05/27/16

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 PCBS Soil
EPA 8082A

Inst : GC16 Run Name : PCB500_100 IDF : 1.0
Seqnum : 236212143068.1 File : 147_068 Time : 27-MAY-2016 17:35
Cal : 236199254001 Caldate : 17-MAY-2016
Standards: S29824

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Aroclor-1016	A			500.0	511.6	pg/ul	2	20	
Aroclor-1260	A			500.0	526.0	pg/ul	5	20	
TCMX	A	7954.1	8710.4	100.0	109.5	pg/ul	10	20	
Decachlorobiphenyl	A	10385	9057.5	100.0	87.22	pg/ul	-13	20	
Aroclor-1016	B			500.0	494.4	pg/ul	-1	20	
Aroclor-1260	B			500.0	507.3	pg/ul	1	20	
TCMX	B	18243	19684	100.0	107.9	pg/ul	8	20	
Decachlorobiphenyl	B	19212	15174	100.0	101.7	pg/ul	2	20	

JS1 05/27/16 : Corrected automatically drawn baseline. [general version]

Analyst: JS1 Date: 05/27/16 Reviewer: TKM Date: 05/27/16

Logbooks & Sequences

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 236199254

Instrument : GC16 Begun : 05/17/16 08:54
Method : EPA 8082A SOP Version : pcb_rv10

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	138_001	X	HEX			05/17/16 08:54	1.0		
002	138_002	CCV	PCB500_100			05/17/16 09:24	1.0	1	
003	138_003	X	PRIMER			05/17/16 10:14	1.0		
004	138_004	X	PRIMER			05/17/16 10:41	1.0		
005	138_005	X	HEX			05/17/16 11:10	1.0		
006	138_006	CCV	PCB500_100			05/17/16 11:48	1.0	1	
007	138_007	X	HEX			05/17/16 14:29	1.0		
008	138_008	CCV	PCB500_100			05/17/16 15:05	1.0	1	
009	138_009	CCV	PCB500_100			05/17/16 16:19	1.0	1	
010	138_010	CCV	PCB250_50			05/17/16 18:28	1.0	2	
011	138_011	X	HEX			05/17/16 19:21	1.0		
012	138_012	X	HEX			05/17/16 19:49	1.0		
013	138_013	X	HEX			05/17/16 20:18	1.0		
014	138_014	IB	CALIB			05/17/16 20:46	1.0		
015	138_015	ICAL	PCB10_2			05/17/16 21:14	1.0	3	
016	138_016	ICAL	PCB25_5			05/17/16 21:43	1.0	4	
017	138_017	ICAL	PCB100_20			05/17/16 22:11	1.0	5	
018	138_018	ICAL	PCB250_50			05/17/16 22:38	1.0	2	
019	138_019	ICAL	PCB500_100			05/17/16 23:07	1.0	6	
020	138_020	ICAL	PCB750_150			05/17/16 23:35	1.0	7	
021	138_021	ICAL	PCB1000_200			05/18/16 00:03	1.0	8	
022	138_022	X	HEX			05/18/16 00:31	1.0		
023	138_023	XICV	ULTRA_1660			05/18/16 01:00	1.0	9	
024	138_024	ICV	ULTRA_1660			05/18/16 01:28	1.0	9	
025	138_025	X	HEX			05/18/16 01:56	1.0		
026	138_026	X	HEX			05/18/16 02:24	1.0		

JS1 05/19/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 26.

Standards used: 1=S29824 2=S29345 3=S29342 4=S29343 5=S29344 6=S29346 7=S29347 8=S29348 9=S29214

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 236211112

Instrument : GC16 Begun : 05/25/16 14:32
Method : EPA 8082A SOP Version : pcb_rv10

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	146_001	X	HEX			05/25/16 14:32	1.0		
002	146_002	CCV	PCB500_100			05/25/16 15:00	1.0	1	
003	146_003	CCV	AR1268_500			05/25/16 16:14	1.0	2	
004	146_004	BLANK	QC836727	Miscell.	235373	05/25/16 16:42	1.0		
005	146_005	BS	QC836728	Miscell.	235373	05/25/16 17:11	1.0		
006	146_006	BSD	QC836729	Miscell.	235373	05/25/16 17:39	1.0		
007	146_007	CCV	PCB500_100			05/25/16 18:11	1.0	1	
008	146_008	CCV	AR1268_500			05/25/16 18:55	1.0	2	
009	146_009	CCV	AR2154_250			05/25/16 19:23	1.0	3	No Quant
010	146_010	CCV	AR1248_500			05/25/16 19:51	1.0	4	No Quant
011	146_011	CCV	AR1242_500			05/25/16 20:19	1.0	5	
012	146_012	BLANK	QC837111	Soil	235472	05/25/16 20:47	1.0		
013	146_013	LCS	QC837112	Soil	235472	05/25/16 21:15	1.0		
014	146_014	MSS	277147-005	Soil	235472	05/25/16 21:43	1.0		6:PCB1016#4=7400
015	146_015	MS	QC837113	Soil	235472	05/25/16 22:10	1.0		10:PCB1016#4=6300
016	146_016	MSD	QC837114	Soil	235472	05/25/16 22:38	1.0		10:PCB1016#4=6700
017	146_017	SAMPLE	277113-001	Soil	235472	05/25/16 23:06	1.0		
018	146_018	CCV	PCB500_100			05/25/16 23:33	1.0	1	
019	146_019	CCV	AR1268_500			05/26/16 00:01	1.0	2	
020	146_020	CCV	AR2154_250			05/26/16 00:29	1.0	3	
021	146_021	CCV	AR1248_500			05/26/16 00:57	1.0	4	
022	146_022	CCV	AR1242_500			05/26/16 01:25	1.0	5	
023	146_023	CCV	PCB500_100			05/26/16 01:52	1.0	1	
024	146_024	CCV	AR1268_500			05/26/16 02:20	1.0	2	
025	146_025	CCV	AR2154_250			05/26/16 02:48	1.0	3	
026	146_026	CCV	AR1248_500			05/26/16 03:16	1.0	4	
027	146_027	CCV	AR1242_500			05/26/16 03:44	1.0	5	

JS1 05/25/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 7.

JS1 05/26/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 8 through 27.

Standards used: 1=S29824 2=S28691 3=S29813 4=S28684 5=S28677

Flags used: No Quant=Decachlorobiphenyl not quantifiable

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 236212143

Instrument : GC16
Method : EPA 8082A

Begun : 05/26/16 07:43
SOP Version : pcb_rv10

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	147_001	X	HEX			05/26/16 07:43	1.0		
002	147_002	CCV	PCB500_100			05/26/16 08:11	1.0	1	
003	147_003	CCV	AR2154_250			05/26/16 09:06	1.0	2	
004	147_004	CCV	AR1268_500			05/26/16 10:03	1.0	3	
005	147_005	CCV	AR1248_250			05/26/16 10:30	1.0	4	
006	147_006	CCV	AR1242_500			05/26/16 10:58	1.0	5	
007	147_007	MSS	277147-005	Soil	235472	05/26/16 11:27	10.0		high NT, 1:PCB1248#5=1300
008	147_008	MS	QC837113	Soil	235472	05/26/16 11:55	10.0		
009	147_009	MSD	QC837114	Soil	235472	05/26/16 12:23	10.0		high NT
010	147_010	BLANK	QC837057	Oil	235461	05/26/16 12:52	1.0		
011	147_011	BS	QC837058	Oil	235461	05/26/16 13:20	1.0		
012	147_012	BSD	QC837059	Oil	235461	05/26/16 13:48	1.0		
013	147_013	SAMPLE	277133-001	Oil	235461	05/26/16 14:17	1.0		
014	147_014	SAMPLE	277133-002	Oil	235461	05/26/16 14:45	1.0		
015	147_015	CCV	PCB500_100			05/26/16 15:21	1.0	1	
016	147_016	CCV	AR1268_500			05/26/16 15:50	1.0	3	
017	147_017	CCV	AR2154_250			05/26/16 16:18	1.0	2	No Quant
018	147_018	CCV	AR1248_250			05/26/16 16:45	1.0	4	No Quant
019	147_019	CCV	AR1242_500			05/26/16 17:13	1.0	5	
020	147_020	CCV	AR1262_250			05/26/16 17:44	1.0	6	
021	147_021	SAMPLE	277105-003	Water	235479	05/26/16 18:12	1.0		
022	147_022	SAMPLE	277105-002	Soil	235472	05/26/16 18:39	20.0		high NT
023	147_023	SAMPLE	277202-001	Miscell.	235472	05/26/16 19:07	1.0		
024	147_024	SAMPLE	277038-011	Soil	235472	05/26/16 19:35	1.0		
025	147_025	SAMPLE	277038-012	Soil	235472	05/26/16 20:03	1.0		
026	147_026	BLANK	QC836659	Soil	235358	05/26/16 20:31	1.0		
027	147_027	LCS	QC836660	Soil	235358	05/26/16 20:58	1.0		
028	147_028	MS	QC836661	Soil	235358	05/26/16 21:26	1.0		
029	147_029	MSD	QC836662	Soil	235358	05/26/16 21:54	1.0		
030	147_030	SAMPLE	277036-001	Soil	235358	05/26/16 22:21	1.0		
031	147_031	CCV	PCB500_100			05/26/16 22:49	1.0	1	
032	147_032	CCV	AR1268_500			05/26/16 23:17	1.0	3	
033	147_033	CCV	AR2162_250			05/26/16 23:44	1.0	7	
034	147_034	CCV	AR2154_250			05/27/16 00:12	1.0	2	
035	147_035	CCV	AR1248_250			05/27/16 00:40	1.0	4	
036	147_036	CCV	AR1242_500			05/27/16 01:07	1.0	5	
037	147_037	CCV	PCB500_100			05/27/16 01:35	1.0	1	
038	147_038	CCV	AR1268_500			05/27/16 02:03	1.0	3	
039	147_039	CCV	AR2162_250			05/27/16 02:30	1.0	7	
040	147_040	CCV	AR2154_250			05/27/16 02:58	1.0	2	No Quant
041	147_041	CCV	AR1248_250			05/27/16 03:26	1.0	4	
042	147_042	CCV	AR1242_500			05/27/16 03:54	1.0	5	No Quant
043	147_043	MSS	277036-002	Soil	235358	05/27/16 04:22	1.0		
044	147_044	SAMPLE	277036-003	Soil	235358	05/27/16 04:50	1.0		
045	147_045	SAMPLE	277036-004	Soil	235358	05/27/16 05:18	1.0		
046	147_046	SAMPLE	277036-005	Soil	235358	05/27/16 05:47	1.0		
047	147_047	SAMPLE	277036-006	Soil	235358	05/27/16 06:15	1.0		
048	147_048	SAMPLE	277036-007	Soil	235358	05/27/16 06:44	1.0		
049	147_049	SAMPLE	277036-008	Soil	235358	05/27/16 07:12	1.0		
050	147_050	SAMPLE	277036-009	Soil	235358	05/27/16 07:41	1.0		
051	147_051	SAMPLE	277036-010	Soil	235358	05/27/16 08:09	1.0		
052	147_052	SAMPLE	277038-001	Soil	235358	05/27/16 08:38	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 236212143

Instrument : GC16 Begun : 05/26/16 07:43
Method : EPA 8082A SOP Version : pcb_rv10

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used
053	147_053	CCV	PCB500_100			05/27/16 09:06	1.0	1
054	147_054	CCV	AR1268_500			05/27/16 09:34	1.0	3
055	147_055	SAMPLE	277038-002	Soil	235358	05/27/16 10:02	1.0	
056	147_056	SAMPLE	277038-003	Soil	235358	05/27/16 10:31	1.0	
057	147_057	SAMPLE	277038-004	Soil	235358	05/27/16 10:59	1.0	
058	147_058	MSS	277038-005	Soil	235358	05/27/16 11:28	1.0	
059	147_059	SAMPLE	277038-006	Soil	235358	05/27/16 11:56	1.0	
060	147_060	SAMPLE	277038-007	Soil	235358	05/27/16 12:24	1.0	
061	147_061	SAMPLE	277038-008	Soil	235358	05/27/16 12:52	1.0	
062	147_062	MSS	277036-002	Soil	235358	05/27/16 13:20	1.0	
063	147_063	SAMPLE	277038-009	Soil	235358	05/27/16 13:48	1.0	
064	147_064	SAMPLE	277038-010	Soil	235358	05/27/16 14:16	1.0	
065	147_065	CCV	PCB500_100			05/27/16 14:46	1.0	1
066	147_066	SAMPLE	277036-004	Soil	235358	05/27/16 16:06	1.0	
067	147_067	SAMPLE	277038-001	Soil	235358	05/27/16 17:05	1.0	
068	147_068	CCV	PCB500_100			05/27/16 17:35	1.0	1

JS1 05/26/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 15.

JS1 05/27/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 16 through 52.

JS1 05/27/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 53 through 65.

JS1 05/27/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 66 through 68.

Standards used: 1=S29824 2=S29813 3=S28691 4=S29950 5=S29990 6=S28984 7=S30001
Flags used: No Quant=Decachlorobiphenyl not quantifiable

SAMPLE PREPARATION SUMMARY

Batch # : 235358
Started By : ARW
Method : 3550B
Spike #1 ID : S29678
Prep Date : 23-MAY-2016 11:35
SOP Version : PCB_3550_rv12
Spike #2 ID : S29442
Analysis : PCB
Finished By : ARW
Units : g
Spike #3 ID : S29489

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
277036-001		Soil	29.79	20	1	0.6714		.8				8081, PCB	
277036-002		Soil	29.86	20	1	0.6698		.8				8081, PCB	
277036-003		Soil	30.41	20	1	0.6577		.8				8081, PCB	
277036-004		Soil	29.99	20	1	0.6669		.8				8081, PCB	
277036-005		Soil	29.91	20	1	0.6687		.8				8081, PCB	
277036-006		Soil	30.24	20	1	0.6614		.8				8081, PCB	
277036-007		Soil	29.8	20	1	0.6711		.8				8081, PCB	
277036-008		Soil	30.46	20	1	0.6566		.8				8081, PCB	
277036-009		Soil	30.06	20	1	0.6653		.8				8081, PCB	
277036-010		Soil	29.93	20	1	0.6682		.8				8081, PCB	
277038-001		Soil	29.75	20	1	0.6723		.8				8081, PCB	
277038-002		Soil	29.71	20	1	0.6732		.8				8081, PCB	
277038-003		Soil	30.18	20	1	0.6627		.8				8081, PCB	
277038-004		Soil	29.58	20	1	0.6761		.8				8081, PCB	
277038-005		Soil	30.04	20	1	0.6658		.8				8081, PCB	
277038-006		Soil	29.66	20	1	0.6743		.8				8081, PCB	
277038-007		Soil	29.58	20	1	0.6761		.8				8081, PCB	
277038-008		Soil	29.99	20	1	0.6669		.8				8081, PCB	
277038-009		Soil	29.86	20	1	0.6698		.8				8081, PCB	
277038-010		Soil	30.37	20	1	0.6585		.8				8081, PCB	
QC836659	BLANK	Soil	29.68	20	1	0.6739		.8				PCB	
QC836660	LCS	Soil	30.04	20	1	0.6658		.8	1			PCB	
QC836661	MS	Soil	29.63	20	1	0.675		.8	1			PCB	
QC836662	MSD	Soil	29.52	20	1	0.6775		.8	1			PCB	
QC836663	LCS	Soil	29.86	20	1	0.6698		.8		.4		8081	
QC836664	MS	Soil	29.77	20	1	0.6718		.8		.4		8081	
QC836665	MSD	Soil	29.66	20	1	0.6743		.8		.4		8081	

TKM 05/27/16 : reviewed prep entry

Analyst: JS1 Date: 05/27/16 Reviewer: BJP Date: 05/27/16

8081 Soil Prep Log Curtis & Tompkins, Ltd.

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Extraction Method:
☑ EPA 3550b Sonication
☐ _____

Cleanup Method:
☒ EPA 3620b Florisil

LIMS Batch No: 235358
Date Extracted: 5/23/16

Sample #	Container ID	Sample Wt (g)	Final Vol (mL)	Comments
277036-001	G	29.79	☑ 20.0 ☐	
2		29.86	☑ 20.0 ☐	
3		30.41	☑ 20.0 ☐	
4		29.99	☑ 20.0 ☐	
5		29.91	☑ 20.0 ☐	
6		30.24	☑ 20.0 ☐	
7		29.80	☑ 20.0 ☐	
8		30.46	☑ 20.0 ☐	
9		30.06	☑ 20.0 ☐	
10		29.93	☑ 20.0 ☐	
277038-001		29.75	☑ 20.0 ☐	
2		29.71	☑ 20.0 ☐	
3		30.18	☑ 20.0 ☐	
4		29.58	☑ 20.0 ☐	
5		30.04	☑ 20.0 ☐	MSS
6		29.66	☑ 20.0 ☐	
7		29.58	☑ 20.0 ☐	
8		29.99	☑ 20.0 ☐	
9		29.86	☑ 20.0 ☐	
10		30.37	☑ 20.0 ☐	
MB QC836659	VA	29.68	☑ 20.0 ☐	
LG 63		29.86	☑ 20.0 ☐	
MS 64		29.77	☑ 20.0 ☐	
MSD 65		29.66	☑ 20.0 ☐	
			☐ 20.0 ☐	

BOY 5/23/16

☐ MS/MSD not included due to: ☐ insufficent volume, or ☐ other (reason) _____

☑ Balance ID: Dish-1 Has been calibrated? ☑ Yes ☐ No

	Mfg & Lot # / LIMS # / Time	Initials / Date
Solvent-rinsed granular Na_2SO_4 weighed out for QC samples	EMY1316L	APW 5/23/16
dried with CH_2Cl_2-rinsed ☑ granular Na_2SO_4 ☐ powder	↓	
0.8 mL of surrogate solution was added to all samples	S29678D	
0.4 mL of spike solution was added to all spikes	S29489A	
1:1 CH_2Cl_2 (lot# EM55241):Acetone(lot# FS1604B) was added to all	/	
Solvent added at (time)	1135	
☑ sonicated 3 times w/ ≥100mL ☐ soxhlet extractors on at:	/	
soxhlets off at:	VA	
Extracts filtered through baked, CH_2Cl_2-rinsed powdered Na_2SO_4	FM0835C502	
Exchanged 2x with Hexane	FS1418B7	
Concentrated to final volume in boiling H2O bath	100	
☒ Florisil Cleanup Performed	/	
Extracts relinquished to Pesticide Group	/	

5/23/2016

Extraction Chemist / Date

Continued from page _____
Continued on page _____

5/23/16

Reviewed by / Date

PCB (8082) Soil Prep Log

LIMS Batch No: 235358
LIMS Analysis PCB (PIP)
Date Extracted: 5/27/2016

☑ EPA 3550b Sonication
☐ Other _____

Curtis & Tompkins, Ltd.
Page 1
BK 3850

Sample #	Container ID	Sample Wt (g)	Final Vol (mL)	Comments
277036-001	G	29.79	☐ 25.0 ☑ 20	
2		29.86	☐ 25.0 ☑ 20	MSS
3		30.41	☐ 25.0 ☑ 20	
4		29.99	☐ 25.0 ☑ 20	
5		29.91	☐ 25.0 ☑ 20	
6		30.24	☐ 25.0 ☑ 20	
7		29.80	☐ 25.0 ☑ 20	
8		30.46	☐ 25.0 ☑ 20	
9		30.06	☐ 25.0 ☑ 20	
10		29.93	☐ 25.0 ☑ 20	
277038-001		29.75	☐ 25.0 ☑ 20	
2		29.71	☐ 25.0 ☑ 20	
3		30.18	☐ 25.0 ☑ 20	
4		29.58	☐ 25.0 ☑ 20	
5		30.04	☐ 25.0 ☑ 20	
6		29.66	☐ 25.0 ☑ 20	
7		29.58	☐ 25.0 ☑ 20	
8		29.99	☐ 25.0 ☑ 20	
9		29.86	☐ 25.0 ☑ 20	
10		30.37	☐ 25.0 ☑ 20	
MB QC 836659	WA	29.68	☐ 25.0 ☑ 20	
LY 60		30.04	☐ 25.0 ☑ 20	
MS 61		29.63	☐ 25.0 ☑ 20	
MSD 62		29.52	☐ 25.0 ☑ 20	
			☐ 25.0 ☐	BOY 5/23/16

☐ MS/MSD not included due to: ☐ insufficent volume, or ☐ other (reason) _____

☑ Balance ID: Dish 1 Has been calibrated? ☑ Yes ☐ No

	Mfg & Lot # / LIMS # / Time	Initials / Date
Solvent-rinsed granular Na_2SO_4 weighed out for QC samples	FMN816L	ARW 5/23/2016
dried with CH_2Cl_2-rinsed ☑ granular Na_2SO_4 ☐ powder	+	
0.8 mL of surrogate solution was added to all samples	S296787	
1.0 mL of matrix spiking solution was added to all spikes	29442F	
1:1 CH_2Cl_2 (lot# FM55741):Acetone(lot# FS160413) was added to all	—	
Solvent added at (time)	1135	
☑ sonicated 3 times w/ ≥100mL ☐ soxhlet extractors on at:	—	
Soxhlets off at:	WA	
Extracts filtered through baked, CH_2Cl_2-rinsed powdered Na_2SO_4	FM0835C806	
Solvent exchanged with Hexane, Lot#	FS161873	
Concentrated to final volume in boiling H2O bath	100	
EPA 3665A Clean-up: vortexed w/ H_2SO_4 Lot#	FS152524	
Centrifuged for 1 min; 5mL transferred to labelled vial	—	
Relinquished to PCB group	—	

[signature] 5/23/2016
Extraction Chemist / Date

Continued from page ____
Continued on page ____

[signature] 5/23/16
Reviewed by / Date

Curtis & Tompkins, Ltd. **Florisil Cleanup** **EPA 3620B**

Prep Chemist: APW
Cleanup Date: 5/23/16

Benchbook # **BK 3730**
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	Sample #	Extraction Batch#	Initial Volume (mL)	Final Volume (mL)	Comments
	277036-001	255358	☑ 1.0 ☐	☑ 1.0 ☐	
	2		☑ 1.0 ☐	☑ 1.0 ☐	
	3		☑ 1.0 ☐	☑ 1.0 ☐	
	4		☑ 1.0 ☐	☑ 1.0 ☐	
5	5		☑ 1.0 ☐	☑ 1.0 ☐	
	6		☑ 1.0 ☐	☑ 1.0 ☐	
	7		☑ 1.0 ☐	☑ 1.0 ☐	
	8		☑ 1.0 ☐	☑ 1.0 ☐	
	9		☑ 1.0 ☐	☑ 1.0 ☐	
10	10		☑ 1.0 ☐	☑ 1.0 ☐	
	277038-001		☑ 1.0 ☐	☑ 1.0 ☐	
	2		☑ 1.0 ☐	☑ 1.0 ☐	
	3		☑ 1.0 ☐	☑ 1.0 ☐	
	4		☑ 1.0 ☐	☑ 1.0 ☐	
15	5		☑ 1.0 ☐	☑ 1.0 ☐	
	6		☑ 1.0 ☐	☑ 1.0 ☐	
	7		☑ 1.0 ☐	☑ 1.0 ☐	
	8		☑ 1.0 ☐	☑ 1.0 ☐	
	9		☑ 1.0 ☐	☑ 1.0 ☐	
20	10		☑ 1.0 ☐	☑ 1.0 ☐	
	MB QC836057		☑ 1.0 ☐	☑ 1.0 ☐	
	LCS 63		☑ 1.0 ☐	☑ 1.0 ☐	
	LCSD 64		☑ 1.0 ☐	☑ 1.0 ☐	
	MB 48		☑ 1.0 ☐	☑ 1.0 ☐	
25			☐ 1.0 ☐	☐ 1.0 ☐	
			☐ 1.0 ☐	☐ 1.0 ☐	
			☐ 1.0 ☐	☐ 1.0 ☐	
			☐ 1.0 ☐	☐ 1.0 ☐	
			☐ 1.0 ☐	☐ 1.0 ☐	
30			☐ 1.0 ☐	☐ 1.0 ☐	BDY 5/23/16

☑ Extracts were cleaned up using Florisil cartridges
Florisil cartridges/ columns rinsed 3x with Hexane
Extracts were eluted with 9.0 mL 9:1 Hexane/Acetone
Concentrated to volumes as noted above

	Mfg & Lot # / Time / Program	Initials / Date
	PES 3570540	APW 5/23/16
Florisil cartridges/ columns rinsed 3x with Hexane	FR16873	
Hexane		
Acetone	FC158567	

Extraction Chemist / Date

Continued from page ____
Continued on page ____

Reviewed by / Date 5/23/16

SAMPLE PREPARATION SUMMARY

Batch # : 235472
Started By : BOY
Method : 3550B
Spike #1 ID : S29678
Prep Date : 25-MAY-2016 13:39
SOP Version : PCB_3550_rv12
Spike #2 ID : S29868
Analysis : PCB
Finished By : BOY
Units : g

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
277038-011		Soil	30.47	25	1	0.8205		1				PCB	
277038-012		Soil	29.62	25	1	0.844		1				PCB	
277105-001		Soil	29.61	25	1	0.8443		1				PCB	
277105-002		Soil	30.1	25	1	0.8306		1				PCB	Prepped 26-MAY-2016 12:53
277113-001		Soil	29.55	25	1	0.846		1				PCB	
277130-004		Soil	30.09	25	1	0.8308		1				PCB	
277147-001		Soil	30.32	25	1	0.8245		1				PCB	
277147-004		Soil	29.74	25	1	0.8406		1				PCB	
277147-005		Soil	29.81	25	1	0.8386		1				PCB	
277182-001		Soil	29.89	25	1	0.8364		1				PCB	Prepped 26-MAY-2016 12:53
277182-004		Soil	29.64	25	1	0.8435		1				PCB	Prepped 26-MAY-2016 12:53
277202-001		Miscell.	29.85	25	1	0.8375		1				PCB	Prepped 26-MAY-2016 12:53
QC837111	BLANK	Soil	29.72	25	1	0.8412		1				PCB	
QC837112	LCS	Soil	29.79	25	1	0.8392		1	1			PCB	
QC837113	MS	Soil	29.86	25	1	0.8372		1	1			PCB	
QC837114	MSD	Soil	29.8	25	1	0.8389		1	1			PCB	

TKM 05/26/16 : Reviewed prep entry,MB & LCS

JS1 05/27/16 : Matrix spikes QC837113,QC837114 (batch 235472) were not reported because the parent sample required a dilution that would have diluted out the spikes.

Analyst: JS1 Date: 05/26/16 Reviewer: EAH Date: 05/27/16

PCB (8082) Soil Prep Log Curtis & Tompkins, Ltd.

LIMS Batch No: 235472 ☑ EPA 3550b Sonication Page 4

LIMS Analysis PCB ☐ Other _____ **BK 3850**

Date Extracted: 5/25/16

Sample #	Container ID	Sample Wt (g)	Final Vol (mL)	Comments
BOY 5/25/16 ~~277031-001~~	~~B~~	~~29.58~~	☐ 25.0 ☐	
277038-011	G	30.47	☑ 25.0 ☐	rocky
↓ 12	↓	29.62	☑ 25.0 ☐	↓
277105-001	F	29.61	☑ 25.0 ☐	rocky
277113-001	G	29.55	☑ 25.0 ☐	very rocky
277130-004	A	30.09	☑ 25.0 ☐	aliased → 276421-049
277147-001	G	30.32	☑ 25.0 ☐	rocky
↓ 4	F	29.74	☑ 25.0 ☐	
↓ 5	↓	29.81	☑ 25.0 ☐	MSS ↓
MB QC837111	NA	29.72	☑ 25.0 ☐	
LCS ↓ 2	↓	29.79	☑ 25.0 ☐	
MS ↓ 3	↓	29.86	☑ 25.0 ☐	rocky
MSD ↓ 4	↓	29.80	☑ 25.0 ☐	↓
277105-002	G	30.10	☑ 25.0 ☐	N/D 5/26/16 @ 1253
277182-001	F	29.89	☑ 25.0 ☐	
↓ 4	↓	29.64	☑ 25.0 ☐	
BOY 5/25/16 ~~277105-002~~			☐ 25.0 ☐	
~~277182-001~~			☐ 25.0 ☐	
~~4~~			☐ 25.0 ☐	
277202-001	A	29.85	☑ 25.0 ☐	↓
			☐ 25.0 ☐	
			☐ 25.0 ☐	
			☐ 25.0 ☐	
			☐ 25.0 ☐	ATL 5/27/16
			☐ 25.0 ☐	APW 5/28/2016

☐ MS/MSD not included due to: ☐ insufficent volume, or ☐ other (reason)_____

☑ Balance ID: DISH-1 Has been calibrated? ☐ Yes ☐ No

	Mfg & Lot # / LIMS # / Time	Initials / Date
Solvent-rinsed granular Na_2SO_4 weighed out for QC samples	EMYB16L	BOY 5/25/16
dried with CH_2Cl_2-rinsed ☐ granular Na_2SO_4 ☑ powder	EM0835C506	
1.0 mL of surrogate solution was added to all samples	S296768D	
1.0 mL of matrix spiking solution was added to all spikes	S298680	
1:1 CH_2Cl_2 (lot# EM55341):Acetone(lot# FS156457) was added to all	✓	
Solvent added at (time)	1339/1253	
☑ sonicated 3 times w/ ≥100mL ☐ soxhlet extractors on at:	✓	
Soxhlets off at:	NA	
Extracts filtered through baked, CH_2Cl_2-rinsed powdered Na_2SO_4	EM0835C506	
Solvent exchanged with Hexane, Lot#	FC161873	
Concentrated to final volume in boiling H2O bath	100	
EPA 3665A Clean-up: vortexed w/ H_2SO_4 Lot#	FC152524	
Centrifuged for 1 min; 5mL transferred to labelled vial	✓	
Relinquished to PCB group	✓	↓

[signature] 5/25/16

Extraction Chemist / Date

Continued from page 1

Continued on page 1

[signature] 5/25/2016

Reviewed by / Date

REPORTING SUMMARY FOR 277038 PCBS Soil

Sample ID	Analyte	Inst ID	Ch	Date & Time
277038-001	Aroclor-1016	GC16	A	05/27/16 17:05
277038-001	Aroclor-1221	GC16	A	05/27/16 17:05
277038-001	Aroclor-1232	GC16	A	05/27/16 17:05
277038-001	Aroclor-1242	GC16	A	05/27/16 17:05
277038-001	Aroclor-1248	GC16	A	05/27/16 17:05
277038-001	Aroclor-1254	GC16	A	05/27/16 17:05
277038-001	Aroclor-1260	GC16	B	05/27/16 17:05
277038-001	TCMX	GC16	A	05/27/16 17:05
277038-001	Decachlorobiphenyl	GC16	A	05/27/16 17:05
277038-002	Aroclor-1016	GC16	A	05/27/16 10:02
277038-002	Aroclor-1221	GC16	A	05/27/16 10:02
277038-002	Aroclor-1232	GC16	A	05/27/16 10:02
277038-002	Aroclor-1242	GC16	A	05/27/16 10:02
277038-002	Aroclor-1248	GC16	A	05/27/16 10:02
277038-002	Aroclor-1254	GC16	A	05/27/16 10:02
277038-002	Aroclor-1260	GC16	A	05/27/16 10:02
277038-002	TCMX	GC16	A	05/27/16 10:02
277038-002	Decachlorobiphenyl	GC16	A	05/27/16 10:02
277038-003	Aroclor-1016	GC16	A	05/27/16 10:31
277038-003	Aroclor-1221	GC16	A	05/27/16 10:31
277038-003	Aroclor-1232	GC16	A	05/27/16 10:31
277038-003	Aroclor-1242	GC16	A	05/27/16 10:31
277038-003	Aroclor-1248	GC16	A	05/27/16 10:31
277038-003	Aroclor-1254	GC16	A	05/27/16 10:31
277038-003	Aroclor-1260	GC16	B	05/27/16 10:31
277038-003	TCMX	GC16	A	05/27/16 10:31
277038-003	Decachlorobiphenyl	GC16	A	05/27/16 10:31
277038-004	Aroclor-1016	GC16	A	05/27/16 10:59
277038-004	Aroclor-1221	GC16	A	05/27/16 10:59
277038-004	Aroclor-1232	GC16	A	05/27/16 10:59
277038-004	Aroclor-1242	GC16	A	05/27/16 10:59
277038-004	Aroclor-1248	GC16	A	05/27/16 10:59
277038-004	Aroclor-1254	GC16	A	05/27/16 10:59
277038-004	Aroclor-1260	GC16	A	05/27/16 10:59
277038-004	TCMX	GC16	A	05/27/16 10:59
277038-004	Decachlorobiphenyl	GC16	A	05/27/16 10:59
277038-005	Aroclor-1016	GC16	A	05/27/16 11:28
277038-005	Aroclor-1221	GC16	A	05/27/16 11:28
277038-005	Aroclor-1232	GC16	A	05/27/16 11:28
277038-005	Aroclor-1242	GC16	A	05/27/16 11:28
277038-005	Aroclor-1248	GC16	A	05/27/16 11:28
277038-005	Aroclor-1254	GC16	A	05/27/16 11:28
277038-005	Aroclor-1260	GC16	B	05/27/16 11:28
277038-005	TCMX	GC16	A	05/27/16 11:28
277038-005	Decachlorobiphenyl	GC16	A	05/27/16 11:28
277038-006	Aroclor-1016	GC16	A	05/27/16 11:56
277038-006	Aroclor-1221	GC16	A	05/27/16 11:56
277038-006	Aroclor-1232	GC16	A	05/27/16 11:56
277038-006	Aroclor-1242	GC16	A	05/27/16 11:56

Sample ID	Analyte	Inst ID	Ch	Date & Time
277038-006	Aroclor-1248	GC16	A	05/27/16 11:56
277038-006	Aroclor-1254	GC16	A	05/27/16 11:56
277038-006	Aroclor-1260	GC16	A	05/27/16 11:56
277038-006	TCMX	GC16	A	05/27/16 11:56
277038-006	Decachlorobiphenyl	GC16	A	05/27/16 11:56
277038-007	Aroclor-1016	GC16	A	05/27/16 12:24
277038-007	Aroclor-1221	GC16	A	05/27/16 12:24
277038-007	Aroclor-1232	GC16	A	05/27/16 12:24
277038-007	Aroclor-1242	GC16	A	05/27/16 12:24
277038-007	Aroclor-1248	GC16	A	05/27/16 12:24
277038-007	Aroclor-1254	GC16	A	05/27/16 12:24
277038-007	Aroclor-1260	GC16	A	05/27/16 12:24
277038-007	TCMX	GC16	A	05/27/16 12:24
277038-007	Decachlorobiphenyl	GC16	A	05/27/16 12:24
277038-008	Aroclor-1016	GC16	A	05/27/16 12:52
277038-008	Aroclor-1221	GC16	A	05/27/16 12:52
277038-008	Aroclor-1232	GC16	A	05/27/16 12:52
277038-008	Aroclor-1242	GC16	A	05/27/16 12:52
277038-008	Aroclor-1248	GC16	A	05/27/16 12:52
277038-008	Aroclor-1254	GC16	A	05/27/16 12:52
277038-008	Aroclor-1260	GC16	B	05/27/16 12:52
277038-008	TCMX	GC16	A	05/27/16 12:52
277038-008	Decachlorobiphenyl	GC16	A	05/27/16 12:52
277038-009	Aroclor-1016	GC16	A	05/27/16 13:48
277038-009	Aroclor-1221	GC16	A	05/27/16 13:48
277038-009	Aroclor-1232	GC16	A	05/27/16 13:48
277038-009	Aroclor-1242	GC16	A	05/27/16 13:48
277038-009	Aroclor-1248	GC16	A	05/27/16 13:48
277038-009	Aroclor-1254	GC16	A	05/27/16 13:48
277038-009	Aroclor-1260	GC16	B	05/27/16 13:48
277038-009	TCMX	GC16	A	05/27/16 13:48
277038-009	Decachlorobiphenyl	GC16	A	05/27/16 13:48
277038-010	Aroclor-1016	GC16	A	05/27/16 14:16
277038-010	Aroclor-1221	GC16	A	05/27/16 14:16
277038-010	Aroclor-1232	GC16	A	05/27/16 14:16
277038-010	Aroclor-1242	GC16	A	05/27/16 14:16
277038-010	Aroclor-1248	GC16	A	05/27/16 14:16
277038-010	Aroclor-1254	GC16	A	05/27/16 14:16
277038-010	Aroclor-1260	GC16	B	05/27/16 14:16
277038-010	TCMX	GC16	A	05/27/16 14:16
277038-010	Decachlorobiphenyl	GC16	A	05/27/16 14:16
277038-011	Aroclor-1016	GC16	A	05/26/16 19:35
277038-011	Aroclor-1221	GC16	A	05/26/16 19:35
277038-011	Aroclor-1232	GC16	A	05/26/16 19:35
277038-011	Aroclor-1242	GC16	A	05/26/16 19:35
277038-011	Aroclor-1248	GC16	A	05/26/16 19:35
277038-011	Aroclor-1254	GC16	A	05/26/16 19:35
277038-011	Aroclor-1260	GC16	A	05/26/16 19:35
277038-011	TCMX	GC16	A	05/26/16 19:35

REPORTING SUMMARY FOR 277038 PCBS Soil

Sample ID	Analyte	Inst ID	Ch	Date & Time
277038-011	Decachlorobiphenyl	GC16	B	05/26/16 19:35
277038-012	Aroclor-1016	GC16	A	05/26/16 20:03
277038-012	Aroclor-1221	GC16	A	05/26/16 20:03
277038-012	Aroclor-1232	GC16	A	05/26/16 20:03
277038-012	Aroclor-1242	GC16	A	05/26/16 20:03
277038-012	Aroclor-1248	GC16	A	05/26/16 20:03
277038-012	Aroclor-1254	GC16	A	05/26/16 20:03
277038-012	Aroclor-1260	GC16	A	05/26/16 20:03
277038-012	TCMX	GC16	A	05/26/16 20:03
277038-012	Decachlorobiphenyl	GC16	B	05/26/16 20:03
QC836659	Aroclor-1016	GC16	A	05/26/16 20:31
QC836659	Aroclor-1221	GC16	A	05/26/16 20:31
QC836659	Aroclor-1232	GC16	A	05/26/16 20:31
QC836659	Aroclor-1242	GC16	A	05/26/16 20:31
QC836659	Aroclor-1248	GC16	A	05/26/16 20:31
QC836659	Aroclor-1254	GC16	A	05/26/16 20:31
QC836659	Aroclor-1260	GC16	A	05/26/16 20:31
QC836659	TCMX	GC16	A	05/26/16 20:31
QC836659	Decachlorobiphenyl	GC16	B	05/26/16 20:31
QC837111	Aroclor-1016	GC16	A	05/25/16 20:47
QC837111	Aroclor-1221	GC16	A	05/25/16 20:47
QC837111	Aroclor-1232	GC16	A	05/25/16 20:47
QC837111	Aroclor-1242	GC16	A	05/25/16 20:47
QC837111	Aroclor-1248	GC16	A	05/25/16 20:47
QC837111	Aroclor-1254	GC16	A	05/25/16 20:47
QC837111	Aroclor-1260	GC16	A	05/25/16 20:47
QC837111	TCMX	GC16	A	05/25/16 20:47
QC837111	Decachlorobiphenyl	GC16	A	05/25/16 20:47
QC836660	Aroclor-1016	GC16	A	05/26/16 20:58
QC836660	Aroclor-1260	GC16	A	05/26/16 20:58
QC836660	TCMX	GC16	A	05/26/16 20:58
QC836660	Decachlorobiphenyl	GC16	B	05/26/16 20:58
QC836661	Aroclor-1016	GC16	A	05/26/16 21:26
QC836661	Aroclor-1260	GC16	A	05/26/16 21:26
QC836661	TCMX	GC16	A	05/26/16 21:26
QC836661	Decachlorobiphenyl	GC16	B	05/26/16 21:26
QC836662	Aroclor-1016	GC16	A	05/26/16 21:54
QC836662	Aroclor-1260	GC16	A	05/26/16 21:54
QC836662	TCMX	GC16	A	05/26/16 21:54
QC836662	Decachlorobiphenyl	GC16	B	05/26/16 21:54
QC837112	Aroclor-1016	GC16	A	05/25/16 21:15
QC837112	Aroclor-1260	GC16	B	05/25/16 21:15
QC837112	TCMX	GC16	A	05/25/16 21:15
QC837112	Decachlorobiphenyl	GC16	A	05/25/16 21:15

Case Narrative Addendum: Manual Integrations for 277038 PCBS (Soil)

For SAMPLE 277038-001 (GC16 147_067):
Corrected automatically drawn baseline.

For SAMPLE 277038-002 (GC16 147_055):
Corrected automatically drawn baseline.

For SAMPLE 277038-003 (GC16 147_056):
Corrected automatically drawn baseline.

For SAMPLE 277038-004 (GC16 147_057):
Corrected automatically drawn baseline.

For MSS 277038-005 (GC16 147_058):
Corrected automatically drawn baseline.

For SAMPLE 277038-006 (GC16 147_059):
Corrected automatically drawn baseline.

For SAMPLE 277038-007 (GC16 147_060):
Corrected automatically drawn baseline.

For SAMPLE 277038-008 (GC16 147_061):
Corrected automatically drawn baseline.

For SAMPLE 277038-009 (GC16 147_063):
Corrected automatically drawn baseline.

For SAMPLE 277038-010 (GC16 147_064):
Corrected automatically drawn baseline.

For SAMPLE 277038-011 (GC16 147_024):
Corrected automatically drawn baseline.

For SAMPLE 277038-012 (GC16 147_025):
Corrected automatically drawn baseline.

For CCV PCB500_100 (GC16 147_065):
Corrected automatically drawn baseline.

For CCV PCB500_100 (GC16 146_007):
Corrected automatically drawn baseline.

For CCV PCB500_100 (GC16 147_031):
Corrected automatically drawn baseline.

For CCV PCB500_100 (GC16 147_015):
Corrected automatically drawn baseline.

For CCV PCB500_100 (GC16 146_018):
Corrected automatically drawn baseline.

For CCV PCB500_100 (GC16 147_053):
Corrected automatically drawn baseline.

For CCV PCB500_100 (GC16 147_068):
Corrected automatically drawn baseline.

For BLANK QC836659 (GC16 147_026):
Corrected automatically drawn baseline.

For LCS QC836660 (GC16 147_027):
Corrected automatically drawn baseline.

For MSD QC836662 (GC16 147_029):
Corrected automatically drawn baseline for spike & dup.

For BLANK QC837111 (GC16 146_012):
Corrected automatically drawn baseline.

For LCS QC837112 (GC16 146_013):
Corrected automatically drawn baseline.

For Calibration GC16 (236199254001):
Corrected automatically drawn baseline in all levels.

For ICV ULTRA_1660 (GC16 138_024):
Corrected automatically drawn baseline.

CAS Registry Numbers for 277038 PCBS Soil
Curtis & Tompkins Laboratories

Analyte	CAS RN
Aroclor-1016	12674-11-2
Aroclor-1221	11104-28-2
Aroclor-1232	11141-16-5
Aroclor-1242	53469-21-9
Aroclor-1248	12672-29-6
Aroclor-1254	11097-69-1
Aroclor-1260	11096-82-5
Decachlorobiphenyl	2051-24-3
TCMX	877-09-8

Laboratory Job Number 277038

ANALYTICAL REPORT

Metals

Matrix: Soil

Curtis & Tompkins, Ltd.

Iron

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3050B
Project#:	149831	Analysis:	EPA 6010C
Analyte:	Iron	Sampled:	05/19/16
Matrix:	Soil	Received:	05/20/16
Units:	mg/Kg	Prepared:	05/26/16
Basis:	dry	Analyzed:	05/27/16
Batch#:	235517		

Field ID	Type	Lab ID	Result	LOQ	DL	Moisture	Diln Fac
BS-BERNARD-01-051916	SAMPLE	277038-001	23,000	130	42	9%	25.00
BS-BERNARD-02-051916	SAMPLE	277038-002	26,000	130	40	9%	25.00
BS-BERNARD-03-051916	SAMPLE	277038-003	27,000	120	39	8%	25.00
BS-BERNARD-04-051916	SAMPLE	277038-004	24,000	150	47	9%	25.00
BS-BERNARD-05-051916	SAMPLE	277038-005	30,000	130	41	9%	25.00
BS-BERNARD-06-051916	SAMPLE	277038-006	23,000	130	41	11%	25.00
BS-BERNARD-07-051916	SAMPLE	277038-007	25,000	130	42	9%	25.00
BS-BERNARD-08-051916	SAMPLE	277038-008	21,000	140	45	12%	25.00
BS-BERNARD-09-051916	SAMPLE	277038-009	29,000	130	42	8%	25.00
BS-BERNARD-10-051916	SAMPLE	277038-010	32,000	130	41	9%	25.00
BS-BERNARD-11-051916	SAMPLE	277038-011	21,000	130	40	7%	25.00
BS-BERNARD-12-051916	SAMPLE	277038-012	28,000	130	40	6%	25.00
	BLANK	QC837272	3.7 J	5.4	1.8		1.000

J= Estimated value
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Manganese

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3050B
Project#:	149831	Analysis:	EPA 6010C
Analyte:	Manganese	Batch#:	235517
Matrix:	Soil	Sampled:	05/19/16
Units:	mg/Kg	Received:	05/20/16
Basis:	dry	Prepared:	05/26/16
Diln Fac:	1.000		

Field ID	Type	Lab ID	Result	LOQ	DL	Moisture	Analyzed
BS-BERNARD-01-051916	SAMPLE	277038-001	470	0.27	0.055	9%	05/31/16
BS-BERNARD-02-051916	SAMPLE	277038-002	300	0.25	0.052	9%	05/31/16
BS-BERNARD-03-051916	SAMPLE	277038-003	410	0.25	0.051	8%	05/31/16
BS-BERNARD-04-051916	SAMPLE	277038-004	300	0.30	0.061	9%	05/31/16
BS-BERNARD-05-051916	SAMPLE	277038-005	500	0.26	0.054	9%	05/31/16
BS-BERNARD-06-051916	SAMPLE	277038-006	260	0.26	0.053	11%	05/31/16
BS-BERNARD-07-051916	SAMPLE	277038-007	290	0.27	0.055	9%	05/31/16
BS-BERNARD-08-051916	SAMPLE	277038-008	240	0.28	0.058	12%	05/31/16
BS-BERNARD-09-051916	SAMPLE	277038-009	430	0.27	0.055	8%	05/31/16
BS-BERNARD-10-051916	SAMPLE	277038-010	430	0.26	0.053	9%	05/31/16
BS-BERNARD-11-051916	SAMPLE	277038-011	350	0.25	0.051	7%	05/31/16
BS-BERNARD-12-051916	SAMPLE	277038-012	390	0.25	0.052	6%	05/31/16
	BLANK	QC837272	0.067 U	0.27	0.031		05/27/16

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	277038	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	BS-BERNARD-01-051916	Basis:	dry
Lab ID:	277038-001	Diln Fac:	1.000
Matrix:	Soil	Sampled:	05/19/16
Units:	mg/Kg	Received:	05/20/16

Moisture: 9%

Analyte	Result	LOQ	DL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	1.1	0.53	0.16	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Arsenic	3.2	0.27	0.078	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Barium	95	0.27	0.057	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Beryllium	0.41	0.11	0.013	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Cadmium	0.89	0.27	0.027	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Chromium	50	0.27	0.067	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Cobalt	10	0.27	0.032	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Copper	20	0.28	0.092	235517	05/26/16	06/01/16	EPA 3050B	EPA 6010C
Lead	16	0.27	0.078	235517	05/26/16	06/01/16	EPA 3050B	EPA 6010C
Mercury	0.067	0.017	0.0031	235465	05/25/16	05/25/16	METHOD	EPA 7471B
Molybdenum	0.31	0.27	0.052	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Nickel	50	0.27	0.070	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Selenium	0.43 U	0.53	0.16	235517	05/26/16	06/01/16	EPA 3050B	EPA 6010C
Silver	0.18 J	0.27	0.043	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Thallium	0.43 U	0.53	0.17	235517	05/26/16	06/01/16	EPA 3050B	EPA 6010C
Vanadium	41	0.27	0.061	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Zinc	51	1.1	0.21	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	277038	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	BS-BERNARD-02-051916	Basis:	dry
Lab ID:	277038-002	Sampled:	05/19/16
Matrix:	Soil	Received:	05/20/16
Units:	mg/Kg		

Moisture: 9%

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	0.83	0.51	0.15	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Arsenic	3.0	0.25	0.074	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Barium	84	0.25	0.055	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Beryllium	0.38	0.10	0.013	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Cadmium	0.93	0.25	0.026	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Chromium	64	0.25	0.064	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Cobalt	11	0.25	0.030	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Copper	15	0.25	0.085	1.000	235517	05/26/16	05/26/16	EPA 3050B	EPA 6010C
Lead	12	6.4	1.8	25.00	235517	05/26/16	05/27/16	EPA 3050B	EPA 6010C
Mercury	0.051	0.018	0.0032	1.000	235465	05/25/16	05/25/16	METHOD	EPA 7471B
Molybdenum	0.13 U	0.25	0.057	1.000	235517	05/26/16	06/01/16	EPA 3050B	EPA 6010C
Nickel	72	0.25	0.067	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Selenium	0.41 U	0.51	0.15	1.000	235517	05/26/16	06/01/16	EPA 3050B	EPA 6010C
Silver	0.10 J	0.25	0.041	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Thallium	0.41 U	0.51	0.17	1.000	235517	05/26/16	06/01/16	EPA 3050B	EPA 6010C
Vanadium	48	0.25	0.058	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Zinc	45	1.0	0.20	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	277038	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	BS-BERNARD-03-051916	Basis:	dry
Lab ID:	277038-003	Sampled:	05/19/16
Matrix:	Soil	Received:	05/20/16
Units:	mg/Kg		

Moisture: 8%

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	0.95	0.49	0.15	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Arsenic	4.2	0.25	0.072	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Barium	140	0.25	0.053	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Beryllium	0.48	0.099	0.012	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Cadmium	1.0	0.25	0.025	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Chromium	62	0.25	0.062	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Cobalt	13	0.25	0.030	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Copper	24	0.25	0.082	1.000	235517	05/26/16	05/26/16	EPA 3050B	EPA 6010C
Lead	22	6.2	1.7	25.00	235517	05/26/16	05/27/16	EPA 3050B	EPA 6010C
Mercury	0.12	0.018	0.0032	1.000	235465	05/25/16	05/25/16	METHOD	EPA 7471B
Molybdenum	0.48	0.25	0.048	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Nickel	63	0.25	0.065	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Selenium	0.40 U	0.49	0.14	1.000	235517	05/26/16	06/01/16	EPA 3050B	EPA 6010C
Silver	0.071 J	0.25	0.039	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Thallium	0.40 U	0.49	0.16	1.000	235517	05/26/16	06/01/16	EPA 3050B	EPA 6010C
Vanadium	50	0.25	0.056	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Zinc	59	0.99	0.20	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	277038	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	BS-BERNARD-04-051916	Basis:	dry
Lab ID:	277038-004	Sampled:	05/19/16
Matrix:	Soil	Received:	05/20/16
Units:	mg/Kg		

Moisture: 9%

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	0.72	0.60	0.18	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Arsenic	3.0	0.30	0.087	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Barium	100	0.30	0.064	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Beryllium	0.38	0.12	0.015	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Cadmium	0.89	0.30	0.030	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Chromium	55	0.30	0.075	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Cobalt	10	0.30	0.036	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Copper	14	0.30	0.10	1.000	235517	05/26/16	05/26/16	EPA 3050B	EPA 6010C
Lead	8.8	7.5	2.1	25.00	235517	05/26/16	05/27/16	EPA 3050B	EPA 6010C
Mercury	0.042	0.017	0.0030	1.000	235465	05/25/16	05/25/16	METHOD	EPA 7471B
Molybdenum	0.25 J	0.30	0.058	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Nickel	54	0.30	0.079	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Selenium	0.48 U	0.60	0.17	1.000	235517	05/26/16	06/01/16	EPA 3050B	EPA 6010C
Silver	0.11 J	0.30	0.048	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Thallium	0.48 U	0.60	0.19	1.000	235517	05/26/16	06/01/16	EPA 3050B	EPA 6010C
Vanadium	46	0.30	0.068	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Zinc	49	1.2	0.24	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	277038	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	BS-BERNARD-05-051916	Basis:	dry
Lab ID:	277038-005	Sampled:	05/19/16
Matrix:	Soil	Received:	05/20/16
Units:	mg/Kg		

Moisture: 9%

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	1.3	0.52	0.16	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Arsenic	4.4	0.26	0.076	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Barium	120	0.26	0.056	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Beryllium	0.45	0.10	0.013	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Cadmium	1.2	0.26	0.027	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Chromium	73	0.26	0.066	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Cobalt	14	0.26	0.031	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Copper	30	0.26	0.087	1.000	235517	05/26/16	05/26/16	EPA 3050B	EPA 6010C
Lead	63	6.5	1.8	25.00	235517	05/26/16	05/27/16	EPA 3050B	EPA 6010C
Mercury	0.15	0.017	0.0031	1.000	235465	05/25/16	05/25/16	METHOD	EPA 7471B
Molybdenum	0.42	0.26	0.051	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Nickel	92	0.26	0.069	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Selenium	0.42 U	0.52	0.15	1.000	235517	05/26/16	06/01/16	EPA 3050B	EPA 6010C
Silver	0.16 J	0.26	0.042	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Thallium	0.42 U	0.52	0.17	1.000	235517	05/26/16	06/01/16	EPA 3050B	EPA 6010C
Vanadium	57	0.26	0.060	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Zinc	67	1.0	0.21	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	277038	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	BS-BERNARD-06-051916	Basis:	dry
Lab ID:	277038-006	Sampled:	05/19/16
Matrix:	Soil	Received:	05/20/16
Units:	mg/Kg		

Moisture: 11%

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	0.77	0.52	0.16	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Arsenic	3.0	0.26	0.076	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Barium	95	0.26	0.056	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Beryllium	0.36	0.10	0.013	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Cadmium	0.86	0.26	0.027	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Chromium	49	0.26	0.066	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Cobalt	9.7	0.26	0.031	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Copper	14	0.26	0.087	1.000	235517	05/26/16	05/27/16	EPA 3050B	EPA 6010C
Lead	4.9 J	6.5	1.8	25.00	235517	05/26/16	05/27/16	EPA 3050B	EPA 6010C
Mercury	0.038	0.018	0.0032	1.000	235465	05/25/16	05/25/16	METHOD	EPA 7471B
Molybdenum	0.32	0.26	0.051	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Nickel	48	0.26	0.068	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Selenium	0.42 U	0.52	0.15	1.000	235517	05/26/16	06/01/16	EPA 3050B	EPA 6010C
Silver	0.12 J	0.26	0.041	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Thallium	0.42 U	0.52	0.17	1.000	235517	05/26/16	06/01/16	EPA 3050B	EPA 6010C
Vanadium	41	0.26	0.059	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Zinc	44	1.0	0.21	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	277038	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	BS-BERNARD-07-051916	Basis:	dry
Lab ID:	277038-007	Sampled:	05/19/16
Matrix:	Soil	Received:	05/20/16
Units:	mg/Kg		

Moisture: 9%

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	0.82	0.53	0.16	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Arsenic	3.7	0.27	0.078	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Barium	110	0.27	0.057	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Beryllium	0.40	0.11	0.013	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Cadmium	0.93	0.27	0.027	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Chromium	57	0.27	0.067	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Cobalt	11	0.27	0.032	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Copper	16	0.27	0.089	1.000	235517	05/26/16	05/27/16	EPA 3050B	EPA 6010C
Lead	7.6	6.7	1.9	25.00	235517	05/26/16	05/27/16	EPA 3050B	EPA 6010C
Mercury	0.034	0.017	0.0031	1.000	235465	05/25/16	05/25/16	METHOD	EPA 7471B
Molybdenum	0.13 U	0.27	0.060	1.000	235517	05/26/16	06/01/16	EPA 3050B	EPA 6010C
Nickel	55	0.27	0.070	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Selenium	0.43 U	0.53	0.16	1.000	235517	05/26/16	06/01/16	EPA 3050B	EPA 6010C
Silver	0.071 J	0.27	0.043	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Thallium	0.43 U	0.53	0.17	1.000	235517	05/26/16	06/01/16	EPA 3050B	EPA 6010C
Vanadium	47	0.27	0.061	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C
Zinc	45	1.1	0.21	1.000	235517	05/26/16	05/31/16	EPA 3050B	EPA 6010C

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	277038	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	BS-BERNARD-08-051916	Basis:	dry
Lab ID:	277038-008	Sampled:	05/19/16
Matrix:	Soil	Received:	05/20/16
Units:	mg/Kg	Prepared:	05/26/16

Moisture: 12%

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Analyzed	Prep	Analysis
Antimony	0.71	0.57	0.17	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Arsenic	2.8	0.28	0.083	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Barium	75	0.28	0.061	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Beryllium	0.31	0.11	0.014	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Cadmium	0.80	0.28	0.029	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Chromium	54	0.28	0.072	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Cobalt	9.6	0.28	0.034	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Copper	10	0.28	0.095	1.000	235517	05/27/16	EPA 3050B	EPA 6010C
Lead	3.7 J	7.1	2.0	25.00	235517	05/27/16	EPA 3050B	EPA 6010C
Mercury	0.039	0.017	0.0031	1.000	235510	05/26/16	METHOD	EPA 7471B
Molybdenum	0.22 J	0.28	0.056	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Nickel	50	0.28	0.075	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Selenium	0.45 U	0.57	0.17	1.000	235517	06/01/16	EPA 3050B	EPA 6010C
Silver	0.10 J	0.28	0.045	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Thallium	0.45 U	0.57	0.19	1.000	235517	06/01/16	EPA 3050B	EPA 6010C
Vanadium	44	0.28	0.065	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Zinc	37	1.1	0.23	1.000	235517	05/31/16	EPA 3050B	EPA 6010C

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	277038	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	BS-BERNARD-09-051916	Basis:	dry
Lab ID:	277038-009	Sampled:	05/19/16
Matrix:	Soil	Received:	05/20/16
Units:	mg/Kg	Prepared:	05/26/16

Moisture: 8%

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Analyzed	Prep	Analysis
Antimony	0.98	0.53	0.16	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Arsenic	3.6	0.27	0.077	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Barium	130	0.27	0.057	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Beryllium	0.44	0.11	0.013	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Cadmium	1.1	0.27	0.027	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Chromium	62	0.27	0.067	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Cobalt	13	0.27	0.032	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Copper	29	0.27	0.089	1.000	235517	05/27/16	EPA 3050B	EPA 6010C
Lead	29	6.7	1.9	25.00	235517	05/27/16	EPA 3050B	EPA 6010C
Mercury	0.18	0.018	0.0032	1.000	235510	05/26/16	METHOD	EPA 7471B
Molybdenum	0.41	0.27	0.052	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Nickel	62	0.27	0.070	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Selenium	0.43 U	0.53	0.16	1.000	235517	06/01/16	EPA 3050B	EPA 6010C
Silver	0.14 J	0.27	0.042	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Thallium	0.43 U	0.53	0.17	1.000	235517	06/01/16	EPA 3050B	EPA 6010C
Vanadium	54	0.27	0.061	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Zinc	66	1.1	0.21	1.000	235517	05/31/16	EPA 3050B	EPA 6010C

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	277038	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	BS-BERNARD-10-051916	Basis:	dry
Lab ID:	277038-010	Sampled:	05/19/16
Matrix:	Soil	Received:	05/20/16
Units:	mg/Kg	Prepared:	05/26/16

Moisture: 9%

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Analyzed	Prep	Analysis
Antimony	0.92	0.51	0.15	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Arsenic	3.7	0.26	0.075	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Barium	130	0.26	0.055	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Beryllium	0.43	0.10	0.013	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Cadmium	1.2	0.26	0.026	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Chromium	74	0.26	0.065	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Cobalt	14	0.26	0.031	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Copper	32	0.26	0.086	1.000	235517	05/27/16	EPA 3050B	EPA 6010C
Lead	26	6.4	1.8	25.00	235517	05/27/16	EPA 3050B	EPA 6010C
Mercury	0.15	0.017	0.0031	1.000	235510	05/26/16	METHOD	EPA 7471B
Molybdenum	0.37	0.26	0.050	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Nickel	61	0.26	0.068	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Selenium	0.41 U	0.51	0.15	1.000	235517	06/01/16	EPA 3050B	EPA 6010C
Silver	0.10 J	0.26	0.041	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Thallium	0.41 U	0.51	0.17	1.000	235517	06/01/16	EPA 3050B	EPA 6010C
Vanadium	64	0.26	0.059	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Zinc	63	1.0	0.21	1.000	235517	05/31/16	EPA 3050B	EPA 6010C

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	277038	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	BS-BERNARD-11-051916	Basis:	dry
Lab ID:	277038-011	Sampled:	05/19/16
Matrix:	Soil	Received:	05/20/16
Units:	mg/Kg	Prepared:	05/26/16

Moisture: 7%

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Analyzed	Prep	Analysis
Antimony	0.80	0.50	0.15	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Arsenic	3.6	0.25	0.073	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Barium	91	0.25	0.054	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Beryllium	0.33	0.10	0.012	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Cadmium	0.83	0.25	0.026	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Chromium	46	0.25	0.063	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Cobalt	9.8	0.25	0.030	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Copper	16	0.25	0.084	1.000	235517	05/27/16	EPA 3050B	EPA 6010C
Lead	28	6.3	1.7	25.00	235517	05/27/16	EPA 3050B	EPA 6010C
Mercury	0.14	0.017	0.0031	1.000	235510	05/26/16	METHOD	EPA 7471B
Molybdenum	0.35	0.25	0.049	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Nickel	49	0.25	0.066	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Selenium	0.45 J	0.50	0.15	1.000	235517	06/01/16	EPA 3050B	EPA 6010C
Silver	0.12 J	0.25	0.040	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Thallium	0.40 U	0.50	0.16	1.000	235517	06/01/16	EPA 3050B	EPA 6010C
Vanadium	38	0.25	0.057	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Zinc	46	1.0	0.20	1.000	235517	05/31/16	EPA 3050B	EPA 6010C

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	277038	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	BS-BERNARD-12-051916	Basis:	dry
Lab ID:	277038-012	Sampled:	05/19/16
Matrix:	Soil	Received:	05/20/16
Units:	mg/Kg	Prepared:	05/26/16

Moisture: 6%

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Analyzed	Prep	Analysis
Antimony	0.80	0.51	0.15	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Arsenic	3.7	0.25	0.074	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Barium	110	0.25	0.054	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Beryllium	0.41	0.10	0.013	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Cadmium	1.2	0.25	0.026	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Chromium	76	0.25	0.064	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Cobalt	13	0.25	0.030	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Copper	32	0.25	0.084	1.000	235517	05/27/16	EPA 3050B	EPA 6010C
Lead	32	6.3	1.8	25.00	235517	05/27/16	EPA 3050B	EPA 6010C
Mercury	0.12	0.017	0.0031	1.000	235510	05/26/16	METHOD	EPA 7471B
Molybdenum	0.37	0.25	0.049	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Nickel	67	0.25	0.067	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Selenium	0.41 U	0.51	0.15	1.000	235517	06/01/16	EPA 3050B	EPA 6010C
Silver	0.076 J	0.25	0.040	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Thallium	0.41 U	0.51	0.17	1.000	235517	06/01/16	EPA 3050B	EPA 6010C
Vanadium	59	0.25	0.058	1.000	235517	05/31/16	EPA 3050B	EPA 6010C
Zinc	63	1.0	0.20	1.000	235517	05/31/16	EPA 3050B	EPA 6010C

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	METHOD
Project#:	149831	Analysis:	EPA 7471B
Analyte:	Mercury	Diln Fac:	1.000
Type:	BLANK	Batch#:	235465
Lab ID:	QC837071	Prepared:	05/25/16
Matrix:	Soil	Analyzed:	05/25/16
Units:	mg/Kg		

Result	LOQ	DL
0.0079 U	0.016	0.0029

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	METHOD
Project#:	149831	Analysis:	EPA 7471B
Analyte:	Mercury	Batch#:	235465
Matrix:	Soil	Prepared:	05/25/16
Units:	mg/Kg	Analyzed:	05/25/16
Diln Fac:	1.000		

Type	Lab ID	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC837072	0.2049	0.2110	103	80-124		
BSD	QC837073	0.1984	0.2008	101	80-124	2	20

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	METHOD
Project#:	149831	Analysis:	EPA 7471B
Analyte:	Mercury	Diln Fac:	1.000
Field ID:	BS-BERNARD-19-051916	Batch#:	235465
MSS Lab ID:	277036-007	Sampled:	05/19/16
Matrix:	Soil	Received:	05/20/16
Units:	mg/Kg	Prepared:	05/25/16
Basis:	dry	Analyzed:	05/25/16

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	Moisture	RPD	Lim
MS	QC837074	0.2209	0.2219	0.3880	75 *	80-124	12%		
MSD	QC837075		0.2219	0.4165	88	80-124	12%	7	20

*= Value outside of QC limits; see narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	METHOD
Project#:	149831	Analysis:	EPA 7471B
Analyte:	Mercury	Basis:	dry
Field ID:	BS-BERNARD-19-051916	Diln Fac:	5.000
Type:	Serial Dilution	Batch#:	235465
MSS Lab ID:	277036-007	Sampled:	05/19/16
Lab ID:	QC837076	Received:	05/20/16
Matrix:	Soil	Analyzed:	05/25/16
Units:	mg/Kg		

MSS Result	MSS LOQ	Result	LOQ	Moisture %	Diff Lim
0.2209	0.01804	0.2097	0.09019	12%	5 10

LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	METHOD
Project#:	149831	Analysis:	EPA 7471B
Analyte:	Mercury	Diln Fac:	1.000
Type:	BLANK	Batch#:	235510
Lab ID:	QC837247	Prepared:	05/26/16
Matrix:	Soil	Analyzed:	05/26/16
Units:	mg/Kg		

Result	LOQ	DL
0.0062 J	0.016	0.0030

J= Estimated value
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	METHOD
Project#:	149831	Analysis:	EPA 7471B
Analyte:	Mercury	Batch#:	235510
Matrix:	Soil	Prepared:	05/26/16
Units:	mg/Kg	Analyzed:	05/26/16
Diln Fac:	1.000		

Type	Lab ID	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC837248	0.1923	0.2014	105	80-124		
BSD	QC837249	0.1984	0.2079	105	80-124	0	20

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	METHOD
Project#:	149831	Analysis:	EPA 7471B
Analyte:	Mercury	Diln Fac:	1.000
Field ID:	BS-BERNARD-09-051916	Batch#:	235510
MSS Lab ID:	277038-009	Sampled:	05/19/16
Matrix:	Soil	Received:	05/20/16
Units:	mg/Kg	Prepared:	05/26/16
Basis:	dry	Analyzed:	05/26/16

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	Moisture	RPD	Lim
MS	QC837250	0.1758	0.2123	0.4336	121	80-124	8%		
MSD	QC837251		0.2191	0.4564	128 *	80-124	8%	3	20

*= Value outside of QC limits; see narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	METHOD
Project#:	149831	Analysis:	EPA 7471B
Analyte:	Mercury	Basis:	dry
Field ID:	BS-BERNARD-09-051916	Diln Fac:	5.000
Type:	Serial Dilution	Batch#:	235510
MSS Lab ID:	277038-009	Sampled:	05/19/16
Lab ID:	QC837252	Received:	05/20/16
Matrix:	Soil	Analyzed:	05/26/16
Units:	mg/Kg		

MSS Result	MSS LOQ	Result	LOQ	Moisture	% Diff	Lim
0.1758	0.01753	0.1998	0.08766	8%	14 *	10

*= Value outside of QC limits; see narrative
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3050B
Project#:	149831	Analysis:	EPA 6010C
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC837272	Batch#:	235517
Matrix:	Soil	Prepared:	05/26/16
Units:	mg/Kg	Analyzed:	05/27/16

Analyte	Result	LOQ	DL
Antimony	0.43 U	0.54	0.17
Arsenic	0.22 U	0.27	0.089
Barium	0.13 U	0.27	0.052
Beryllium	0.054 U	0.11	0.020
Cadmium	0.067 U	0.27	0.017
Chromium	0.22 U	0.27	0.089
Cobalt	0.067 U	0.27	0.021
Copper	0.22 U	0.28	0.093
Lead	0.22 U	0.27	0.079
Molybdenum	0.13 U	0.27	0.060
Nickel	0.13 U	0.27	0.073
Selenium	0.43 U	0.54	0.17
Silver	0.22 U	0.27	0.080
Thallium	0.43 U	0.54	0.18
Vanadium	0.13 U	0.27	0.062
Zinc	0.86 U	1.1	0.35

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Iron

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3050B
Project#:	149831	Analysis:	EPA 6010C
Analyte:	Iron	Batch#:	235517
Field ID:	BS-BERNARD-01-051916	Sampled:	05/19/16
MSS Lab ID:	277038-001	Received:	05/20/16
Matrix:	Soil	Prepared:	05/26/16
Units:	mg/Kg	Analyzed:	05/27/16
Basis:	dry		

Type	Lab ID	MSS Result	Spiked	Result	%REC		Limits	Moisture	RPD	Lim	Diln Fac
BS	QC837273		471.7	482.0	102		81-118				1.000
BSD	QC837274		526.3	534.6	102		81-118		1	20	1.000
MS	QC837275	22,820	504.1	26,710	771	NM	81-118	9%			25.00
MSD	QC837276		584.5	25,730	498	NM	81-118	9%	4	20	25.00

NM= Not Meaningful: Sample concentration > 4X spike concentration
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Manganese

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3050B
Project#:	149831	Analysis:	EPA 6010C
Analyte:	Manganese	Diln Fac:	1.000
Field ID:	BS-BERNARD-01-051916	Batch#:	235517
MSS Lab ID:	277038-001	Sampled:	05/19/16
Matrix:	Soil	Received:	05/20/16
Units:	mg/Kg	Prepared:	05/26/16
Basis:	dry		

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	Moisture	RPD	Lim	Analyzed
BS	QC837273		47.17	48.67	103	84-114				05/27/16
BSD	QC837274		52.63	53.85	102	84-114		1	20	05/27/16
MS	QC837275	470.8	50.41	348.3	-243 NM	84-114	9%			05/26/16
MSD	QC837276		58.45	374.0	-166 NM	84-114	9%	6	20	05/26/16

NM= Not Meaningful: Sample concentration > 4X spike concentration
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3050B
Project#:	149831	Analysis:	EPA 6010C
Matrix:	Soil	Batch#:	235517
Units:	mg/Kg	Prepared:	05/26/16
Diln Fac:	1.000	Analyzed:	05/27/16

Type: BS Lab ID: QC837273

Analyte	Spiked	Result	%REC	Limits
Antimony	47.17	46.24	98	79-114
Arsenic	47.17	47.75	101	82-111
Barium	47.17	47.68	101	83-113
Beryllium	23.58	23.98	102	83-113
Cadmium	47.17	47.16	100	82-113
Chromium	47.17	47.81	101	85-113
Cobalt	47.17	46.09	98	85-112
Copper	47.17	46.43	98	81-117
Lead	47.17	45.77	97	81-112
Molybdenum	47.17	45.30	96	82-116
Nickel	47.17	46.19	98	83-113
Selenium	47.17	46.66	99	78-111
Silver	4.717	4.674	99	82-112
Thallium	47.17	48.33	102	83-111
Vanadium	47.17	46.89	99	82-114
Zinc	47.17	46.73	99	82-113

Type: BSD Lab ID: QC837274

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Antimony	52.63	50.57	96	79-114	2	20
Arsenic	52.63	51.64	98	82-111	3	20
Barium	52.63	52.79	100	83-113	1	20
Beryllium	26.32	26.46	101	83-113	1	20
Cadmium	52.63	51.96	99	82-113	1	20
Chromium	52.63	53.01	101	85-113	1	20
Cobalt	52.63	50.92	97	85-112	1	20
Copper	52.63	51.27	97	81-117	1	20
Lead	52.63	50.16	95	81-112	2	20
Molybdenum	52.63	49.26	94	82-116	3	20
Nickel	52.63	51.18	97	83-113	1	20
Selenium	52.63	51.67	98	78-111	1	20
Silver	5.263	5.165	98	82-112	1	20
Thallium	52.63	49.70	94	83-111	8	20
Vanadium	52.63	52.16	99	82-114	0	20
Zinc	52.63	51.56	98	82-113	1	20

RPD= Relative Percent Difference

97.0

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3050B
Project#:	149831	Analysis:	EPA 6010C
Field ID:	BS-BERNARD-01-051916	Batch#:	235517
MSS Lab ID:	277038-001	Sampled:	05/19/16
Matrix:	Soil	Received:	05/20/16
Units:	mg/Kg	Prepared:	05/26/16
Basis:	dry		

Type: MS Moisture: 9%
Lab ID: QC837275

Analyte	MSS Result	Spiked	Result	%REC	Limits	Diln Fac	Analyzed
Antimony	1.082	50.41	20.21	38 *	79-114	1.000	05/31/16
Arsenic	3.247	50.41	54.74	102	82-111	25.00	05/27/16
Barium	95.29	50.41	151.0	111	83-113	1.000	05/31/16
Beryllium	0.4066	25.20	25.00	98	83-113	1.000	05/26/16
Cadmium	0.8876	50.41	48.62	95	82-113	1.000	05/31/16
Chromium	50.36	50.41	97.78	94	85-113	1.000	05/26/16
Cobalt	10.42	50.41	54.02	86	85-112	1.000	05/31/16
Copper	20.08	50.41	72.60	104	81-117	1.000	05/26/16
Lead	16.38	50.41	66.14	99	81-112	25.00	05/27/16
Molybdenum	0.3053	50.41	44.25	87	82-116	1.000	05/31/16
Nickel	50.40	50.41	114.4	127 *	83-113	25.00	05/27/16
Selenium	<0.1560	50.41	51.59	102	78-111	25.00	05/27/16
Silver	0.1795	5.041	4.643	89	82-112	1.000	05/26/16
Thallium	<0.1739	50.41	55.52	110	83-111	25.00	05/27/16
Vanadium	41.35	50.41	91.56	100	82-114	1.000	05/26/16
Zinc	50.62	50.41	103.2	104	82-113	25.00	05/27/16

Type: MSD Moisture: 9%
Lab ID: QC837276

Analyte	Spiked	Result	%REC	Limits	RPD	Lim	Diln Fac	Analyzed
Antimony	58.45	24.41	40 *	79-114	4	20	1.000	05/31/16
Arsenic	58.45	62.49	101	82-111	1	20	25.00	05/27/16
Barium	58.45	169.0	126 *	83-113	6	20	1.000	05/31/16
Beryllium	29.23	29.35	99	83-113	1	20	1.000	05/26/16
Cadmium	58.45	58.38	98	82-113	4	20	1.000	05/31/16
Chromium	58.45	105.3	94	85-113	0	20	1.000	05/26/16
Cobalt	58.45	62.65	89	85-112	2	20	1.000	05/31/16
Copper	58.45	78.04	99	81-117	4	20	1.000	05/26/16
Lead	58.45	73.25	97	81-112	1	20	25.00	05/27/16
Molybdenum	58.45	52.33	89	82-116	2	20	1.000	05/31/16
Nickel	58.45	120.1	119 *	83-113	3	20	25.00	05/27/16
Selenium	58.45	59.57	102	78-111	0	20	25.00	05/27/16
Silver	5.845	5.435	90	82-112	1	20	1.000	05/26/16
Thallium	58.45	61.89	106	83-111	4	20	25.00	05/27/16
Vanadium	58.45	100.9	102	82-114	1	20	1.000	05/26/16
Zinc	58.45	108.2	98	82-113	3	20	25.00	05/27/16

*= Value outside of QC limits; see narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Iron

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3050B
Project#:	149831	Analysis:	EPA 6010C
Analyte:	Iron	Basis:	dry
Field ID:	BS-BERNARD-01-051916	Diln Fac:	125.0
Type:	Serial Dilution	Batch#:	235517
MSS Lab ID:	277038-001	Sampled:	05/19/16
Lab ID:	QC837277	Received:	05/20/16
Matrix:	Soil	Analyzed:	05/27/16
Units:	mg/Kg		

MSS Result	MSS LOQ	Result	LOQ	Moisture %	Diff Lim
22,820	133.4	22,660	666.8	9%	1 10

LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Manganese

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3050B
Project#:	149831	Analysis:	EPA 6010C
Analyte:	Manganese	Basis:	dry
Field ID:	BS-BERNARD-01-051916	Diln Fac:	5.000
Type:	Serial Dilution	Batch#:	235517
MSS Lab ID:	277038-001	Sampled:	05/19/16
Lab ID:	QC837277	Received:	05/20/16
Matrix:	Soil	Analyzed:	05/31/16
Units:	mg/Kg		

MSS Result	MSS LOQ	Result	LOQ	Moisture %	Diff	Lim
470.8	0.2667	531.0	1.334	9%	13 *	10

*= Value outside of QC limits; see narrative
LOQ= Limit of Quantitation

100.0

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3050B
Project#:	149831	Analysis:	EPA 6010C
Field ID:	BS-BERNARD-01-051916	Basis:	dry
Type:	Serial Dilution	Diln Fac:	5.000
MSS Lab ID:	277038-001	Batch#:	235517
Lab ID:	QC837277	Sampled:	05/19/16
Matrix:	Soil	Received:	05/20/16
Units:	mg/Kg		

Moisture: 9%

Analyte	MSS Result	MSS LOQ	Result	LOQ	% Diff	Lim	Analyzed
Antimony	1.082	0.5334	1.345 J	2.667	NC	10	05/31/16
Arsenic	3.247	0.2667	3.443	1.334	NC	10	05/31/16
Barium	95.29	0.2667	104.1	1.334	9	10	05/31/16
Beryllium	0.4066	0.1067	0.6366	0.5334	NC	10	05/31/16
Cadmium	0.8876	0.2667	1.233 J	1.334	NC	10	05/31/16
Chromium	50.36	0.2667	55.40	1.334	10	10	05/31/16
Cobalt	10.42	0.2667	11.94	1.334	15 *	10	05/31/16
Copper	20.08	0.2766	20.04	1.383	0	10	06/01/16
Lead	16.38	0.2667	17.01	1.334	4	10	06/01/16
Molybdenum	0.3053	0.2667	0.8332 J	1.334	NC	10	05/31/16
Nickel	50.40	0.2667	57.13	1.334	13 *	10	05/31/16
Selenium	2.134 ND	0.5334	2.134 U	2.667	NC	10	06/01/16
Silver	0.1795	0.2667	0.3430 J	1.334	NC	10	05/31/16
Thallium	2.134 ND	0.5334	2.134 U	2.667	NC	10	06/01/16
Vanadium	41.35	0.2667	44.61	1.334	8	10	05/31/16
Zinc	50.62	1.067	57.27	5.334	13 *	10	05/31/16

*= Value outside of QC limits; see narrative
J= Estimated value
U= Not Detected at or above DL
NC= Not Calculated
ND= Not Detected at or above DL
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Iron			
Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3050B
Project#:	149831	Analysis:	EPA 6010C
Analyte:	Iron	Basis:	dry
Field ID:	BS-BERNARD-01-051916	Diln Fac:	25.00
Type:	Post Digest Spike	Batch#:	235517
MSS Lab ID:	277038-001	Sampled:	05/19/16
Lab ID:	QC837278	Received:	05/20/16
Matrix:	Soil	Analyzed:	05/27/16
Units:	mg/Kg		

MSS Result	Spiked	Result	%REC	Limits	Moisture
22,820	13,340	37,590	111	80-120	9%

Curtis & Tompkins, Ltd.

Batch QC Report

Manganese

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3050B
Project#:	149831	Analysis:	EPA 6010C
Analyte:	Manganese	Basis:	dry
Field ID:	BS-BERNARD-01-051916	Diln Fac:	1.000
Type:	Post Digest Spike	Batch#:	235517
MSS Lab ID:	277038-001	Sampled:	05/19/16
Lab ID:	QC837278	Received:	05/20/16
Matrix:	Soil	Analyzed:	05/31/16
Units:	mg/Kg		

MSS Result	Spiked	Result	%REC	Limits	Moisture
470.8	5.334	462.8	-151 NM	80-120	9%

NM= Not Meaningful: Sample concentration > 4X spike concentration

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	277038	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3050B
Project#:	149831	Analysis:	EPA 6010C
Field ID:	BS-BERNARD-01-051916	Basis:	dry
Type:	Post Digest Spike	Diln Fac:	1.000
MSS Lab ID:	277038-001	Batch#:	235517
Lab ID:	QC837278	Sampled:	05/19/16
Matrix:	Soil	Received:	05/20/16
Units:	mg/Kg		

Moisture: 9%

Analyte	MSS Result	Spiked	Result	%REC	Limits	Analyzed
Antimony	1.082	5.334	5.948	91	80-120	05/31/16
Arsenic	3.247	5.334	8.714	102	80-120	05/31/16
Barium	95.29	5.334	98.05	52 NM	80-120	05/31/16
Beryllium	0.4066	5.334	5.987	105	80-120	05/31/16
Cadmium	0.8876	5.334	6.220	100	80-120	05/31/16
Chromium	50.36	5.334	54.38	75 NM	80-120	05/31/16
Cobalt	10.42	5.334	15.07	87	80-120	05/31/16
Copper	20.08	5.334	25.89	109	80-120	06/01/16
Lead	16.38	5.334	21.92	104	80-120	06/01/16
Molybdenum	0.3053	5.334	5.410	96	80-120	05/31/16
Nickel	50.40	5.334	54.28	73 NM	80-120	05/31/16
Selenium	<0.1560	5.334	6.734	126 *	80-120	06/01/16
Silver	0.1795	5.334	5.624	102	80-120	05/31/16
Thallium	<0.1739	2.667	1.908	72 *	80-120	06/01/16
Vanadium	41.35	5.334	45.76	83 NM	80-120	05/31/16
Zinc	50.62	5.334	54.59	74 NM	80-120	05/31/16

*= Value outside of QC limits; see narrative
NM= Not Meaningful: Sample concentration > 4X spike concentration

REPORTING SUMMARY FOR 277038 METALS Soil
Curtis & Tompkins Laboratories

Lab ID	Inst ID	Analyzed	IDF	SB	AS	BA	BE	CD	CR	CO	CU	FE	PB	MN	HG	MO	NI	SE	AG	TL	VL	ZN
277038-001	MET54	05/25/16 15:22	1.0												+							
277038-001	MET09	05/26/16 23:07	1.0																			
277038-001	MET09	05/27/16 20:20	25.0									+										
277038-001	MET09	05/31/16 12:23	1.0	+	+	+	+	+	+	+				+		+	+		+		+	+
277038-001	MET08	06/01/16 12:14	1.0								+		+					+		+		
277038-002	MET54	05/25/16 15:23	1.0												+							
277038-002	MET09	05/26/16 23:31	1.0								+											
277038-002	MET09	05/27/16 20:24	25.0									+	+									
277038-002	MET09	05/31/16 13:02	1.0	+	+	+	+	+	+	+				+		+		+		+	+	
277038-002	MET09	05/31/16 23:24	1.0																			
277038-002	MET08	06/01/16 12:16	1.0													+		+		+		
277038-003	MET54	05/25/16 15:24	1.0												+							
277038-003	MET09	05/26/16 23:39	1.0								+											
277038-003	MET09	05/27/16 20:28	25.0									+	+									
277038-003	MET09	05/31/16 13:09	1.0	+	+	+	+	+	+	+				+		+	+		+		+	+
277038-003	MET08	06/01/16 12:27	1.0															+		+		
277038-004	MET54	05/25/16 15:25	1.0												+							
277038-004	MET09	05/26/16 23:46	1.0								+											
277038-004	MET09	05/27/16 20:32	25.0									+	+									
277038-004	MET09	05/31/16 13:17	1.0	+	+	+	+	+	+	+				+		+	+		+		+	+
277038-004	MET08	06/01/16 12:50	1.0															+		+		
277038-005	MET54	05/25/16 15:27	1.0												+							
277038-005	MET09	05/26/16 23:54	1.0								+											
277038-005	MET09	05/27/16 20:37	25.0									+	+									
277038-005	MET09	05/31/16 13:25	1.0	+	+	+	+	+	+	+				+		+	+		+		+	+
277038-005	MET08	06/01/16 12:52	1.0															+		+		
277038-006	MET54	05/25/16 15:28	1.0												+							
277038-006	MET09	05/27/16 00:02	1.0								+											
277038-006	MET09	05/27/16 20:41	25.0									+	+									
277038-006	MET09	05/31/16 13:49	1.0	+	+	+	+	+	+	+				+		+	+		+		+	+
277038-006	MET08	06/01/16 12:55	1.0															+		+		
277038-007	MET54	05/25/16 15:29	1.0												+							
277038-007	MET09	05/27/16 00:18	1.0								+											
277038-007	MET09	05/27/16 20:57	25.0									+	+									
277038-007	MET09	05/31/16 13:57	1.0	+	+	+	+	+	+	+				+			+		+		+	+
277038-007	MET09	05/31/16 23:31	1.0																			
277038-007	MET08	06/01/16 11:46	1.0													+						
277038-007	MET08	06/01/16 12:57	1.0															+		+		
277038-008	MET54	05/26/16 14:17	1.0												+							
277038-008	MET09	05/27/16 00:26	1.0								+											
277038-008	MET09	05/27/16 21:01	25.0									+	+									
277038-008	MET09	05/31/16 14:04	1.0	+	+	+	+	+	+	+				+		+	+		+		+	+
277038-008	MET09	05/31/16 23:39	1.0																			
277038-008	MET08	06/01/16 12:59	1.0															+		+		
277038-009	MET54	05/26/16 14:12	1.0												+							

REPORTING SUMMARY FOR 277038 METALS Soil
Curtis & Tompkins Laboratories

Lab ID	Inst ID	Analyzed	IDF	SB	AS	BA	BE	CD	CR	CO	CU	FE	PB	MN	HG	MO	NI	SE	AG	TL	VL	ZN
277038-009	MET09	05/27/16 00:33	1.0								+											
277038-009	MET09	05/27/16 21:05	25.0									+	+									
277038-009	MET09	05/31/16 14:12	1.0	+	+	+	+	+	+	+				+		+	+		+		+	+
277038-009	MET08	06/01/16 13:01	1.0															+		+		
277038-010	MET54	05/26/16 14:18	1.0												+							
277038-010	MET09	05/27/16 00:41	1.0								+											
277038-010	MET09	05/27/16 21:09	25.0									+	+									
277038-010	MET09	05/31/16 14:20	1.0	+	+	+	+	+	+	+				+		+	+		+		+	+
277038-010	MET08	06/01/16 13:03	1.0															+		+		
277038-011	MET54	05/26/16 14:19	1.0												+							
277038-011	MET09	05/27/16 00:49	1.0								+											
277038-011	MET09	05/27/16 21:13	25.0									+	+									
277038-011	MET09	05/31/16 14:28	1.0	+	+	+	+	+	+	+				+		+	+		+		+	+
277038-011	MET09	05/31/16 23:47	1.0																			
277038-011	MET08	06/01/16 13:05	1.0															+		+		
277038-012	MET54	05/26/16 14:23	1.0												+							
277038-012	MET09	05/27/16 00:57	1.0								+											
277038-012	MET09	05/27/16 21:18	25.0									+	+									
277038-012	MET09	05/31/16 14:35	1.0	+	+	+	+	+	+	+				+		+	+		+		+	+
277038-012	MET08	06/01/16 13:07	1.0															+		+		
QC837071	MET54	05/25/16 15:04	1.0												+							
QC837072	MET54	05/25/16 15:06	1.0												+							
QC837073	MET54	05/25/16 15:07	1.0												+							
QC837074	MET54	05/25/16 15:09	1.0												+							
QC837074	MET54	05/25/16 15:41	1.0																			
QC837075	MET54	05/25/16 15:10	1.0												+							
QC837075	MET54	05/25/16 15:43	1.0																			
QC837076	MET54	05/25/16 15:12	5.0												+							
QC837247	MET54	05/26/16 14:08	1.0												+							
QC837248	MET54	05/26/16 14:09	1.0												+							
QC837249	MET54	05/26/16 14:10	1.0												+							
QC837250	MET54	05/26/16 14:13	1.0												+							
QC837250	MET54	05/26/16 14:45	1.0																			
QC837251	MET54	05/26/16 14:14	1.0												+							
QC837251	MET54	05/26/16 14:46	1.0																			
QC837252	MET54	05/26/16 14:15	5.0												+							
QC837252	MET54	05/26/16 15:01	5.0																			

REPORTING SUMMARY FOR 277038 METALS Soil
Curtis & Tompkins Laboratories

Lab ID	Inst ID	Analyzed	IDF	SB	AS	BA	BE	CD	CR	CO	CU	FE	PB	MN	HG	MO	NI	SE	AG	TL	VN	ZN
QC837272	MET09	05/26/16 22:45	1.0																			
QC837272	MET08	05/27/16 15:48	1.0	+	+	+	+	+	+	+	+	+	+	+		+	+		+	+	+	+
QC837272	MET09	05/27/16 17:34	1.0															+				
QC837272	MET09	05/31/16 12:18	1.0																			
QC837273	MET09	05/26/16 22:59	1.0																			
QC837273	MET08	05/27/16 15:51	1.0	+	+	+	+	+	+	+	+	+	+	+		+	+		+	+	+	+
QC837273	MET09	05/27/16 17:39	1.0															+				
QC837274	MET09	05/26/16 23:03	1.0																			
QC837274	MET08	05/27/16 15:53	1.0	+	+	+	+	+	+	+	+	+	+	+		+	+		+	+	+	+
QC837274	MET09	05/27/16 17:43	1.0															+				
QC837275	MET09	05/26/16 23:15	1.0				+		+		+			+					+		+	
QC837275	MET09	05/27/16 21:22	25.0		+							+	+				+	+		+		+
QC837275	MET09	05/31/16 12:31	1.0	+		+		+		+						+						
QC837275	MET08	06/01/16 13:14	1.0																			
QC837276	MET09	05/26/16 23:23	1.0				+		+		+			+					+		+	
QC837276	MET09	05/27/16 21:26	25.0		+							+	+				+	+		+		+
QC837276	MET09	05/31/16 12:38	1.0	+		+		+		+						+						
QC837276	MET08	06/01/16 13:16	1.0																			
QC837277	MET09	05/27/16 21:30	125.0									+										
QC837277	MET09	05/31/16 12:46	5.0	+	+	+	+	+	+	+				+		+	+		+		+	+
QC837277	MET08	06/01/16 13:40	5.0								+		+					+		+		
QC837278	MET09	05/27/16 21:34	25.0								+											
QC837278	MET09	05/31/16 12:54	1.0	+	+	+	+	+	+	+				+		+	+		+		+	+
QC837278	MET08	06/01/16 13:43	1.0								+		+					+		+		

ICP Data

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 96212317

Instrument : MET09 Begun : 05/26/16 10:37
Method : EPA 6010C SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met09_sn_2016	ICALBLK				05/26/16 10:37	1.0		
002	met09_sn_2016	ICAL	L1			05/26/16 10:42	1.0	1	
003	met09_sn_2016	ICAL	L2			05/26/16 10:47	1.0	2	
004	met09_sn_2016	ICAL	L3			05/26/16 10:52	1.0	3	
005	met09_sn_2016	ICAL	L4			05/26/16 10:56	1.0	4	
006	met09_sn_2016	ICAL	L5			05/26/16 11:03	1.0	5	
007	met09_sn_2016	ICV				05/26/16 11:09	1.0	6	
008	met09_sn_2016	CRI				05/26/16 11:13	1.0	7	
009	met09_sn_2016	XICB				05/26/16 11:20	1.0		
010	met09_sn_2016	ICB				05/26/16 11:35	1.0		
011	met09_sn_2016	XICSA				05/26/16 11:46	1.0	8	
012	met09_sn_2016	XICSAB				05/26/16 12:04	1.0	9	5:AL=510000
013	met09_sn_2016	ICSA				05/26/16 12:24	1.0	8	10:AL=520000
014	met09_sn_2016	ICSAB				05/26/16 12:50	1.0	9	5:AL=500000
015	met09_sn_2016	BLANK	QC837144	WET Leachate	235484	05/26/16 12:55	10.0		1:NA=160000
016	met09_sn_2016	BS	QC837145	WET Leachate	235484	05/26/16 13:00	1.0		
017	met09_sn_2016	BSD	QC837146	WET Leachate	235484	05/26/16 13:04	1.0		
018	met09_sn_2016	MSS	277106-001	WET Leachate	235484	05/26/16 13:09	10.0		1:NA=130000
019	met09_sn_2016	MS	QC837147	WET Leachate	235484	05/26/16 13:14	10.0		
020	met09_sn_2016	MSD	QC837148	WET Leachate	235484	05/26/16 13:18	10.0		
021	met09_sn_2016	SAMPLE	277226-001	WET Leachate	235484	05/26/16 13:22	10.0		1:NA=130000
022	met09_sn_2016	SAMPLE	277097-001	WET Leachate	235484	05/26/16 13:26	10.0		
023	met09_sn_2016	SAMPLE	277098-001	WET Leachate	235484	05/26/16 13:31	10.0		
024	met09_sn_2016	MS	QC836622	Filtrate	235348	05/26/16 13:35	1.0		
025	met09_sn_2016	CCV				05/26/16 13:39	1.0	10	
026	met09_sn_2016	CCB				05/26/16 13:46	1.0		
027	met09_sn_2016	MSD	QC836623	Filtrate	235348	05/26/16 13:51	1.0		
028	met09_sn_2016	SER	QC836624	Filtrate	235348	05/26/16 13:55	5.0		
029	met09_sn_2016	PDS	QC836625	Filtrate	235348	05/26/16 14:00	1.0	11 12 13	
030	met09_sn_2016	SAMPLE	276720-001	Filtrate	235348	05/26/16 14:04	1.0		4:MG=630000
031	met09_sn_2016	SAMPLE	276720-002	Filtrate	235348	05/26/16 14:13	1.0		4:MG=680000
032	met09_sn_2016	SAMPLE	276720-003	Filtrate	235348	05/26/16 14:22	1.0		4:MG=400000
033	met09_sn_2016	SAMPLE	276720-004	Filtrate	235348	05/26/16 14:31	1.0		4:MG=360000
034	met09_sn_2016	SAMPLE	276994-001	Filtrate	235348	05/26/16 14:39	1.0		
035	met09_sn_2016	SAMPLE	276996-002	Filtrate	235348	05/26/16 14:45	1.0		
036	met09_sn_2016	SAMPLE	276996-003	Filtrate	235348	05/26/16 14:50	1.0		
037	met09_sn_2016	CCV				05/26/16 14:55	1.0	10	
038	met09_sn_2016	CCB				05/26/16 15:02	1.0		
039	met09_sn_2016	SAMPLE	276996-005	Filtrate	235348	05/26/16 15:07	1.0		
040	met09_sn_2016	SAMPLE	277021-001	Filtrate	235348	05/26/16 15:12	1.0		
041	met09_sn_2016	SAMPLE	277052-001	Filtrate	235348	05/26/16 15:17	1.0		
042	met09_sn_2016	BLANK	QC835061	Filtrate	234982	05/26/16 15:22	1.0		
043	met09_sn_2016	BLANK	QC835062	Filtrate	234982	05/26/16 15:27	1.0		
044	met09_sn_2016	BS	QC835063	Filtrate	234982	05/26/16 15:33	1.0		
045	met09_sn_2016	BSD	QC835064	Filtrate	234982	05/26/16 15:37	1.0		
046	met09_sn_2016	MSS	276650-002	Filtrate	234982	05/26/16 15:41	10.0		
047	met09_sn_2016	MS	QC835065	Filtrate	234982	05/26/16 15:46	10.0		
048	met09_sn_2016	MSD	QC835066	Filtrate	234982	05/26/16 15:50	10.0		
049	met09_sn_2016	CCV				05/26/16 15:54	1.0	10	
050	met09_sn_2016	CCB				05/26/16 16:01	1.0		
051	met09_sn_2016	SER	QC835067	Filtrate	234982	05/26/16 16:06	50.0		
052	met09_sn_2016	PDS	QC835127	Filtrate	234982	05/26/16 16:11	10.0	11 12 13	

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 96212317

Instrument : MET09 Begun : 05/26/16 10:37
Method : EPA 6010C SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met09_sn_2016	SAMPLE	276438-001	Filtrate	234982	05/26/16 16:16	100.0		
054	met09_sn_2016	SAMPLE	276438-001	Filtrate	234982	05/26/16 16:21	10.0		3:MG=170000
055	met09_sn_2016	SAMPLE	276438-003	Filtrate	234982	05/26/16 16:29	100.0		
056	met09_sn_2016	SAMPLE	276438-003	Filtrate	234982	05/26/16 16:35	10.0		2:MG=100000
057	met09_sn_2016	SAMPLE	276439-001	Filtrate	234982	05/26/16 16:43	100.0		1:NA=120000
058	met09_sn_2016	SAMPLE	276439-001	Filtrate	234982	05/26/16 16:49	10.0		2:MG=220000
059	met09_sn_2016	SAMPLE	276578-003	Filtrate	234982	05/26/16 16:56	1.0		4:CA=230000
060	met09_sn_2016	SAMPLE	276595-004	Filtrate	234982	05/26/16 17:02	1.0		4:CA=360000
061	met09_sn_2016	CCV				05/26/16 17:06	1.0	10	
062	met09_sn_2016	CCB				05/26/16 17:13	1.0		
063	met09_sn_2016	SAMPLE	276650-004	Filtrate	234982	05/26/16 17:18	1.0		
064	met09_sn_2016	SAMPLE	276656-005	Filtrate	234982	05/26/16 17:30	1.0		4:CA=2200000
065	met09_sn_2016	SAMPLE	276284-002	Soil	234518	05/26/16 17:38	1.0		6:FE=420000
066	met09_sn_2016	SAMPLE	276284-003	Soil	234518	05/26/16 17:46	1.0		6:FE=350000
067	met09_sn_2016	MSS	276284-004	Soil	234518	05/26/16 17:53	1.0		3:FE=270000
068	met09_sn_2016	SAMPLE	276284-005	Soil	234518	05/26/16 18:01	1.0		6:FE=400000
069	met09_sn_2016	SAMPLE	276284-007	Soil	234518	05/26/16 18:09	1.0		5:FE=420000
070	met09_sn_2016	SAMPLE	276284-009	Soil	234518	05/26/16 18:17	1.0		6:FE=330000
071	met09_sn_2016	MS	QC833276	Soil	234518	05/26/16 18:24	1.0		5:FE=300000
072	met09_sn_2016	MSD	QC833277	Soil	234518	05/26/16 18:32	1.0		5:FE=320000
073	met09_sn_2016	MS	QC833278	Soil	234518	05/26/16 18:40	1.0		2:FE=320000
074	met09_sn_2016	CCV				05/26/16 18:47	1.0	10	
075	met09_sn_2016	CCB				05/26/16 18:53	1.0		
076	met09_sn_2016	MSD	QC833279	Soil	234518	05/26/16 18:58	1.0		2:FE=350000
077	met09_sn_2016	SER	QC833280	Soil	234518	05/26/16 19:06	5.0		
078	met09_sn_2016	PDS	QC833281	Soil	234518	05/26/16 19:14	1.0	11 12 13	5:FE=300000
079	met09_sn_2016	BLANK	QC837210	Water	235502	05/26/16 19:22	1.0		
080	met09_sn_2016	BS	QC837211	Water	235502	05/26/16 19:27	1.0		
081	met09_sn_2016	BSD	QC837212	Water	235502	05/26/16 19:31	1.0		
082	met09_sn_2016	MSS	277141-007	Water	235502	05/26/16 19:35	1.0		4:MG=300000
083	met09_sn_2016	MS	QC837213	Water	235502	05/26/16 19:43	1.0		
084	met09_sn_2016	MSD	QC837214	Water	235502	05/26/16 19:51	1.0		
085	met09_sn_2016	SER	QC837215	Water	235502	05/26/16 19:58	5.0		
086	met09_sn_2016	CCV				05/26/16 20:06	1.0	10	
087	met09_sn_2016	CCB				05/26/16 20:13	1.0		
088	met09_sn_2016	PDS	QC837216	Water	235502	05/26/16 20:18	1.0	11 12 13	4:MG=300000
089	met09_sn_2016	SAMPLE	277089-001	Water	235502	05/26/16 20:26	1.0		1:NA=170000
090	met09_sn_2016	SAMPLE	277177-009	Water	235502	05/26/16 20:30	1.0		4:MG=410000
091	met09_sn_2016	SAMPLE	277197-004	Water	235502	05/26/16 20:38	1.0		3:CA=2400000
092	met09_sn_2016	BLANK	QC837279	Soil	235518	05/26/16 20:47	1.0		
093	met09_sn_2016	BS	QC837280	Soil	235518	05/26/16 20:52	1.0		
094	met09_sn_2016	BSD	QC837281	Soil	235518	05/26/16 20:56	1.0		
095	met09_sn_2016	MSS	277036-001	Soil	235518	05/26/16 21:00	1.0		5:FE=390000
096	met09_sn_2016	MS	QC837282	Soil	235518	05/26/16 21:08	1.0		5:FE=390000
097	met09_sn_2016	MSD	QC837283	Soil	235518	05/26/16 21:16	1.0		5:FE=460000
098	met09_sn_2016	CCV				05/26/16 21:23	1.0	10	
099	met09_sn_2016	CCB				05/26/16 21:30	1.0		
100	met09_sn_2016	SAMPLE	277036-002	Soil	235518	05/26/16 21:35	1.0		5:FE=370000
101	met09_sn_2016	SAMPLE	277036-003	Soil	235518	05/26/16 21:43	1.0		5:FE=370000
102	met09_sn_2016	SAMPLE	277036-004	Soil	235518	05/26/16 21:51	1.0		5:FE=410000
103	met09_sn_2016	SAMPLE	277036-005	Soil	235518	05/26/16 21:59	1.0		5:FE=440000
104	met09_sn_2016	SAMPLE	277036-006	Soil	235518	05/26/16 22:06	1.0		5:FE=390000

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 96212317

Instrument : MET09 Begun : 05/26/16 10:37
Method : EPA 6010C SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
105	met09_sn_2016	SAMPLE	277036-007	Soil	235518	05/26/16 22:14	1.0		5:FE=360000
106	met09_sn_2016	SAMPLE	277036-008	Soil	235518	05/26/16 22:22	1.0		5:FE=370000
107	met09_sn_2016	SAMPLE	277036-009	Soil	235518	05/26/16 22:30	1.0		5:FE=410000
108	met09_sn_2016	SAMPLE	277036-010	Soil	235518	05/26/16 22:37	1.0		5:FE=370000
109	met09_sn_2016	BLANK	QC837272	Soil	235517	05/26/16 22:45	1.0		
110	met09_sn_2016	CCV				05/26/16 22:50	1.0	10	
111	met09_sn_2016	CCB				05/26/16 22:54	1.0		
112	met09_sn_2016	BS	QC837273	Soil	235517	05/26/16 22:59	1.0		
113	met09_sn_2016	BSD	QC837274	Soil	235517	05/26/16 23:03	1.0		
114	met09_sn_2016	MSS	277038-001	Soil	235517	05/26/16 23:07	1.0		5:FE=350000
115	met09_sn_2016	MS	QC837275	Soil	235517	05/26/16 23:15	1.0		5:FE=420000
116	met09_sn_2016	MSD	QC837276	Soil	235517	05/26/16 23:23	1.0		5:FE=360000
117	met09_sn_2016	SAMPLE	277038-002	Soil	235517	05/26/16 23:31	1.0		5:FE=410000
118	met09_sn_2016	SAMPLE	277038-003	Soil	235517	05/26/16 23:39	1.0		5:FE=450000
119	met09_sn_2016	SAMPLE	277038-004	Soil	235517	05/26/16 23:46	1.0		4:FE=340000
120	met09_sn_2016	SAMPLE	277038-005	Soil	235517	05/26/16 23:54	1.0		5:FE=440000
121	met09_sn_2016	SAMPLE	277038-006	Soil	235517	05/27/16 00:02	1.0		5:FE=370000
122	met09_sn_2016	CCV				05/27/16 00:09	1.0	10	
123	met09_sn_2016	CCB				05/27/16 00:13	1.0		
124	met09_sn_2016	SAMPLE	277038-007	Soil	235517	05/27/16 00:18	1.0		5:FE=380000
125	met09_sn_2016	SAMPLE	277038-008	Soil	235517	05/27/16 00:26	1.0		3:FE=320000
126	met09_sn_2016	SAMPLE	277038-009	Soil	235517	05/27/16 00:33	1.0		5:FE=430000
127	met09_sn_2016	SAMPLE	277038-010	Soil	235517	05/27/16 00:41	1.0		5:FE=480000
128	met09_sn_2016	SAMPLE	277038-011	Soil	235517	05/27/16 00:49	1.0		5:FE=350000
129	met09_sn_2016	SAMPLE	277038-012	Soil	235517	05/27/16 00:57	1.0		5:FE=460000
130	met09_sn_2016	CCV				05/27/16 01:04	1.0	10	
131	met09_sn_2016	CCB				05/27/16 01:11	1.0		

KER 05/26/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 27.

Standards used: 1=S29300 2=S29393 3=S29394 4=S29395 5=S29761 6=S29396 7=S29301 8=S29660 9=S29661 10=S29397 11=S28385 12=S28386 13=S29742

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 96212317

Date : 05/26/16 Reference : met09_sn_2016
Sequence : MET09 05/26/16 Analyzed : 05/26/16 10:42

#	Type	Sample ID	Y A
		ICAL STD	3216715
		LOWER LIMIT	965014
		UPPER LIMIT	3860058
010	ICB		3197394
013	ICSA		2763956
014	ICSAB		2799889
086	CCV		3174196
087	CCB		3236458
095	MSS	277036-001	3169822
098	CCV		3087145
099	CCB		3166695
100	SAMPLE	277036-002	3067857
101	SAMPLE	277036-003	3092096
102	SAMPLE	277036-004	3063061
103	SAMPLE	277036-005	3114550
104	SAMPLE	277036-006	3114114
105	SAMPLE	277036-007	3055810
106	SAMPLE	277036-008	3077954
107	SAMPLE	277036-009	3083945
108	SAMPLE	277036-010	3130821
109	BLANK	QC837272	3232444
110	CCV		3106529
111	CCB		3142903
112	BS	QC837273	3140877
113	BSD	QC837274	3131743
114	MSS	277038-001	3054397
115	MS	QC837275	3099003
116	MSD	QC837276	3039962
117	SAMPLE	277038-002	3109175
118	SAMPLE	277038-003	3127383
119	SAMPLE	277038-004	3085713
120	SAMPLE	277038-005	3097184
121	SAMPLE	277038-006	3100454
122	CCV		3108536
123	CCB		3188645
124	SAMPLE	277038-007	3132607
125	SAMPLE	277038-008	3092468
126	SAMPLE	277038-009	3107478
127	SAMPLE	277038-010	3096926
128	SAMPLE	277038-011	3114759
129	SAMPLE	277038-012	3080189
130	CCV		3077209
131	CCB		3166963

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 277038 METALS Soil: EPA 6010C

Inst : MET09
Calnum : 96212317001
Units : ug/L

Date : 26-MAY-2016 10:37
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met09_sn_2016	96212317002	L1	26-MAY-2016 10:42	S29300
L2	met09_sn_2016	96212317003	L2	26-MAY-2016 10:47	S29393
L3	met09_sn_2016	96212317004	L3	26-MAY-2016 10:52	S29394
L4	met09_sn_2016	96212317005	L4	26-MAY-2016 10:56	S29395
L5	met09_sn_2016	96212317006	L5	26-MAY-2016 11:03	S29761

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Antimony	A	2.6400	2.7880	2.6993	2.8086		LOR0	0.00000	0.35619		2.7340	1.000	0.995	
Arsenic	A	1.6400	1.4750	1.4274	1.4964		LOR0	0.00000	0.66857		1.5097	1.000	0.995	
Barium	A	44.920	57.206	54.730	55.845		LOR0	0.00000	0.01791		53.175	1.000	0.995	
Beryllium	A	4039.8	4765.6	4627.3			LOR0	0.00000	2.16E-4		4477.6	1.000	0.995	
Cadmium	A	64.600	84.646	81.062	81.757		LOR0	0.00000	0.01223		78.016	1.000	0.995	
Chromium	A	108.54	142.43	137.41	143.08		LOR0	0.00000	0.00699		132.86	1.000	0.995	
Cobalt	A	23.440	28.785	28.711	30.071		LOR0	0.00000	0.03327		27.752	1.000	0.995	
Copper	A	245.46	360.87	331.71	357.39		LOR0	0.00000	0.00280		323.86	1.000	0.995	
Lead	A	5.2000	9.5400	9.5881	9.9295		LOR0	0.00000	0.10075		8.5644	1.000	0.995	
Manganese	A	531.34	689.33	672.92	664.82		LOR0	0.00000	0.00150		639.60	1.000	0.995	
Molybdenum	A	13.500	18.739	18.288	18.776		LOR0	0.00000	0.05327		17.326	1.000	0.995	
Nickel	A	53.660	66.723	63.614	65.997		LOR0	0.00000	0.01516		62.498	1.000	0.995	
Selenium	A	1.7600	2.0710	2.1280	2.2447		LOR0	0.00000	0.44572		2.0509	1.000	0.995	
Silver	A	65.360	67.835	65.594	69.978		LOR0	0.00000	0.01430		67.192	1.000	0.995	
Thallium	A	1.4700	1.6480	1.6473	1.6718		LOR0	0.00000	0.59823		1.6093	1.000	0.995	
Vanadium	A	149.12	184.89	176.16	184.90		LOR0	0.00000	0.00541		173.77	1.000	0.995	
Zinc	A	23.755	32.896	32.836	33.948		LOR0	0.00000	0.02947		30.859	1.000	0.995	
Iron	R	9.2250		10.172	10.722	10.347	LOR0	0.00000	0.09661		10.116	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Antimony	A	10.000	-6	100.00	-1	1000.0	-4	10000	0		
Arsenic	A	5.0000	10	100.00	-1	1000.0	-5	10000	0		
Barium	A	5.0000	-20	100.00	2	1000.0	-2	10000	0		
Beryllium	A	2.0000	-13	100.00	3	1000.0	0				
Cadmium	A	5.0000	**-21**	100.00	4	1000.0	-1	10000	0		
Chromium	A	5.0000	**-24**	100.00	0	1000.0	-4	10000	0		
Cobalt	A	5.0000	**-22**	100.00	-4	1000.0	-4	10000	0		
Copper	A	5.0000	**-31**	100.00	1	1000.0	-7	10000	0		
Lead	A	5.0000	**-48**	100.00	-4	1000.0	-3	10000	0		
Manganese	A	5.0000	-20	100.00	4	1000.0	1	10000	0		
Molybdenum	A	5.0000	**-28**	100.00	0	1000.0	-3	10000	0		
Nickel	A	5.0000	-19	100.00	1	1000.0	-4	10000	0		
Selenium	A	10.000	**-22**	100.00	-8	1000.0	-5	10000	0		
Silver	A	5.0000	-7	20.000	-3	200.00	-6	2000.0	0		
Thallium	A	10.000	-12	100.00	-1	1000.0	-1	10000	0		
Vanadium	A	5.0000	-19	100.00	0	1000.0	-5	10000	0		
Zinc	A	20.000	**-30**	100.00	-3	1000.0	-3	10000	0		
Iron	R	100.00	-11			1000.0	-2	10000	4	100000	0

Instrument amount = a0 + response * a1 + response^2 * a2; LOR0=Linear regression forced thru origin, including 0,0 point

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 277038 METALS Soil
EPA 6010C

Inst : MET09
Calnum : 96212317001 Cal Date : 26-MAY-2016

ICV 96212317007 (26-MAY-2016) stds: S29396

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	5000	4913	ug/L	-2	10	
Arsenic	A	5000	5073	ug/L	1	10	
Barium	A	5000	5070	ug/L	1	10	
Beryllium	A	500.0	531.9	ug/L	6	10	
Cadmium	A	5000	5069	ug/L	1	10	
Chromium	A	5000	5038	ug/L	1	10	
Cobalt	A	5000	4940	ug/L	-1	10	
Copper	A	5000	5070	ug/L	1	10	
Lead	A	5000	4922	ug/L	-2	10	
Manganese	A	5000	5143	ug/L	3	10	
Molybdenum	A	5000	4900	ug/L	-2	10	
Nickel	A	5000	5025	ug/L	1	10	
Selenium	A	5000	4950	ug/L	-1	10	
Silver	A	1000	1015	ug/L	1	10	
Thallium	A	5000	4925	ug/L	-2	10	
Vanadium	A	5000	5033	ug/L	1	10	
Zinc	A	5000	5028	ug/L	1	10	
Iron	R	20000	21180	ug/L	6	10	

CURTIS & TOMPKINS LOW-LEVEL PERFORMANCE VERIFICATION STANDARD FOR 277038 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 96212317008.1 File : met09_sn_2016 Time : 26-MAY-2016 11:13
Cal : 96212317001 Caldate : 26-MAY-2016
Standards: S29301

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	10.00	13.07	ug/L	**31**	30	cri+ ***
Arsenic	A	5.000	5.737	ug/L	15	30	
Barium	A	5.000	5.624	ug/L	12	30	
Beryllium	A	2.000	1.828	ug/L	-9	30	
Cadmium	A	5.000	5.727	ug/L	15	30	
Chromium	A	5.000	5.683	ug/L	14	30	
Cobalt	A	5.000	5.330	ug/L	7	30	
Copper	A	5.000	5.287	ug/L	6	30	
Lead	A	5.000	5.053	ug/L	1	30	
Manganese	A	5.000	5.669	ug/L	13	30	
Molybdenum	A	5.000	6.237	ug/L	**25**	30	!cri+
Nickel	A	5.000	5.528	ug/L	11	30	
Selenium	A	10.00	10.25	ug/L	2	30	
Silver	A	5.000	4.536	ug/L	-9	30	
Thallium	A	10.00	11.89	ug/L	19	30	
Vanadium	A	5.000	5.381	ug/L	8	30	
Zinc	A	20.00	15.82	ug/L	**-21**	30	!cri-
Iron	R	100.0	112.3	ug/L	12	30	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3216715	3306756	2.80

!=warning +=high bias -=low bias

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 277038 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 96212317010.2 File : met09_sn_2016 Time : 26-MAY-2016 11:35
Cal : 96212317001 Caldate : 26-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	0.5000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	1.250	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	1.250	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Iron	R	ND	100.0	80.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3216715	3197394	-0.60

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 277038 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 96212317013.2 File : met09_sn_2016 Time : 26-MAY-2016 12:24
Cal : 96212317001 Caldate : 26-MAY-2016
Standards: S29660

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	[-8.708]	10.00	ug/L	!a-
Arsenic	A	[4.984]	5.000	ug/L	!a+
Barium	A	[-0.3508]	5.000	ug/L	
Beryllium	A	[0.1767]	2.000	ug/L	
Cadmium	A	[1.468]	5.000	ug/L	!a+
Cobalt	A	[2.743]	5.000	ug/L	!a+
Lead	A	[2.997]	5.000	ug/L	!a+
Molybdenum	A	[-1.510]	5.000	ug/L	
Selenium	A	[1.443]	10.00	ug/L	
Silver	A	[3.456]	5.000	ug/L	!a+
Thallium	A	[9.355]	10.00	ug/L	!a+
Zinc	A	[7.363]	20.00	ug/L	

Interferent	Ch	Spiked	Quant	Units	%Rec	Flags
Chromium	A	20000	19610	ug/L	98	
Copper	A	20000	23130	ug/L	116	
Manganese	A	20000	19350	ug/L	97	
Nickel	A	20000	18700	ug/L	93	
Vanadium	A	20000	20400	ug/L	102	
Aluminum	R	500000	521700	ug/L	104	
Calcium	R	500000	488200	ug/L	98	
Iron	R	200000	191800	ug/L	96	
Magnesium	R	500000	498800	ug/L	100	
Titanium	R	20000	22560	ug/L	113	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3216715	2763956	-14.08

!=warning +=high bias -=low bias a=ICSA

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 277038 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 96212317014.2 File : met09_sn_2016 Time : 26-MAY-2016 12:50
Cal : 96212317001 Caldate : 26-MAY-2016
Standards: S29661

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	492.5	ug/L	-2	20	
Arsenic	A	500.0	522.1	ug/L	4	20	
Barium	A	500.0	491.9	ug/L	-2	20	
Beryllium	A	500.0	524.4	ug/L	5	20	
Cadmium	A	1000	973.4	ug/L	-3	20	
Chromium	A	500.0	479.8	ug/L	-4	20	
Cobalt	A	500.0	468.3	ug/L	-6	20	
Copper	A	500.0	550.2	ug/L	10	20	
Lead	A	1000	950.5	ug/L	-5	20	
Manganese	A	500.0	505.8	ug/L	1	20	
Molybdenum	A	500.0	490.0	ug/L	-2	20	
Nickel	A	1000	921.8	ug/L	-8	20	
Selenium	A	500.0	536.2	ug/L	7	20	
Silver	A	1000	1137	ug/L	14	20	
Thallium	A	500.0	503.9	ug/L	1	20	
Vanadium	A	500.0	516.3	ug/L	3	20	
Zinc	A	1000	933.9	ug/L	-7	20	
Iron	R	200000	189900	ug/L	-5		

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3216715	2799889	-12.96

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 96212317110.1 File : met09_sn_2016 Time : 26-MAY-2016 22:50
Cal : 96212317001 Caldate : 26-MAY-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	2.7340	1.9775	5000	3522	ug/L	**-30**	10	c- ***
Arsenic	A	1.5097	1.1664	5000	3899	ug/L	**-22**	10	c- ***
Barium	A	53.175	49.594	5000	4441	ug/L	**-11**	10	c- ***
Beryllium	A	4477.6	4755.4	500.0	513.7	ug/L	3	10	
Cadmium	A	78.016	60.331	5000	3690	ug/L	**-26**	10	c- ***
Chromium	A	132.86	136.43	5000	4769	ug/L	-5	10	
Cobalt	A	27.752	22.874	5000	3805	ug/L	**-24**	10	c- ***
Copper	A	323.86	356.92	5000	4997	ug/L	0	10	
Lead	A	8.5644	7.6488	5000	3853	ug/L	**-23**	10	c- ***
Manganese	A	639.60	638.15	5000	4799	ug/L	-4	10	
Molybdenum	A	17.326	13.461	5000	3586	ug/L	**-28**	10	c- ***
Nickel	A	62.498	56.726	5000	4299	ug/L	**-14**	10	c- ***
Selenium	A	2.0509	1.6582	5000	3696	ug/L	**-26**	10	c- ***
Silver	A	67.192	69.172	1000	989.1	ug/L	-1	10	
Thallium	A	1.6093	1.2855	5000	3845	ug/L	**-23**	10	c- ***
Vanadium	A	173.77	180.60	5000	4886	ug/L	-2	10	
Zinc	A	30.859	24.313	5000	3582	ug/L	**-28**	10	c- ***
Iron	R	10.116	10.691	20000	20660	ug/L	3	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3216715	3106529	-3.43

-=low bias c=CCV

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 277038 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 96212317111.1 File : met09_sn_2016 Time : 26-MAY-2016 22:54
Cal : 96212317001 Caldate : 26-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	0.5000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	[1.984]	5.000	1.250	ug/L	!CCB
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	[1.663]	5.000	1.250	ug/L	!CCB
Zinc	A	ND	20.00	10.00	ug/L	
Iron	R	ND	100.0	80.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3216715	3142903	-2.29

!=warning CCB=instrument blank

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 96212317122.1 File : met09_sn_2016 Time : 27-MAY-2016 00:09
Cal : 96212317001 Caldate : 26-MAY-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	2.7340	1.8785	5000	3346	ug/L	**-33**	10	c- ***
Arsenic	A	1.5097	1.1167	5000	3733	ug/L	**-25**	10	c- ***
Barium	A	53.175	49.475	5000	4431	ug/L	**-11**	10	c- ***
Beryllium	A	4477.6	4807.1	500.0	519.3	ug/L	4	10	
Cadmium	A	78.016	59.210	5000	3621	ug/L	**-28**	10	c- ***
Chromium	A	132.86	136.35	5000	4767	ug/L	-5	10	
Cobalt	A	27.752	21.863	5000	3637	ug/L	**-27**	10	c- ***
Copper	A	323.86	357.25	5000	5002	ug/L	0	10	
Lead	A	8.5644	7.5683	5000	3812	ug/L	**-24**	10	c- ***
Manganese	A	639.60	638.74	5000	4803	ug/L	-4	10	
Molybdenum	A	17.326	13.103	5000	3490	ug/L	**-30**	10	c- ***
Nickel	A	62.498	56.484	5000	4281	ug/L	**-14**	10	c- ***
Selenium	A	2.0509	1.5886	5000	3540	ug/L	**-29**	10	c- ***
Silver	A	67.192	69.258	1000	990.3	ug/L	-1	10	
Thallium	A	1.6093	1.2520	5000	3745	ug/L	**-25**	10	c- ***
Vanadium	A	173.77	181.00	5000	4897	ug/L	-2	10	
Zinc	A	30.859	23.841	5000	3513	ug/L	**-30**	10	c- ***
Iron	R	10.116	10.916	20000	21090	ug/L	5	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3216715	3108536	-3.36

-=low bias c=CCV

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 277038 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 96212317123.1 File : met09_sn_2016 Time : 27-MAY-2016 00:13
Cal : 96212317001 Caldate : 26-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	0.5000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	[2.986]	5.000	2.500	ug/L	!CCB
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	[2.916]	5.000	2.500	ug/L	!CCB
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	[1.692]	5.000	1.250	ug/L	!CCB
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	[1.848]	5.000	1.250	ug/L	!CCB
Zinc	A	ND	20.00	10.00	ug/L	
Iron	R	ND	100.0	80.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3216715	3188645	-0.87

!=warning CCB=instrument blank

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 96212317130.1 File : met09_sn_2016 Time : 27-MAY-2016 01:04
Cal : 96212317001 Caldate : 26-MAY-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	2.7340	1.8628	5000	3318	ug/L	**-34**	10	c- ***
Arsenic	A	1.5097	1.1067	5000	3700	ug/L	**-26**	10	c- ***
Barium	A	53.175	50.028	5000	4480	ug/L	-10	10	
Beryllium	A	4477.6	4898.4	500.0	529.1	ug/L	6	10	
Cadmium	A	78.016	59.029	5000	3610	ug/L	**-28**	10	c- ***
Chromium	A	132.86	138.37	5000	4837	ug/L	-3	10	
Cobalt	A	27.752	21.779	5000	3623	ug/L	**-28**	10	c- ***
Copper	A	323.86	363.84	5000	5094	ug/L	2	10	
Lead	A	8.5644	7.5650	5000	3811	ug/L	**-24**	10	c- ***
Manganese	A	639.60	647.36	5000	4868	ug/L	-3	10	
Molybdenum	A	17.326	13.076	5000	3483	ug/L	**-30**	10	c- ***
Nickel	A	62.498	56.962	5000	4317	ug/L	**-14**	10	c- ***
Selenium	A	2.0509	1.5849	5000	3532	ug/L	**-29**	10	c- ***
Silver	A	67.192	70.271	1000	1005	ug/L	0	10	
Thallium	A	1.6093	1.2449	5000	3724	ug/L	**-26**	10	c- ***
Vanadium	A	173.77	183.88	5000	4975	ug/L	-1	10	
Zinc	A	30.859	23.666	5000	3487	ug/L	**-30**	10	c- ***
Iron	R	10.116	11.232	20000	21700	ug/L	9	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3216715	3077209	-4.34

-=low bias c=CCV

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 277038 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 96212317131.1 File : met09_sn_2016 Time : 27-MAY-2016 01:11
Cal : 96212317001 Caldate : 26-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	[4.255]	5.000	4.000	ug/L	!CCB
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	0.5000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	[1.653]	5.000	1.250	ug/L	!CCB
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	[2.150]	5.000	1.250	ug/L	!CCB
Zinc	A	ND	20.00	10.00	ug/L	
Iron	R	[93.50]	100.0	80.00	ug/L	!CCB

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3216715	3166963	-1.55

!=warning CCB=instrument blank

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 86213947

Instrument : MET08 Begun : 05/27/16 13:47
Method : EPA 6010C SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met08_sn_6010r	ICALBLK				05/27/16 13:47	1.0		
002	met08_sn_6010r	ICAL	L1			05/27/16 13:50	1.0	1	
003	met08_sn_6010r	ICAL	L2			05/27/16 13:54	1.0	2	
004	met08_sn_6010r	ICAL	L3			05/27/16 13:56	1.0	3	
005	met08_sn_6010r	ICAL	L4			05/27/16 13:58	1.0	4	
006	met08_sn_6010r	ICAL	L5			05/27/16 14:00	1.0	5	
007	met08_sn_6010r	ICV				05/27/16 14:02	1.0	6	
008	met08_sn_6010r	CRI				05/27/16 14:04	1.0	1	
009	met08_sn_6010r	ICB				05/27/16 14:09	1.0		
010	met08_sn_6010r	ICSA				05/27/16 14:13	1.0	7	10:AL=500000
011	met08_sn_6010r	ICSAB				05/27/16 14:25	1.0	8	5:AL=480000
012	met08_sn_6010r	CCV				05/27/16 14:26	1.0	9	
013	met08_sn_6010r	CCB				05/27/16 14:28	1.0		
014	met08_sn_6010r	SAMPLE	276832-001	Soil	235437	05/27/16 14:36	25.0		
015	met08_sn_6010r	SAMPLE	276832-002	Soil	235437	05/27/16 14:38	25.0		
016	met08_sn_6010r	MSS	276832-003	Soil	235437	05/27/16 14:41	25.0		
017	met08_sn_6010r	SAMPLE	276832-004	Soil	235437	05/27/16 14:43	25.0		
018	met08_sn_6010r	SAMPLE	276832-005	Soil	235437	05/27/16 14:46	25.0		
019	met08_sn_6010r	SAMPLE	276832-006	Soil	235437	05/27/16 14:49	25.0		
020	met08_sn_6010r	SAMPLE	276832-007	Soil	235437	05/27/16 14:52	25.0		
021	met08_sn_6010r	SAMPLE	276832-008	Soil	235437	05/27/16 14:55	25.0		
022	met08_sn_6010r	X	RINSE			05/27/16 14:58	1.0		
023	met08_sn_6010r	SAMPLE	277126-001	Soil	235518	05/27/16 15:01	25.0		
024	met08_sn_6010r	CCV				05/27/16 15:04	1.0	9	
025	met08_sn_6010r	CCB				05/27/16 15:06	1.0		
026	met08_sn_6010r	SAMPLE	277126-001	Soil	235518	05/27/16 15:09	1.0		7:MG=1100000
027	met08_sn_6010r	X	RINSE			05/27/16 15:11	1.0		
028	met08_sn_6010r	SAMPLE	277127-001	Soil	235518	05/27/16 15:15	1.0		3:FE=280000
029	met08_sn_6010r	SAMPLE	277181-031	Soil	235518	05/27/16 15:17	1.0		4:FE=440000
030	met08_sn_6010r	SAMPLE	277201-005	Soil	235518	05/27/16 15:19	1.0		4:FE=400000
031	met08_sn_6010r	SAMPLE	277225-002	TCLP Leachate	235436	05/27/16 15:21	10.0		1:NA=140000
032	met08_sn_6010r	SAMPLE	277034-001	Soil	235517	05/27/16 15:24	1.0		3:FE=300000
033	met08_sn_6010r	SAMPLE	277043-001	Soil	235517	05/27/16 15:26	1.0		5:FE=360000
034	met08_sn_6010r	SAMPLE	277043-002	Soil	235517	05/27/16 15:28	1.0		5:FE=420000
035	met08_sn_6010r	SAMPLE	277048-005	Soil	235517	05/27/16 15:30	1.0		5:FE=430000
036	met08_sn_6010r	CCV				05/27/16 15:32	1.0	9	
037	met08_sn_6010r	CCB				05/27/16 15:35	1.0		
038	met08_sn_6010r	SAMPLE	277100-002	Soil	235517	05/27/16 15:38	1.0		4:FE=430000
039	met08_sn_6010r	BLANK	QC837279	Soil	235518	05/27/16 15:40	1.0		
040	met08_sn_6010r	BS	QC837280	Soil	235518	05/27/16 15:43	1.0		1:SR=11000
041	met08_sn_6010r	BSD	QC837281	Soil	235518	05/27/16 15:46	1.0		1:SR=11000
042	met08_sn_6010r	BLANK	QC837272	Soil	235517	05/27/16 15:48	1.0		
043	met08_sn_6010r	BS	QC837273	Soil	235517	05/27/16 15:51	1.0		1:SR=11000
044	met08_sn_6010r	BSD	QC837274	Soil	235517	05/27/16 15:53	1.0		1:SR=11000
045	met08_sn_6010r	MS	QC836975	Soil	235437	05/27/16 15:57	25.0		
046	met08_sn_6010r	MSD	QC836976	Soil	235437	05/27/16 15:59	25.0		
047	met08_sn_6010r	SAMPLE	277225-002	WET Leachate	235484	05/27/16 16:01	10.0		1:NA=130000
048	met08_sn_6010r	CCV				05/27/16 16:04	1.0	9	
049	met08_sn_6010r	CCB				05/27/16 16:07	1.0		
050	met08_sn_6010r	SAMPLE	277137-001	Filtrate	235528	05/27/16 16:11	1.0		2:MG=160000
051	met08_sn_6010r	BS	QC837315	Filtrate	235528	05/27/16 16:14	1.0		
052	met08_sn_6010r	BSD	QC837316	Filtrate	235528	05/27/16 16:16	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 86213947

Instrument : MET08
Method : EPA 6010C

Begun : 05/27/16 13:47
SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met08_sn_6010r	MS	QC837317	Filtrate	235528	05/27/16 16:19	1.0		
054	met08_sn_6010r	MSD	QC837318	Filtrate	235528	05/27/16 16:21	1.0		
055	met08_sn_6010r	PDS	QC837320	Filtrate	235528	05/27/16 16:23	1.0	10 11 12	
056	met08_sn_6010r	CCV				05/27/16 16:25	1.0	9	
057	met08_sn_6010r	CCB				05/27/16 16:28	1.0		
058	met08_sn_6010r	BLANK	QC837420	Soil	235555	05/27/16 19:19	1.0		
059	met08_sn_6010r	BS	QC837421	Soil	235555	05/27/16 19:23	1.0		1:SR=11000
060	met08_sn_6010r	BSD	QC837422	Soil	235555	05/27/16 19:25	1.0		1:SR=11000
061	met08_sn_6010r	MSS	276989-003	Soil	235555	05/27/16 19:28	1.0		1:FE=140000
062	met08_sn_6010r	MS	QC837423	Soil	235555	05/27/16 19:30	1.0		4:FE=240000
063	met08_sn_6010r	MSD	QC837424	Soil	235555	05/27/16 19:32	1.0		2:FE=180000
064	met08_sn_6010r	SAMPLE	276989-004	Soil	235555	05/27/16 19:34	1.0		2:FE=270000
065	met08_sn_6010r	SAMPLE	276989-005	Soil	235555	05/27/16 19:36	1.0		2:FE=300000
066	met08_sn_6010r	SAMPLE	276989-006	Soil	235555	05/27/16 19:38	1.0		2:FE=160000
067	met08_sn_6010r	SAMPLE	276989-007	Soil	235555	05/27/16 19:40	1.0		2:FE=310000
068	met08_sn_6010r	CCV				05/27/16 19:42	1.0	9	
069	met08_sn_6010r	CCB				05/27/16 19:44	1.0		
070	met08_sn_6010r	SAMPLE	276989-008	Soil	235555	05/27/16 19:48	1.0		2:FE=260000
071	met08_sn_6010r	SAMPLE	276989-009	Soil	235555	05/27/16 19:50	1.0		2:FE=160000
072	met08_sn_6010r	SAMPLE	276989-010	Soil	235555	05/27/16 19:52	1.0		2:FE=300000
073	met08_sn_6010r	SAMPLE	276989-011	Soil	235555	05/27/16 19:54	1.0		2:FE=160000
074	met08_sn_6010r	SAMPLE	277204-001	Soil	235555	05/27/16 19:56	1.0		4:FE=380000
075	met08_sn_6010r	SAMPLE	277204-003	Soil	235555	05/27/16 19:58	1.0		5:FE=350000
076	met08_sn_6010r	SAMPLE	277204-005	Soil	235555	05/27/16 20:00	1.0		5:FE=460000
077	met08_sn_6010r	SAMPLE	277204-007	Soil	235555	05/27/16 20:02	1.0		1:FE=190000
078	met08_sn_6010r	SAMPLE	277204-009	Soil	235555	05/27/16 20:04	1.0		3:FE=310000
079	met08_sn_6010r	SAMPLE	277204-011	Soil	235555	05/27/16 20:06	1.0		5:FE=590000
080	met08_sn_6010r	CCV				05/27/16 20:08	1.0	9	
081	met08_sn_6010r	CCB				05/27/16 20:10	1.0		
082	met08_sn_6010r	SAMPLE	277204-025	Soil	235555	05/27/16 20:14	1.0		2:FE=200000
083	met08_sn_6010r	SAMPLE	277208-001	Soil	235555	05/27/16 20:16	1.0		3:FE=390000
084	met08_sn_6010r	SAMPLE	277208-002	Soil	235555	05/27/16 20:18	1.0		6:FE=510000
085	met08_sn_6010r	SAMPLE	277213-001	Soil	235555	05/27/16 20:20	1.0		5:FE=460000
086	met08_sn_6010r	BLANK	QC837425	Soil	235556	05/27/16 20:22	1.0		
087	met08_sn_6010r	BS	QC837426	Soil	235556	05/27/16 20:25	1.0		1:SR=11000
088	met08_sn_6010r	BSD	QC837427	Soil	235556	05/27/16 20:27	1.0		1:SR=11000
089	met08_sn_6010r	MSS	277084-001	Soil	235556	05/27/16 20:30	1.0		4:FE=530000
090	met08_sn_6010r	MS	QC837428	Soil	235556	05/27/16 20:32	1.0		1:FE=560000
091	met08_sn_6010r	MSD	QC837429	Soil	235556	05/27/16 20:34	1.0		1:FE=530000
092	met08_sn_6010r	CCV				05/27/16 20:36	1.0	9	
093	met08_sn_6010r	CCB				05/27/16 20:38	1.0		
094	met08_sn_6010r	SAMPLE	277084-002	Soil	235556	05/27/16 20:42	1.0		4:FE=600000
095	met08_sn_6010r	SAMPLE	277084-003	Soil	235556	05/27/16 20:44	1.0		4:FE=530000
096	met08_sn_6010r	SAMPLE	277084-004	Soil	235556	05/27/16 20:46	1.0		4:FE=580000
097	met08_sn_6010r	SAMPLE	277084-005	Soil	235556	05/27/16 20:48	1.0		4:FE=670000
098	met08_sn_6010r	SAMPLE	277084-006	Soil	235556	05/27/16 20:50	1.0		4:FE=580000
099	met08_sn_6010r	SAMPLE	277084-007	Soil	235556	05/27/16 20:52	1.0		4:FE=560000
100	met08_sn_6010r	SAMPLE	277116-001	Soil	235556	05/27/16 20:55	1.0		2:FE=320000
101	met08_sn_6010r	SAMPLE	277130-004	Soil	235556	05/27/16 20:57	1.0		2:FE=380000
102	met08_sn_6010r	SAMPLE	277130-005	Soil	235556	05/27/16 20:59	1.0		3:FE=460000
103	met08_sn_6010r	SAMPLE	277151-006	Soil	235556	05/27/16 21:01	1.0		4:FE=490000
104	met08_sn_6010r	CCV				05/27/16 21:03	1.0	9	

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 86213947

Instrument : MET08 Begun : 05/27/16 13:47
Method : EPA 6010C SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
105	met08_sn_6010r	CCB				05/27/16 21:05	1.0		
106	met08_sn_6010r	SAMPLE	277151-007	Soil	235556	05/27/16 21:08	1.0		4:FE=390000
107	met08_sn_6010r	SAMPLE	277152-005	Soil	235556	05/27/16 21:10	1.0		4:FE=420000
108	met08_sn_6010r	SAMPLE	277153-001	Soil	235556	05/27/16 21:12	1.0		5:CA=570000
109	met08_sn_6010r	SAMPLE	277153-004	Soil	235556	05/27/16 21:14	1.0		5:CA=620000
110	met08_sn_6010r	SAMPLE	277154-001	Soil	235556	05/27/16 21:17	1.0		1:FE=120000
111	met08_sn_6010r	SAMPLE	277176-001	Soil	235556	05/27/16 21:19	1.0		4:FE=300000
112	met08_sn_6010r	SAMPLE	277180-003	Soil	235556	05/27/16 21:21	1.0		6:FE=3000000
113	met08_sn_6010r	SAMPLE	277207-001	Miscell.	235556	05/27/16 21:23	1.0		2:CA=1100000
114	met08_sn_6010r	SAMPLE	277243-005	Soil	235556	05/27/16 21:25	1.0		5:AL=450000
115	met08_sn_6010r	MS	QC836692	Soil	235365	05/27/16 21:27	1.0		1:FE=330000
116	met08_sn_6010r	CCV				05/27/16 21:29	1.0	9	
117	met08_sn_6010r	CCB				05/27/16 21:31	1.0		
118	met08_sn_6010r	MSD	QC836693	Soil	235365	05/27/16 21:34	1.0		
119	met08_sn_6010r	SAMPLE	276826-032	Soil	235384	05/27/16 21:37	10.0		
120	met08_sn_6010r	MS	QC833276	Soil	234518	05/27/16 21:39	1.0		3:FE=210000
121	met08_sn_6010r	MSD	QC833277	Soil	234518	05/27/16 21:42	1.0		4:FE=240000
122	met08_sn_6010r	MS	QC833278	Soil	234518	05/27/16 21:44	1.0		1:FE=230000
123	met08_sn_6010r	MSD	QC833279	Soil	234518	05/27/16 21:46	1.0		2:FE=270000
124	met08_sn_6010r	SAMPLE	276720-004	Filtrate	235348	05/27/16 21:48	1.0		3:MG=330000
125	met08_sn_6010r	CCV				05/27/16 21:52	1.0	9	
126	met08_sn_6010r	CCB				05/27/16 21:54	1.0		
127	met08_sn_6010r	CCB				05/27/16 21:56	1.0		

KER 05/27/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 26.

Standards used: 1=S29301 2=S29393 3=S29394 4=S29395 5=S29761 6=S29396 7=S29660 8=S29661 9=S29397 10=S28385 11=S28386 12=S29742

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 86213947

Date : 05/27/16 Reference : met08_sn_6010r
Sequence : MET08 05/27/16 Analyzed : 05/27/16 13:50

#	Type	Sample ID	Y A
		ICAL STD	13750167
		LOWER LIMIT	4125050
		UPPER LIMIT	16500201
009	ICB		13841434
010	ICSA		12455017
011	ICSAB		12317802
036	CCV		13421247
037	CCB		13653543
042	BLANK	QC837272	14164296
043	BS	QC837273	13897569
044	BSD	QC837274	13854095
048	CCV		13562014
049	CCB		14000915

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 277038 METALS Soil: EPA 6010C

Inst : MET08
Calnum : 86213947001
Units : ug/L

Date : 27-MAY-2016 13:47
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met08_sn_6010r	86213947002	L1	27-MAY-2016 13:50	S29301
L2	met08_sn_6010r	86213947003	L2	27-MAY-2016 13:54	S29393
L3	met08_sn_6010r	86213947004	L3	27-MAY-2016 13:56	S29394
L4	met08_sn_6010r	86213947005	L4	27-MAY-2016 13:58	S29395
L5	met08_sn_6010r	86213947006	L5	27-MAY-2016 14:00	S29761

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Antimony	A	13.360	24.026	24.678	24.485		LOR0	0.00000	0.04084		21.637	1.000	0.995	
Arsenic	A	13.040	17.652	18.347	18.379		LOR0	0.00000	0.05441		16.855	1.000	0.995	
Barium	A	399.60	402.42	394.67	385.14		LOR0	0.00000	0.00260		395.46	1.000	0.995	
Beryllium	A	3844.0	3855.3	3884.1			LOR0	0.00000	2.57E-4		3861.1	1.000	0.995	
Cadmium	A	223.16	220.62	217.99	214.34		LOR0	0.00000	0.00466		219.03	1.000	0.995	
Chromium	A	121.20	122.02	122.10	120.90		LOR0	0.00000	0.00827		121.56	1.000	0.995	
Cobalt	A	129.28	128.36	128.12	128.50		LOR0	0.00000	0.00778		128.57	1.000	0.995	
Copper	A	346.12	349.21	342.20	341.75		LOR0	0.00000	0.00293		344.82	1.000	0.995	
Lead	A	58.100	52.168	51.859	51.668		LOR0	0.00000	0.01935		53.449	1.000	0.995	
Manganese	A	1471.6	1514.9	1479.8	1417.4		LOR0	0.00000	7.05E-4		1470.9	1.000	0.995	
Molybdenum	A	28.300	29.895	29.958	29.851		LOR0	0.00000	0.03350		29.501	1.000	0.995	
Nickel	A	46.720	48.384	48.412	48.721		LOR0	0.00000	0.02053		48.059	1.000	0.995	
Selenium	A	23.050	31.495	32.321	32.327		LOR0	0.00000	0.03093		29.798	1.000	0.995	
Silver	A	2113.1	1982.1	1890.9	1908.1		LOR0	0.00000	5.24E-4		1973.6	1.000	0.995	
Thallium	A	15.640	17.532	17.475	17.063		LOR0	0.00000	0.05859		16.928	1.000	0.995	
Vanadium	A	135.12	128.07	127.08	128.37		LOR0	0.00000	0.00779		129.66	1.000	0.995	
Zinc	A	75.350	106.68	83.777	83.581		LOR0	0.00000	0.01196		87.348	1.000	0.995	
Iron	R	4.2300		3.4707	3.5712	3.8478	LOR0	0.00000	0.26008		3.7799	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Antimony	A	10.000	**-45**	100.00	-2	1000.0	1	10000	0		
Arsenic	A	5.0000	**-29**	100.00	-4	1000.0	0	10000	0		
Barium	A	5.0000	4	100.00	4	1000.0	2	10000	0		
Beryllium	A	2.0000	-1	100.00	-1	1000.0	0				
Cadmium	A	5.0000	4	100.00	3	1000.0	2	10000	0		
Chromium	A	5.0000	0	100.00	1	1000.0	1	10000	0		
Cobalt	A	5.0000	1	100.00	0	1000.0	0	10000	0		
Copper	A	5.0000	1	100.00	2	1000.0	0	10000	0		
Lead	A	5.0000	12	100.00	1	1000.0	0	10000	0		
Manganese	A	5.0000	4	100.00	7	1000.0	4	10000	0		
Molybdenum	A	5.0000	-5	100.00	0	1000.0	0	10000	0		
Nickel	A	5.0000	-4	100.00	-1	1000.0	-1	10000	0		
Selenium	A	10.000	**-29**	100.00	-3	1000.0	0	10000	0		
Silver	A	5.0000	11	20.000	4	200.00	-1	2000.0	0		
Thallium	A	10.000	-8	100.00	3	1000.0	2	10000	0		
Vanadium	A	5.0000	5	100.00	0	1000.0	-1	10000	0		
Zinc	A	20.000	-10	100.00	**28**	1000.0	0	10000	0		
Iron	R	100.00	10			1000.0	-10	10000	-7	100000	0

Instrument amount = a0 + response * a1 + response^2 * a2; LOR0=Linear regression forced thru origin, including 0,0 point

86213947001

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 277038 METALS Soil
EPA 6010C

Inst : MET08
Calnum : 86213947001 Cal Date : 27-MAY-2016

ICV 86213947007 (27-MAY-2016) stds: S29396

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	5000	5259	ug/L	5	10	
Arsenic	A	5000	5291	ug/L	6	10	
Barium	A	5000	5109	ug/L	2	10	
Beryllium	A	500.0	518.7	ug/L	4	10	
Cadmium	A	5000	5146	ug/L	3	10	
Chromium	A	5000	5057	ug/L	1	10	
Cobalt	A	5000	4996	ug/L	0	10	
Copper	A	5000	4978	ug/L	0	10	
Lead	A	5000	5063	ug/L	1	10	
Manganese	A	5000	5117	ug/L	2	10	
Molybdenum	A	5000	4874	ug/L	-3	10	
Nickel	A	5000	5089	ug/L	2	10	
Selenium	A	5000	5208	ug/L	4	10	
Silver	A	1000	1015	ug/L	1	10	
Thallium	A	5000	4897	ug/L	-2	10	
Vanadium	A	5000	5083	ug/L	2	10	
Zinc	A	5000	5130	ug/L	3	10	
Iron	R	20000	19810	ug/L	-1	10	

CURTIS & TOMPKINS LOW-LEVEL PERFORMANCE VERIFICATION STANDARD FOR 277038 METALS Soil
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 86213947008.1 File : met08_sn_6010r Time : 27-MAY-2016 14:04
Cal : 86213947001 Caldate : 27-MAY-2016
Standards: S29301

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	10.00	8.713	ug/L	-13	30	
Arsenic	A	5.000	4.945	ug/L	-1	30	
Barium	A	5.000	5.191	ug/L	4	30	
Beryllium	A	2.000	2.075	ug/L	4	30	
Cadmium	A	5.000	5.714	ug/L	14	30	
Chromium	A	5.000	4.970	ug/L	-1	30	
Cobalt	A	5.000	4.918	ug/L	-2	30	
Copper	A	5.000	5.002	ug/L	0	30	
Lead	A	5.000	5.042	ug/L	1	30	
Manganese	A	5.000	5.384	ug/L	8	30	
Molybdenum	A	5.000	5.177	ug/L	4	30	
Nickel	A	5.000	5.253	ug/L	5	30	
Selenium	A	10.00	10.75	ug/L	7	30	
Silver	A	5.000	5.402	ug/L	8	30	
Thallium	A	10.00	12.00	ug/L	20	30	
Vanadium	A	5.000	5.261	ug/L	5	30	
Zinc	A	20.00	19.66	ug/L	-2	30	
Iron	R	100.0	101.2	ug/L	1	30	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	13750167	13843921	0.68

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 277038 METALS Soil
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 86213947009.2 File : met08_sn_6010r Time : 27-MAY-2016 14:09
Cal : 86213947001 Caldate : 27-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	---	ug/L	
Arsenic	A	ND	5.000	---	ug/L	
Barium	A	ND	5.000	---	ug/L	
Beryllium	A	ND	2.000	---	ug/L	
Cadmium	A	ND	5.000	---	ug/L	
Chromium	A	ND	5.000	---	ug/L	
Cobalt	A	ND	5.000	---	ug/L	
Copper	A	ND	5.000	---	ug/L	
Lead	A	ND	5.000	---	ug/L	
Manganese	A	ND	5.000	---	ug/L	
Molybdenum	A	ND	5.000	---	ug/L	
Nickel	A	ND	5.000	---	ug/L	
Selenium	A	[5.463]	10.00	---	ug/L	!ICB
Silver	A	ND	5.000	---	ug/L	
Thallium	A	[5.395]	10.00	---	ug/L	!ICB
Vanadium	A	ND	5.000	---	ug/L	
Zinc	A	ND	20.00	---	ug/L	
Iron	R	ND	100.0	---	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	13750167	13841434	0.66

!=warning ICB=instrument blank

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 277038 METALS Soil
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 86213947010.2 File : met08_sn_6010r Time : 27-MAY-2016 14:13
Cal : 86213947001 Caldate : 27-MAY-2016
Standards: S29660

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	[6.431]	10.00	ug/L	!a+
Arsenic	A	[2.957]	5.000	ug/L	!a+
Barium	A	[-3.499]	5.000	ug/L	!a-
Beryllium	A	[-0.3508]	2.000	ug/L	
Cadmium	A	[-0.5037]	5.000	ug/L	
Cobalt	A	[3.262]	5.000	ug/L	!a+
Lead	A	[0.1502]	5.000	ug/L	
Molybdenum	A	[-2.725]	5.000	ug/L	!a-
Selenium	A	[-37.49]	10.00	ug/L	a- ***
Silver	A	[-3.738]	5.000	ug/L	!a-
Thallium	A	[3.086]	10.00	ug/L	
Zinc	A	[9.713]	20.00	ug/L	

Interferent	Ch	Spiked	Quant	Units	%Rec	Flags
Chromium	A	20000	19200	ug/L	96	
Copper	A	20000	20110	ug/L	101	
Manganese	A	20000	19310	ug/L	97	
Nickel	A	20000	18380	ug/L	92	
Vanadium	A	20000	19550	ug/L	98	
Aluminum	R	500000	502000	ug/L	100	
Calcium	R	500000	485400	ug/L	97	
Iron	R	200000	187600	ug/L	94	
Magnesium	R	500000	493400	ug/L	99	
Titanium	R	20000	21100	ug/L	106	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	13750167	12455017	-9.42

!=warning +=high bias -=low bias a=ICSA

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 277038 METALS Soil
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 86213947011.2 File : met08_sn_6010r Time : 27-MAY-2016 14:25
Cal : 86213947001 Caldate : 27-MAY-2016
Standards: S29661

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	522.7	ug/L	5	20	
Arsenic	A	500.0	532.9	ug/L	7	20	
Barium	A	500.0	514.9	ug/L	3	20	
Beryllium	A	500.0	513.2	ug/L	3	20	
Cadmium	A	1000	982.4	ug/L	-2	20	
Chromium	A	500.0	495.1	ug/L	-1	20	
Cobalt	A	500.0	469.1	ug/L	-6	20	
Copper	A	500.0	498.9	ug/L	0	20	
Lead	A	1000	945.1	ug/L	-5	20	
Manganese	A	500.0	469.8	ug/L	-6	20	
Molybdenum	A	500.0	490.3	ug/L	-2	20	
Nickel	A	1000	948.8	ug/L	-5	20	
Selenium	A	500.0	473.3	ug/L	-5	20	
Silver	A	1000	1039	ug/L	4	20	
Thallium	A	500.0	449.0	ug/L	-10	20	
Vanadium	A	500.0	527.9	ug/L	6	20	
Zinc	A	1000	975.4	ug/L	-2	20	
Iron	R	200000	179600	ug/L	-10		

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	13750167	12317802	-10.42

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 METALS Soil
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 86213947036.1 File : met08_sn_6010r Time : 27-MAY-2016 15:32
Cal : 86213947001 Caldate : 27-MAY-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	21.637	24.309	5000	4964	ug/L	-1	10	
Arsenic	A	16.855	18.522	5000	5039	ug/L	1	10	
Barium	A	395.46	388.13	5000	5038	ug/L	1	10	
Beryllium	A	3861.1	3948.0	500.0	508.3	ug/L	2	10	
Cadmium	A	219.03	213.25	5000	4974	ug/L	-1	10	
Chromium	A	121.56	122.87	5000	5081	ug/L	2	10	
Cobalt	A	128.57	126.00	5000	4894	ug/L	-2	10	
Copper	A	344.82	334.59	5000	4895	ug/L	-2	10	
Lead	A	53.449	50.894	5000	4925	ug/L	-2	10	
Manganese	A	1470.9	1428.2	5000	5036	ug/L	1	10	
Molybdenum	A	29.501	28.392	5000	4756	ug/L	-5	10	
Nickel	A	48.059	48.388	5000	4966	ug/L	-1	10	
Selenium	A	29.798	31.870	5000	4929	ug/L	-1	10	
Silver	A	1973.6	1882.6	1000	986.7	ug/L	-1	10	
Thallium	A	16.928	16.151	5000	4732	ug/L	-5	10	
Vanadium	A	129.66	129.22	5000	5034	ug/L	1	10	
Zinc	A	87.348	83.449	5000	4992	ug/L	0	10	
Iron	R	3.7799	3.7013	20000	19250	ug/L	-4	10	r ***

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	13750167	13421247	-2.39

r=RSD out

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 277038 METALS Soil
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 86213947037.1 File : met08_sn_6010r Time : 27-MAY-2016 15:35
Cal : 86213947001 Caldate : 27-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	---	ug/L	
Arsenic	A	ND	5.000	---	ug/L	
Barium	A	ND	5.000	---	ug/L	
Beryllium	A	ND	2.000	---	ug/L	
Cadmium	A	ND	5.000	---	ug/L	
Chromium	A	ND	5.000	---	ug/L	
Cobalt	A	ND	5.000	---	ug/L	
Copper	A	ND	5.000	---	ug/L	
Lead	A	ND	5.000	---	ug/L	
Manganese	A	ND	5.000	---	ug/L	
Molybdenum	A	ND	5.000	---	ug/L	
Nickel	A	ND	5.000	---	ug/L	
Selenium	A	ND	10.00	---	ug/L	
Silver	A	ND	5.000	---	ug/L	
Thallium	A	ND	10.00	---	ug/L	
Vanadium	A	ND	5.000	---	ug/L	
Zinc	A	ND	20.00	---	ug/L	
Iron	R	ND	100.0	---	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	13750167	13653543	-0.70

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 METALS Soil
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 86213947048.1 File : met08_sn_6010r Time : 27-MAY-2016 16:04
Cal : 86213947001 Caldate : 27-MAY-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	21.637	23.982	5000	4897	ug/L	-2	10	
Arsenic	A	16.855	18.542	5000	5044	ug/L	1	10	
Barium	A	395.46	385.02	5000	4997	ug/L	0	10	
Beryllium	A	3861.1	3934.7	500.0	506.6	ug/L	1	10	
Cadmium	A	219.03	211.79	5000	4940	ug/L	-1	10	
Chromium	A	121.56	122.49	5000	5065	ug/L	1	10	
Cobalt	A	128.57	125.27	5000	4866	ug/L	-3	10	
Copper	A	344.82	331.77	5000	4854	ug/L	-3	10	
Lead	A	53.449	50.402	5000	4877	ug/L	-2	10	
Manganese	A	1470.9	1442.0	5000	5085	ug/L	2	10	
Molybdenum	A	29.501	28.358	5000	4750	ug/L	-5	10	
Nickel	A	48.059	47.804	5000	4906	ug/L	-2	10	
Selenium	A	29.798	32.362	5000	5005	ug/L	0	10	
Silver	A	1973.6	1866.2	1000	978.1	ug/L	-2	10	
Thallium	A	16.928	17.084	5000	5005	ug/L	0	10	
Vanadium	A	129.66	127.62	5000	4972	ug/L	-1	10	
Zinc	A	87.348	83.247	5000	4980	ug/L	0	10	
Iron	R	3.7799	3.5154	20000	18290	ug/L	-9	10	r ***

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	13750167	13562014	-1.37

r=RSD out

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 277038 METALS Soil
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 86213947049.1 File : met08_sn_6010r Time : 27-MAY-2016 16:07
Cal : 86213947001 Caldate : 27-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	---	ug/L	
Arsenic	A	ND	5.000	---	ug/L	
Barium	A	ND	5.000	---	ug/L	
Beryllium	A	ND	2.000	---	ug/L	
Cadmium	A	ND	5.000	---	ug/L	
Chromium	A	ND	5.000	---	ug/L	
Cobalt	A	ND	5.000	---	ug/L	
Copper	A	ND	5.000	---	ug/L	
Lead	A	ND	5.000	---	ug/L	
Manganese	A	ND	5.000	---	ug/L	
Molybdenum	A	ND	5.000	---	ug/L	
Nickel	A	ND	5.000	---	ug/L	
Selenium	A	ND	10.00	---	ug/L	
Silver	A	ND	5.000	---	ug/L	
Thallium	A	ND	10.00	---	ug/L	
Vanadium	A	ND	5.000	---	ug/L	
Zinc	A	ND	20.00	---	ug/L	
Iron	R	ND	100.0	---	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	13750167	14000915	1.82

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 96214098

Instrument : MET09 Begun : 05/27/16 16:18
Method : EPA 6010C SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met09_sn_2016	ICALBLK				05/27/16 16:18	1.0		
002	met09_sn_2016	ICAL	L1			05/27/16 16:23	1.0	1	
003	met09_sn_2016	ICAL	L2			05/27/16 16:28	1.0	2	
004	met09_sn_2016	ICAL	L3			05/27/16 16:32	1.0	3	
005	met09_sn_2016	ICAL	L4			05/27/16 16:36	1.0	4	
006	met09_sn_2016	ICAL	L5			05/27/16 16:43	1.0	5	
007	met09_sn_2016	ICV				05/27/16 16:50	1.0	6	
008	met09_sn_2016	XCRI				05/27/16 16:56	1.0	7	
009	met09_sn_2016	CRI				05/27/16 17:09	1.0	7	
010	met09_sn_2016	ICB				05/27/16 17:14	1.0		
011	met09_sn_2016	ICSA				05/27/16 17:19	1.0	8	10:AL=530000
012	met09_sn_2016	ICSAB				05/27/16 17:25	1.0	9	5:AL=510000
013	met09_sn_2016	BLANK	QC837272	Soil	235517	05/27/16 17:34	1.0		
014	met09_sn_2016	BS	QC837273	Soil	235517	05/27/16 17:39	1.0		
015	met09_sn_2016	BSD	QC837274	Soil	235517	05/27/16 17:43	1.0		
016	met09_sn_2016	BLANK	QC837279	Soil	235518	05/27/16 17:47	1.0		
017	met09_sn_2016	SAMPLE	277126-001	Soil	235518	05/27/16 17:52	1.0		7:MG=1100000
018	met09_sn_2016	BS	QC837280	Soil	235518	05/27/16 18:00	1.0		
019	met09_sn_2016	BSD	QC837281	Soil	235518	05/27/16 18:04	1.0		
020	met09_sn_2016	CCV				05/27/16 18:08	1.0	10	
021	met09_sn_2016	CCB				05/27/16 18:15	1.0		
022	met09_sn_2016	SAMPLE	276284-002	Soil	234518	05/27/16 19:49	1.0		6:FE=420000
023	met09_sn_2016	SAMPLE	276284-003	Soil	234518	05/27/16 19:57	1.0		6:FE=350000
024	met09_sn_2016	MSS	276284-004	Soil	234518	05/27/16 20:05	1.0		3:FE=270000
025	met09_sn_2016	SAMPLE	276284-005	Soil	234518	05/27/16 20:12	1.0		6:FE=400000
026	met09_sn_2016	MSS	277038-001	Soil	235517	05/27/16 20:20	25.0		
027	met09_sn_2016	SAMPLE	277038-002	Soil	235517	05/27/16 20:24	25.0		
028	met09_sn_2016	SAMPLE	277038-003	Soil	235517	05/27/16 20:28	25.0		
029	met09_sn_2016	SAMPLE	277038-004	Soil	235517	05/27/16 20:32	25.0		
030	met09_sn_2016	SAMPLE	277038-005	Soil	235517	05/27/16 20:37	25.0		
031	met09_sn_2016	SAMPLE	277038-006	Soil	235517	05/27/16 20:41	25.0		
032	met09_sn_2016	CCV				05/27/16 20:45	1.0	10	
033	met09_sn_2016	CCB				05/27/16 20:52	1.0		
034	met09_sn_2016	SAMPLE	277038-007	Soil	235517	05/27/16 20:57	25.0		
035	met09_sn_2016	SAMPLE	277038-008	Soil	235517	05/27/16 21:01	25.0		
036	met09_sn_2016	SAMPLE	277038-009	Soil	235517	05/27/16 21:05	25.0		
037	met09_sn_2016	SAMPLE	277038-010	Soil	235517	05/27/16 21:09	25.0		
038	met09_sn_2016	SAMPLE	277038-011	Soil	235517	05/27/16 21:13	25.0		
039	met09_sn_2016	SAMPLE	277038-012	Soil	235517	05/27/16 21:18	25.0		
040	met09_sn_2016	MS	QC837275	Soil	235517	05/27/16 21:22	25.0		
041	met09_sn_2016	MSD	QC837276	Soil	235517	05/27/16 21:26	25.0		
042	met09_sn_2016	SER	QC837277	Soil	235517	05/27/16 21:30	125.0		
043	met09_sn_2016	PDS	QC837278	Soil	235517	05/27/16 21:34	25.0	11 12 13	
044	met09_sn_2016	CCV				05/27/16 21:38	1.0	10	
045	met09_sn_2016	CCB				05/27/16 21:45	1.0		
046	met09_sn_2016	MSS	277036-001	Soil	235518	05/27/16 21:50	25.0		
047	met09_sn_2016	SAMPLE	277036-002	Soil	235518	05/27/16 21:54	25.0		
048	met09_sn_2016	SAMPLE	277036-003	Soil	235518	05/27/16 21:59	25.0		
049	met09_sn_2016	SAMPLE	277036-004	Soil	235518	05/27/16 22:03	25.0		
050	met09_sn_2016	SAMPLE	277036-005	Soil	235518	05/27/16 22:07	25.0		
051	met09_sn_2016	SAMPLE	277036-006	Soil	235518	05/27/16 22:11	25.0		
052	met09_sn_2016	SAMPLE	277036-007	Soil	235518	05/27/16 22:15	25.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 96214098

Instrument : MET09 Begun : 05/27/16 16:18
Method : EPA 6010C SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met09_sn_2016	SAMPLE	277036-008	Soil	235518	05/27/16 22:19	25.0		
054	met09_sn_2016	SAMPLE	277036-009	Soil	235518	05/27/16 22:24	25.0		
055	met09_sn_2016	SAMPLE	277036-010	Soil	235518	05/27/16 22:28	25.0		
056	met09_sn_2016	CCV				05/27/16 22:32	1.0	10	
057	met09_sn_2016	CCB				05/27/16 22:39	1.0		
058	met09_sn_2016	MS	QC837282	Soil	235518	05/27/16 22:44	25.0		
059	met09_sn_2016	MSD	QC837283	Soil	235518	05/27/16 22:48	25.0		
060	met09_sn_2016	SER	QC837284	Soil	235518	05/27/16 22:52	125.0		
061	met09_sn_2016	PDS	QC837285	Soil	235518	05/27/16 22:56	25.0	11 12 13	
062	met09_sn_2016	PDS	QC832321	Water	234276	05/27/16 23:00	1.0	11 12 13	1:NA=130000
063	met09_sn_2016	CCV				05/27/16 23:05	1.0	10	
064	met09_sn_2016	CCB				05/27/16 23:11	1.0		

KER 05/27/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 21.

Standards used: 1=S29300 2=S29393 3=S29394 4=S29395 5=S29761 6=S29396 7=S29301 8=S29660 9=S29661 10=S29397 11=S28385 12=S28386 13=S29742

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 96214098

Date : 05/27/16 Reference : met09_sn_2016
Sequence : MET09 05/27/16 Analyzed : 05/27/16 16:23

#	Type	Sample ID	Y A
		ICAL STD	3475192
		LOWER LIMIT	1042558
		UPPER LIMIT	4170231
010	ICB		3465646
011	ICSA		3076739
012	ICSAB		3040105
013	BLANK	QC837272	3578058
014	BS	QC837273	3503945
015	BSD	QC837274	3429660
020	CCV		3461622
021	CCB		3487202
026	MSS	277038-001	3489479
027	SAMPLE	277038-002	3501516
028	SAMPLE	277038-003	3512124
029	SAMPLE	277038-004	3499526
030	SAMPLE	277038-005	3498976
031	SAMPLE	277038-006	3503373
032	CCV		3370979
033	CCB		3458752
034	SAMPLE	277038-007	3507311
035	SAMPLE	277038-008	3451718
036	SAMPLE	277038-009	3464535
037	SAMPLE	277038-010	3502062
038	SAMPLE	277038-011	3459343
039	SAMPLE	277038-012	3465090
040	MS	QC837275	3473454
041	MSD	QC837276	3479484
042	SER	QC837277	3529910
043	PDS	QC837278	3391247
044	CCV		3374636
045	CCB		3423850
046	MSS	277036-001	3464470
047	SAMPLE	277036-002	3431932
048	SAMPLE	277036-003	3477230
049	SAMPLE	277036-004	3402937
050	SAMPLE	277036-005	3409605
051	SAMPLE	277036-006	3474660
052	SAMPLE	277036-007	3461389
053	SAMPLE	277036-008	3479102
054	SAMPLE	277036-009	3414329
055	SAMPLE	277036-010	3440509

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 277038 METALS Soil: EPA 6010C

Inst : MET09
Calnum : 96214098001
Units : ug/L

Date : 27-MAY-2016 16:18
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met09_sn_2016	96214098002	L1	27-MAY-2016 16:23	S29300
L2	met09_sn_2016	96214098003	L2	27-MAY-2016 16:28	S29393
L3	met09_sn_2016	96214098004	L3	27-MAY-2016 16:32	S29394
L4	met09_sn_2016	96214098005	L4	27-MAY-2016 16:36	S29395
L5	met09_sn_2016	96214098006	L5	27-MAY-2016 16:43	S29761

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Antimony	A	2.7100	2.6740	2.5889	2.6010		LOR0	0.00000	0.38449		2.6435	1.000	0.995	
Arsenic	A	1.8200	1.3460	1.3054	1.3107		LOR0	0.00000	0.76298		1.4455	1.000	0.995	
Barium	A	58.960	58.113	57.246	55.710		LOR0	0.00000	0.01795		57.507	1.000	0.995	
Beryllium	A	4981.1	4815.5	4737.6			LOR0	0.00000	2.11E-4		4844.7	1.000	0.995	
Cadmium	A	79.660	80.028	79.261	75.927		LOR0	0.00000	0.01316		78.719	1.000	0.995	
Chromium	A	98.220	138.88	139.45	138.41		LOR0	0.00000	0.00722		128.74	1.000	0.995	
Cobalt	A	26.180	24.970	24.500	24.781		LOR0	0.00000	0.04036		25.108	1.000	0.995	
Copper	A	276.78	355.96	352.09	360.73		LOR0	0.00000	0.00277		336.39	1.000	0.995	
Lead	A	8.4800	9.8850	10.025	9.6971		LOR0	0.00000	0.10309		9.5218	1.000	0.995	
Manganese	A	458.52	667.53	662.34	639.98		LOR0	0.00000	0.00156		607.09	1.000	0.995	
Molybdenum	A	17.440	19.261	18.737	18.607		LOR0	0.00000	0.05374		18.511	1.000	0.995	
Nickel	A	41.480	62.112	62.788	62.273		LOR0	0.00000	0.01606		57.163	1.000	0.995	
Selenium	A	2.0600	1.9800	1.9446	1.9519		LOR0	0.00000	0.51234		1.9841	1.000	0.995	
Silver	A	74.080	73.245	69.491	70.444		LOR0	0.00000	0.01420		71.815	1.000	0.995	
Thallium	A	1.5600	1.7460	1.6399	1.6393		LOR0	0.00000	0.61000		1.6463	1.000	0.995	
Vanadium	A	136.42	184.61	184.23	184.77		LOR0	0.00000	0.00541		172.51	1.000	0.995	
Zinc	A	19.045	29.729	31.168	30.774		LOR0	0.00000	0.03249		27.679	1.000	0.995	
Iron	R	9.4120		9.8974	10.719	10.208	LOR0	0.00000	0.09791		10.059	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Antimony	A	10.000	4	100.00	3	1000.0	0	10000	0		
Arsenic	A	5.0000	**39**	100.00	3	1000.0	0	10000	0		
Barium	A	5.0000	6	100.00	4	1000.0	3	10000	0		
Beryllium	A	2.0000	5	100.00	2	1000.0	0				
Cadmium	A	5.0000	5	100.00	5	1000.0	4	10000	0		
Chromium	A	5.0000	**-29**	100.00	0	1000.0	1	10000	0		
Cobalt	A	5.0000	6	100.00	1	1000.0	-1	10000	0		
Copper	A	5.0000	**-23**	100.00	-1	1000.0	-2	10000	0		
Lead	A	5.0000	-13	100.00	2	1000.0	3	10000	0		
Manganese	A	5.0000	**-28**	100.00	4	1000.0	3	10000	0		
Molybdenum	A	5.0000	-6	100.00	4	1000.0	1	10000	0		
Nickel	A	5.0000	**-33**	100.00	0	1000.0	1	10000	0		
Selenium	A	10.000	6	100.00	1	1000.0	0	10000	0		
Silver	A	5.0000	5	20.000	4	200.00	-1	2000.0	0		
Thallium	A	10.000	-5	100.00	7	1000.0	0	10000	0		
Vanadium	A	5.0000	**-26**	100.00	0	1000.0	0	10000	0		
Zinc	A	20.000	**-38**	100.00	-3	1000.0	1	10000	0		
Iron	R	100.00	-8			1000.0	-3	10000	5	100000	0

Instrument amount = a0 + response * a1 + response^2 * a2; LOR0=Linear regression forced thru origin, including 0,0 point

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 277038 METALS Soil
EPA 6010C

Inst : MET09
Calnum : 96214098001 Cal Date : 27-MAY-2016

ICV 96214098007 (27-MAY-2016) stds: S29396

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	5000	4971	ug/L	-1	10	
Arsenic	A	5000	5110	ug/L	2	10	
Barium	A	5000	5048	ug/L	1	10	
Beryllium	A	500.0	503.2	ug/L	1	10	
Cadmium	A	5000	5044	ug/L	1	10	
Chromium	A	5000	5024	ug/L	0	10	
Cobalt	A	5000	4907	ug/L	-2	10	
Copper	A	5000	4993	ug/L	0	10	
Lead	A	5000	4979	ug/L	0	10	
Manganese	A	5000	5076	ug/L	2	10	
Molybdenum	A	5000	4858	ug/L	-3	10	
Nickel	A	5000	5000	ug/L	0	10	
Selenium	A	5000	5105	ug/L	2	10	
Silver	A	1000	1014	ug/L	1	10	
Thallium	A	5000	5005	ug/L	0	10	
Vanadium	A	5000	5029	ug/L	1	10	
Zinc	A	5000	4998	ug/L	0	10	
Iron	R	20000	20940	ug/L	5	10	

CURTIS & TOMPKINS LOW-LEVEL PERFORMANCE VERIFICATION STANDARD FOR 277038 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 96214098009.2 File : met09_sn_2016 Time : 27-MAY-2016 17:09
Cal : 96214098001 Caldate : 27-MAY-2016
Standards: S29301

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	10.00	13.43	ug/L	**34**	30	cri+ ***
Arsenic	A	5.000	6.514	ug/L	**30**	30	!cri+
Barium	A	5.000	6.900	ug/L	**38**	30	cri+ ***
Beryllium	A	2.000	2.551	ug/L	**28**	30	!cri+
Cadmium	A	5.000	6.957	ug/L	**39**	30	cri+ ***
Chromium	A	5.000	5.220	ug/L	4	30	
Cobalt	A	5.000	6.709	ug/L	**34**	30	cri+ ***
Copper	A	5.000	4.839	ug/L	-3	30	
Lead	A	5.000	6.277	ug/L	**26**	30	!cri+
Manganese	A	5.000	5.494	ug/L	10	30	
Molybdenum	A	5.000	6.809	ug/L	**36**	30	cri+ ***
Nickel	A	5.000	5.119	ug/L	2	30	
Selenium	A	10.00	10.74	ug/L	7	30	
Silver	A	5.000	5.375	ug/L	7	30	
Thallium	A	10.00	12.97	ug/L	**30**	30	!cri+
Vanadium	A	5.000	4.985	ug/L	0	30	
Zinc	A	20.00	15.24	ug/L	**-24**	30	!cri-
Iron	R	100.0	109.9	ug/L	10	30	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3475192	3494507	0.56

!=warning +=high bias -=low bias

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 277038 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 96214098010.3 File : met09_sn_2016 Time : 27-MAY-2016 17:14
Cal : 96214098001 Caldate : 27-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	0.5000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	1.250	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	1.250	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Iron	R	ND	100.0	80.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3475192	3465646	-0.27

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 277038 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 96214098011.3 File : met09_sn_2016 Time : 27-MAY-2016 17:19
Cal : 96214098001 Caldate : 27-MAY-2016
Standards: S29660

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	[-6.053]	10.00	ug/L	!a-
Arsenic	A	[-4.663]	5.000	ug/L	!a-
Barium	A	[0.1318]	5.000	ug/L	
Beryllium	A	[-0.002308]	2.000	ug/L	
Cadmium	A	[1.088]	5.000	ug/L	
Cobalt	A	[-0.1826]	5.000	ug/L	
Lead	A	[2.179]	5.000	ug/L	
Molybdenum	A	[-0.7685]	5.000	ug/L	
Selenium	A	[7.900]	10.00	ug/L	!a+
Silver	A	[-1.850]	5.000	ug/L	
Thallium	A	[4.486]	10.00	ug/L	
Zinc	A	[11.65]	20.00	ug/L	!a+

Interferent	Ch	Spiked	Quant	Units	%Rec	Flags
Chromium	A	20000	19290	ug/L	96	
Copper	A	20000	21840	ug/L	109	
Manganese	A	20000	18780	ug/L	94	
Nickel	A	20000	18560	ug/L	93	
Vanadium	A	20000	20140	ug/L	101	
Aluminum	R	500000	527000	ug/L	105	
Calcium	R	500000	504700	ug/L	101	
Iron	R	200000	196800	ug/L	98	
Magnesium	R	500000	515600	ug/L	103	
Titanium	R	20000	21490	ug/L	107	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3475192	3076739	-11.47

!=warning +=high bias -=low bias a=ICSA

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 277038 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 96214098012.3 File : met09_sn_2016 Time : 27-MAY-2016 17:25
Cal : 96214098001 Caldate : 27-MAY-2016
Standards: S29661

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	542.1	ug/L	8	20	
Arsenic	A	500.0	526.4	ug/L	5	20	
Barium	A	500.0	516.1	ug/L	3	20	
Beryllium	A	500.0	513.7	ug/L	3	20	
Cadmium	A	1000	1000	ug/L	0	20	
Chromium	A	500.0	496.4	ug/L	-1	20	
Cobalt	A	500.0	468.8	ug/L	-6	20	
Copper	A	500.0	549.7	ug/L	10	20	
Lead	A	1000	978.4	ug/L	-2	20	
Manganese	A	500.0	510.9	ug/L	2	20	
Molybdenum	A	500.0	502.1	ug/L	0	20	
Nickel	A	1000	956.7	ug/L	-4	20	
Selenium	A	500.0	549.6	ug/L	10	20	
Silver	A	1000	1149	ug/L	15	20	
Thallium	A	500.0	513.8	ug/L	3	20	
Vanadium	A	500.0	523.6	ug/L	5	20	
Zinc	A	1000	966.3	ug/L	-3	20	
Iron	R	200000	187600	ug/L	-6		

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3475192	3040105	-12.52

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 96214098020.2 File : met09_sn_2016 Time : 27-MAY-2016 18:08
Cal : 96214098001 Caldate : 27-MAY-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	2.6435	2.5661	5000	4933	ug/L	-1	10	
Arsenic	A	1.4455	1.3544	5000	5167	ug/L	3	10	
Barium	A	57.507	57.809	5000	5187	ug/L	4	10	
Beryllium	A	4844.7	4952.9	500.0	522.6	ug/L	5	10	
Cadmium	A	78.719	79.776	5000	5251	ug/L	5	10	
Chromium	A	128.74	141.91	5000	5126	ug/L	3	10	
Cobalt	A	25.108	24.312	5000	4906	ug/L	-2	10	
Copper	A	336.39	367.82	5000	5100	ug/L	2	10	
Lead	A	9.5218	9.9348	5000	5121	ug/L	2	10	
Manganese	A	607.09	670.08	5000	5233	ug/L	5	10	
Molybdenum	A	18.511	18.271	5000	4909	ug/L	-2	10	
Nickel	A	57.163	64.019	5000	5140	ug/L	3	10	
Selenium	A	1.9841	2.0214	5000	5178	ug/L	4	10	
Silver	A	71.815	70.711	1000	1004	ug/L	0	10	
Thallium	A	1.6463	1.7015	5000	5190	ug/L	4	10	
Vanadium	A	172.51	188.93	5000	5113	ug/L	2	10	
Zinc	A	27.679	32.071	5000	5210	ug/L	4	10	
Iron	R	10.059	10.974	20000	21490	ug/L	7	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3475192	3461622	-0.39

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 277038 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 96214098021.2 File : met09_sn_2016 Time : 27-MAY-2016 18:15
Cal : 96214098001 Caldate : 27-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	0.5000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	1.250	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	1.250	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Iron	R	ND	100.0	80.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3475192	3487202	0.35

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 96214098032.2 File : met09_sn_2016 Time : 27-MAY-2016 20:45
Cal : 96214098001 Caldate : 27-MAY-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	2.6435	2.5634	5000	4928	ug/L	-1	10	
Arsenic	A	1.4455	1.3710	5000	5230	ug/L	5	10	
Barium	A	57.507	58.747	5000	5271	ug/L	5	10	
Beryllium	A	4844.7	4983.9	500.0	525.9	ug/L	5	10	
Cadmium	A	78.719	80.854	5000	5322	ug/L	6	10	
Chromium	A	128.74	143.49	5000	5183	ug/L	4	10	
Cobalt	A	25.108	23.978	5000	4839	ug/L	-3	10	
Copper	A	336.39	370.33	5000	5134	ug/L	3	10	
Lead	A	9.5218	10.123	5000	5218	ug/L	4	10	
Manganese	A	607.09	675.68	5000	5277	ug/L	6	10	
Molybdenum	A	18.511	18.551	5000	4985	ug/L	0	10	
Nickel	A	57.163	64.979	5000	5217	ug/L	4	10	
Selenium	A	1.9841	2.0228	5000	5182	ug/L	4	10	
Silver	A	71.815	71.251	1000	1012	ug/L	1	10	
Thallium	A	1.6463	1.6839	5000	5136	ug/L	3	10	
Vanadium	A	172.51	191.21	5000	5174	ug/L	3	10	
Zinc	A	27.679	32.597	5000	5296	ug/L	6	10	
Iron	R	10.059	10.888	20000	21320	ug/L	7	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3475192	3370979	-3.00

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 277038 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 96214098033.2 File : met09_sn_2016 Time : 27-MAY-2016 20:52
Cal : 96214098001 Caldate : 27-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	0.5000	ug/L	
Cadmium	A	[1.975]	5.000	1.250	ug/L	!CCB
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	1.250	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	1.250	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Iron	R	ND	100.0	80.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3475192	3458752	-0.47

!=warning CCB=instrument blank

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 96214098044.1 File : met09_sn_2016 Time : 27-MAY-2016 21:38
Cal : 96214098001 Caldate : 27-MAY-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	2.6435	2.5817	5000	4963	ug/L	-1	10	
Arsenic	A	1.4455	1.3718	5000	5233	ug/L	5	10	
Barium	A	57.507	58.373	5000	5237	ug/L	5	10	
Beryllium	A	4844.7	4959.8	500.0	523.4	ug/L	5	10	
Cadmium	A	78.719	80.243	5000	5282	ug/L	6	10	
Chromium	A	128.74	143.26	5000	5175	ug/L	3	10	
Cobalt	A	25.108	24.324	5000	4908	ug/L	-2	10	
Copper	A	336.39	370.10	5000	5131	ug/L	3	10	
Lead	A	9.5218	10.162	5000	5238	ug/L	5	10	
Manganese	A	607.09	673.56	5000	5261	ug/L	5	10	
Molybdenum	A	18.511	18.431	5000	4952	ug/L	-1	10	
Nickel	A	57.163	64.730	5000	5197	ug/L	4	10	
Selenium	A	1.9841	2.0482	5000	5247	ug/L	5	10	
Silver	A	71.815	71.304	1000	1012	ug/L	1	10	
Thallium	A	1.6463	1.6922	5000	5161	ug/L	3	10	
Vanadium	A	172.51	191.11	5000	5172	ug/L	3	10	
Zinc	A	27.679	32.333	5000	5253	ug/L	5	10	
Iron	R	10.059	10.888	20000	21320	ug/L	7	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3475192	3374636	-2.89

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 277038 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 96214098045.1 File : met09_sn_2016 Time : 27-MAY-2016 21:45
Cal : 96214098001 Caldate : 27-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	[4.259]	5.000	4.000	ug/L	!CCB
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	0.5000	ug/L	
Cadmium	A	[2.039]	5.000	1.250	ug/L	!CCB
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	1.250	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	1.250	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Iron	R	ND	100.0	80.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3475192	3423850	-1.48

!=warning CCB=instrument blank

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 96219487

Instrument : MET09
Method : EPA 6010C

Begun : 05/31/16 10:07
SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met09_sn_2016	ICALBLK				05/31/16 10:07	1.0		
002	met09_sn_2016	ICAL	L1			05/31/16 10:12	1.0	1	
003	met09_sn_2016	ICAL	L2			05/31/16 10:17	1.0	2	
004	met09_sn_2016	ICAL	L3			05/31/16 10:22	1.0	3	
005	met09_sn_2016	ICAL	L4			05/31/16 10:26	1.0	4	
006	met09_sn_2016	ICAL	L5			05/31/16 10:33	1.0	5	
007	met09_sn_2016	ICV				05/31/16 10:39	1.0	6	
008	met09_sn_2016	XCRI				05/31/16 10:52	1.0	7	
009	met09_sn_2016	CRI				05/31/16 11:18	1.0	8	
010	met09_sn_2016	ICB				05/31/16 11:22	1.0		
011	met09_sn_2016	ICSA				05/31/16 11:27	1.0	9	10:AL=520000
012	met09_sn_2016	XICSAB				05/31/16 11:43	1.0	10	5:AL=500000
013	met09_sn_2016	ICSAB				05/31/16 11:52	1.0	10	5:AL=500000
014	met09_sn_2016	BLANK	QC837272	Soil	235517	05/31/16 12:18	1.0		
015	met09_sn_2016	MSS	277038-001	Soil	235517	05/31/16 12:23	1.0		5:FE=360000
016	met09_sn_2016	MS	QC837275	Soil	235517	05/31/16 12:31	1.0		5:FE=430000
017	met09_sn_2016	MSD	QC837276	Soil	235517	05/31/16 12:38	1.0		5:FE=370000
018	met09_sn_2016	SER	QC837277	Soil	235517	05/31/16 12:46	5.0		
019	met09_sn_2016	PDS	QC837278	Soil	235517	05/31/16 12:54	1.0	11 12 13	5:FE=350000
020	met09_sn_2016	SAMPLE	277038-002	Soil	235517	05/31/16 13:02	1.0		5:FE=410000
021	met09_sn_2016	SAMPLE	277038-003	Soil	235517	05/31/16 13:09	1.0		5:FE=440000
022	met09_sn_2016	SAMPLE	277038-004	Soil	235517	05/31/16 13:17	1.0		5:FE=350000
023	met09_sn_2016	SAMPLE	277038-005	Soil	235517	05/31/16 13:25	1.0		5:FE=450000
024	met09_sn_2016	CCV				05/31/16 13:33	1.0	14	
025	met09_sn_2016	XCCB				05/31/16 13:40	1.0		
026	met09_sn_2016	CCB				05/31/16 13:44	1.0		
027	met09_sn_2016	SAMPLE	277038-006	Soil	235517	05/31/16 13:49	1.0		5:FE=380000
028	met09_sn_2016	SAMPLE	277038-007	Soil	235517	05/31/16 13:57	1.0		5:FE=390000
029	met09_sn_2016	SAMPLE	277038-008	Soil	235517	05/31/16 14:04	1.0		4:FE=330000
030	met09_sn_2016	SAMPLE	277038-009	Soil	235517	05/31/16 14:12	1.0		5:FE=430000
031	met09_sn_2016	SAMPLE	277038-010	Soil	235517	05/31/16 14:20	1.0		5:FE=480000
032	met09_sn_2016	SAMPLE	277038-011	Soil	235517	05/31/16 14:28	1.0		5:FE=350000
033	met09_sn_2016	SAMPLE	277038-012	Soil	235517	05/31/16 14:35	1.0		5:FE=460000
034	met09_sn_2016	X	RINSE			05/31/16 14:43	1.0		
035	met09_sn_2016	X	RINSE			05/31/16 14:48	1.0		
036	met09_sn_2016	BLANK	QC837279	Soil	235518	05/31/16 14:53	1.0		
037	met09_sn_2016	CCV				05/31/16 14:58	1.0	14	
038	met09_sn_2016	XCCB				05/31/16 15:05	1.0		
039	met09_sn_2016	CCB				05/31/16 15:09	1.0		
040	met09_sn_2016	MSS	277036-001	Soil	235518	05/31/16 15:14	1.0		5:FE=390000
041	met09_sn_2016	MS	QC837282	Soil	235518	05/31/16 15:22	1.0		5:FE=380000
042	met09_sn_2016	MSD	QC837283	Soil	235518	05/31/16 15:30	1.0		5:FE=450000
043	met09_sn_2016	SER	QC837284	Soil	235518	05/31/16 15:37	5.0		
044	met09_sn_2016	PDS	QC837285	Soil	235518	05/31/16 15:45	1.0	12 11 13	5:FE=380000
045	met09_sn_2016	SAMPLE	277036-002	Soil	235518	05/31/16 15:53	1.0		5:FE=370000
046	met09_sn_2016	SAMPLE	277036-003	Soil	235518	05/31/16 16:01	1.0		5:FE=380000
047	met09_sn_2016	SAMPLE	277036-004	Soil	235518	05/31/16 16:08	1.0		5:FE=410000
048	met09_sn_2016	SAMPLE	277036-005	Soil	235518	05/31/16 16:16	1.0		5:FE=450000
049	met09_sn_2016	SAMPLE	277036-006	Soil	235518	05/31/16 16:24	1.0		5:FE=400000
050	met09_sn_2016	CCV				05/31/16 16:32	1.0	14	
051	met09_sn_2016	XCCB				05/31/16 16:39	1.0		
052	met09_sn_2016	CCB				05/31/16 16:43	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 96219487

Instrument : MET09 Begun : 05/31/16 10:07
Method : EPA 6010C SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met09_sn_2016	SAMPLE	277036-007	Soil	235518	05/31/16 16:48	1.0		5:FE=370000
054	met09_sn_2016	SAMPLE	277036-008	Soil	235518	05/31/16 16:55	1.0		5:FE=390000
055	met09_sn_2016	SAMPLE	277036-009	Soil	235518	05/31/16 17:03	1.0		5:FE=420000
056	met09_sn_2016	SAMPLE	277036-010	Soil	235518	05/31/16 17:11	1.0		5:FE=400000
057	met09_sn_2016	BLANK	QC837375	Water	235543	05/31/16 17:19	1.0		
058	met09_sn_2016	BS	QC837376	Water	235543	05/31/16 17:24	1.0		
059	met09_sn_2016	BSD	QC837377	Water	235543	05/31/16 17:28	1.0		
060	met09_sn_2016	MSS	277148-002	Water	235543	05/31/16 17:32	1.0		3:MG=660000
061	met09_sn_2016	MS	QC837378	Water	235543	05/31/16 17:40	1.0		
062	met09_sn_2016	MSD	QC837379	Water	235543	05/31/16 17:48	1.0		
063	met09_sn_2016	CCV				05/31/16 17:55	1.0	14	
064	met09_sn_2016	XCCB				05/31/16 18:02	1.0		
065	met09_sn_2016	CCB				05/31/16 18:06	1.0		
066	met09_sn_2016	SER	QC837380	Water	235543	05/31/16 18:11	5.0		
067	met09_sn_2016	PDS	QC837381	Water	235543	05/31/16 18:16	1.0	12 11 13	3:MG=620000
068	met09_sn_2016	SAMPLE	277200-001	Water	235543	05/31/16 18:24	1.0		3:NA=280000
069	met09_sn_2016	BLANK	QC834961	Water	234959	05/31/16 18:29	1.0		
070	met09_sn_2016	BS	QC834962	Water	234959	05/31/16 18:34	1.0		
071	met09_sn_2016	BSD	QC834963	Water	234959	05/31/16 18:38	1.0		
072	met09_sn_2016	SAMPLE	276495-001	Water	234959	05/31/16 18:42	1.0		
073	met09_sn_2016	SAMPLE	276495-002	Water	234959	05/31/16 18:47	1.0		
074	met09_sn_2016	SAMPLE	276495-003	Water	234959	05/31/16 18:51	1.0		
075	met09_sn_2016	SAMPLE	276495-004	Water	234959	05/31/16 18:55	50.0		
076	met09_sn_2016	CCV				05/31/16 18:59	1.0	14	
077	met09_sn_2016	XCCB				05/31/16 19:06	1.0		
078	met09_sn_2016	CCB				05/31/16 19:10	1.0		
079	met09_sn_2016	SAMPLE	276495-004	Water	234959	05/31/16 19:15	1.0		2:NA=200000
080	met09_sn_2016	X	RINSE			05/31/16 19:23	1.0		
081	met09_sn_2016	SAMPLE	276495-005	Water	234959	05/31/16 19:28	1.0		
082	met09_sn_2016	SAMPLE	276495-006	Water	234959	05/31/16 19:33	1.0		
083	met09_sn_2016	MSS	276495-007	Water	234959	05/31/16 19:40	1.0		
084	met09_sn_2016	SAMPLE	276495-008	Water	234959	05/31/16 19:44	1.0		
085	met09_sn_2016	SAMPLE	276495-009	Water	234959	05/31/16 19:49	1.0		
086	met09_sn_2016	SAMPLE	276495-010	Water	234959	05/31/16 19:53	1.0		
087	met09_sn_2016	SAMPLE	276495-011	Water	234959	05/31/16 19:57	1.0		
088	met09_sn_2016	SAMPLE	276495-012	Water	234959	05/31/16 20:01	1.0		
089	met09_sn_2016	CCV				05/31/16 20:05	1.0	14	
090	met09_sn_2016	XCCB				05/31/16 20:12	1.0		
091	met09_sn_2016	CCB				05/31/16 20:16	1.0		
092	met09_sn_2016	BLANK	QC835145	Water	235005	05/31/16 20:21	1.0		
093	met09_sn_2016	BS	QC835146	Water	235005	05/31/16 20:27	1.0		
094	met09_sn_2016	BSD	QC835147	Water	235005	05/31/16 20:31	1.0		
095	met09_sn_2016	MSS	276495-013	Water	235005	05/31/16 20:35	1.0		1:NA=140000
096	met09_sn_2016	SAMPLE	276495-014	Water	235005	05/31/16 20:39	1.0		3:CA=250000
097	met09_sn_2016	SAMPLE	276495-015	Water	235005	05/31/16 20:47	1.0		
098	met09_sn_2016	SAMPLE	276495-016	Water	235005	05/31/16 20:51	1.0		
099	met09_sn_2016	SAMPLE	276495-017	Water	235005	05/31/16 20:56	1.0		
100	met09_sn_2016	MS	QC835148	Water	235005	05/31/16 21:00	1.0		
101	met09_sn_2016	MSD	QC835149	Water	235005	05/31/16 21:04	1.0		
102	met09_sn_2016	CCV				05/31/16 21:08	1.0	14	
103	met09_sn_2016	XCCB				05/31/16 21:15	1.0		
104	met09_sn_2016	CCB				05/31/16 21:19	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 96219487

Instrument : MET09 Begun : 05/31/16 10:07
Method : EPA 6010C SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
105	met09_sn_2016	SER	QC835150	Water	235005	05/31/16 21:24	5.0		
106	met09_sn_2016	PDS	QC835151	Water	235005	05/31/16 21:29	1.0	12 11 13	1:NA=150000
107	met09_sn_2016	SAMPLE	276672-011	Water	235054	05/31/16 21:33	1.0		
108	met09_sn_2016	SAMPLE	276672-016	Water	235054	05/31/16 21:38	1.0		
109	met09_sn_2016	SAMPLE	276673-011	Water	235054	05/31/16 21:43	1.0		
110	met09_sn_2016	SAMPLE	276561-001	Filtrate	235166	05/31/16 21:49	5.0		
111	met09_sn_2016	SAMPLE	276561-002	Filtrate	235166	05/31/16 21:58	5.0		
112	met09_sn_2016	SAMPLE	276561-003	Filtrate	235166	05/31/16 22:06	5.0		
113	met09_sn_2016	SAMPLE	276561-004	Filtrate	235166	05/31/16 22:15	5.0		
114	met09_sn_2016	SAMPLE	276807-001	Filtrate	235166	05/31/16 22:24	5.0		
115	met09_sn_2016	CCV				05/31/16 22:32	1.0	14	
116	met09_sn_2016	XCCB				05/31/16 22:36	1.0		
117	met09_sn_2016	CCB				05/31/16 22:40	1.0		
118	met09_sn_2016	SAMPLE	276789-001	Filtrate	235166	05/31/16 22:45	1.0		
119	met09_sn_2016	SAMPLE	276807-002	Filtrate	235166	05/31/16 22:50	1.0		2:MG=510000
120	met09_sn_2016	SAMPLE	276807-003	Filtrate	235166	05/31/16 22:58	1.0		1:MG=180000
121	met09_sn_2016	PDS	QC837320	Filtrate	235528	05/31/16 23:07	1.0	12 11 13	
122	met09_sn_2016	SAMPLE	276826-032	Soil	235384	05/31/16 23:11	10.0		
123	met09_sn_2016	SAMPLE	276576-015	Filtrate	235288	05/31/16 23:19	5.0		
124	met09_sn_2016	SAMPLE	277038-002	Soil	235517	05/31/16 23:24	1.0		5:FE=390000
125	met09_sn_2016	SAMPLE	277038-007	Soil	235517	05/31/16 23:31	1.0		5:FE=360000
126	met09_sn_2016	SAMPLE	277038-008	Soil	235517	05/31/16 23:39	1.0		3:FE=310000
127	met09_sn_2016	SAMPLE	277038-011	Soil	235517	05/31/16 23:47	1.0		5:FE=330000
128	met09_sn_2016	CCV				05/31/16 23:55	1.0	14	
129	met09_sn_2016	XCCB				05/31/16 23:58	1.0		
130	met09_sn_2016	CCB				06/01/16 00:02	1.0		
131	met09_sn_2016	BS	QC834859	Filtrate	234935	06/01/16 00:07	1.0		
132	met09_sn_2016	BSD	QC834860	Filtrate	234935	06/01/16 00:11	1.0		
133	met09_sn_2016	SAMPLE	276506-023	Filtrate	234935	06/01/16 00:16	1.0		
134	met09_sn_2016	SAMPLE	276577-005	Filtrate	234935	06/01/16 00:21	1.0		
135	met09_sn_2016	SAMPLE	276577-007	Filtrate	234935	06/01/16 00:26	1.0		
136	met09_sn_2016	SAMPLE	276357-001	Filtrate	234935	06/01/16 00:31	50.0		
137	met09_sn_2016	SAMPLE	276358-001	Filtrate	234935	06/01/16 00:35	50.0		
138	met09_sn_2016	SAMPLE	276358-002	Filtrate	234935	06/01/16 00:39	50.0		
139	met09_sn_2016	SAMPLE	276389-002	Filtrate	234935	06/01/16 00:45	50.0		
140	met09_sn_2016	SAMPLE	276389-003	Filtrate	234935	06/01/16 00:49	50.0		
141	met09_sn_2016	CCV				06/01/16 00:53	1.0	14	
142	met09_sn_2016	XCCB				06/01/16 00:56	1.0		
143	met09_sn_2016	CCB				06/01/16 01:00	1.0		
144	met09_sn_2016	SAMPLE	276389-004	Filtrate	234935	06/01/16 01:06	50.0		
145	met09_sn_2016	SAMPLE	276389-005	Filtrate	234935	06/01/16 01:10	50.0		1:NA=190000
146	met09_sn_2016	SAMPLE	276390-001	Filtrate	234935	06/01/16 01:15	50.0		
147	met09_sn_2016	SAMPLE	276390-002	Filtrate	234935	06/01/16 01:20	50.0		1:NA=140000
148	met09_sn_2016	MSS	276390-003	Filtrate	234935	06/01/16 01:25	50.0		
149	met09_sn_2016	X	RINSE			06/01/16 01:31	1.0		
150	met09_sn_2016	MS	QC834861	Filtrate	234935	06/01/16 01:36	10.0		
151	met09_sn_2016	MSD	QC834862	Filtrate	234935	06/01/16 01:43	10.0		
152	met09_sn_2016	X	RINSE			06/01/16 01:51	1.0		
153	met09_sn_2016	SAMPLE	276357-001	Filtrate	234935	06/01/16 01:56	1.0		2:MG=600000
154	met09_sn_2016	CCV				06/01/16 02:04	1.0	14	
155	met09_sn_2016	XCCB				06/01/16 02:08	1.0		
156	met09_sn_2016	CCB				06/01/16 02:12	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 96219487

Instrument : MET09 Begun : 05/31/16 10:07
Method : EPA 6010C SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
157	met09_sn_2016	SAMPLE	276358-001	Filtrate	234935	06/01/16 02:17	1.0		2:MG=510000
158	met09_sn_2016	SAMPLE	276358-002	Filtrate	234935	06/01/16 02:25	1.0		2:CA=920000
159	met09_sn_2016	SAMPLE	276389-002	Filtrate	234935	06/01/16 02:33	1.0		2:CA=480000
160	met09_sn_2016	SAMPLE	276389-003	Filtrate	234935	06/01/16 02:41	1.0		3:MG=720000
161	met09_sn_2016	SAMPLE	276389-004	Filtrate	234935	06/01/16 02:48	1.0		3:MG=730000
162	met09_sn_2016	SAMPLE	276389-005	Filtrate	234935	06/01/16 02:56	1.0		3:MG=1200000
163	met09_sn_2016	SAMPLE	276390-001	Filtrate	234935	06/01/16 03:05	1.0		2:MG=830000
164	met09_sn_2016	SAMPLE	276390-002	Filtrate	234935	06/01/16 03:13	1.0		3:MG=1100000
165	met09_sn_2016	MSS	276390-003	Filtrate	234935	06/01/16 03:21	1.0		4:MG=520000
166	met09_sn_2016	SAMPLE	277036-004	Soil	235518	06/01/16 03:29	1.0		5:FE=390000
167	met09_sn_2016	CCV				06/01/16 03:37	1.0	14	
168	met09_sn_2016	XCCB				06/01/16 03:41	1.0		
169	met09_sn_2016	CCB				06/01/16 03:45	1.0		
170	met09_sn_2016	SAMPLE	277036-007	Soil	235518	06/01/16 03:50	1.0		4:FE=360000
171	met09_sn_2016	SAMPLE	277036-010	Soil	235518	06/01/16 03:58	1.0		5:FE=370000
172	met09_sn_2016	CCV				06/01/16 04:06	1.0	14	
173	met09_sn_2016	XCCB				06/01/16 04:10	1.0		
174	met09_sn_2016	CCB				06/01/16 04:14	1.0		

BKR 06/01/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 174.

Standards used: 1=S30015 2=S30017 3=S29394 4=S29395 5=S29761 6=S29396 7=S29301 8=S30016 9=S29660 10=S29661 11=S28386 12=S28385 13=S29742 14=S29397

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 96219487

Date : 05/31/16 Reference : met09_sn_2016
Sequence : MET09 05/31/16 Analyzed : 05/31/16 10:12

#	Type	Sample ID	Y A
		ICAL STD	3866933
		LOWER LIMIT	1160080
		UPPER LIMIT	4640320
010	ICB		3904810
011	ICSA		3323805
013	ICSAB		3395464
014	BLANK	QC837272	4074796
015	MSS	277038-001	3899532
016	MS	QC837275	3840366
017	MSD	QC837276	3852540
018	SER	QC837277	3936702
019	PDS	QC837278	3823299
020	SAMPLE	277038-002	3910960
021	SAMPLE	277038-003	3960768
022	SAMPLE	277038-004	3943873
023	SAMPLE	277038-005	3893457
024	CCV		3930432
026	CCB		4052386
027	SAMPLE	277038-006	3943993
028	SAMPLE	277038-007	3938469
029	SAMPLE	277038-008	3883384
030	SAMPLE	277038-009	3917145
031	SAMPLE	277038-010	3872721
032	SAMPLE	277038-011	3817070
033	SAMPLE	277038-012	3790899
037	CCV		3922609
039	CCB		3996129
040	MSS	277036-001	3882247
045	SAMPLE	277036-002	3812084
046	SAMPLE	277036-003	3833548
047	SAMPLE	277036-004	3903765
048	SAMPLE	277036-005	3827452
049	SAMPLE	277036-006	3892574
053	SAMPLE	277036-007	3826037
054	SAMPLE	277036-008	3922859
055	SAMPLE	277036-009	3917629
056	SAMPLE	277036-010	3951114
068	SAMPLE	277200-001	3623594
072	SAMPLE	276495-001	3902125
073	SAMPLE	276495-002	3914242
074	SAMPLE	276495-003	3855578
075	SAMPLE	276495-004	3889194
079	SAMPLE	276495-004	3732929
081	SAMPLE	276495-005	3826718
082	SAMPLE	276495-006	3779367
083	MSS	276495-007	3943043
084	SAMPLE	276495-008	3897038
085	SAMPLE	276495-009	3826842
086	SAMPLE	276495-010	3835195
087	SAMPLE	276495-011	3915813
088	SAMPLE	276495-012	3868533

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 96219487

Date : 05/31/16 Reference : met09_sn_2016
Sequence : MET09 05/31/16 Analyzed : 05/31/16 10:12

#	Type	Sample ID	Y A
095	MSS	276495-013	3721502
096	SAMPLE	276495-014	3462831
097	SAMPLE	276495-015	3946580
098	SAMPLE	276495-016	3893152
099	SAMPLE	276495-017	3899396
107	SAMPLE	276672-011	4033313
108	SAMPLE	276672-016	4003228
109	SAMPLE	276673-011	4011392
114	SAMPLE	276807-001	3548922
119	SAMPLE	276807-002	3215152
120	SAMPLE	276807-003	3514854
124	SAMPLE	277038-002	3762858
125	SAMPLE	277038-007	3836547
126	SAMPLE	277038-008	3752300
127	SAMPLE	277038-011	3791353
166	SAMPLE	277036-004	3123042
170	SAMPLE	277036-007	3946990
171	SAMPLE	277036-010	3673744

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 277038 METALS Soil: EPA 6010C

Inst : MET09
Calnum : 96219487001
Units : ug/L

Date : 31-MAY-2016 10:07
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met09_sn_2016	96219487002	L1	31-MAY-2016 10:12	S30015
L2	met09_sn_2016	96219487003	L2	31-MAY-2016 10:17	S30017
L3	met09_sn_2016	96219487004	L3	31-MAY-2016 10:22	S29394
L4	met09_sn_2016	96219487005	L4	31-MAY-2016 10:26	S29395
L5	met09_sn_2016	96219487006	L5	31-MAY-2016 10:33	S29761

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Antimony	A	2.6800	2.6550	2.6676	2.6801		LOR0	0.00000	0.37314		2.6707	1.000	0.995	
Arsenic	A	1.2000	1.2670	1.2816	1.2743		LOR0	0.00000	0.78468		1.2557	1.000	0.995	
Barium	A	58.880	64.427	63.596	61.595		LOR0	0.00000	0.01623		62.124	1.000	0.995	
Beryllium	A	4841.6	5119.7	5008.3			LOR0	0.00000	2.00E-4		4989.8	1.000	0.995	
Cadmium	A	71.900	78.916	79.179	74.644		LOR0	0.00000	0.01339		76.160	1.000	0.995	
Chromium	A	142.72	153.26	152.08	148.80		LOR0	0.00000	0.00672		149.21	1.000	0.995	
Cobalt	A	22.220	23.399	24.390	24.416		LOR0	0.00000	0.04096		23.606	1.000	0.995	
Copper	A	209.68	379.57	388.97	396.00		LOR0	0.00000	0.00253		343.55	1.000	0.995	
Lead	A	10.840	10.132	10.406	10.048		LOR0	0.00000	0.09949		10.357	1.000	0.995	
Manganese	A	652.74	735.67	720.94	684.12		LOR0	0.00000	0.00146		698.37	1.000	0.995	
Molybdenum	A	18.400	19.438	19.635	19.235		LOR0	0.00000	0.05198		19.177	1.000	0.995	
Nickel	A	54.600	63.860	65.462	64.094		LOR0	0.00000	0.01560		62.004	1.000	0.995	
Selenium	A	1.4400	1.7180	1.7260	1.7281		LOR0	0.00000	0.57869		1.6530	1.000	0.995	
Silver	A	79.860	79.170	78.230	78.325		LOR0	0.00000	0.01277		78.896	1.000	0.995	
Thallium	A	1.7800	1.6240	1.6910	1.6365		LOR0	0.00000	0.61085		1.6829	1.000	0.995	
Vanadium	A	186.74	205.58	205.14	203.83		LOR0	0.00000	0.00491		200.32	1.000	0.995	
Zinc	A	19.275	27.199	29.501	28.883		LOR0	0.00000	0.03462		26.214	1.000	0.995	
Iron	R	11.128		12.100	12.123	11.951	LOR0	0.00000	0.08366		11.825	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Antimony	A	10.000	0	100.00	-1	1000.0	0	10000	0		
Arsenic	A	5.0000	-6	100.00	-1	1000.0	1	10000	0		
Barium	A	5.0000	-4	100.00	5	1000.0	3	10000	0		
Beryllium	A	2.0000	-3	100.00	2	1000.0	0				
Cadmium	A	5.0000	-4	100.00	6	1000.0	6	10000	0		
Chromium	A	5.0000	-4	100.00	3	1000.0	2	10000	0		
Cobalt	A	5.0000	-9	100.00	-4	1000.0	0	10000	0		
Copper	A	5.0000	**-47**	100.00	-4	1000.0	-2	10000	0		
Lead	A	5.0000	8	100.00	1	1000.0	4	10000	0		
Manganese	A	5.0000	-5	100.00	7	1000.0	5	10000	0		
Molybdenum	A	5.0000	-4	100.00	1	1000.0	2	10000	0		
Nickel	A	5.0000	-15	100.00	0	1000.0	2	10000	0		
Selenium	A	10.000	-17	100.00	-1	1000.0	0	10000	0		
Silver	A	5.0000	2	20.000	1	200.00	0	2000.0	0		
Thallium	A	10.000	9	100.00	-1	1000.0	3	10000	0		
Vanadium	A	5.0000	-8	100.00	1	1000.0	1	10000	0		
Zinc	A	20.000	**-33**	100.00	-6	1000.0	2	10000	0		
Iron	R	100.00	-7			1000.0	1	10000	1	100000	0

Instrument amount = a0 + response * a1 + response^2 * a2; LOR0=Linear regression forced thru origin, including 0,0 point

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 277038 METALS Soil
EPA 6010C

Inst : MET09
Calnum : 96219487001 Cal Date : 31-MAY-2016

ICV 96219487007 (31-MAY-2016) stds: S29396

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	5000	4590	ug/L	-8	10	
Arsenic	A	5000	5021	ug/L	0	10	
Barium	A	5000	5022	ug/L	0	10	
Beryllium	A	500.0	507.3	ug/L	1	10	
Cadmium	A	5000	5048	ug/L	1	10	
Chromium	A	5000	4987	ug/L	0	10	
Cobalt	A	5000	4799	ug/L	-4	10	
Copper	A	5000	4989	ug/L	0	10	
Lead	A	5000	4895	ug/L	-2	10	
Manganese	A	5000	5064	ug/L	1	10	
Molybdenum	A	5000	4852	ug/L	-3	10	
Nickel	A	5000	4969	ug/L	-1	10	
Selenium	A	5000	4932	ug/L	-1	10	
Silver	A	1000	986.4	ug/L	-1	10	
Thallium	A	5000	4963	ug/L	-1	10	
Vanadium	A	5000	4988	ug/L	0	10	
Zinc	A	5000	5031	ug/L	1	10	
Iron	R	20000	20920	ug/L	5	10	

CURTIS & TOMPKINS LOW-LEVEL PERFORMANCE VERIFICATION STANDARD FOR 277038 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 96219487009.1 File : met09_sn_2016 Time : 31-MAY-2016 11:18
Cal : 96219487001 Caldate : 31-MAY-2016
Standards: S30016

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	10.00	10.77	ug/L	8	30	
Arsenic	A	5.000	3.694	ug/L	**-26**	30	!cri-
Barium	A	5.000	5.988	ug/L	20	30	
Beryllium	A	2.000	2.566	ug/L	**28**	30	!cri+
Cadmium	A	5.000	6.076	ug/L	**22**	30	!cri+
Chromium	A	5.000	5.716	ug/L	14	30	
Cobalt	A	5.000	5.840	ug/L	17	30	
Copper	A	5.000	8.718	ug/L	**74**	30	cri+ ***
Lead	A	5.000	7.088	ug/L	**42**	30	cri+ ***
Manganese	A	5.000	6.009	ug/L	20	30	
Molybdenum	A	5.000	6.014	ug/L	20	30	
Nickel	A	5.000	5.899	ug/L	18	30	
Selenium	A	10.00	6.056	ug/L	**-39**	30	cri- ***
Silver	A	5.000	5.483	ug/L	10	30	
Thallium	A	10.00	15.38	ug/L	**54**	30	cri+ ***
Vanadium	A	5.000	5.709	ug/L	14	30	
Zinc	A	20.00	15.47	ug/L	**-23**	30	!cri-
Iron	R	100.0	104.8	ug/L	5	30	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3866933	3918411	1.33

!=warning +=high bias -=low bias

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 277038 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 96219487010.1 File : met09_sn_2016 Time : 31-MAY-2016 11:22
Cal : 96219487001 Caldate : 31-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	0.5000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	[3.150]	5.000	2.500	ug/L	!ICB
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	[1.394]	5.000	1.250	ug/L	!ICB
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	[5.618]	10.00	5.000	ug/L	!ICB
Vanadium	A	[1.334]	5.000	1.250	ug/L	!ICB
Zinc	A	ND	20.00	10.00	ug/L	
Iron	R	ND	100.0	80.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3866933	3904810	0.98

!=warning ICB=instrument blank

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 277038 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 96219487011.1 File : met09_sn_2016 Time : 31-MAY-2016 11:27
Cal : 96219487001 Caldate : 31-MAY-2016
Standards: S29660

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	[-9.031]	10.00	ug/L	!a-
Arsenic	A	[2.811]	5.000	ug/L	
Barium	A	[1.358]	5.000	ug/L	
Beryllium	A	[-0.3282]	2.000	ug/L	
Cadmium	A	[0.4958]	5.000	ug/L	
Cobalt	A	[-2.688]	5.000	ug/L	!a-
Lead	A	[0.4925]	5.000	ug/L	
Molybdenum	A	[-0.7402]	5.000	ug/L	
Selenium	A	[2.834]	10.00	ug/L	
Silver	A	[-0.9198]	5.000	ug/L	
Thallium	A	[1.958]	10.00	ug/L	
Zinc	A	[-1.412]	20.00	ug/L	

Interferent	Ch	Spiked	Quant	Units	%Rec	Flags
Chromium	A	20000	18360	ug/L	92	
Copper	A	20000	21620	ug/L	108	
Manganese	A	20000	18620	ug/L	93	
Nickel	A	20000	16970	ug/L	85	
Vanadium	A	20000	19500	ug/L	98	
Aluminum	R	500000	516400	ug/L	103	
Calcium	R	500000	475000	ug/L	95	
Iron	R	200000	181900	ug/L	91	
Magnesium	R	500000	477500	ug/L	96	
Titanium	R	20000	21780	ug/L	109	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3866933	3323805	-14.05

!=warning -=low bias a=ICSA

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 277038 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 96219487013.1 File : met09_sn_2016 Time : 31-MAY-2016 11:52
Cal : 96219487001 Caldate : 31-MAY-2016
Standards: S29661

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	516.5	ug/L	3	20	
Arsenic	A	500.0	509.8	ug/L	2	20	
Barium	A	500.0	504.3	ug/L	1	20	
Beryllium	A	500.0	499.1	ug/L	0	20	
Cadmium	A	1000	954.2	ug/L	-5	20	
Chromium	A	500.0	479.9	ug/L	-4	20	
Cobalt	A	500.0	414.2	ug/L	-17	20	
Copper	A	500.0	558.7	ug/L	12	20	
Lead	A	1000	931.7	ug/L	-7	20	
Manganese	A	500.0	494.7	ug/L	-1	20	
Molybdenum	A	500.0	486.0	ug/L	-3	20	
Nickel	A	1000	886.5	ug/L	-11	20	
Selenium	A	500.0	492.9	ug/L	-1	20	
Silver	A	1000	1087	ug/L	9	20	
Thallium	A	500.0	503.0	ug/L	1	20	
Vanadium	A	500.0	512.8	ug/L	3	20	
Zinc	A	1000	897.0	ug/L	-10	20	
Iron	R	200000	177300	ug/L	-11		

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3866933	3395464	-12.19

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 96219487024.1 File : met09_sn_2016 Time : 31-MAY-2016 13:33
Cal : 96219487001 Caldate : 31-MAY-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	2.6707	2.4867	5000	4639	ug/L	-7	10	
Arsenic	A	1.2557	1.2922	5000	5070	ug/L	1	10	
Barium	A	62.124	61.528	5000	4993	ug/L	0	10	
Beryllium	A	4989.8	5029.8	500.0	502.0	ug/L	0	10	
Cadmium	A	76.160	75.604	5000	5061	ug/L	1	10	
Chromium	A	149.21	148.80	5000	4999	ug/L	0	10	
Cobalt	A	23.606	23.708	5000	4855	ug/L	-3	10	
Copper	A	343.55	388.17	5000	4902	ug/L	-2	10	
Lead	A	10.357	9.9603	5000	4955	ug/L	-1	10	
Manganese	A	698.37	690.45	5000	5044	ug/L	1	10	
Molybdenum	A	19.177	18.551	5000	4821	ug/L	-4	10	
Nickel	A	62.004	64.104	5000	5000	ug/L	0	10	
Selenium	A	1.6530	1.7019	5000	4924	ug/L	-2	10	
Silver	A	78.896	76.782	1000	980.3	ug/L	-2	10	
Thallium	A	1.6829	1.6287	5000	4974	ug/L	-1	10	
Vanadium	A	200.32	202.97	5000	4978	ug/L	0	10	
Zinc	A	26.214	29.161	5000	5047	ug/L	1	10	
Iron	R	11.825	12.771	20000	21370	ug/L	7	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3866933	3930432	1.64

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 277038 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 96219487026.1 File : met09_sn_2016 Time : 31-MAY-2016 13:44
Cal : 96219487001 Caldate : 31-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	0.5000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	[4.243]	5.000	2.500	ug/L	!CCB
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	1.250	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	1.250	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Iron	R	ND	100.0	80.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3866933	4052386	4.80

!=warning CCB=instrument blank

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 96219487037.1 File : met09_sn_2016 Time : 31-MAY-2016 14:58
Cal : 96219487001 Caldate : 31-MAY-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	2.6707	2.5256	5000	4712	ug/L	-6	10	
Arsenic	A	1.2557	1.3219	5000	5186	ug/L	4	10	
Barium	A	62.124	61.506	5000	4991	ug/L	0	10	
Beryllium	A	4989.8	4991.6	500.0	498.2	ug/L	0	10	
Cadmium	A	76.160	75.834	5000	5077	ug/L	2	10	
Chromium	A	149.21	149.00	5000	5006	ug/L	0	10	
Cobalt	A	23.606	24.267	5000	4970	ug/L	-1	10	
Copper	A	343.55	388.10	5000	4901	ug/L	-2	10	
Lead	A	10.357	10.092	5000	5020	ug/L	0	10	
Manganese	A	698.37	689.72	5000	5038	ug/L	1	10	
Molybdenum	A	19.177	18.591	5000	4832	ug/L	-3	10	
Nickel	A	62.004	64.084	5000	4998	ug/L	0	10	
Selenium	A	1.6530	1.7677	5000	5115	ug/L	2	10	
Silver	A	78.896	77.005	1000	983.2	ug/L	-2	10	
Thallium	A	1.6829	1.6551	5000	5055	ug/L	1	10	
Vanadium	A	200.32	203.00	5000	4979	ug/L	0	10	
Zinc	A	26.214	29.265	5000	5065	ug/L	1	10	
Iron	R	11.825	12.582	20000	21050	ug/L	5	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3866933	3922609	1.44

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 277038 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 96219487039.1 File : met09_sn_2016 Time : 31-MAY-2016 15:09
Cal : 96219487001 Caldate : 31-MAY-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	0.5000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	2.500	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	1.250	ug/L	
Selenium	A	ND	10.00	5.000	ug/L	
Silver	A	ND	5.000	2.500	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	1.250	ug/L	
Zinc	A	ND	20.00	10.00	ug/L	
Iron	R	ND	100.0	80.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	3866933	3996129	3.34

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 86220938

Instrument : MET08 Begun : 06/01/16 10:18
Method : EPA 6010C SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met08_sn_6010r	ICALBLK				06/01/16 10:18	1.0		
002	met08_sn_6010r	ICAL	L1			06/01/16 10:21	1.0	1	
003	met08_sn_6010r	ICAL	L2			06/01/16 10:25	1.0	2	
004	met08_sn_6010r	ICAL	L3			06/01/16 10:27	1.0	3	
005	met08_sn_6010r	ICAL	L4			06/01/16 10:29	1.0	4	
006	met08_sn_6010r	ICAL	L5			06/01/16 10:32	1.0	5	
007	met08_sn_6010r	ICV				06/01/16 10:34	1.0	6	
008	met08_sn_6010r	CRI				06/01/16 10:42	1.0	7	
009	met08_sn_6010r	ICB				06/01/16 10:46	1.0		
010	met08_sn_6010r	ICSA				06/01/16 10:49	1.0	8	10:AL=530000
011	met08_sn_6010r	ICSAB				06/01/16 10:58	1.0	9	5:AL=510000
012	met08_sn_6010r	SAMPLE	277173-001	Water	235543	06/01/16 11:02	1.0		
013	met08_sn_6010r	SAMPLE	277192-001	Water	235543	06/01/16 11:05	1.0		
014	met08_sn_6010r	SAMPLE	277199-003	Water	235543	06/01/16 11:09	1.0		2:K=480000
015	met08_sn_6010r	SAMPLE	277212-001	Water	235543	06/01/16 11:26	10.0		1:NA=630000
016	met08_sn_6010r	SAMPLE	277212-002	Water	235543	06/01/16 11:30	10.0		1:NA=610000
017	met08_sn_6010r	SAMPLE	277212-003	Water	235543	06/01/16 11:34	10.0		1:NA=570000
018	met08_sn_6010r	SAMPLE	277153-001	Soil	235556	06/01/16 11:38	1.0		5:CA=630000
019	met08_sn_6010r	SAMPLE	277153-004	Soil	235556	06/01/16 11:40	1.0		5:CA=680000
020	met08_sn_6010r	SAMPLE	277244-001	TCLP Leachate	235583	06/01/16 11:42	10.0		
021	met08_sn_6010r	SAMPLE	277038-007	Soil	235517	06/01/16 11:46	1.0		5:FE=430000
022	met08_sn_6010r	CCV				06/01/16 11:48	1.0	10	
023	met08_sn_6010r	CCB				06/01/16 11:50	1.0		
024	met08_sn_6010r	SAMPLE	277208-002	WET Leachate	235584	06/01/16 11:54	10.0		
025	met08_sn_6010r	SAMPLE	277208-001	WET Leachate	235584	06/01/16 11:56	10.0		
026	met08_sn_6010r	SAMPLE	277244-001	Soil	235588	06/01/16 11:59	1.0		2:FE=230000
027	met08_sn_6010r	MS	QC837423	Soil	235555	06/01/16 12:02	10.0		
028	met08_sn_6010r	MSD	QC837424	Soil	235555	06/01/16 12:04	10.0		
029	met08_sn_6010r	X	RINSE			06/01/16 12:06	1.0		
030	met08_sn_6010r	SAMPLE	276989-010	Soil	235555	06/01/16 12:10	1.0		3:FE=320000
031	met08_sn_6010r	SAMPLE	277213-001	Soil	235555	06/01/16 12:12	1.0		5:FE=480000
032	met08_sn_6010r	MSS	277038-001	Soil	235517	06/01/16 12:14	1.0		5:FE=380000
033	met08_sn_6010r	SAMPLE	277038-002	Soil	235517	06/01/16 12:16	1.0		5:FE=480000
034	met08_sn_6010r	CCV				06/01/16 12:18	1.0	10	
035	met08_sn_6010r	XCCB				06/01/16 12:20	1.0		
036	met08_sn_6010r	CCB				06/01/16 12:23	1.0		
037	met08_sn_6010r	SAMPLE	277038-003	Soil	235517	06/01/16 12:27	1.0		5:FE=510000
038	met08_sn_6010r	SAMPLE	277038-004	Soil	235517	06/01/16 12:50	1.0		2:FE=220000
039	met08_sn_6010r	SAMPLE	277038-005	Soil	235517	06/01/16 12:52	1.0		6:FE=520000
040	met08_sn_6010r	SAMPLE	277038-006	Soil	235517	06/01/16 12:55	1.0		5:FE=400000
041	met08_sn_6010r	SAMPLE	277038-007	Soil	235517	06/01/16 12:57	1.0		5:FE=420000
042	met08_sn_6010r	SAMPLE	277038-008	Soil	235517	06/01/16 12:59	1.0		4:FE=340000
043	met08_sn_6010r	SAMPLE	277038-009	Soil	235517	06/01/16 13:01	1.0		5:FE=470000
044	met08_sn_6010r	SAMPLE	277038-010	Soil	235517	06/01/16 13:03	1.0		5:FE=540000
045	met08_sn_6010r	SAMPLE	277038-011	Soil	235517	06/01/16 13:05	1.0		5:FE=370000
046	met08_sn_6010r	SAMPLE	277038-012	Soil	235517	06/01/16 13:07	1.0		5:FE=510000
047	met08_sn_6010r	CCV				06/01/16 13:09	1.0	10	
048	met08_sn_6010r	CCB				06/01/16 13:11	1.0		
049	met08_sn_6010r	MS	QC837275	Soil	235517	06/01/16 13:14	1.0		6:FE=490000
050	met08_sn_6010r	MSD	QC837276	Soil	235517	06/01/16 13:16	1.0		6:FE=410000
051	met08_sn_6010r	MSS	277036-001	Soil	235518	06/01/16 13:18	1.0		5:FE=420000
052	met08_sn_6010r	SAMPLE	277036-002	Soil	235518	06/01/16 13:20	1.0		5:FE=420000

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 86220938

Instrument : MET08 Begun : 06/01/16 10:18
Method : EPA 6010C SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met08_sn_6010r	SAMPLE	277036-003	Soil	235518	06/01/16 13:22	1.0		5:FE=400000
054	met08_sn_6010r	SAMPLE	277036-004	Soil	235518	06/01/16 13:24	1.0		5:FE=460000
055	met08_sn_6010r	SAMPLE	277036-005	Soil	235518	06/01/16 13:27	1.0		5:FE=490000
056	met08_sn_6010r	SAMPLE	277036-006	Soil	235518	06/01/16 13:29	1.0		5:FE=420000
057	met08_sn_6010r	SAMPLE	277036-007	Soil	235518	06/01/16 13:31	1.0		5:FE=410000
058	met08_sn_6010r	SAMPLE	277036-008	Soil	235518	06/01/16 13:33	1.0		5:FE=440000
059	met08_sn_6010r	CCV				06/01/16 13:35	1.0	10	
060	met08_sn_6010r	CCB				06/01/16 13:37	1.0		
061	met08_sn_6010r	SER	QC837277	Soil	235517	06/01/16 13:40	5.0		
062	met08_sn_6010r	PDS	QC837278	Soil	235517	06/01/16 13:43	1.0	11 12 13	5:FE=380000
063	met08_sn_6010r	SER	QC837284	Soil	235518	06/01/16 13:45	5.0		
064	met08_sn_6010r	PDS	QC837285	Soil	235518	06/01/16 13:48	1.0	11 12 13	5:FE=450000
065	met08_sn_6010r	X	RINSE			06/01/16 13:50	1.0		
066	met08_sn_6010r	SAMPLE	277036-009	Soil	235518	06/01/16 13:54	1.0		5:FE=460000
067	met08_sn_6010r	SAMPLE	277036-010	Soil	235518	06/01/16 13:56	1.0		5:FE=390000
068	met08_sn_6010r	MS	QC837282	Soil	235518	06/01/16 13:58	1.0		6:FE=430000
069	met08_sn_6010r	MSD	QC837283	Soil	235518	06/01/16 14:00	1.0		6:FE=540000
070	met08_sn_6010r	BLANK	QC837691	Soil	235626	06/01/16 14:02	1.0		
071	met08_sn_6010r	CCV				06/01/16 14:05	1.0	10	
072	met08_sn_6010r	CCB				06/01/16 14:07	1.0		
073	met08_sn_6010r	BS	QC837692	Soil	235626	06/01/16 14:11	1.0		1:SR=11000
074	met08_sn_6010r	BSD	QC837693	Soil	235626	06/01/16 14:13	1.0		1:SR=11000
075	met08_sn_6010r	MSS	277086-005	Soil	235626	06/01/16 14:16	1.0		5:FE=1100000
076	met08_sn_6010r	MS	QC837694	Soil	235626	06/01/16 14:18	1.0		1:FE=1100000
077	met08_sn_6010r	MSD	QC837695	Soil	235626	06/01/16 14:20	1.0		1:FE=1100000
078	met08_sn_6010r	SAMPLE	277086-010	Soil	235626	06/01/16 14:22	1.0		5:FE=1200000
079	met08_sn_6010r	SAMPLE	277086-015	Soil	235626	06/01/16 14:24	1.0		5:FE=1100000
080	met08_sn_6010r	SAMPLE	277086-020	Soil	235626	06/01/16 14:26	1.0		5:FE=1100000
081	met08_sn_6010r	SAMPLE	277086-025	Soil	235626	06/01/16 14:28	1.0		5:FE=1100000
082	met08_sn_6010r	SAMPLE	277086-030	Soil	235626	06/01/16 14:30	1.0		5:FE=1200000
083	met08_sn_6010r	CCV				06/01/16 14:32	1.0	10	
084	met08_sn_6010r	CCB				06/01/16 14:34	1.0		
085	met08_sn_6010r	SAMPLE	277086-035	Soil	235626	06/01/16 14:37	1.0		6:FE=1200000
086	met08_sn_6010r	SAMPLE	277086-040	Soil	235626	06/01/16 14:40	1.0		6:FE=1200000
087	met08_sn_6010r	SAMPLE	277086-045	Soil	235626	06/01/16 14:42	1.0		5:FE=1200000
088	met08_sn_6010r	SAMPLE	277086-050	Soil	235626	06/01/16 14:44	1.0		5:FE=1100000
089	met08_sn_6010r	SAMPLE	277086-055	Soil	235626	06/01/16 14:46	1.0		6:FE=1300000
090	met08_sn_6010r	SAMPLE	277086-060	Soil	235626	06/01/16 14:48	1.0		5:FE=1200000
091	met08_sn_6010r	SAMPLE	277112-001	Miscell.	235626	06/01/16 14:50	1.0		7:NA=870000
092	met08_sn_6010r	SAMPLE	277114-001	Miscell.	235626	06/01/16 14:52	1.0		
093	met08_sn_6010r	SAMPLE	277114-002	Miscell.	235626	06/01/16 14:54	1.0		
094	met08_sn_6010r	BLANK	QC837703	Wipe	235628	06/01/16 14:57	1.0		
095	met08_sn_6010r	CCV				06/01/16 15:00	1.0	10	
096	met08_sn_6010r	CCB				06/01/16 15:02	1.0		
097	met08_sn_6010r	BS	QC837704	Wipe	235628	06/01/16 15:05	1.0		1:SR=11000
098	met08_sn_6010r	BSD	QC837705	Wipe	235628	06/01/16 15:08	1.0		1:SR=11000
099	met08_sn_6010r	SAMPLE	277051-001	Wipe	235628	06/01/16 15:10	1.0		
100	met08_sn_6010r	SAMPLE	277051-002	Wipe	235628	06/01/16 15:13	1.0		
101	met08_sn_6010r	SAMPLE	277051-003	Wipe	235628	06/01/16 15:17	1.0		
102	met08_sn_6010r	SAMPLE	277051-004	Wipe	235628	06/01/16 15:20	1.0		
103	met08_sn_6010r	SAMPLE	277051-005	Wipe	235628	06/01/16 15:23	1.0		
104	met08_sn_6010r	SAMPLE	277051-006	Wipe	235628	06/01/16 15:26	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 86220938

Instrument : MET08 Begun : 06/01/16 10:18
Method : EPA 6010C SOP Version : icp metals_rv17

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
105	met08_sn_6010r	SAMPLE	277051-007	Wipe	235628	06/01/16 15:30	1.0		
106	met08_sn_6010r	SAMPLE	277051-008	Wipe	235628	06/01/16 15:33	1.0		
107	met08_sn_6010r	CCV				06/01/16 15:36	1.0	10	
108	met08_sn_6010r	CCB				06/01/16 15:38	1.0		
109	met08_sn_6010r	SAMPLE	277051-009	Wipe	235628	06/01/16 15:42	1.0		
110	met08_sn_6010r	SAMPLE	277051-010	Wipe	235628	06/01/16 15:45	1.0		
111	met08_sn_6010r	BS	QC837707	WET Leachate	235629	06/01/16 15:48	10.0		1:NA=150000

KER 06/01/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 33.

Standards used: 1=S30015 2=S30017 3=S29394 4=S29395 5=S29761 6=S29396 7=S30016 8=S29660 9=S29661 10=S29397 11=S28385 12=S28386 13=S29742

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 86220938

Date : 06/01/16 Reference : met08_sn_6010r
Sequence : MET08 06/01/16 Analyzed : 06/01/16 10:21

#	Type	Sample ID	Y A
		ICAL STD	14991376
		LOWER LIMIT	4497413
		UPPER LIMIT	17989651
009	ICB		15190116
010	ICSA		13093504
011	ICSAB		13069189
021	SAMPLE	277038-007	14223363
022	CCV		14736423
023	CCB		15435492
032	MSS	277038-001	14248255
033	SAMPLE	277038-002	14332814
034	CCV		14797906
036	CCB		15432760
037	SAMPLE	277038-003	14584861
038	SAMPLE	277038-004	14942603
039	SAMPLE	277038-005	14381935
040	SAMPLE	277038-006	14198774
041	SAMPLE	277038-007	14489679
042	SAMPLE	277038-008	14712536
043	SAMPLE	277038-009	13953211
044	SAMPLE	277038-010	13966942
045	SAMPLE	277038-011	14354012
046	SAMPLE	277038-012	14107908
047	CCV		14533113
048	CCB		15183588
049	MS	QC837275	14335184
050	MSD	QC837276	14432954
051	MSS	277036-001	14037542
052	SAMPLE	277036-002	14377685
053	SAMPLE	277036-003	14119268
054	SAMPLE	277036-004	14107638
055	SAMPLE	277036-005	14099074
056	SAMPLE	277036-006	14515073
057	SAMPLE	277036-007	13965959
058	SAMPLE	277036-008	14317028
059	CCV		14582911
060	CCB		15265974
061	SER	QC837277	14984493
062	PDS	QC837278	14191988
066	SAMPLE	277036-009	14322988
067	SAMPLE	277036-010	14138028
071	CCV		14748052
072	CCB		15001763

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 277038 METALS Soil: EPA 6010C

Inst : MET08
Calnum : 86220938001
Units : ug/L

Date : 01-JUN-2016 10:18
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met08_sn_6010r	86220938002	L1	01-JUN-2016 10:21	S30015
L2	met08_sn_6010r	86220938003	L2	01-JUN-2016 10:25	S30017
L3	met08_sn_6010r	86220938004	L3	01-JUN-2016 10:27	S29394
L4	met08_sn_6010r	86220938005	L4	01-JUN-2016 10:29	S29395
L5	met08_sn_6010r	86220938006	L5	01-JUN-2016 10:32	S29761

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Antimony	A	26.740	23.230	22.768	22.829		LOR0	0.00000	0.04380		23.892	1.000	0.995	
Arsenic	A	26.140	16.833	16.342	16.355		LOR0	0.00000	0.06114		18.918	1.000	0.995	
Barium	A	423.46	423.65	412.42	398.06		LOR0	0.00000	0.00251		414.40	1.000	0.995	
Beryllium	A	4121.3	4055.2	4023.4			LOR0	0.00000	2.49E-4		4066.6	1.000	0.995	
Cadmium	A	214.30	211.11	208.92	202.29		LOR0	0.00000	0.00494		209.16	1.000	0.995	
Chromium	A	127.92	128.44	128.02	125.50		LOR0	0.00000	0.00797		127.47	1.000	0.995	
Cobalt	A	130.32	129.71	131.00	129.83		LOR0	0.00000	0.00770		130.22	1.000	0.995	
Copper	A	334.06	346.71	335.55	340.95		LOR0	0.00000	0.00293		339.32	1.000	0.995	
Lead	A	59.100	52.141	50.634	50.250		LOR0	0.00000	0.01990		53.031	1.000	0.995	
Manganese	A	1601.3	1592.2	1552.1	1487.2		LOR0	0.00000	6.72E-4		1558.2	1.000	0.995	
Molybdenum	A	29.260	30.703	30.294	30.087		LOR0	0.00000	0.03324		30.086	1.000	0.995	
Nickel	A	41.480	47.000	47.873	47.498		LOR0	0.00000	0.02105		45.963	1.000	0.995	
Selenium	A	25.150	31.145	31.357	31.283		LOR0	0.00000	0.03197		29.734	1.000	0.995	
Silver	A	1980.9	1881.8	1901.9	1901.8		LOR0	0.00000	5.26E-4		1916.6	1.000	0.995	
Thallium	A	16.200	17.685	17.908	17.354		LOR0	0.00000	0.05760		17.287	1.000	0.995	
Vanadium	A	131.10	130.20	128.32	128.50		LOR0	0.00000	0.00778		129.53	1.000	0.995	
Zinc	A	76.035	81.100	80.153	79.060		LOR0	0.00000	0.01265		79.087	1.000	0.995	
Iron	R	4.0670		3.7804	3.6287	4.0131	LOR0	0.00000	0.24942		3.8723	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Antimony	A	10.000	17	100.00	2	1000.0	0	10000	0		
Arsenic	A	5.0000	**60**	100.00	3	1000.0	0	10000	0		
Barium	A	5.0000	6	100.00	6	1000.0	4	10000	0		
Beryllium	A	2.0000	2	100.00	1	1000.0	0				
Cadmium	A	5.0000	6	100.00	4	1000.0	3	10000	0		
Chromium	A	5.0000	2	100.00	2	1000.0	2	10000	0		
Cobalt	A	5.0000	0	100.00	0	1000.0	1	10000	0		
Copper	A	5.0000	-2	100.00	2	1000.0	-2	10000	0		
Lead	A	5.0000	18	100.00	4	1000.0	1	10000	0		
Manganese	A	5.0000	8	100.00	7	1000.0	4	10000	0		
Molybdenum	A	5.0000	-3	100.00	2	1000.0	1	10000	0		
Nickel	A	5.0000	-13	100.00	-1	1000.0	1	10000	0		
Selenium	A	10.000	-20	100.00	0	1000.0	0	10000	0		
Silver	A	5.0000	4	20.000	-1	200.00	0	2000.0	0		
Thallium	A	10.000	-7	100.00	2	1000.0	3	10000	0		
Vanadium	A	5.0000	2	100.00	1	1000.0	0	10000	0		
Zinc	A	20.000	-4	100.00	3	1000.0	1	10000	0		
Iron	R	100.00	1			1000.0	-6	10000	-9	100000	0

Instrument amount = a0 + response * a1 + response^2 * a2; LOR0=Linear regression forced thru origin, including 0,0 point

86220938001

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 277038 METALS Soil
EPA 6010C

Inst : MET08
Calnum : 86220938001 Cal Date : 01-JUN-2016

ICV 86220938007 (01-JUN-2016) stds: S29396

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	5000	4896	ug/L	-2	10	
Arsenic	A	5000	4969	ug/L	-1	10	
Barium	A	5000	5034	ug/L	1	10	
Beryllium	A	500.0	508.2	ug/L	2	10	
Cadmium	A	5000	5081	ug/L	2	10	
Chromium	A	5000	4985	ug/L	0	10	
Cobalt	A	5000	4910	ug/L	-2	10	
Copper	A	5000	4885	ug/L	-2	10	
Lead	A	5000	4963	ug/L	-1	10	
Manganese	A	5000	5051	ug/L	1	10	
Molybdenum	A	5000	4810	ug/L	-4	10	
Nickel	A	5000	5011	ug/L	0	10	
Selenium	A	5000	4909	ug/L	-2	10	
Silver	A	1000	998.8	ug/L	0	10	
Thallium	A	5000	4685	ug/L	-6	10	
Vanadium	A	5000	5049	ug/L	1	10	
Zinc	A	5000	5074	ug/L	1	10	
Iron	R	20000	18940	ug/L	-5	10	

CURTIS & TOMPKINS LOW-LEVEL PERFORMANCE VERIFICATION STANDARD FOR 277038 METALS Soil
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 86220938008.1 File : met08_sn_6010r Time : 01-JUN-2016 10:42
Cal : 86220938001 Caldate : 01-JUN-2016
Standards: S30016

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	10.00	9.725	ug/L	-3	30	
Arsenic	A	5.000	6.331	ug/L	**27**	30	!cri+
Barium	A	5.000	5.451	ug/L	9	30	
Beryllium	A	2.000	2.097	ug/L	5	30	
Cadmium	A	5.000	5.410	ug/L	8	30	
Chromium	A	5.000	5.019	ug/L	0	30	
Cobalt	A	5.000	5.127	ug/L	3	30	
Copper	A	5.000	5.401	ug/L	8	30	
Lead	A	5.000	5.992	ug/L	20	30	
Manganese	A	5.000	5.364	ug/L	7	30	
Molybdenum	A	5.000	5.409	ug/L	8	30	
Nickel	A	5.000	4.893	ug/L	-2	30	
Selenium	A	10.00	9.592	ug/L	-4	30	
Silver	A	5.000	5.484	ug/L	10	30	
Thallium	A	10.00	11.00	ug/L	10	30	
Vanadium	A	5.000	5.329	ug/L	7	30	
Zinc	A	20.00	19.51	ug/L	-2	30	
Iron	R	100.0	100.8	ug/L	1	30	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	14991376	14977811	-0.09

!=warning +=high bias

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 277038 METALS Soil
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 86220938009.1 File : met08_sn_6010r Time : 01-JUN-2016 10:46
Cal : 86220938001 Caldate : 01-JUN-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	---	ug/L	
Arsenic	A	[3.441]	5.000	---	ug/L	!ICB
Barium	A	ND	5.000	---	ug/L	
Beryllium	A	ND	2.000	---	ug/L	
Cadmium	A	ND	5.000	---	ug/L	
Chromium	A	ND	5.000	---	ug/L	
Cobalt	A	ND	5.000	---	ug/L	
Copper	A	ND	5.000	---	ug/L	
Lead	A	ND	5.000	---	ug/L	
Manganese	A	ND	5.000	---	ug/L	
Molybdenum	A	ND	5.000	---	ug/L	
Nickel	A	ND	5.000	---	ug/L	
Selenium	A	ND	10.00	---	ug/L	
Silver	A	ND	5.000	---	ug/L	
Thallium	A	ND	10.00	---	ug/L	
Vanadium	A	ND	5.000	---	ug/L	
Zinc	A	ND	20.00	---	ug/L	
Iron	R	ND	100.0	---	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	14991376	15190116	1.33

!=warning ICB=instrument blank

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 277038 METALS Soil
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 86220938010.1 File : met08_sn_6010r Time : 01-JUN-2016 10:49
Cal : 86220938001 Caldate : 01-JUN-2016
Standards: S29660

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	[-7.994]	10.00	ug/L	!a-
Arsenic	A	[1.018]	5.000	ug/L	
Barium	A	[-3.476]	5.000	ug/L	!a-
Beryllium	A	[-0.2307]	2.000	ug/L	
Cadmium	A	[-1.881]	5.000	ug/L	
Cobalt	A	[2.537]	5.000	ug/L	!a+
Lead	A	[-2.930]	5.000	ug/L	!a-
Molybdenum	A	[-3.337]	5.000	ug/L	!a-
Selenium	A	[-4.803]	10.00	ug/L	
Silver	A	[-0.1504]	5.000	ug/L	
Thallium	A	[9.318]	10.00	ug/L	!a+
Zinc	A	[11.18]	20.00	ug/L	!a+

Interferent	Ch	Spiked	Quant	Units	%Rec	Flags
Chromium	A	20000	19410	ug/L	97	
Copper	A	20000	20580	ug/L	103	
Manganese	A	20000	19370	ug/L	97	
Nickel	A	20000	18550	ug/L	93	
Vanadium	A	20000	20170	ug/L	101	
Aluminum	R	500000	531000	ug/L	106	
Calcium	R	500000	519500	ug/L	104	
Iron	R	200000	200900	ug/L	100	
Magnesium	R	500000	514400	ug/L	103	
Titanium	R	20000	22350	ug/L	112	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	14991376	13093504	-12.66

!=warning +=high bias -=low bias a=ICSA

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 277038 METALS Soil
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 86220938011.1 File : met08_sn_6010r Time : 01-JUN-2016 10:58
Cal : 86220938001 Caldate : 01-JUN-2016
Standards: S29661

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	554.3	ug/L	11	20	
Arsenic	A	500.0	570.4	ug/L	14	20	
Barium	A	500.0	527.2	ug/L	5	20	
Beryllium	A	500.0	521.6	ug/L	4	20	
Cadmium	A	1000	1020	ug/L	2	20	
Chromium	A	500.0	501.6	ug/L	0	20	
Cobalt	A	500.0	473.5	ug/L	-5	20	
Copper	A	500.0	512.3	ug/L	2	20	
Lead	A	1000	973.9	ug/L	-3	20	
Manganese	A	500.0	476.1	ug/L	-5	20	
Molybdenum	A	500.0	506.0	ug/L	1	20	
Nickel	A	1000	962.9	ug/L	-4	20	
Selenium	A	500.0	513.5	ug/L	3	20	
Silver	A	1000	1059	ug/L	6	20	
Thallium	A	500.0	463.2	ug/L	-7	20	
Vanadium	A	500.0	539.6	ug/L	8	20	
Zinc	A	1000	1009	ug/L	1	20	
Iron	R	200000	191100	ug/L	-4		

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	14991376	13069189	-12.82

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 METALS Soil
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 86220938022.1 File : met08_sn_6010r Time : 01-JUN-2016 11:48
Cal : 86220938001 Caldate : 01-JUN-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	23.892	23.600	5000	5169	ug/L	3	10	
Arsenic	A	18.918	17.944	5000	5486	ug/L	10	10	
Barium	A	414.40	406.84	5000	5109	ug/L	2	10	
Beryllium	A	4066.6	4091.0	500.0	508.4	ug/L	2	10	
Cadmium	A	209.16	213.15	5000	5267	ug/L	5	10	
Chromium	A	127.47	127.29	5000	5070	ug/L	1	10	
Cobalt	A	130.22	129.70	5000	4986	ug/L	0	10	
Copper	A	339.32	337.36	5000	4948	ug/L	-1	10	
Lead	A	53.031	51.545	5000	5129	ug/L	3	10	
Manganese	A	1558.2	1550.4	5000	5210	ug/L	4	10	
Molybdenum	A	30.086	29.338	5000	4875	ug/L	-2	10	
Nickel	A	45.963	48.787	5000	5135	ug/L	3	10	
Selenium	A	29.734	33.197	5000	5306	ug/L	6	10	
Silver	A	1916.6	1914.2	1000	1007	ug/L	1	10	
Thallium	A	17.287	17.479	5000	5034	ug/L	1	10	
Vanadium	A	129.53	131.74	5000	5126	ug/L	3	10	
Zinc	A	79.087	82.833	5000	5238	ug/L	5	10	
Iron	R	3.8723	4.0337	20000	20120	ug/L	1	10	r ***

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	14991376	14736423	-1.70

r=RSD out

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 277038 METALS Soil
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 86220938023.1 File : met08_sn_6010r Time : 01-JUN-2016 11:50
Cal : 86220938001 Caldate : 01-JUN-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	---	ug/L	
Arsenic	A	[2.587]	5.000	---	ug/L	!CCB
Barium	A	ND	5.000	---	ug/L	
Beryllium	A	ND	2.000	---	ug/L	
Cadmium	A	ND	5.000	---	ug/L	
Chromium	A	ND	5.000	---	ug/L	
Cobalt	A	ND	5.000	---	ug/L	
Copper	A	ND	5.000	---	ug/L	
Lead	A	ND	5.000	---	ug/L	
Manganese	A	ND	5.000	---	ug/L	
Molybdenum	A	ND	5.000	---	ug/L	
Nickel	A	ND	5.000	---	ug/L	
Selenium	A	ND	10.00	---	ug/L	
Silver	A	ND	5.000	---	ug/L	
Thallium	A	ND	10.00	---	ug/L	
Vanadium	A	ND	5.000	---	ug/L	
Zinc	A	ND	20.00	---	ug/L	
Iron	R	ND	100.0	---	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	14991376	15435492	2.96

!=warning CCB=instrument blank

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 METALS Soil
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 86220938034.1 File : met08_sn_6010r Time : 01-JUN-2016 12:18
Cal : 86220938001 Caldate : 01-JUN-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	23.892	24.062	5000	5270	ug/L	5	10	
Arsenic	A	18.918	18.445	5000	5639	ug/L	**13**	10	c+ ***
Barium	A	414.40	413.37	5000	5190	ug/L	4	10	
Beryllium	A	4066.6	4160.8	500.0	517.0	ug/L	3	10	
Cadmium	A	209.16	217.88	5000	5383	ug/L	8	10	
Chromium	A	127.47	129.86	5000	5173	ug/L	3	10	
Cobalt	A	130.22	132.37	5000	5088	ug/L	2	10	
Copper	A	339.32	342.02	5000	5017	ug/L	0	10	
Lead	A	53.031	52.746	5000	5248	ug/L	5	10	
Manganese	A	1558.2	1542.2	5000	5183	ug/L	4	10	
Molybdenum	A	30.086	30.049	5000	4993	ug/L	0	10	
Nickel	A	45.963	49.889	5000	5251	ug/L	5	10	
Selenium	A	29.734	34.188	5000	5464	ug/L	9	10	
Silver	A	1916.6	1942.6	1000	1021	ug/L	2	10	
Thallium	A	17.287	18.166	5000	5232	ug/L	5	10	
Vanadium	A	129.53	134.39	5000	5229	ug/L	5	10	
Zinc	A	79.087	84.849	5000	5365	ug/L	7	10	
Iron	R	3.8723	3.9904	20000	19910	ug/L	0	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	14991376	14797906	-1.29

+=high bias c=CCV

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 277038 METALS Soil
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 86220938036.1 File : met08_sn_6010r Time : 01-JUN-2016 12:23
Cal : 86220938001 Caldate : 01-JUN-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	---	ug/L	
Arsenic	A	ND	5.000	---	ug/L	
Barium	A	ND	5.000	---	ug/L	
Beryllium	A	ND	2.000	---	ug/L	
Cadmium	A	ND	5.000	---	ug/L	
Chromium	A	ND	5.000	---	ug/L	
Cobalt	A	ND	5.000	---	ug/L	
Copper	A	ND	5.000	---	ug/L	
Lead	A	ND	5.000	---	ug/L	
Manganese	A	ND	5.000	---	ug/L	
Molybdenum	A	ND	5.000	---	ug/L	
Nickel	A	ND	5.000	---	ug/L	
Selenium	A	ND	10.00	---	ug/L	
Silver	A	ND	5.000	---	ug/L	
Thallium	A	ND	10.00	---	ug/L	
Vanadium	A	ND	5.000	---	ug/L	
Zinc	A	ND	20.00	---	ug/L	
Iron	R	ND	100.0	---	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	14991376	15432760	2.94

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 METALS Soil
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 86220938047.1 File : met08_sn_6010r Time : 01-JUN-2016 13:09
Cal : 86220938001 Caldate : 01-JUN-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	23.892	24.002	5000	5257	ug/L	5	10	
Arsenic	A	18.918	17.977	5000	5496	ug/L	10	10	
Barium	A	414.40	418.79	5000	5259	ug/L	5	10	
Beryllium	A	4066.6	4231.0	500.0	525.8	ug/L	5	10	
Cadmium	A	209.16	219.87	5000	5433	ug/L	9	10	
Chromium	A	127.47	131.95	5000	5256	ug/L	5	10	
Cobalt	A	130.22	134.66	5000	5177	ug/L	4	10	
Copper	A	339.32	345.87	5000	5073	ug/L	1	10	
Lead	A	53.031	53.137	5000	5287	ug/L	6	10	
Manganese	A	1558.2	1558.2	5000	5237	ug/L	5	10	
Molybdenum	A	30.086	30.075	5000	4998	ug/L	0	10	
Nickel	A	45.963	50.071	5000	5270	ug/L	5	10	
Selenium	A	29.734	34.131	5000	5455	ug/L	9	10	
Silver	A	1916.6	1951.8	1000	1026	ug/L	3	10	
Thallium	A	17.287	17.692	5000	5096	ug/L	2	10	
Vanadium	A	129.53	134.16	5000	5220	ug/L	4	10	
Zinc	A	79.087	86.099	5000	5444	ug/L	9	10	
Iron	R	3.8723	3.9187	20000	19550	ug/L	-2	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	14991376	14533113	-3.06

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 277038 METALS Soil
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 86220938048.1 File : met08_sn_6010r Time : 01-JUN-2016 13:11
Cal : 86220938001 Caldate : 01-JUN-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	---	ug/L	
Arsenic	A	ND	5.000	---	ug/L	
Barium	A	ND	5.000	---	ug/L	
Beryllium	A	ND	2.000	---	ug/L	
Cadmium	A	ND	5.000	---	ug/L	
Chromium	A	ND	5.000	---	ug/L	
Cobalt	A	ND	5.000	---	ug/L	
Copper	A	ND	5.000	---	ug/L	
Lead	A	ND	5.000	---	ug/L	
Manganese	A	ND	5.000	---	ug/L	
Molybdenum	A	ND	5.000	---	ug/L	
Nickel	A	ND	5.000	---	ug/L	
Selenium	A	ND	10.00	---	ug/L	
Silver	A	ND	5.000	---	ug/L	
Thallium	A	ND	10.00	---	ug/L	
Vanadium	A	ND	5.000	---	ug/L	
Zinc	A	ND	20.00	---	ug/L	
Iron	R	ND	100.0	---	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	14991376	15183588	1.28

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 METALS Soil
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 86220938059.1 File : met08_sn_6010r Time : 01-JUN-2016 13:35
Cal : 86220938001 Caldate : 01-JUN-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	23.892	23.851	5000	5224	ug/L	4	10	
Arsenic	A	18.918	17.948	5000	5487	ug/L	10	10	
Barium	A	414.40	419.27	5000	5264	ug/L	5	10	
Beryllium	A	4066.6	4243.6	500.0	527.3	ug/L	5	10	
Cadmium	A	209.16	219.99	5000	5436	ug/L	9	10	
Chromium	A	127.47	132.31	5000	5270	ug/L	5	10	
Cobalt	A	130.22	134.79	5000	5181	ug/L	4	10	
Copper	A	339.32	345.99	5000	5075	ug/L	1	10	
Lead	A	53.031	53.395	5000	5313	ug/L	6	10	
Manganese	A	1558.2	1566.7	5000	5265	ug/L	5	10	
Molybdenum	A	30.086	30.207	5000	5020	ug/L	0	10	
Nickel	A	45.963	50.305	5000	5295	ug/L	6	10	
Selenium	A	29.734	34.212	5000	5468	ug/L	9	10	
Silver	A	1916.6	1959.8	1000	1031	ug/L	3	10	
Thallium	A	17.287	17.736	5000	5108	ug/L	2	10	
Vanadium	A	129.53	135.63	5000	5277	ug/L	6	10	
Zinc	A	79.087	86.339	5000	5460	ug/L	9	10	
Iron	R	3.8723	4.2668	20000	21280	ug/L	6	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	14991376	14582911	-2.72

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 277038 METALS Soil
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 86220938060.1 File : met08_sn_6010r Time : 01-JUN-2016 13:37
Cal : 86220938001 Caldate : 01-JUN-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	---	ug/L	
Arsenic	A	ND	5.000	---	ug/L	
Barium	A	ND	5.000	---	ug/L	
Beryllium	A	ND	2.000	---	ug/L	
Cadmium	A	ND	5.000	---	ug/L	
Chromium	A	ND	5.000	---	ug/L	
Cobalt	A	ND	5.000	---	ug/L	
Copper	A	ND	5.000	---	ug/L	
Lead	A	ND	5.000	---	ug/L	
Manganese	A	ND	5.000	---	ug/L	
Molybdenum	A	ND	5.000	---	ug/L	
Nickel	A	ND	5.000	---	ug/L	
Selenium	A	ND	10.00	---	ug/L	
Silver	A	ND	5.000	---	ug/L	
Thallium	A	ND	10.00	---	ug/L	
Vanadium	A	ND	5.000	---	ug/L	
Zinc	A	ND	20.00	---	ug/L	
Iron	R	ND	100.0	---	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	14991376	15265974	1.83

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 METALS Soil
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 86220938071.1 File : met08_sn_6010r Time : 01-JUN-2016 14:05
Cal : 86220938001 Caldate : 01-JUN-2016
Standards: S29397

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	23.892	23.861	5000	5226	ug/L	5	10	
Arsenic	A	18.918	18.041	5000	5515	ug/L	10	10	
Barium	A	414.40	421.72	5000	5295	ug/L	6	10	
Beryllium	A	4066.6	4243.4	500.0	527.3	ug/L	5	10	
Cadmium	A	209.16	223.03	5000	5511	ug/L	10	10	
Chromium	A	127.47	132.63	5000	5283	ug/L	6	10	
Cobalt	A	130.22	135.87	5000	5223	ug/L	4	10	
Copper	A	339.32	347.94	5000	5103	ug/L	2	10	
Lead	A	53.031	53.875	5000	5360	ug/L	7	10	
Manganese	A	1558.2	1567.9	5000	5269	ug/L	5	10	
Molybdenum	A	30.086	30.458	5000	5061	ug/L	1	10	
Nickel	A	45.963	50.922	5000	5360	ug/L	7	10	
Selenium	A	29.734	33.955	5000	5427	ug/L	9	10	
Silver	A	1916.6	1966.1	1000	1034	ug/L	3	10	
Thallium	A	17.287	17.628	5000	5077	ug/L	2	10	
Vanadium	A	129.53	135.45	5000	5270	ug/L	5	10	
Zinc	A	79.087	87.078	5000	5506	ug/L	10	10	
Iron	R	3.8723	3.9455	20000	19680	ug/L	-2	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	14991376	14748052	-1.62

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 277038 METALS Soil
EPA 6010C

Inst : MET08 IDF : 1.0
Seqnum : 86220938072.1 File : met08_sn_6010r Time : 01-JUN-2016 14:07
Cal : 86220938001 Caldate : 01-JUN-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	---	ug/L	
Arsenic	A	[2.679]	5.000	---	ug/L	!CCB
Barium	A	ND	5.000	---	ug/L	
Beryllium	A	ND	2.000	---	ug/L	
Cadmium	A	ND	5.000	---	ug/L	
Chromium	A	ND	5.000	---	ug/L	
Cobalt	A	ND	5.000	---	ug/L	
Copper	A	ND	5.000	---	ug/L	
Lead	A	ND	5.000	---	ug/L	
Manganese	A	ND	5.000	---	ug/L	
Molybdenum	A	ND	5.000	---	ug/L	
Nickel	A	ND	5.000	---	ug/L	
Selenium	A	ND	10.00	---	ug/L	
Silver	A	ND	5.000	---	ug/L	
Thallium	A	ND	10.00	---	ug/L	
Vanadium	A	ND	5.000	---	ug/L	
Zinc	A	ND	20.00	---	ug/L	
Iron	R	ND	100.0	---	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	14991376	15001763	0.07

!=warning CCB=instrument blank

SAMPLE PREPARATION SUMMARY

Batch # : 235517 Analysis : ICP
Started By : RLG Prep Date : 26-MAY-2016 13:15 Finished By : RLG
Method : 3050B Units : g
Spike #1 ID : S29105 Spike #2 ID : S29104 Spike #3 ID : S29742

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
277034-001		Soil	1.01	50	1	49.50						6010	
277038-001		Soil	1.03	50	1	48.54						6010	
277038-002		Soil	1.08	50	1	46.30						6010	
277038-003		Soil	1.1	50	1	45.45						6010	
277038-004		Soil	.92	50	1	54.35						6010	
277038-005		Soil	1.05	50	1	47.62						6010	
277038-006		Soil	1.08	50	1	46.30						6010	
277038-007		Soil	1.03	50	1	48.54						6010	
277038-008		Soil	1	50	1	50.0						6010	
277038-009		Soil	1.02	50	1	49.02						6010	
277038-010		Soil	1.07	50	1	46.73						6010	
277038-011		Soil	1.07	50	1	46.73						6010	
277038-012		Soil	1.05	50	1	47.62						6010	
277043-001		Soil	1.06	50	1	47.17						6010	
277043-002		Soil	1.03	50	1	48.54						6010	
277048-005		Soil	1	50	1	50.0						6010	
277051-011		Miscell.	1.03	50	1	48.54						6010	
277100-002		Soil	1.09	50	1	45.87						6010	
QC837272	BLANK	Soil	.93	50	1	53.76							
QC837273	BS	Soil	1.06	50	1	47.17		.5	.5	.5			
QC837274	BSD	Soil	.95	50	1	52.63		.5	.5	.5			
QC837275	MS	Soil	1.09	50	1	45.87		.5	.5	.5			
QC837276	MSD	Soil	.94	50	1	53.19		.5	.5	.5			
QC837277	SER	Soil	1.03	50	1	48.54							
QC837278	PDS	Soil	1.03	50	1	48.54							

Analyst: KER Date: 05/27/16 Reviewer: PRW Date: 05/27/16

Soil Digestion for ICP & ICP-MS Curtis & Tompkins, Ltd. Version 11, Dec.2015

LIMS Batch #: 235517 Digestion Method: Time ON: 13:15 **BK3880**

Date Digested: 5/26/16 ☒ EPA 3050b Time OFF: 16:00 Page 94

Digested by: RLG ☐ _____

	Sample #	Container ID	Weight of Sample (g)	Final Volume (mL)	Filtered? (y/n)	ID ✓	Comments
	BLANK		.93	☒50 ☐___	Y	✓	QC837272
	BS		1.06	☒50 ☐___		✓	3
	BSD		.95	☒50 ☐___		✓	4
	MS		1.09	☒50 ☐___		✓	5
5	MSD		.94	☒50 ☐___		✓	6
	277034-001	B	1.01	☒50 ☐___		✓	
	277038-001	G	1.03	☒50 ☐___		✓	MSS
	-002		1.08	☒50 ☐___		✓	
	-003		1.10	☒50 ☐___		✓	
10	-004		.92	☒50 ☐___		✓	
	-005		1.05	☒50 ☐___		✓	
	-006		1.08	☒50 ☐___		✓	
	-007		1.03	☒50 ☐___		✓	
	-008		1.00	☒50 ☐___		✓	
15	-009		1.02	☒50 ☐___		✓	
	-010		1.07	☒50 ☐___		✓	
	-011		1.07	☒50 ☐___		✓	
	-012		1.05	☒50 ☐___		✓	
	277043-001	B	1.06	☒50 ☐___		✓	
20	-002		1.03	☒50 ☐___		✓	
	277048-005		1.00	☒50 ☐___		✓	comp 277048-1-4 @ 5g each
	277051-011	A	1.03	☒50 ☐___		✓	
	277100-002		1.09	☒50 ☐___		✓	
				☐50 ☐___			
				☐50 ☐___			

Balance ID: Metals Prep calibration has been checked? ☒ Yes ☐ No

	Reagent ID or LIMS #		Initials / Date
SCP Digestion tubes / ESS Watch glass, lot#	235516-6560	1509104-6106-K11	RLG 5/26/16
Blank 'matrix' lot#	R674-6A012		
.5 mL of spike solution (Std1) was added to all spikes	529105		
.5 mL of spike solution (Std2) was added to all spikes	529104		
.5 mL of spike solution (Std3) was added to all spikes	529742		
Digestion Block ID, Probe Location	RAINIER	17	
Temperature (°C), Thermometer ID	94°	SN66403	
1:1 HNO3 Reagent ID	JTB 131530		
concentrated HNO3 lot#	JTB 131530		
3mL 30% hydrogen peroxide lot#	JTB 136789		
concentrated HCl lot#	F541151(0)		
☒ filtered thru' Whatman 541, lot#	9722517		
Relinquished to ICP group	ICP		

Pipettes

Vol.(mL)	ID
.5	N271500
5	2016708
1	2016708
1.5	2016708

5/26/16
Digestion Chemist / Date

Continued from page 5
Continued on page _____

Reviewed Online/ See LIMS

Mercury Data

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 1076211135

Instrument : MET54 Begun : 05/25/16 14:55
Method : EPA 7471B SOP Version : hg_water_rv16

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used
001	met54	ICALBLK				05/25/16 14:55	1.0	
002	met54	ICAL	ICAL1			05/25/16 14:56	1.0	1
003	met54	ICAL	ICAL2			05/25/16 14:57	1.0	1
004	met54	ICAL	ICAL3			05/25/16 14:58	1.0	1
005	met54	ICAL	ICAL4			05/25/16 14:59	1.0	1
006	met54	ICAL	ICAL5			05/25/16 15:01	1.0	1
007	met54	ICV				05/25/16 15:02	1.0	2
008	met54	ICB				05/25/16 15:03	1.0	
009	met54	BLANK	QC837071	Soil	235465	05/25/16 15:04	1.0	
010	met54	BS	QC837072	Soil	235465	05/25/16 15:06	1.0	
011	met54	BSD	QC837073	Soil	235465	05/25/16 15:07	1.0	
012	met54	MSS	277036-007	Soil	235465	05/25/16 15:08	1.0	
013	met54	MS	QC837074	Soil	235465	05/25/16 15:09	1.0	
014	met54	MSD	QC837075	Soil	235465	05/25/16 15:10	1.0	
015	met54	SER	QC837076	Soil	235465	05/25/16 15:12	5.0	
016	met54	SAMPLE	277036-005	Soil	235465	05/25/16 15:13	1.0	
017	met54	SAMPLE	277036-006	Soil	235465	05/25/16 15:14	1.0	
018	met54	SAMPLE	277036-008	Soil	235465	05/25/16 15:15	1.0	
019	met54	CCV				05/25/16 15:17	1.0	3
020	met54	CCB				05/25/16 15:18	1.0	
021	met54	SAMPLE	277036-009	Soil	235465	05/25/16 15:19	1.0	
022	met54	SAMPLE	277036-010	Soil	235465	05/25/16 15:20	1.0	
023	met54	SAMPLE	277038-001	Soil	235465	05/25/16 15:22	1.0	
024	met54	SAMPLE	277038-002	Soil	235465	05/25/16 15:23	1.0	
025	met54	SAMPLE	277038-003	Soil	235465	05/25/16 15:24	1.0	
026	met54	SAMPLE	277038-004	Soil	235465	05/25/16 15:25	1.0	
027	met54	SAMPLE	277038-005	Soil	235465	05/25/16 15:27	1.0	
028	met54	SAMPLE	277038-006	Soil	235465	05/25/16 15:28	1.0	
029	met54	SAMPLE	277038-007	Soil	235465	05/25/16 15:29	1.0	
030	met54	SAMPLE	277113-001	Soil	235465	05/25/16 15:30	1.0	
031	met54	CCV				05/25/16 15:32	1.0	3
032	met54	CCB				05/25/16 15:33	1.0	
033	met54	SAMPLE	277118-001	Soil	235465	05/25/16 15:34	1.0	
034	met54	SAMPLE	277118-002	Soil	235465	05/25/16 15:35	1.0	
035	met54	SAMPLE	277118-003	Soil	235465	05/25/16 15:36	1.0	
036	met54	SAMPLE	277118-004	Soil	235465	05/25/16 15:38	1.0	
037	met54	SAMPLE	277142-008	Soil	235465	05/25/16 15:39	1.0	
038	met54	SAMPLE	277142-009	Soil	235465	05/25/16 15:40	1.0	
039	met54	MS	QC837074	Soil	235465	05/25/16 15:41	1.0	
040	met54	MSD	QC837075	Soil	235465	05/25/16 15:43	1.0	
041	met54	CCV				05/25/16 15:44	1.0	3
042	met54	CCB				05/25/16 15:45	1.0	

LCS 05/25/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 42.

Standards used: 1=S29974 2=S29976 3=S29977

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 277038 METALS Soil: EPA 7471B

Inst : MET54
Calnum : 1076211135001
Units : ug/L

Date : 25-MAY-2016 14:55
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met54	1076211135002	ICAL1	25-MAY-2016 14:56	S29974 (500X)
L2	met54	1076211135003	ICAL2	25-MAY-2016 14:57	S29974 (200X)
L3	met54	1076211135004	ICAL3	25-MAY-2016 14:58	S29974 (50X)
L4	met54	1076211135005	ICAL4	25-MAY-2016 14:59	S29974 (20X)
L5	met54	1076211135006	ICAL5	25-MAY-2016 15:01	S29974 (10X)

Analyte	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Mercury	0.0675	0.0684	0.0757	0.0710	0.0699	LIN0	-0.0356	14.2998		0.0705	1.000	.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Mercury	0.2000	**-21**	0.5000	-9	2.0000	6	5.0000	1	10.000	0

Instrument amount = a0 + response * a1 + response^2 * a2; LIN0=Linear regression including 0,0 point

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 277038 METALS Soil
EPA 7471B

Inst : MET54
Calnum : 1076211135001 Cal Date : 25-MAY-2016

ICV 1076211135007 (25-MAY-2016) stds: S29976

Analyte	Spiked	Quant	Units	%D	Max	Flags
Mercury	5.000	4.819	ug/L	-4	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 277038 METALS Soil
EPA 7471B

Inst : MET54 IDF : 1.0
Seqnum : 1076211135008.1 File : met54 Time : 25-MAY-2016 15:03
Cal : 1076211135001 Caldate : 25-MAY-2016

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 METALS Soil
EPA 7471B

Inst : MET54 IDF : 1.0
Seqnum : 1076211135019.1 File : met54 Time : 25-MAY-2016 15:17
Cal : 1076211135001 Caldate : 25-MAY-2016
Standards: S29977

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0705	0.0710	5.000	5.039	ug/L	1	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 277038 METALS Soil
EPA 7471B

Inst : MET54 IDF : 1.0
Seqnum : 1076211135020.1 File : met54 Time : 25-MAY-2016 15:18
Cal : 1076211135001 Caldate : 25-MAY-2016

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 METALS Soil
EPA 7471B

Inst : MET54 IDF : 1.0
Seqnum : 1076211135031.1 File : met54 Time : 25-MAY-2016 15:32
Cal : 1076211135001 Caldate : 25-MAY-2016
Standards: S29977

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0705	0.0707	5.000	5.022	ug/L	0	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 277038 METALS Soil
EPA 7471B

Inst : MET54 IDF : 1.0
Seqnum : 1076211135032.1 File : met54 Time : 25-MAY-2016 15:33
Cal : 1076211135001 Caldate : 25-MAY-2016

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 1076212518

Instrument : MET54 Begun : 05/26/16 13:58
Method : EPA 7471B SOP Version : hg_water_rv16

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met54	ICALBLK				05/26/16 13:58	1.0		
002	met54	ICAL	ICAL1			05/26/16 13:59	1.0	1	
003	met54	ICAL	ICAL2			05/26/16 14:00	1.0	1	
004	met54	ICAL	ICAL3			05/26/16 14:02	1.0	1	
005	met54	ICAL	ICAL4			05/26/16 14:03	1.0	1	
006	met54	ICAL	ICAL5			05/26/16 14:04	1.0	1	
007	met54	ICV				05/26/16 14:05	1.0	2	
008	met54	ICB				05/26/16 14:07	1.0		
009	met54	BLANK	QC837247	Soil	235510	05/26/16 14:08	1.0		
010	met54	BS	QC837248	Soil	235510	05/26/16 14:09	1.0		
011	met54	BSD	QC837249	Soil	235510	05/26/16 14:10	1.0		
012	met54	MSS	277038-009	Soil	235510	05/26/16 14:12	1.0		
013	met54	MS	QC837250	Soil	235510	05/26/16 14:13	1.0		
014	met54	MSD	QC837251	Soil	235510	05/26/16 14:14	1.0		
015	met54	SER	QC837252	Soil	235510	05/26/16 14:15	5.0		
016	met54	SAMPLE	277038-008	Soil	235510	05/26/16 14:17	1.0		
017	met54	SAMPLE	277038-010	Soil	235510	05/26/16 14:18	1.0		
018	met54	SAMPLE	277038-011	Soil	235510	05/26/16 14:19	1.0		
019	met54	CCV				05/26/16 14:20	1.0	3	
020	met54	CCB				05/26/16 14:21	1.0		
021	met54	SAMPLE	277038-012	Soil	235510	05/26/16 14:23	1.0		
022	met54	SAMPLE	277126-001	Soil	235510	05/26/16 14:24	1.0		
023	met54	SAMPLE	277127-001	Soil	235510	05/26/16 14:25	1.0		
024	met54	SAMPLE	277181-029	Soil	235510	05/26/16 14:26	1.0		
025	met54	SAMPLE	277181-030	Soil	235510	05/26/16 14:28	1.0		
026	met54	SAMPLE	277181-031	Soil	235510	05/26/16 14:29	1.0		
027	met54	SAMPLE	277181-032	Soil	235510	05/26/16 14:30	1.0		
028	met54	SAMPLE	277181-033	Soil	235510	05/26/16 14:31	1.0		
029	met54	SAMPLE	277181-034	Soil	235510	05/26/16 14:33	1.0		
030	met54	SAMPLE	277181-035	Soil	235510	05/26/16 14:34	1.0		
031	met54	CCV				05/26/16 14:35	1.0	3	
032	met54	CCB				05/26/16 14:36	1.0		
033	met54	SAMPLE	276733-001	Miscell.	235510	05/26/16 14:38	1.0		
034	met54	SAMPLE	276733-002	Miscell.	235510	05/26/16 14:39	1.0		
035	met54	SAMPLE	276733-003	Miscell.	235510	05/26/16 14:40	1.0		
036	met54	SAMPLE	276733-004	Miscell.	235510	05/26/16 14:41	1.0		
037	met54	SAMPLE	276733-005	Miscell.	235510	05/26/16 14:43	1.0		
038	met54	SAMPLE	276733-006	Miscell.	235510	05/26/16 14:44	1.0		
039	met54	MS	QC837250	Soil	235510	05/26/16 14:45	1.0		
040	met54	MSD	QC837251	Soil	235510	05/26/16 14:46	1.0		
041	met54	CCV				05/26/16 14:48	1.0	3	
042	met54	CCB				05/26/16 14:49	1.0		
043	met54	SER	QC837252	Soil	235510	05/26/16 15:01	5.0		
044	met54	CCV				05/26/16 15:02	1.0	3	
045	met54	CCB				05/26/16 15:03	1.0		

LCS 05/26/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 45.

Standards used: 1=S29993 2=S29995 3=S29996

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 277038 METALS Soil: EPA 7471B

Inst : MET54
Calnum : 1076212518001
Units : ug/L

Date : 26-MAY-2016 13:58
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met54	1076212518002	ICAL1	26-MAY-2016 13:59	S29993 (500X)
L2	met54	1076212518003	ICAL2	26-MAY-2016 14:00	S29993 (200X)
L3	met54	1076212518004	ICAL3	26-MAY-2016 14:02	S29993 (50X)
L4	met54	1076212518005	ICAL4	26-MAY-2016 14:03	S29993 (20X)
L5	met54	1076212518006	ICAL5	26-MAY-2016 14:04	S29993 (10X)

Analyte	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Mercury	0.0755	0.0740	0.0716	0.0704	0.0730	LIN0	0.01928	13.7711		0.0729	1.000	.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Mercury	0.2000	14	0.5000	6	2.0000	-1	5.0000	-3	10.000	1

Instrument amount = a0 + response * a1 + response^2 * a2; LIN0=Linear regression including 0,0 point

1076212518001

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 277038 METALS Soil
EPA 7471B

Inst : MET54
Calnum : 1076212518001 Cal Date : 26-MAY-2016

ICV 1076212518007 (26-MAY-2016) stds: S29995

Analyte	Spiked	Quant	Units	%D	Max	Flags
Mercury	5.000	4.883	ug/L	-2	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 277038 METALS Soil
EPA 7471B

Inst : MET54 IDF : 1.0
Seqnum : 1076212518008.1 File : met54 Time : 26-MAY-2016 14:07
Cal : 1076212518001 Caldate : 26-MAY-2016

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 METALS Soil
EPA 7471B

Inst : MET54 IDF : 1.0
Seqnum : 1076212518019.1 File : met54 Time : 26-MAY-2016 14:20
Cal : 1076212518001 Caldate : 26-MAY-2016
Standards: S29996

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0729	0.0742	5.000	5.131	ug/L	3	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 277038 METALS Soil
EPA 7471B

Inst : MET54 IDF : 1.0
Seqnum : 1076212518020.1 File : met54 Time : 26-MAY-2016 14:21
Cal : 1076212518001 Caldate : 26-MAY-2016

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 277038 METALS Soil
EPA 7471B

Inst : MET54 IDF : 1.0
Seqnum : 1076212518031.1 File : met54 Time : 26-MAY-2016 14:35
Cal : 1076212518001 Caldate : 26-MAY-2016
Standards: S29996

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0729	0.0742	5.000	5.126	ug/L	3	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 277038 METALS Soil
EPA 7471B

Inst : MET54 IDF : 1.0
Seqnum : 1076212518032.1 File : met54 Time : 26-MAY-2016 14:36
Cal : 1076212518001 Caldate : 26-MAY-2016

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

SAMPLE PREPARATION SUMMARY

Batch # : 235465
Started By : LCS
Method : METHOD
Spike #1 ID : S29974

Prep Date : 25-MAY-2016 12:20

Analysis : HG
Finished By : LCS
Units : g

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
277036-005		Soil	.63	50	1	79.37						T22/HG	
277036-006		Soil	.62	50	1	80.65						T22/HG	
277036-007		Soil	.63	50	1	79.37						T22/HG	
277036-008		Soil	.63	50	1	79.37						T22/HG	
277036-009		Soil	.64	50	1	78.13						T22/HG	
277036-010		Soil	.62	50	1	80.65						T22/HG	
277038-001		Soil	.63	50	1	79.37						T22/HG	
277038-002		Soil	.62	50	1	80.65						T22/HG	
277038-003		Soil	.62	50	1	80.65						T22/HG	
277038-004		Soil	.65	50	1	76.92						T22/HG	
277038-005		Soil	.63	50	1	79.37						T22/HG	
277038-006		Soil	.63	50	1	79.37						T22/HG	
277038-007		Soil	.63	50	1	79.37						T22/HG	
277113-001		Soil	.59	50	1	84.75						T22/HG	
277118-001		Soil	.63	50	1	79.37						T22/HG	
277118-002		Soil	.62	50	1	80.65						T22/HG	
277118-003		Soil	.62	50	1	80.65						T22/HG	
277118-004		Soil	.65	50	1	76.92						T22/HG	
277142-008		Soil	.65	50	1	76.92						7471-HG	
277142-009		Soil	.58	50	1	86.21						7471-HG	
QC837071	BLANK	Soil	.63	50	1	79.37							
QC837072	BS	Soil	.61	50	1	81.97		1.25					
QC837073	BSD	Soil	.63	50	1	79.37		1.25					
QC837074	MS	Soil	.64	50	1	78.13		1.25					
QC837075	MSD	Soil	.64	50	1	78.13		1.25					
QC837076	SER	Soil	.63	50	1	79.37							

Analyst: LCS Date: 05/25/16 Reviewer: PRW Date: 05/25/16

Soil Digestion for Mercury

Curtis & Tompkins, Ltd.

LIMS Batch #: 235405

Digestion Method: ☒ EPA 7471A/ 7471B

BK 3826

Date Digested: 5/25/16

☐ _____

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Sample #	container ID	Sample Weight (g)	Final Volume (mL)	Filtered? (y/n)	Comments
MB		.63	☒ 50 ☐ ___	Y	
BS		.61	☒ 50 ☐ ___		
BSD		.63	☒ 50 ☐ ___		
MS		.64	☒ 50 ☐ ___		
MSD		.64	☒ 50 ☐ ___		
277036-005	G	.63	☒ 50 ☐ ___		
-006		.62	☒ 50 ☐ ___		
-007		.63	☒ 50 ☐ ___		MSS
-008		.63	☒ 50 ☐ ___		
-009		.64	☒ 50 ☐ ___		
-010		.62	☒ 50 ☐ ___		
277038-001		.63	☒ 50 ☐ ___		
-002		.62	☒ 50 ☐ ___		
-003		.62	☒ 50 ☐ ___		
-004		.65	☒ 50 ☐ ___		
-005		.63	☒ 50 ☐ ___		
-006		.63	☒ 50 ☐ ___		
-007		.63	☒ 50 ☐ ___		
277113-001	H	.59	☒ 50 ☐ ___		
277118-001	A	.63	☒ 50 ☐ ___		
-002		.62	☒ 50 ☐ ___		
-003		.62	☒ 50 ☐ ___		
-004		.65	☒ 50 ☐ ___		
277142-008	A	.65	☒ 50 ☐ ___		
-009	A	.58	☒ 50 ☐ ___		

Balance ID: Hg calibration has been checked? ☒ Yes ☐ No

Reagent ID/ LIMS# / Time		Initials / Date
Digestion Tubes, Lot #	EK1160322	YJ 5/25
Blank/LCS 'matrix' ID	D1069103	
1.25 mL of spike standard was added to all spikes	529974	
☒ CAL digested with this batch? ICAL Std S#	529975	
ICV / CCV LIMS S#	529976 | 529977	YJ 5/25
Digestion Temperature (°C), and Probe Location	93 | 25	
Digestion block ID	Denali	
Thermometer #	LG1303	
Digestion Started at (time)	12:20	
Aqua Regia (HNO3+ HCl) Reagent ID	05.25.16	
5% $KMnO_4$ reagent ID	05.24.16	
NaCl.hydroxylamine hydrochloride Reagent ID	05.24.16	
Stannous Chloride Reagent ID	05.24.16	
Digestion Completd at (time)	12:55	
☒ filtered thru' 0.45 um syringe filter (lot #)	5550928103	

Pipettes

Vol.(mL)	ID
.1	J281530
.25-1	G156935
1.25-4	L340780
5-10	R229100

LCS 5/25/16

Prep Chemist / Date

Continued from page _____

Continued on page _____

Reviewed Online / See LIMS

Version 7, Dec.2015

Bala

Pipel

SAMPLE PREPARATION SUMMARY

Batch # : 235510
Started By : LCS
Method : METHOD
Spike #1 ID : S29993

Prep Date : 26-MAY-2016 11:45

Analysis : HG
Finished By : LCS
Units : g

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
276733-001		Miscell.	.59	50	1	84.75						(rebatched)	
276733-002		Miscell.	.63	50	1	79.37						(rebatched)	
276733-003		Miscell.	.63	50	1	79.37						(rebatched)	
276733-004		Miscell.	.64	50	1	78.13						(rebatched)	
276733-005		Miscell.	.62	50	1	80.65						(rebatched)	
276733-006		Miscell.	.65	50	1	76.92						(rebatched)	
277038-008		Soil	.65	50	1	76.92						T22/HG	
277038-009		Soil	.62	50	1	80.65						T22/HG	
277038-010		Soil	.63	50	1	79.37						T22/HG	
277038-011		Soil	.63	50	1	79.37						T22/HG	
277038-012		Soil	.62	50	1	80.65						T22/HG	
277126-001		Soil	.63	50	1	79.37						T22/HG	
277127-001		Soil	.63	50	1	79.37						T22/HG	
277181-029		Soil	.66	50	1	75.76						T22/HG	
277181-030		Soil	.57	50	1	87.72						T22/HG	
277181-031		Soil	.62	50	1	80.65						T22/HG	
277181-032		Soil	.62	50	1	80.65						T22/HG	
277181-033		Soil	.63	50	1	79.37						T22/HG	
277181-034		Soil	.62	50	1	80.65						T22/HG	
277181-035		Soil	.59	50	1	84.75						T22/HG	
QC837247	BLANK	Soil	.61	50	1	81.97							
QC837248	BS	Soil	.65	50	1	76.92		1.25					
QC837249	BSD	Soil	.63	50	1	79.37		1.25					
QC837250	MS	Soil	.64	50	1	78.13		1.25					
QC837251	MSD	Soil	.62	50	1	80.65		1.25					
QC837252	SER	Soil	.62	50	1	80.65							

Analyst: LCS Date: 05/26/16 Reviewer: PRW Date: 05/26/16

Soil Digestion for Mercury

Curtis & Tompkins, Ltd.

LIMS Batch #: 235510 Digestion Method: ☒ EPA 7471A/ 7471B

BK 3826

Date Digested: 5/26/16 ☐ _____

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	Sample #	container ID	Sample Weight (g)	Final Volume (mL)	Filtered? (y/n)	Comments
	MB		.61	☒50 ☐___	y	
	BS		.65	☒50 ☐___		
	BSD		.63	☒50 ☐___		
	MS		.64	☒50 ☐___		
	MSD		.62	☒50 ☐___		
	277038-008	G	.65	☒50 ☐___		
5	-009		.62	☒50 ☐___		MSS
	-010		.63	☒50 ☐___		
	-011		.63	☒50 ☐___		
	-012		.62	☒50 ☐___		
	277126-001	D	.63	☒50 ☐___		
10	277127-001	D	.63	☒50 ☐___		
	277181-029	B	.66	☒50 ☐___		comp: 1-4 @ 15g.ea
	-030		.57	☒50 ☐___		comp: 5-8 @ 15g.ea
	-031		.62	☒50 ☐___		comp: 9-12 @ 15g.ea
	-032		.62	☒50 ☐___		comp: 13-16 @ 15g.ea
15	-033		.63	☒50 ☐___		comp: 17-20 @ 15g.ea
	-034		.62	☒50 ☐___		comp: 21-24 @ 15g ea
	-035		.59	☒50 ☐___		comp: 25-28 @ 15g ea
	276733-001	C	.59	☒50 ☐___		
	-002		.63	☒50 ☐___		
20	-003		.63	☒50 ☐___		
	-004		.64	☒50 ☐___		Miscell.
	-005		.62	☒50 ☐___		
	-006		.65	☒50 ☐___		

Balance ID: Hzg calibration has been checked? ☒ Yes ☐ No

Reagent ID/ LIMS# / Time	Initials / Date
Digestion Tubes, Lot # EK160322	LS 5/26
Blank/LCS 'matrix' ID D1069103	
1.25 mL of spike standard was added to all spikes S29993	
☒ **CAL digested with this batch? ICAL Std S#** S29994	
ICV / CCV LIMS S# S29995/S29996	
Digestion Temperature (°C), and Probe Location 93 ~~Dea~~ 26	☒ 5/26
Digestion block ID Denali	
Thermometer # L91303	
Digestion Started at (time) 11:45	
Aqua Regia (HNO3+ HCl) Reagent ID 05.26.16	
5% $KMnO_4$ reagent ID 05.24.16	
NaCl.hydroxylamine hydrochloride Reagent ID 05.24.16	
Stannous Chloride Reagent ID 05.25.16	
Digestion Completd at (time) 12:15	
☒ filtered thru' 0.45 um syringe filter (lot #) SS50928103	

Pipettes

vol.(mL)	ID
.1	J28153D
.25-1	G15693E
.25-4	L840780
5-10	R22910D

LS 5/26

~~LS~~ 5/26/16

Prep Chemist / Date

Continued from page _____

Continued on page _____

Reviewed Online / See LIMS

Version 7, Dec.2015

Dilutions for 277038 METALS Soil
Curtis & Tompkins Laboratories

Type	Sample ID	IDFs
SAMPLE	277038-001	1X, 25X
SAMPLE	277038-002	1X, 25X
SAMPLE	277038-003	1X, 25X
SAMPLE	277038-004	1X, 25X
SAMPLE	277038-005	1X, 25X
SAMPLE	277038-006	1X, 25X
SAMPLE	277038-007	1X, 25X
SAMPLE	277038-008	1X, 25X
SAMPLE	277038-009	1X, 25X
SAMPLE	277038-010	1X, 25X
SAMPLE	277038-011	1X, 25X
SAMPLE	277038-012	1X, 25X
SER	QC837076	5X
SER	QC837252	5X
MS	QC837275	1X, 25X
MSD	QC837276	1X, 25X
SER	QC837277	5X, 125X
PDS	QC837278	1X, 25X

CAS Registry Numbers for 277038 METALS Soil
Curtis & Tompkins Laboratories

Analyte	CAS RN
Antimony	7440-36-0
Arsenic	7440-38-2
Barium	7440-39-3
Beryllium	7440-41-7
Cadmium	7440-43-9
Chromium	7440-47-3
Cobalt	7440-48-4
Copper	7440-50-8
Iron	7439-89-6
Lead	7439-92-1
Manganese	7439-96-5
Mercury	7439-97-6
Molybdenum	7439-98-7
Nickel	7440-02-0
Selenium	7782-49-2
Silver	7440-22-4
Thallium	7440-28-0
Vanadium	7440-62-2
Zinc	7440-66-6

Laboratory Job Number 277038

ANALYTICAL REPORT

Wet Chemistry

Matrix: Soil

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171
F 843.766.1178

gel.com

June 21, 2016

Ms. Dina Ali
Curtis & Tompkins
2323 5th Street
Berkeley, California 94710

Re: Project Number: 277041
Work Order: 398015

Dear Ms. Ali:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on May 24, 2016. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4485.

Sincerely,

Hope Taylor for
Valerie Davis
Project Manager

Purchase Order: 277041
Enclosures

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Chain of Custody and Supporting Documentation

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878
2323 Fifth Street
Berkeley, CA 94710
(510) 486-0900
(510) 486-0532

398015

Project Number: 277041
Site: HPNS Parcel D-1

Subcontract Laboratory:
General Engineering Labs
2040 Savage Road
Charleston, SC 29407
(843) 556-8171
ATTN: Valerie Davis

Results due: Report Level: III

Please send report to: Mike Dahlquist (mike.dahlquist@ctberk.com)
*** Please report using Sample ID rather than C&T Lab #.

Sample ID	Sampled	Matrix	Analysis	C&T Lab #	Comments
BS-BERNARD-13-051916	05/19 08:40	Soil	GAMMA SPEC	277041-001	
BS-BERNARD-14-051916	05/19 08:45	Soil	GAMMA SPEC	277041-002	
BS-BERNARD-15-051916	05/19 08:50	Soil	GAMMA SPEC	277041-003	
BS-BERNARD-16-051916	05/19 08:55	Soil	GAMMA SPEC	277041-004	
BS-BERNARD-17-051916	05/19 09:00	Soil	GAMMA SPEC	277041-005	
BS-BERNARD-18-051916	05/19 09:05	Soil	GAMMA SPEC	277041-006	
BS-BERNARD-19-051916	05/19 09:11	Soil	GAMMA SPEC	277041-007	
BS-BERNARD-20-051916	05/19 09:15	Soil	GAMMA SPEC	277041-008	
BS-BERNARD-21-051916	05/19 09:20	Soil	GAMMA SPEC	277041-009	
BS-BERNARD-22-051916	05/19 09:30	Soil	GAMMA SPEC	277041-010	

Notes:	Relinquished By:	Received By:
	Date/Time: 5/23/16 @ 1600	Date/Time: 5/24/16 9:10
	Date/Time:	Date/Time:

Signature on this form constitutes a firm Purchase Order for the services requested above.

SAP Worksheet #15.1: Reference Limits and Evaluation Table—Site Contaminants (Soil Matrix—Gamma Isotopes)

Analyte	CAS Number	Units	Project Action Limit	Project Action Limit Reference	Project Quantitation Limit Goal	Laboratory-Specific		
						LOQ	LOD	DL
Americium-241 (^{241}Am)	86954-36-1	pCi/g	NA	NA	NA	NA	NA	NA
Bismuth-212 (^{212}Bi)	14913-49-6	pCi/g	NA	NA	NA	NA	NA	NA
Bismuth-214(^{214}Bi)	14733-03-0	pCi/g	NA	NA	NA	NA	NA	NA
Cesium-137 (^{137}Cs)	10045-97-3	pCi/g	0.113	Release Criteria	0.07	0.07[2]	NA	NA
Cobalt-60 (^{60}Co)	10198-40-0	pCi/g	NA	NA	NA	NA	NA	NA
Europium-152 (^{152}Eu)	14683-23-9	pCi/g	NA	NA	NA	NA	NA	NA
Europium-154 (^{154}Eu)	15585-10-1	pCi/g	NA	NA	NA	NA	NA	NA
Lead-212 (^{212}Pb)	15092-94-1	pCi/g	NA	NA	NA	NA	NA	NA
Lead-214 (^{214}Pb)	15067-28-4	pCi/g	NA	NA	NA	NA	NA	NA
Potassium-40 (^{40}K)	13966-00-2	pCi/g	NA	NA	NA	NA	NA	NA
Protactinium-234 (^{234}Pa)	15100-28-4	pCi/g	NA	NA	NA	NA	NA	NA
Radium-226 (^{226}Ra)	13982-63-3	pCi/g	1.0 above background[1]	Release Criteria	0.2	0.2[2]	NA	NA
Thallium-208 (^{208}Tl)	14913-50-9	pCi/g	NA	NA	NA	NA	NA	NA
Thorium-232 (^{232}Th)	7440-29-1	pCi/g	NA	NA	NA	NA	NA	NA
Thorium-234 (^{234Th})	15065-10-8	pCi/g	NA	NA	NA	NA	NA	NA
Uranium-235 (^{235}U)	15117-96-1	pCi/g	NA	NA	NA	NA	NA	NA

Notes:

[1] ^{226}Ra background for definitive data is 0.625 pCi/g for this project.

[2] *A minimum detected concentration at or less than the value listed must be achieved for ^{137}Cs and ^{226}Ra for all samples for this project. Minimum detected concentrations for other radionuclides analyzed by gamma spectroscopy are not required to be achieved unless specifically requested on the applicable COC.*

LOQ	*limit of quantitation*
NA	*not applicable*
pCi/g	*picocurie per gram*

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: CRTL	**SDG/AR/COC/Work Order:** 398015/398018
Received By: ZKW	**Date Received:** 5/24/16

Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0cpm
Classified Radioactive II or III by RSO?		✓	If yes, Were swipes taken of sample containers < action levels?
COC/Samples marked containing PCBs?		✓	
Package, COC, and/or Samples marked as beryllium or asbestos containing?		✓	If yes, samples are to be segregated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		✓	

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*		✓		Preservation Method: Ice bags Blue ice Dry ice (None) Other (describe) *all temperatures are recorded in Celsius 21°C
2a	Daily check performed and passed on IR temperature gun?	✓			Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable): ES03220158030
3	Chain of custody documents included with shipment?	✓			
4	Sample containers intact and sealed?			✓	Circle Applicable: Seals broken (Damaged container) Leaking container Other (describe) Sample BS-Bernard-14-051916 rec'd damaged, min. volume lost.
5	Samples requiring chemical preservation at proper pH?		✓		Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6	Do Low Level Perchlorate samples have headspace as required?		✓		Sample ID's and containers affected:
7	VOA vials contain acid preservation?		✓		(If unknown, select No)
8	VOA vials free of headspace (defined as < 6mm bubble)?		✓		Sample ID's and containers affected:
9	Are Encore containers present?			✓	(If yes, immediately deliver to Volatiles laboratory)
10	Samples received within holding time?	✓			ID's and tests affected:
11	Sample ID's on COC match ID's on bottles?	✓			Sample ID's and containers affected:
12	Date & time on COC match date & time on bottles?	✓			Sample ID's affected:
13	Number of containers received match number indicated on COC?	✓			Sample ID's affected:
14	Are sample containers identifiable as GEL provided?			✓	
15	COC form is properly signed in relinquished/received sections?	✓			
16	Carrier and tracking number.				Circle Applicable: (FedEx Air) FedEx Ground UPS Field Services Courier Other 7763 5455 4484

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials HH Date 052516 Page 1 of 1

Laboratory Certifications

List of current GEL Certifications as of 21 June 2016

State	Certification
Alaska	UST−0110
Arkansas	88−0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH−0169
Delaware	SC00012
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330−15−00283, P330−15−00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho Chemistry	SC00012
Idaho Radiochemistry	SC00012
Illinois NELAP	200029
Indiana	C−SC−01
Kansas NELAP	E−10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA160006
Maryland	270
Massachusetts	M−SC012
Michigan	9976
Mississippi	SC00012
Nebraska	NE−OS−26−13
Nevada	SC000122016−1
New Hampshire NELAP	205415
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R−158
Oklahoma	9904
Pennsylvania NELAP	68−00485
S.Carolina Radchem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235−16−11
Utah NELAP	SC000122016−20
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
West Virginia	997404

Radiological Analysis

Case Narrative

Radiochemistry
Technical Case Narrative
Curtis & Tompkins, Ltd. (CRTL)
SDG #: 398015

Method/Analysis Information

Product:	**GAMMA SPEC**
Analytical Method:	DOE HASL 300, 4.5.2.3/Ga-01-R
Prep Method:	Dry Soil Prep
Analytical Batch Number:	1571056
Prep Batch Number:	1570954

Sample ID	Client ID
398015001	BS-BERNARD-13-051916
398015002	BS-BERNARD-14-051916
398015003	BS-BERNARD-15-051916
398015004	BS-BERNARD-16-051916
398015005	BS-BERNARD-17-051916
398015006	BS-BERNARD-18-051916
398015007	BS-BERNARD-19-051916
398015008	BS-BERNARD-20-051916
398015009	BS-BERNARD-21-051916
398015010	BS-BERNARD-22-051916
1203558412	Method Blank (MB)
1203558414	Laboratory Control Sample (LCS)
1203558413	398015001(BS-BERNARD-13-051916) Sample Duplicate (DUP)

The samples in this SDG were analyzed on a "dry weight" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-013 REV# 25.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry

All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volume in this batch.

QC Information
All of the QC samples meet the required acceptance limits with the following exceptions: The sample and the duplicate, 1203558413 (BS-BERNARD-13-051916DUP) and 398015001 (BS-BERNARD-13-051916), did not meet the relative percent difference requirements for Tl-208 and Th-232; however, they do meet the relative error ratio requirements with values of 1.02 and 1.07.

Designated QC
The following sample was used for QC: 398015001 (BS-BERNARD-13-051916).

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Recounts
None of the samples in this sample set were recounted.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Sample-Specific MDA/MDC
The MDA/MDC reported on the certificate of analysis is a sample-specific MDA/MDC.

Additional Comments
Additional comments were not required for this sample set.

Qualifier Information

Qualifier	Reason	Analyte	Sample	Client Sample
UI	Data rejected due to high counting uncertainty.	Thorium-234	398015001	BS-BERNARD-13-051916
			398015004	BS-BERNARD-16-051916
			398015006	BS-BERNARD-18-051916
UI	Data rejected due to low abundance.	Bismuth-212	398015001	BS-BERNARD-13-051916
			398015003	BS-BERNARD-15-051916

398015005	BS-BERNARD-17-051916
398015006	BS-BERNARD-18-051916
398015008	BS-BERNARD-20-051916
398015010	BS-BERNARD-22-051916

Method/Analysis Information

Product:	**Gamma, Ra226, Solid**
Analytical Method:	DOE HASL 300, 4.5.2.3/Ga-01-R
Prep Method:	Dry Soil Prep
Analytical Batch Number:	1572065
Prep Batch Number:	1570954

Sample ID	Client ID
398015001	BS-BERNARD-13-051916
398015002	BS-BERNARD-14-051916
398015003	BS-BERNARD-15-051916
398015004	BS-BERNARD-16-051916
398015005	BS-BERNARD-17-051916
398015006	BS-BERNARD-18-051916
398015007	BS-BERNARD-19-051916
398015008	BS-BERNARD-20-051916
398015009	BS-BERNARD-21-051916
398015010	BS-BERNARD-22-051916
1203560991	Method Blank (MB)
1203560993	Laboratory Control Sample (LCS)
1203560992	398015001(BS-BERNARD-13-051916) Sample Duplicate (DUP)

The samples in this SDG were analyzed on a "dry weight" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-013 REV# 25.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met.

Standards Information

Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volume in this batch.

QC Information
All of the QC samples met the required acceptance limits.

Designated QC
The following sample was used for QC: 398015001 (BS-BERNARD-13-051916).

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Recounts
None of the samples in this sample set were recounted.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Sample-Specific MDA/MDC
The MDA/MDC reported on the certificate of analysis is a sample-specific MDA/MDC.

Additional Comments
Additional comments were not required for this sample set.

Qualifier Information

Qualifier	Reason	Analyte	Sample	Client Sample
UI	Data rejected due to low abundance.	Radium-226	398015010	BS-BERNARD-22-051916

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the

requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

CRTL001 Curtis & Tompkins, Ltd.

Client SDG: 398015 GEL Work Order: 398015

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
** Analyte is a Tracer compound
M Result above MDC and less than RDL
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
UI Gamma Spectroscopy--Uncertain identification

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: **Name: Kate Gellatly**

Date: 22 JUN 2016 **Title: Analyst I**

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Curtis & Tompkins
Address : 2323 5th Street

Berkeley, California 94710

Report Date: June 22, 2016

Contact: Ms. Dina Ali
Project: Project Number:277041

Client Sample ID: BS-BERNARD-13-051916
Sample ID: 398015001
Matrix: Soil
Collect Date: 19-MAY-16
Receive Date: 24-MAY-16
Collector: Client
Moisture: 10.2%

Project: CRTL00116
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis													
GAMMA SPEC "Dry Weight Corrected"													
Americium-241	U	0.0117	+/-0.0409	0.0722	+/-0.0413		pCi/g		MXR1	06/03/16	0803	1571056	1
Bismuth-212	UI	0.00	+/-0.693	1.01	+/-1.05		pCi/g						
Bismuth-214		0.492	+/-0.112	0.0923	+/-0.120		pCi/g						
Cesium-137	U	-0.00605	+/-0.0306	0.0554	+/-0.0307	0.070	pCi/g						
Cobalt-60	U	0.0127	+/-0.0284	0.0578	+/-0.029		pCi/g						
Europium-152	U	-0.052	+/-0.0748	0.122	+/-0.0785		pCi/g						
Europium-154	U	0.0384	+/-0.0845	0.170	+/-0.0863		pCi/g						
Lead-212		0.757	+/-0.0815	0.0711	+/-0.109		pCi/g						
Lead-214		0.715	+/-0.117	0.0997	+/-0.132		pCi/g						
Potassium-40		10.2	+/-1.06	0.497	+/-1.37		pCi/g						
Protactinium-234	U	0.0591	+/-0.246	0.479	+/-0.257		pCi/g						
Radium-226		0.492	+/-0.112	0.0923	+/-0.120		pCi/g						
Thallium-208		0.169	+/-0.0599	0.0487	+/-0.0616		pCi/g						
Thorium-232		0.618	+/-0.186	0.217	+/-0.200		pCi/g						
Thorium-234	UI	0.00	+/-0.847	0.724	+/-0.867		pCi/g						
Uranium-235	U	0.198	+/-0.221	0.270	+/-0.222		pCi/g						
Gamma, Ra226, Solid "Dry Weight Corrected"													
Radium-226	M	0.470	+/-0.149	0.0965	+/-0.154	1.00	pCi/g		MXR1	06/21/16	0727	1572065	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	05/31/16	1134	1570954

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

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Certificate of Analysis

Company : Curtis & Tompkins
Address : 2323 5th Street
Berkeley, California 94710
Report Date: June 22, 2016
Contact: Ms. Dina Ali
Project: Project Number:277041
Client Sample ID: BS-BERNARD-13-051916
Sample ID: 398015001
Project: CRTL00116
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	**Test**						**Batch ID**		**Recovery%**	**Acceptable Limits**			

Notes:
The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

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Certificate of Analysis

Company : Curtis & Tompkins
Address : 2323 5th Street

Berkeley, California 94710

Report Date: June 22, 2016

Contact: Ms. Dina Ali
Project: Project Number:277041

Client Sample ID: BS-BERNARD-14-051916
Sample ID: 398015002
Matrix: Soil
Collect Date: 19-MAY-16
Receive Date: 24-MAY-16
Collector: Client
Moisture: 8.6%

Project: CRTL00116
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis													
GAMMA SPEC "Dry Weight Corrected"													
Americium-241	U	-0.102	+/-0.122	0.176	+/-0.131		pCi/g		MXR1	06/03/16	0809	1571056	1
Bismuth-212	U	0.610	+/-0.426	0.801	+/-0.511		pCi/g						
Bismuth-214		0.541	+/-0.113	0.0873	+/-0.122		pCi/g						
Cesium-137	U	-0.00739	+/-0.0217	0.0398	+/-0.0219	0.070	pCi/g						
Cobalt-60	U	0.00351	+/-0.0252	0.0494	+/-0.0252		pCi/g						
Europium-152	U	-0.00581	+/-0.0616	0.105	+/-0.0617		pCi/g						
Europium-154	U	0.0298	+/-0.0849	0.167	+/-0.086		pCi/g						
Lead-212		0.652	+/-0.0735	0.065	+/-0.0937		pCi/g						
Lead-214		0.679	+/-0.104	0.0868	+/-0.120		pCi/g						
Potassium-40		11.1	+/-0.984	0.439	+/-1.38		pCi/g						
Protactinium-234	U	-0.0583	+/-0.195	0.349	+/-0.208		pCi/g						
Radium-226		0.541	+/-0.113	0.0873	+/-0.122		pCi/g						
Thallium-208		0.217	+/-0.0509	0.0425	+/-0.054		pCi/g						
Thorium-232		0.632	+/-0.196	0.173	+/-0.218		pCi/g						
Thorium-234	U	0.642	+/-1.46	1.59	+/-1.47		pCi/g						
Uranium-235	U	-0.0277	+/-0.134	0.234	+/-0.135		pCi/g						
Gamma, Ra226, Solid "Dry Weight Corrected"													
Radium-226	M	0.593	+/-0.168	0.127	+/-0.170	1.00	pCi/g		MXR1	06/21/16	0728	1572065	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	05/31/16	1134	1570954

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

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Certificate of Analysis

Company : Curtis & Tompkins
Address : 2323 5th Street
Berkeley, California 94710
Report Date: June 22, 2016
Contact: Ms. Dina Ali
Project: Project Number:277041
Client Sample ID: BS-BERNARD-14-051916
Sample ID: 398015002
Project: CRTL00116
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	**Test**						**Batch ID**		**Recovery%**	**Acceptable Limits**			

Notes:
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Certificate of Analysis

Company : Curtis & Tompkins
Address : 2323 5th Street

Berkeley, California 94710

Report Date: June 22, 2016

Contact: Ms. Dina Ali
Project: Project Number:277041

Client Sample ID: BS-BERNARD-15-051916
Sample ID: 398015003
Matrix: Soil
Collect Date: 19-MAY-16
Receive Date: 24-MAY-16
Collector: Client
Moisture: 7.13%

Project: CRTL00116
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis													
GAMMA SPEC "Dry Weight Corrected"													
Americium-241	U	-0.0475	+/-0.123	0.204	+/-0.125		pCi/g		MXR1	06/03/16	0810	1571056	1
Bismuth-212	UI	0.00	+/-0.974	0.905	+/-1.17		pCi/g						
Bismuth-214		0.460	+/-0.133	0.111	+/-0.139		pCi/g						
Cesium-137	U	0.0154	+/-0.0295	0.0561	+/-0.0303	0.070	pCi/g						
Cobalt-60	U	-0.00537	+/-0.0346	0.0535	+/-0.0347		pCi/g						
Europium-152	U	-0.0146	+/-0.102	0.143	+/-0.102		pCi/g						
Europium-154	U	-0.0412	+/-0.0881	0.154	+/-0.0901		pCi/g						
Lead-212		0.812	+/-0.0852	0.0815	+/-0.108		pCi/g						
Lead-214		0.753	+/-0.118	0.115	+/-0.133		pCi/g						
Potassium-40		10.3	+/-0.960	0.464	+/-1.30		pCi/g						
Protactinium-234	U	0.0771	+/-0.222	0.431	+/-0.241		pCi/g						
Radium-226		0.460	+/-0.133	0.111	+/-0.139		pCi/g						
Thallium-208		0.217	+/-0.0606	0.0528	+/-0.0632		pCi/g						
Thorium-232		0.815	+/-0.263	0.193	+/-0.286		pCi/g						
Thorium-234	U	0.593	+/-1.73	1.74	+/-1.74		pCi/g						
Uranium-235	U	0.0935	+/-0.159	0.291	+/-0.159		pCi/g						
Gamma, Ra226, Solid "Dry Weight Corrected"													
Radium-226	M	0.537	+/-0.150	0.117	+/-0.157	1.00	pCi/g		MXR1	06/21/16	0728	1572065	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	05/31/16	1134	1570954

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

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Certificate of Analysis

Company : Curtis & Tompkins
Address : 2323 5th Street
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Report Date: June 22, 2016
Contact: Ms. Dina Ali
Project: Project Number:277041
Client Sample ID: BS-BERNARD-15-051916
Sample ID: 398015003
Project: CRTL00116
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	**Test**						**Batch ID**		**Recovery%**	**Acceptable Limits**			

Notes:
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Certificate of Analysis

Company : Curtis & Tompkins
Address : 2323 5th Street

Berkeley, California 94710

Report Date: June 22, 2016

Contact: Ms. Dina Ali
Project: Project Number:277041

Client Sample ID: BS-BERNARD-16-051916
Sample ID: 398015004
Matrix: Soil
Collect Date: 19-MAY-16
Receive Date: 24-MAY-16
Collector: Client
Moisture: 7.03%

Project: CRTL00116
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis													
GAMMA SPEC "Dry Weight Corrected"													
Americium-241	U	0.00088	+/-0.0664	0.111	+/-0.0664		pCi/g		MXR1	06/03/16	0810	1571056	1
Bismuth-212		0.600	+/-0.360	0.577	+/-0.365		pCi/g						
Bismuth-214		0.450	+/-0.0885	0.0785	+/-0.0958		pCi/g						
Cesium-137	U	-0.0174	+/-0.0223	0.039	+/-0.0237	0.070	pCi/g						
Cobalt-60	U	0.00511	+/-0.0237	0.0464	+/-0.0238		pCi/g						
Europium-152	U	-0.0504	+/-0.0637	0.106	+/-0.0678		pCi/g						
Europium-154	U	0.0356	+/-0.078	0.153	+/-0.0797		pCi/g						
Lead-212		0.810	+/-0.0743	0.0585	+/-0.103		pCi/g						
Lead-214		0.491	+/-0.109	0.0951	+/-0.117		pCi/g						
Potassium-40		10.6	+/-0.896	0.360	+/-1.30		pCi/g						
Protactinium-234	U	-0.0714	+/-0.178	0.315	+/-0.199		pCi/g						
Radium-226		0.450	+/-0.0885	0.0785	+/-0.0958		pCi/g						
Thallium-208		0.247	+/-0.0546	0.0366	+/-0.0583		pCi/g						
Thorium-232		0.825	+/-0.163	0.148	+/-0.199		pCi/g						
Thorium-234	UI	0.00	+/-1.39	0.985	+/-1.42		pCi/g						
Uranium-235	U	0.134	+/-0.151	0.199	+/-0.151		pCi/g						
Gamma, Ra226, Solid "Dry Weight Corrected"													
Radium-226	M	0.469	+/-0.144	0.116	+/-0.149	1.00	pCi/g		MXR1	06/21/16	0728	1572065	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	05/31/16	1134	1570954

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

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Certificate of Analysis

Company : Curtis & Tompkins
Address : 2323 5th Street
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Report Date: June 22, 2016
Contact: Ms. Dina Ali
Project: Project Number:277041
Client Sample ID: BS-BERNARD-16-051916
Sample ID: 398015004
Project: CRTL00116
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	**Test**						**Batch ID**		**Recovery%**	**Acceptable Limits**			

Notes:
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Certificate of Analysis

Company : Curtis & Tompkins
Address : 2323 5th Street
Berkeley, California 94710
Report Date: June 22, 2016
Contact: Ms. Dina Ali
Project: Project Number:277041

Client Sample ID: BS-BERNARD-17-051916
Sample ID: 398015005
Matrix: Soil
Collect Date: 19-MAY-16
Receive Date: 24-MAY-16
Collector: Client
Moisture: 9.27%

Project: CRTL00116
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis													
GAMMA SPEC "Dry Weight Corrected"													
Americium-241	U	0.019	+/-0.0371	0.0633	+/-0.0381		pCi/g		MXR1	06/03/16	0810	1571056	1
Bismuth-212	UI	0.00	+/-0.418	0.842	+/-0.643		pCi/g						
Bismuth-214		0.546	+/-0.0957	0.0903	+/-0.106		pCi/g						
Cesium-137	U	-0.0162	+/-0.0301	0.0515	+/-0.031	0.070	pCi/g						
Cobalt-60	U	0.021	+/-0.0305	0.0566	+/-0.032		pCi/g						
Europium-152	U	0.0341	+/-0.101	0.136	+/-0.102		pCi/g						
Europium-154	U	-0.0652	+/-0.091	0.157	+/-0.0958		pCi/g						
Lead-212		0.899	+/-0.0755	0.0646	+/-0.133		pCi/g						
Lead-214		0.674	+/-0.116	0.192	+/-0.129		pCi/g						
Potassium-40		11.6	+/-1.00	0.387	+/-1.51		pCi/g						
Protactinium-234	U	0.145	+/-0.276	0.383	+/-0.329		pCi/g						
Radium-226		0.546	+/-0.0957	0.0903	+/-0.106		pCi/g						
Thallium-208		0.211	+/-0.0515	0.0463	+/-0.0546		pCi/g						
Thorium-232		0.787	+/-0.257	0.200	+/-0.277		pCi/g						
Thorium-234		1.12	+/-0.691	0.641	+/-0.736		pCi/g						
Uranium-235	U	0.0433	+/-0.125	0.233	+/-0.125		pCi/g						
Gamma, Ra226, Solid "Dry Weight Corrected"													
Radium-226	M	0.625	+/-0.149	0.140	+/-0.158	1.00	pCi/g		MXR1	06/21/16	0729	1572065	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	05/31/16	1134	1570954

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

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Certificate of Analysis

Company : Curtis & Tompkins
Address : 2323 5th Street
Berkeley, California 94710
Report Date: June 22, 2016
Contact: Ms. Dina Ali
Project: Project Number:277041
Client Sample ID: BS-BERNARD-17-051916
Sample ID: 398015005
Project: CRTL00116
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	**Test**						**Batch ID**		**Recovery%**	**Acceptable Limits**			

Notes:
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Certificate of Analysis

Company : Curtis & Tompkins
Address : 2323 5th Street

Berkeley, California 94710

Report Date: June 22, 2016

Contact: Ms. Dina Ali
Project: Project Number:277041

Client Sample ID: BS-BERNARD-18-051916
Sample ID: 398015006
Matrix: Soil
Collect Date: 19-MAY-16
Receive Date: 24-MAY-16
Collector: Client
Moisture: 4.8%

Project: CRTL00116
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis													
GAMMA SPEC "Dry Weight Corrected"													
Americium-241	U	-0.00352	+/-0.0646	0.109	+/-0.0646		pCi/g		MXR1	06/03/16	0811	1571056	1
Bismuth-212	UI	0.00	+/-0.375	0.748	+/-0.526		pCi/g						
Bismuth-214		0.457	+/-0.0928	0.0819	+/-0.100		pCi/g						
Cesium-137	U	0.00431	+/-0.0219	0.0415	+/-0.022	0.070	pCi/g						
Cobalt-60	U	-0.0144	+/-0.0259	0.0448	+/-0.0267		pCi/g						
Europium-152	U	0.0149	+/-0.0672	0.116	+/-0.0676		pCi/g						
Europium-154	U	-0.0106	+/-0.0702	0.129	+/-0.0704		pCi/g						
Lead-212		0.733	+/-0.0723	0.0649	+/-0.0993		pCi/g						
Lead-214		0.633	+/-0.105	0.0818	+/-0.118		pCi/g						
Potassium-40		11.0	+/-0.874	0.361	+/-1.30		pCi/g						
Protactinium-234	U	0.0137	+/-0.183	0.348	+/-0.183		pCi/g						
Radium-226		0.457	+/-0.0928	0.0819	+/-0.100		pCi/g						
Thallium-208		0.216	+/-0.0445	0.0372	+/-0.0479		pCi/g						
Thorium-232		0.617	+/-0.179	0.147	+/-0.199		pCi/g						
Thorium-234	UI	0.00	+/-1.22	1.00	+/-1.24		pCi/g						
Uranium-235	U	-0.00844	+/-0.127	0.224	+/-0.127		pCi/g						
Gamma, Ra226, Solid "Dry Weight Corrected"													
Radium-226	M	0.511	+/-0.179	0.142	+/-0.184	1.00	pCi/g		MXR1	06/21/16	0731	1572065	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	05/31/16	1134	1570954

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

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Certificate of Analysis

Company : Curtis & Tompkins
Address : 2323 5th Street
Berkeley, California 94710
Report Date: June 22, 2016
Contact: Ms. Dina Ali
Project: Project Number:277041
Client Sample ID: BS-BERNARD-18-051916
Sample ID: 398015006
Project: CRTL00116
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	**Test**						**Batch ID**		**Recovery%**	**Acceptable Limits**			

Notes:
The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

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Certificate of Analysis

Company : Curtis & Tompkins
Address : 2323 5th Street

Berkeley, California 94710

Report Date: June 22, 2016

Contact: Ms. Dina Ali
Project: Project Number:277041

Client Sample ID: BS-BERNARD-19-051916
Sample ID: 398015007
Matrix: Soil
Collect Date: 19-MAY-16
Receive Date: 24-MAY-16
Collector: Client
Moisture: 11.8%

Project: CRTL00116
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis													
GAMMA SPEC "Dry Weight Corrected"													
Americium-241	U	0.00457	+/-0.201	0.374	+/-0.201		pCi/g		MXR1	06/03/16	0811	1571056	1
Bismuth-212	U	0.636	+/-0.639	0.917	+/-0.703		pCi/g						
Bismuth-214		0.595	+/-0.147	0.100	+/-0.157		pCi/g						
Cesium-137	U	-0.0122	+/-0.0283	0.0505	+/-0.0288	0.070	pCi/g						
Cobalt-60	U	0.0053	+/-0.0317	0.0614	+/-0.0318		pCi/g						
Europium-152	U	-0.00012	+/-0.0768	0.136	+/-0.0768		pCi/g						
Europium-154	U	0.0132	+/-0.106	0.200	+/-0.106		pCi/g						
Lead-212		0.844	+/-0.0901	0.0836	+/-0.116		pCi/g						
Lead-214		0.821	+/-0.138	0.106	+/-0.156		pCi/g						
Potassium-40		9.86	+/-1.01	0.471	+/-1.32		pCi/g						
Protactinium-234	U	-0.0525	+/-0.257	0.456	+/-0.265		pCi/g						
Radium-226		0.595	+/-0.147	0.100	+/-0.157		pCi/g						
Thallium-208		0.278	+/-0.0618	0.0507	+/-0.0666		pCi/g						
Thorium-232		0.592	+/-0.244	0.198	+/-0.260		pCi/g						
Thorium-234	U	0.865	+/-1.49	2.76	+/-1.55		pCi/g						
Uranium-235	U	0.133	+/-0.163	0.301	+/-0.163		pCi/g						
Gamma, Ra226, Solid "Dry Weight Corrected"													
Radium-226	M	0.510	+/-0.137	0.178	+/-0.143	1.00	pCi/g		MXR1	06/21/16	0739	1572065	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	05/31/16	1134	1570954

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

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Certificate of Analysis

Company : Curtis & Tompkins
Address : 2323 5th Street
Berkeley, California 94710
Report Date: June 22, 2016
Contact: Ms. Dina Ali
Project: Project Number:277041
Client Sample ID: BS-BERNARD-19-051916
Sample ID: 398015007
Project: CRTL00116
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	**Test**						**Batch ID**		**Recovery%**	**Acceptable Limits**			

Notes:
The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Curtis & Tompkins
Address : 2323 5th Street

Berkeley, California 94710

Report Date: June 22, 2016

Contact: Ms. Dina Ali
Project: Project Number:277041

Client Sample ID: BS-BERNARD-20-051916
Sample ID: 398015008
Matrix: Soil
Collect Date: 19-MAY-16
Receive Date: 24-MAY-16
Collector: Client
Moisture: 9%

Project: CRTL00116
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis													
GAMMA SPEC "Dry Weight Corrected"													
Americium-241	U	0.0208	+/-0.151	0.251	+/-0.151		pCi/g		MXR1	06/03/16	0819	1571056	1
Bismuth-212	UI	0.00	+/-0.561	0.965	+/-0.964		pCi/g						
Bismuth-214		0.568	+/-0.125	0.0947	+/-0.134		pCi/g						
Cesium-137	U	-0.019	+/-0.0293	0.052	+/-0.0305	0.070	pCi/g						
Cobalt-60	U	0.0423	+/-0.0299	0.0623	+/-0.0357		pCi/g						
Europium-152	U	0.0624	+/-0.128	0.140	+/-0.131		pCi/g						
Europium-154	U	-0.00311	+/-0.0768	0.150	+/-0.0768		pCi/g						
Lead-212		0.845	+/-0.0889	0.0784	+/-0.111		pCi/g						
Lead-214		0.679	+/-0.123	0.105	+/-0.134		pCi/g						
Potassium-40		9.84	+/-0.982	0.454	+/-1.40		pCi/g						
Protactinium-234	U	0.090	+/-0.245	0.387	+/-0.269		pCi/g						
Radium-226		0.568	+/-0.125	0.0947	+/-0.134		pCi/g						
Thallium-208		0.210	+/-0.0527	0.0532	+/-0.0555		pCi/g						
Thorium-232		0.635	+/-0.253	0.208	+/-0.264		pCi/g						
Thorium-234	U	0.351	+/-2.01	2.10	+/-2.01		pCi/g						
Uranium-235	U	0.0699	+/-0.265	0.287	+/-0.265		pCi/g						
Gamma, Ra226, Solid "Dry Weight Corrected"													
Radium-226	M	0.575	+/-0.115	0.103	+/-0.125	1.00	pCi/g		MXR1	06/21/16	0739	1572065	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	05/31/16	1134	1570954

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

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Certificate of Analysis

Company : Curtis & Tompkins
Address : 2323 5th Street
Berkeley, California 94710
Report Date: June 22, 2016
Contact: Ms. Dina Ali
Project: Project Number:277041
Client Sample ID: BS-BERNARD-20-051916
Sample ID: 398015008
Project: CRTL00116
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	**Test**						**Batch ID**		**Recovery%**	**Acceptable Limits**			

Notes:
The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

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Certificate of Analysis

Company : Curtis & Tompkins
Address : 2323 5th Street

Berkeley, California 94710

Report Date: June 22, 2016

Contact: Ms. Dina Ali
Project: Project Number:277041

Client Sample ID: BS-BERNARD-21-051916
Sample ID: 398015009
Matrix: Soil
Collect Date: 19-MAY-16
Receive Date: 24-MAY-16
Collector: Client
Moisture: 9.39%

Project: CRTL00116
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis													
GAMMA SPEC "Dry Weight Corrected"													
Americium-241	U	-0.0849	+/-0.109	0.200	+/-0.116		pCi/g		MXR1	06/03/16	0819	1571056	1
Bismuth-212		0.819	+/-0.467	0.608	+/-0.475		pCi/g						
Bismuth-214		0.551	+/-0.111	0.0797	+/-0.120		pCi/g						
Cesium-137	U	0.0179	+/-0.0248	0.0495	+/-0.0262	0.070	pCi/g						
Cobalt-60	U	-0.012	+/-0.0233	0.0413	+/-0.024		pCi/g						
Europium-152	U	0.00187	+/-0.0738	0.126	+/-0.0738		pCi/g						
Europium-154	U	0.00139	+/-0.0804	0.152	+/-0.0804		pCi/g						
Lead-212		0.716	+/-0.0812	0.0868	+/-0.101		pCi/g						
Lead-214		0.648	+/-0.119	0.189	+/-0.131		pCi/g						
Potassium-40		10.1	+/-0.954	0.433	+/-1.31		pCi/g						
Protactinium-234	U	-0.0346	+/-0.243	0.392	+/-0.246		pCi/g						
Radium-226		0.551	+/-0.111	0.0797	+/-0.120		pCi/g						
Thallium-208		0.203	+/-0.0598	0.0414	+/-0.0622		pCi/g						
Thorium-232		0.882	+/-0.213	0.160	+/-0.250		pCi/g						
Thorium-234	U	-0.106	+/-1.05	1.97	+/-1.05		pCi/g						
Uranium-235	U	-0.116	+/-0.143	0.241	+/-0.143		pCi/g						
Gamma, Ra226, Solid "Dry Weight Corrected"													
Radium-226	M	0.596	+/-0.153	0.127	+/-0.161	1.00	pCi/g		MXR1	06/21/16	0740	1572065	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	05/31/16	1134	1570954

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

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Certificate of Analysis

Company : Curtis & Tompkins
Address : 2323 5th Street
Berkeley, California 94710
Report Date: June 22, 2016
Contact: Ms. Dina Ali
Project: Project Number:277041
Client Sample ID: BS-BERNARD-21-051916
Sample ID: 398015009
Project: CRTL00116
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	**Test**						**Batch ID**		**Recovery%**	**Acceptable Limits**			

Notes:
The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

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Certificate of Analysis

Company : Curtis & Tompkins
Address : 2323 5th Street

Berkeley, California 94710

Report Date: June 22, 2016

Contact: Ms. Dina Ali
Project: Project Number:277041

Client Sample ID: BS-BERNARD-22-051916
Sample ID: 398015010
Matrix: Soil
Collect Date: 19-MAY-16
Receive Date: 24-MAY-16
Collector: Client
Moisture: 10.2%

Project: CRTL00116
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis													
GAMMA SPEC "Dry Weight Corrected"													
Americium-241	U	0.00428	+/-0.0819	0.133	+/-0.0819		pCi/g		MXR1	06/03/16	0820	1571056	1
Bismuth-212	UI	0.00	+/-0.574	0.768	+/-0.681		pCi/g						
Bismuth-214		0.486	+/-0.100	0.0827	+/-0.108		pCi/g						
Cesium-137	U	0.0183	+/-0.0295	0.0437	+/-0.0295	0.070	pCi/g						
Cobalt-60	U	0.0176	+/-0.0254	0.0523	+/-0.0266		pCi/g						
Europium-152	U	-0.0163	+/-0.0685	0.112	+/-0.0689		pCi/g						
Europium-154	U	0.0702	+/-0.0735	0.155	+/-0.0803		pCi/g						
Lead-212		0.859	+/-0.0765	0.0677	+/-0.113		pCi/g						
Lead-214		0.678	+/-0.0922	0.181	+/-0.110		pCi/g						
Potassium-40		10.7	+/-0.941	0.435	+/-1.34		pCi/g						
Protactinium-234	U	0.0318	+/-0.164	0.313	+/-0.168		pCi/g						
Radium-226		0.486	+/-0.100	0.0827	+/-0.108		pCi/g						
Thallium-208		0.257	+/-0.0491	0.0392	+/-0.0536		pCi/g						
Thorium-232		0.664	+/-0.150	0.146	+/-0.180		pCi/g						
Thorium-234	U	0.163	+/-0.987	1.23	+/-0.988		pCi/g						
Uranium-235	U	-0.143	+/-0.134	0.235	+/-0.135		pCi/g						
Gamma, Ra226, Solid "Dry Weight Corrected"													
Radium-226	UI	0.00	+/-0.140	0.221	+/-0.280	1.00	pCi/g		MXR1	06/21/16	0751	1572065	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	05/31/16	1134	1570954

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

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Certificate of Analysis

Company : Curtis & Tompkins
Address : 2323 5th Street
Berkeley, California 94710
Report Date: June 22, 2016
Contact: Ms. Dina Ali
Project: Project Number:277041
Client Sample ID: BS-BERNARD-22-051916
Sample ID: 398015010
Project: CRTL00116
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Surrogate/Tracer Recovery	**Test**						**Batch ID**		**Recovery%**	**Acceptable Limits**			

Notes:
The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Quality Control Summary

QC Summary

Client : **Curtis & Tompkins**
2323 5th Street

Berkeley, California
Contact: **Ms. Dina Ali**
Workorder: **398015**

Report Date: June 22, 2016

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 1571056										
QC1203558413 398015001 DUP										
Americium-241	U	0.0117	U	0.127	pCi/g	0		N/A	MXR1	06/03/1610:47
	Uncert:	+/-0.0409		+/-0.105						
	TPU:	+/-0.0413		+/-0.120						
Bismuth-212	UI	0.00		1.00	pCi/g	1.31		(0% - 100%)		
	Uncert:	+/-0.693		+/-0.434						
	TPU:	+/-1.05		+/-0.444						
Bismuth-214		0.492		0.523	pCi/g	5.93		(0%-20%)		
	Uncert:	+/-0.112		+/-0.0904						
	TPU:	+/-0.120		+/-0.101						
Cesium-137	U	-0.00605	U	0.00522	pCi/g	0		N/A		
	Uncert:	+/-0.0306		+/-0.0217						
	TPU:	+/-0.0307		+/-0.0218						
Cobalt-60	U	0.0127	U	0.00591	pCi/g	0		N/A		
	Uncert:	+/-0.0284		+/-0.0191						
	TPU:	+/-0.029		+/-0.0193						
Europium-152	U	-0.052	U	0.0177	pCi/g	0		N/A		
	Uncert:	+/-0.0748		+/-0.0711						
	TPU:	+/-0.0785		+/-0.0715						
Europium-154	U	0.0384	U	-0.0331	pCi/g	0		N/A		
	Uncert:	+/-0.0845		+/-0.0679						
	TPU:	+/-0.0863		+/-0.0696						
Lead-212		0.757		0.884	pCi/g	15.4		(0%-20%)		
	Uncert:	+/-0.0815		+/-0.0804						
	TPU:	+/-0.109		+/-0.106						
Lead-214		0.715		0.648	pCi/g	9.83		(0%-20%)		
	Uncert:	+/-0.117		+/-0.0929						
	TPU:	+/-0.132		+/-0.106						
Potassium-40		10.2		11.4	pCi/g	11.2		(0%-20%)		
	Uncert:	+/-1.06		+/-0.744						
	TPU:	+/-1.37		+/-1.22						
Protactinium-234	U	0.0591	U	0.138	pCi/g	0		N/A		
	Uncert:	+/-0.246		+/-0.167						
	TPU:	+/-0.257		+/-0.239						
Radium-226		0.492		0.523	pCi/g	5.93		(0%-20%)		
	Uncert:	+/-0.112		+/-0.0904						
	TPU:	+/-0.120		+/-0.101						
Thallium-208		0.169		0.212	pCi/g	22.5*		(0%-20%)		
	Uncert:	+/-0.0599		+/-0.051						
	TPU:	+/-0.0616		+/-0.0541						
Thorium-232		0.618		0.763	pCi/g	21*		(0%-20%)		
	Uncert:	+/-0.186		+/-0.153						

QC Summary

Workorder: **398015**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 1571056										
	TPU:	+/-0.200		+/-0.173						
Thorium-234	UI	0.00	U	0.0607	pCi/g	0		N/A		
	Uncert:	+/-0.847		+/-1.45						
	TPU:	+/-0.867		+/-1.45						
Uranium-235	U	0.198	U	-0.0361	pCi/g	0		N/A		
	Uncert:	+/-0.221		+/-0.141						
	TPU:	+/-0.222		+/-0.142						
QC1203558414 LCS										
Americium-241	489			546	pCi/g		112	(75%-125%)	MXR1	06/03/1608:33
	Uncert:			+/-9.37						
	TPU:			+/-43.7						
Bismuth-212			U	-6.62	pCi/g					
	Uncert:			+/-8.88						
	TPU:			+/-9.39						
Bismuth-214			U	0.0349	pCi/g					
	Uncert:			+/-1.19						
	TPU:			+/-1.19						
Cesium-137	181			185	pCi/g		102	(75%-125%)		
	Uncert:			+/-3.26						
	TPU:			+/-15.3						
Cobalt-60	168			162	pCi/g		96.8	(75%-125%)		
	Uncert:			+/-3.54						
	TPU:			+/-14.4						
Europium-152			U	1.10	pCi/g					
	Uncert:			+/-1.86						
	TPU:			+/-1.93						
Europium-154			U	0.320	pCi/g					
	Uncert:			+/-1.12						
	TPU:			+/-1.13						
Lead-212			U	-0.114	pCi/g					
	Uncert:			+/-0.931						
	TPU:			+/-0.932						
Lead-214			U	-0.867	pCi/g					
	Uncert:			+/-1.38						
	TPU:			+/-1.44						
Potassium-40			U	3.72	pCi/g					
	Uncert:			+/-3.01						
	TPU:			+/-3.03						
Protactinium-234			U	1.98	pCi/g					
	Uncert:			+/-8.06						
	TPU:			+/-8.42						
Radium-226			U	0.0349	pCi/g					
	Uncert:			+/-1.19						
	TPU:			+/-1.19						
Thallium-208			U	0.0944	pCi/g					
	Uncert:			+/-0.720						

QC Summary

Workorder: **398015**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 1571056										
	TPU:			+/-0.721						
Thorium-232			U	1.39	pCi/g					
	Uncert:			+/-3.37						
	TPU:			+/-3.43						
Thorium-234			U	-2.33	pCi/g					
	Uncert:			+/-22.7						
	TPU:			+/-22.7						
Uranium-235			U	-1.44	pCi/g					
	Uncert:			+/-2.74						
	TPU:			+/-2.82						
QC1203558412 MB										
Americium-241			U	0.0418	pCi/g				MXR1	06/03/1608:20
	Uncert:			+/-0.055						
	TPU:			+/-0.0582						
Bismuth-212			U	-0.135	pCi/g					
	Uncert:			+/-0.208						
	TPU:			+/-0.217						
Bismuth-214			U	0.0183	pCi/g					
	Uncert:			+/-0.0611						
	TPU:			+/-0.0611						
Cesium-137			U	0.000447	pCi/g					
	Uncert:			+/-0.0144						
	TPU:			+/-0.0144						
Cobalt-60			U	-0.0114	pCi/g					
	Uncert:			+/-0.016						
	TPU:			+/-0.0168						
Europium-152			U	-0.0254	pCi/g					
	Uncert:			+/-0.0376						
	TPU:			+/-0.0393						
Europium-154			U	0.0121	pCi/g					
	Uncert:			+/-0.036						
	TPU:			+/-0.0364						
Lead-212			U	-0.00519	pCi/g					
	Uncert:			+/-0.0289						
	TPU:			+/-0.029						
Lead-214			U	-0.0326	pCi/g					
	Uncert:			+/-0.0341						
	TPU:			+/-0.0372						
Potassium-40			U	0.0566	pCi/g					
	Uncert:			+/-0.163						
	TPU:			+/-0.163						
Protactinium-234			U	-0.0366	pCi/g					
	Uncert:			+/-0.112						
	TPU:			+/-0.121						
Radium-226			U	0.0183	pCi/g					
	Uncert:			+/-0.0611						

QC Summary

Workorder: **398015**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 1571056										
	TPU:			+/-0.0611						
Thallium-208			U	0.00807	pCi/g					
	Uncert:			+/-0.0208						
	TPU:			+/-0.0208						
Thorium-232			U	0.0414	pCi/g					
	Uncert:			+/-0.078						
	TPU:			+/-0.0805						
Thorium-234			U	0.000586	pCi/g					
	Uncert:			+/-0.869						
	TPU:			+/-0.869						
Uranium-235			U	0.116	pCi/g					
	Uncert:			+/-0.134						
	TPU:			+/-0.134						
Batch 1572065										
QC1203560992 398015001 DUP										
Radium-226	M	0.470	M	0.637	pCi/g	30.2		(0% - 100%)	MXR1	06/21/1607:51
	Uncert:	+/-0.149		+/-0.185						
	TPU:	+/-0.154		+/-0.194						
QC1203560993 LCS										
Americium-241	489			532	pCi/g		109	(75%-125%)	MXR1	06/21/1607:29
	Uncert:			+/-7.73						
	TPU:			+/-40.3						
Cesium-137	181			179	pCi/g		99.3	(75%-125%)		
	Uncert:			+/-2.98						
	TPU:			+/-14.5						
Cobalt-60	168			154	pCi/g		91.6	(75%-125%)		
	Uncert:			+/-3.13						
	TPU:			+/-12.8						
Radium-226			U	-0.451	pCi/g					
	Uncert:			+/-1.08						
	TPU:			+/-1.10						
QC1203560991 MB										
Radium-226			U	-0.0207	pCi/g				MXR1	06/21/1607:51
	Uncert:			+/-0.0455						
	TPU:			+/-0.0464						

Notes:

TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

The Qualifiers in this report are defined as follows:

**	Analyte is a Tracer compound
<	Result is less than value reported
>	Result is greater than value reported
BD	Results are either below the MDC or tracer recovery is low
FA	Failed analysis.
H	Analytical holding time was exceeded

QC Summary

Workorder: **398015**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time

J	Value is estimated
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
M	Result above MDC and less than RDL
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	Other specific qualifiers were required to properly define the results. Consult case narrative.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
** Indicates analyte is a surrogate/tracer compound.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 277041
ANALYTICAL REPORT

CB&I	Project : 149831
4005 Port Chicago Highway	Location : HPNS Parcel D-1
Concord, CA 94520-1120	Level : III

Sample ID	Lab ID
BS-BERNARD-13-051916	277041-001
BS-BERNARD-14-051916	277041-002
BS-BERNARD-15-051916	277041-003
BS-BERNARD-16-051916	277041-004
BS-BERNARD-17-051916	277041-005
BS-BERNARD-18-051916	277041-006
BS-BERNARD-19-051916	277041-007
BS-BERNARD-20-051916	277041-008
BS-BERNARD-21-051916	277041-009
BS-BERNARD-22-051916	277041-010

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: _____ Date: 07/13/2016

Mike Dahlquist
Project Manager
mike.dahlquist@ctberk.com

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**277041**
Client:	**CB&I**
Project:	**149831**
Location:	**HPNS Parcel D-1**
Request Date:	**05/20/16**
Samples Received:	**05/20/16**

This data package contains sample and QC results for ten soil samples, requested for the above referenced project on 05/20/16. See attached cooler receipt form for any sample receipt problems or discrepancies.

CARB 435 Asbestos (CARB 435):
Forensic Analytical in Hayward, CA performed the analysis (not NELAP certified). Please see the Forensic Analytical case narrative.

*** Missing Items ***

The following items are valid in the narrative, but for some reason didn't end up in the above report:

Item 3 (UNCLASSIFIED/Soil): General Engineering Labs in Charleston, SC performed the analysis (not NELAP certified). Please see the General Engineering Labs case narrative.

You can invalidate these items, or adjust rgroup/matrix/method ([C] button) for each until they appear in the main body of the report. See the operations manager or LIMS staff for assistance if necessary.

Chain of Custody

4005 Port Chicago Hwy
Concord, CA 94520

CHAIN OF CUSTODY

27704 1

Ref. Document # 149831-001

Project Manager: *Lisa Bersich*

(Name & phone #)

Send Report To: *Eddie Kalombo*
Phone/Fax Number: *415-987-0760*
Address: *4005 Port Chicago Hwy*
City: *Concord, CA, 94520*

Project Number: 149831
Project Name: HPNS - Parcel D-1
Project Location: HPNS
Purchase Order #: 202570
Shipment/Pickup Date: 5/20/2016
Waybill Number:
Lab Destination: Curtis & Tompkins, 2323 5th Street, Berkeley, CA 94710
Lab Contact Name / ph. #: Mike Dahlquist 510.204.2225

Sampler's Name(s): Eddie Kalombo

	Sample ID	Location ID	Collection Information: Date	Time	Method	Matrix	# of containers	Preservative	Container Type	Beginning Depth	Ending depth	Analyses Requested: Gamma Spectroscopy 901.1	Asbestos CARB 435	Cooler Temperature
												ice	ice	
									1-gal Bag					
1	BS-BERNARD-13-051916	Bernard Pile	05/19/16	0840	G	S	1			3	6	X	X	
2	BS-BERNARD-14-051916	Bernard Pile	05/19/16	0845	G	S	1			3	6	X	X	
3	BS-BERNARD-15-051916	Bernard Pile	05/19/16	0850	G	S	1			3	6	X	X	
4	BS-BERNARD-16-051916	Bernard Pile	05/19/16	0855	G	S	1			3	6	X	X	
5	BS-BERNARD-17-051916	Bernard Pile	05/19/16	0900	G	S	1			3	6	X	X	
6	BS-BERNARD-18-051916	Bernard Pile	05/19/16	0905	G	S	1			3	6	X	X	
7	BS-BERNARD-19-051916	Bernard Pile	05/19/16	0911	G	S	1			3	6	X	X	
8	BS-BERNARD-20-051916	Bernard Pile	05/19/16	0915	G	S	1			3	6	X	X	
9	BS-BERNARD-21-051916	Bernard Pile	05/19/16	0920	G	S	1			3	6	X	X	
10	BS-BERNARD-22-051916	Bernard Pile	05/19/16	0930	G	S	1			3	6	X	X	
	Temp Blank													X

Special Instructions: Report on Dry Weight Basis.

Turnaround Time: ☐ 24-hr ☐ 48-hr
Standard TAT -5-day ☐ 72-hr ☐ 5-day

Level of QC Required: II **III** IV Project Specific:

Relinquished By: Date: 5.20.16 Time: 1345
Received By: Date: 5/20/16 Time: 13:45
Relinquished By: Date: Time:
Received By: Date: Time:

Method Codes
LF= low flow
G = Grab

Matrix Codes
DW = Drinking Water
SO =Soil
GW = Ground Water
BW= Blank Water
WW = Waste Water
WP=Waste Product

COOLER RECEIPT CHECKLIST Curtis & Tompkins, Ltd.

Login # 17041 Date Received 5/20/16 Number of coolers 3
Client CB;I Project 49831

Date Opened 5/20 By (print) CJN (sign) [signature]
Date Logged in ↓ By (print) ↓ (sign) ↓

1. Did cooler come with a shipping slip (airbill, etc) ____ YES (NO)
   Shipping info ____
2A. Were custody seals present? .... ☐ YES (circle) on cooler on samples ☒ NO
   How many ____ Name ____ Date ____
2B. Were custody seals intact upon arrival? ____ YES NO (N/A)
3. Were custody papers dry and intact when received? ____ (YES) NO
4. Were custody papers filled out properly (ink, signed, etc)? ____ (YES) NO
5. Is the project identifiable from custody papers? (If so fill out top of form) ____ (YES) NO
6. Indicate the packing in cooler: (if other, describe) ____

☐ Bubble Wrap ☐ Foam blocks ☒ Bags ☐ None
☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation: * Notify PM if temperature exceeds 6°C

Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C) 5.1°, 3.2°, 5.6

☐ Temperature blank(s) included? ☐ Thermometer# ____ ☒ IR Gun# A

☐ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? ____ YES (NO)
   If YES, what time were they transferred to freezer? ____
9. Did all bottles arrive unbroken/unopened? ____ (YES) NO
10. Are there any missing / extra samples? ____ YES (NO)
11. Are samples in the appropriate containers for indicated tests? ____ (YES) NO
12. Are sample labels present, in good condition and complete? ____ (YES) NO
13. Do the sample labels agree with custody papers? ____ (YES) NO
14. Was sufficient amount of sample sent for tests requested? ____ (YES) NO
15. Are the samples appropriately preserved? ____ YES NO (N/A)
16. Did you check preservatives for all bottles for each sample? ____ YES NO (N/A)
17. Did you document your preservative check? (pH strip lot# ____) YES NO (N/A)
18. Did you change the hold time in LIMS for unpreserved VOAs? ____ YES NO (N/A)
19. Did you change the hold time in LIMS for preserved terracores? ____ YES NO (N/A)
20. Are bubbles > 6mm absent in VOA samples? ____ YES NO (N/A)
21. Was the client contacted concerning this sample delivery? ____ YES (NO)
   If YES, Who was called? ____ By ____ Date: ____

COMMENTS

Curtis & Tompkins, Ltd.

Detections Summary for 277041

Results for any subcontracted analyses are not included in this summary.

Client : CB&I
Project : 149831
Location : HPNS Parcel D-1

Client Sample ID : BS-BERNARD-13-051916 Laboratory Sample ID : 277041-001

No Detections

Client Sample ID : BS-BERNARD-14-051916 Laboratory Sample ID : 277041-002

No Detections

Client Sample ID : BS-BERNARD-15-051916 Laboratory Sample ID : 277041-003

No Detections

Client Sample ID : BS-BERNARD-16-051916 Laboratory Sample ID : 277041-004

No Detections

Client Sample ID : BS-BERNARD-17-051916 Laboratory Sample ID : 277041-005

No Detections

Client Sample ID : BS-BERNARD-18-051916 Laboratory Sample ID : 277041-006

No Detections

Client Sample ID : BS-BERNARD-19-051916 Laboratory Sample ID : 277041-007

No Detections

Client Sample ID : BS-BERNARD-20-051916 Laboratory Sample ID : 277041-008

No Detections

Client Sample ID : BS-BERNARD-21-051916 Laboratory Sample ID : 277041-009

No Detections

Curtis & Tompkins, Ltd.

Client Sample ID : BS-BERNARD-22-051916 Laboratory Sample ID : 277041-010

No Detections

Laboratory Job Number 277041

ANALYTICAL REPORT

Subcontracted Products

Laboratory Job Number 277041

Subcontracted Products

Forensic Analytical

Forensic Analytical LABORATORIES

Final Report

Bulk Asbestos Material Analysis

(Air Resources Board Method 435, June 6, 1991)

Curtis & Tompkins Ltd
Mike Dahlquist
2323 Fifth St.

Berkeley, CA 94710

Client ID: 1137
Report Number: N008232
Date Received: 05/23/16
Date Analyzed: 05/27/16
Date Printed: 05/27/16

Job ID/Site: 277042 - HPNS Parcel D-1

PLM Report Number: N/A

FALI Job ID: 1137
Total Samples Submitted: 22
Total Samples Analyzed: 22

Sample Preparation and Analysis:

Samples were analyzed by the Air Resources Board's Method 435, Determination of Asbestos Content of Serpentine Aggregate. Samples were ground to 200 particle size in the laboratory. Approximately 1 pint was retained for analysis. Samples were prepared for observation according to the guidelines of Exception I and Exception II as defined by the 435 Method. Samples which contained less than 10% asbestos were prepared for observation according to the point count technique as defined by the 435 Method. This analysis was performed with a standard cross-hair reticle.

Sample ID	Lab Number	Layer Description
BS-BERNARD-01-051916	11768702	**Brown Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
BS-BERNARD-02-051916	11768703	**Brown Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
BS-BERNARD-03-051916	11768704	**Brown Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
BS-BERNARD-04-051916	11768705	**Brown Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

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Bulk Asbestos Material Analysis

(Air Resources Board Method 435, June 6, 1991)

Curtis & Tompkins Ltd
Mike Dahlquist
2323 Fifth St.

Berkeley, CA 94710

Client ID: 1137
Report Number: N008232
Date Received: 05/23/16
Date Analyzed: 05/27/16
Date Printed: 05/27/16

Job ID/Site: 277042 - HPNS Parcel D-1

FALI Job ID: 1137
Total Samples Submitted: 22
Total Samples Analyzed: 22

PLM Report Number: N/A

Sample Preparation and Analysis:

Samples were analyzed by the Air Resources Board's Method 435, Determination of Asbestos Content of Serpentine Aggregate. Samples were ground to 200 particle size in the laboratory. Approximately 1 pint was retained for analysis. Samples were prepared for observation according to the guidelines of Exception I and Exception II as defined by the 435 Method. Samples which contained less than 10% asbestos were prepared for observation according to the point count technique as defined by the 435 Method. This analysis was performed with a standard cross-hair reticle.

Sample ID	Lab Number	Layer Description
BS-BERNARD-05-051916	11768706	**Brown Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
BS-BERNARD-06-051916	11768707	**Brown Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
BS-BERNARD-07-051916	11768708	**Brown Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
BS-BERNARD-08-051916	11768709	**Brown Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Bulk Asbestos Material Analysis

(Air Resources Board Method 435, June 6, 1991)

Curtis & Tompkins Ltd
Mike Dahlquist
2323 Fifth St.

Berkeley, CA 94710

Client ID: 1137
Report Number: N008232
Date Received: 05/23/16
Date Analyzed: 05/27/16
Date Printed: 05/27/16

Job ID/Site: 277042 - HPNS Parcel D-1

FALI Job ID: 1137
Total Samples Submitted: 22
Total Samples Analyzed: 22

PLM Report Number: N/A

Sample Preparation and Analysis:

Samples were analyzed by the Air Resources Board's Method 435, Determination of Asbestos Content of Serpentine Aggregate. Samples were ground to 200 particle size in the laboratory. Approximately 1 pint was retained for analysis. Samples were prepared for observation according to the guidelines of Exception I and Exception II as defined by the 435 Method. Samples which contained less than 10% asbestos were prepared for observation according to the point count technique as defined by the 435 Method. This analysis was performed with a standard cross-hair reticle.

Sample ID	Lab Number	Layer Description
BS-BERNARD-09-051916	11768710	**Brown Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
BS-BERNARD-10-051916	11768711	**Brown Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
BS-BERNARD-11-051916	11768712	**Brown Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
BS-BERNARD-12-051916	11768713	**Brown Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

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Bulk Asbestos Material Analysis

(Air Resources Board Method 435, June 6, 1991)

Curtis & Tompkins Ltd
Mike Dahlquist
2323 Fifth St.

Berkeley, CA 94710

Client ID: 1137
Report Number: N008232
Date Received: 05/23/16
Date Analyzed: 05/27/16
Date Printed: 05/27/16

Job ID/Site: 277042 - HPNS Parcel D-1

FALI Job ID: 1137
Total Samples Submitted: 22
Total Samples Analyzed: 22

PLM Report Number: N/A

Sample Preparation and Analysis:

Samples were analyzed by the Air Resources Board's Method 435, Determination of Asbestos Content of Serpentine Aggregate. Samples were ground to 200 particle size in the laboratory. Approximately 1 pint was retained for analysis. Samples were prepared for observation according to the guidelines of Exception I and Exception II as defined by the 435 Method. Samples which contained less than 10% asbestos were prepared for observation according to the point count technique as defined by the 435 Method. This analysis was performed with a standard cross-hair reticle.

Sample ID	Lab Number	Layer Description
BS-BERNARD-13-051916	11768714	**Brown Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
BS-BERNARD-14-051916	11768715	**Brown Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
BS-BERNARD-15-051916	11768716	**Brown Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
BS-BERNARD-16-051916	11768717	**Brown Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

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Bulk Asbestos Material Analysis

(Air Resources Board Method 435, June 6, 1991)

Curtis & Tompkins Ltd
Mike Dahlquist
2323 Fifth St.

Berkeley, CA 94710

Client ID: 1137
Report Number: N008232
Date Received: 05/23/16
Date Analyzed: 05/27/16
Date Printed: 05/27/16

Job ID/Site: 277042 - HPNS Parcel D-1

FALI Job ID: 1137
Total Samples Submitted: 22
Total Samples Analyzed: 22

PLM Report Number: N/A

Sample Preparation and Analysis:

Samples were analyzed by the Air Resources Board's Method 435, Determination of Asbestos Content of Serpentine Aggregate. Samples were ground to 200 particle size in the laboratory. Approximately 1 pint was retained for analysis. Samples were prepared for observation according to the guidelines of Exception I and Exception II as defined by the 435 Method. Samples which contained less than 10% asbestos were prepared for observation according to the point count technique as defined by the 435 Method. This analysis was performed with a standard cross-hair reticle.

Sample ID	Lab Number	Layer Description
BS-BERNARD-17-051916	11768718	**Brown Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
BS-BERNARD-18-051916	11768719	**Brown Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
BS-BERNARD-19-051916	11768720	**Brown Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
BS-BERNARD-20-051916	11768721	**Brown Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

3777 Depot Road, Suite 409, Hayward, CA 94545 / Telephone: (510) 887-8828 (800) 827-FASI / Fax: (510) 887-4218

Forensic Analytical LABORATORIES

Final Report

Bulk Asbestos Material Analysis

(Air Resources Board Method 435, June 6, 1991)

Curtis & Tompkins Ltd
Mike Dahlquist
2323 Fifth St.

Berkeley, CA 94710

Client ID: 1137
Report Number: N008232
Date Received: 05/23/16
Date Analyzed: 05/27/16
Date Printed: 05/27/16

Job ID/Site: 277042 - HPNS Parcel D-1

PLM Report Number: N/A

FALI Job ID: 1137
Total Samples Submitted: 22
Total Samples Analyzed: 22

Sample Preparation and Analysis:

Samples were analyzed by the Air Resources Board's Method 435, Determination of Asbestos Content of Serpentine Aggregate. Samples were ground to 200 particle size in the laboratory. Approximately 1 pint was retained for analysis. Samples were prepared for observation according to the guidelines of Exception I and Exception II as defined by the 435 Method. Samples which contained less than 10% asbestos were prepared for observation according to the point count technique as defined by the 435 Method. This analysis was performed with a standard cross-hair reticle.

Sample ID	Lab Number	Layer Description
BS-BERNARD-21-051916	11768722	**Brown Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
BS-BERNARD-22-051916	11768723	**Brown Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Tad Thrower, Laboratory Supervisor, Hayward Laboratory

Note: Limit of Quantification (LOQ) = 0.25%. Trace denotes the presence of asbestos below the LOQ. ND = None Detected.

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Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 277042
ANALYTICAL REPORT

CB&I	Project : 149831
4005 Port Chicago Highway	Location : HPNS Parcel D-1
Concord, CA 94520-1120	Level : III

Sample ID	Lab ID
BS-BERNARD-01-051916	277042-001
BS-BERNARD-02-051916	277042-002
BS-BERNARD-03-051916	277042-003
BS-BERNARD-04-051916	277042-004
BS-BERNARD-05-051916	277042-005
BS-BERNARD-06-051916	277042-006
BS-BERNARD-07-051916	277042-007
BS-BERNARD-08-051916	277042-008
BS-BERNARD-09-051916	277042-009
BS-BERNARD-10-051916	277042-010
BS-BERNARD-11-051916	277042-011
BS-BERNARD-12-051916	277042-012

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: _____ Date: 06/27/2016

Mike Dahlquist
Project Manager
mike.dahlquist@ctberk.com

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**277042**
Client:	**CB&I**
Project:	**149831**
Location:	**HPNS Parcel D-1**
Request Date:	**05/20/16**
Samples Received:	**05/20/16**

This data package contains sample and QC results for twelve soil samples, requested for the above referenced project on 05/20/16. See attached cooler receipt form for any sample receipt problems or discrepancies.

CARB 435 Asbestos (CARB 435):
Forensic Analytical in Hayward, CA performed the analysis (not NELAP certified). Please see the Forensic Analytical case narrative.

***** Missing Items *****

The following items are valid in the narrative, but for some reason didn't end up in the above report:

Item 3 (UNCLASSIFIED/Soil): General Engineering Labs in Charleston, SC performed the analysis (not NELAP certified). Please see the General Engineering Labs case narrative.

You can invalidate these items, or adjust rgroup/matrix/method ([C] button) for each until they appear in the main body of the report. See the operations manager or LIMS staff for assistance if necessary.

Chain of Custody

CHAIN OF CUSTODY

217042

Ref. Document # 149831-001

Page 1 of 1

4005 Port Chicago Hwy
Concord, CA 94520

Project Manager: *Lisa Bersich*

(Name & phone #)

Send Report To: *Eddie Kalombo*
Phone/Fax Number: *415-987-0760*
Address: *4005 Port Chicago Hwy*
City: *Concord, CA, 94520*

Project Number: 149831
Project Name: HPNS - Parcel D-1
Project Location: HPNS
Purchase Order #: 202570
Shipment/Pickup Date: 5/20/2016
Waybill Number:
Lab Destination: Curtis & Tompkins, 2323 5th Street, Berkeley, CA 94710
Lab Contact Name / ph. #: Mike Dahlquist 510.204.2225

Sampler's Name(s): Eddie Kalombo

	Sample ID	Location ID	Collection Information: Date	Time	Method	Matrix	# of containers	Preservative	Container Type	Beginning Depth	Ending depth	Analyses Requested: Gamma Spectroscopy 901.1	Asbestos CARB 435	Cooler Temperature
												ice	ice	
												1-gal Bag		
1	BS-BERNARD-01-051916	Bernard Pile	05/19/16	0730	G	S	1			3	6	X	X	
2	BS-BERNARD-02-051916	Bernard Pile	05/19/16	0735	G	S	1			3	6	X	X	
3	BS-BERNARD-03-051916	Bernard Pile	05/19/16	0740	G	S	1			3	6	X	X	
4	BS-BERNARD-04-051916	Bernard Pile	05/19/16	0745	G	S	1			3	6	X	X	
5	BS-BERNARD-05-051916	Bernard Pile	05/19/16	0750	G	S	1			3	6	X	X	
6	BS-BERNARD-06-051916	Bernard Pile	05/19/16	0800	G	S	1			3	6	X	X	
7	BS-BERNARD-07-051916	Bernard Pile	05/19/16	0805	G	S	1			3	6	X	X	
8	BS-BERNARD-08-051916	Bernard Pile	05/19/16	0810	G	S	1			3	6	X	X	
9	BS-BERNARD-09-051916	Bernard Pile	05/19/16	0815	G	S	1			3	6	X	X	
10	BS-BERNARD-10-051916	Bernard Pile	05/19/16	0822	G	S	1			3	6	X	X	
11	BS-BERNARD-11-051916	Bernard Pile	05/19/16	0830	G	S	1			3	6	X	X	
12	BS-BERNARD-12-051916	Bernard Pile	05/19/16	0835	G	S	1			3	6	X	X	
	Temp Blank													X

Special Instructions: Report on Dry Weight Basis.

Turnaround Time: ☐ 24-hr ☐ 48-hr
Standard TAT -5-day ☐ 72-hr ☐ 5-day

Level of QC Required: II **III** IV Project Specific:

Relinquished By: Date: 5.20.16 Time: 1345
Received By: Date: 5/20/16 Time: 13:45
Relinquished By: Date: Time:
Received By: Date: Time:

Method Codes
LF= low flow G = Grab

Matrix Codes
DW = Drinking Water SO =Soil
GW = Ground Water BW= Blank Water
WW = Waste Water WP=Waste Product

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 277042 Date Received 5/20/16 Number of coolers 3
Client CB:I Project 14983I

Date Opened 5/20 By (print) CJN (sign) [signature]
Date Logged in ↓ By (print) ↓ (sign) ↓

1. Did cooler come with a shipping slip (airbill, etc)_____ YES (NO)
   Shipping info_____

2A. Were custody seals present? .... ☐ YES (circle) on cooler on samples ☒ NO
   How many _____ Name_____ Date_____
2B. Were custody seals intact upon arrival? _____ YES NO N/A
3. Were custody papers dry and intact when received?_____ YES NO
4. Were custody papers filled out properly (ink, signed, etc)? _____ YES NO
5. Is the project identifiable from custody papers? (If so fill out top of form)___ YES NO
6. Indicate the packing in cooler: (if other, describe)_____

☐ Bubble Wrap ☐ Foam blocks ☒ Bags ☐ None
☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation: * Notify PM if temperature exceeds 6°C

Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C) 5, 1°, 3.2°, 5.6

☐ Temperature blank(s) included? ☐ Thermometer#_____ ☒ IR Gun# 4

☐ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present?_____ YES (NO)
   If YES, what time were they transferred to freezer?_____
9. Did all bottles arrive unbroken/unopened?_____ (YES) NO
10. Are there any missing / extra samples? _____ YES (NO)
11. Are samples in the appropriate containers for indicated tests? _____ (YES) NO
12. Are sample labels present, in good condition and complete? _____ (YES) NO
13. Do the sample labels agree with custody papers? _____ (YES) NO
14. Was sufficient amount of sample sent for tests requested? _____ (YES) NO
15. Are the samples appropriately preserved? _____ YES NO (N/A)
16. Did you check preservatives for all bottles for each sample? _____ YES NO (N/A)
17. Did you document your preservative check? (pH strip lot#_____) YES NO (N/A)
18. Did you change the hold time in LIMS for unpreserved VOAs? _____ YES NO (N/A)
19. Did you change the hold time in LIMS for preserved terracores? _____ YES NO (N/A)
20. Are bubbles > 6mm absent in VOA samples? _____ YES NO (N/A)
21. Was the client contacted concerning this sample delivery? _____ YES (NO)
   If YES, Who was called?_____ By_____ Date:_____

COMMENTS

_____
_____
_____
_____
_____
_____

Curtis & Tompkins, Ltd.

Detections Summary for 277042

Results for any subcontracted analyses are not included in this summary.

Client : CB&I
Project : 149831
Location : HPNS Parcel D-1

Client Sample ID : BS-BERNARD-01-051916 Laboratory Sample ID : 277042-001

No Detections

Client Sample ID : BS-BERNARD-02-051916 Laboratory Sample ID : 277042-002

No Detections

Client Sample ID : BS-BERNARD-03-051916 Laboratory Sample ID : 277042-003

No Detections

Client Sample ID : BS-BERNARD-04-051916 Laboratory Sample ID : 277042-004

No Detections

Client Sample ID : BS-BERNARD-05-051916 Laboratory Sample ID : 277042-005

No Detections

Client Sample ID : BS-BERNARD-06-051916 Laboratory Sample ID : 277042-006

No Detections

Client Sample ID : BS-BERNARD-07-051916 Laboratory Sample ID : 277042-007

No Detections

Client Sample ID : BS-BERNARD-08-051916 Laboratory Sample ID : 277042-008

No Detections

Client Sample ID : BS-BERNARD-09-051916 Laboratory Sample ID : 277042-009

No Detections

Curtis & Tompkins, Ltd.

Client Sample ID : BS-BERNARD-10-051916 Laboratory Sample ID : 277042-010

No Detections

Client Sample ID : BS-BERNARD-11-051916 Laboratory Sample ID : 277042-011

No Detections

Client Sample ID : BS-BERNARD-12-051916 Laboratory Sample ID : 277042-012

No Detections

Laboratory Job Number 277042

ANALYTICAL REPORT

Subcontracted Products

Laboratory Job Number 277042

Subcontracted Products

Forensic Analytical

Forensic Analytical LABORATORIES

Final Report

Bulk Asbestos Material Analysis

(Air Resources Board Method 435, June 6, 1991)

Curtis & Tompkins Ltd
Mike Dahlquist
2323 Fifth St.

Berkeley, CA 94710

Client ID: 1137
Report Number: N008232
Date Received: 05/23/16
Date Analyzed: 05/27/16
Date Printed: 05/27/16

Job ID/Site: 277042 - HPNS Parcel D-1

PLM Report Number: N/A

FALI Job ID: 1137
Total Samples Submitted: 22
Total Samples Analyzed: 22

Sample Preparation and Analysis:

Samples were analyzed by the Air Resources Board's Method 435, Determination of Asbestos Content of Serpentine Aggregate. Samples were ground to 200 particle size in the laboratory. Approximately 1 pint was retained for analysis. Samples were prepared for observation according to the guidelines of Exception I and Exception II as defined by the 435 Method. Samples which contained less than 10% asbestos were prepared for observation according to the point count technique as defined by the 435 Method. This analysis was performed with a standard cross-hair reticle.

Sample ID	Lab Number	Layer Description
BS-BERNARD-01-051916	11768702	**Brown Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
BS-BERNARD-02-051916	11768703	**Brown Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
BS-BERNARD-03-051916	11768704	**Brown Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
BS-BERNARD-04-051916	11768705	**Brown Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

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Bulk Asbestos Material Analysis

(Air Resources Board Method 435, June 6, 1991)

Curtis & Tompkins Ltd
Mike Dahlquist
2323 Fifth St.

Berkeley, CA 94710

Client ID: 1137
Report Number: N008232
Date Received: 05/23/16
Date Analyzed: 05/27/16
Date Printed: 05/27/16

Job ID/Site: 277042 - HPNS Parcel D-1

FALI Job ID: 1137
Total Samples Submitted: 22
Total Samples Analyzed: 22

PLM Report Number: N/A

Sample Preparation and Analysis:

Samples were analyzed by the Air Resources Board's Method 435, Determination of Asbestos Content of Serpentine Aggregate. Samples were ground to 200 particle size in the laboratory. Approximately 1 pint was retained for analysis. Samples were prepared for observation according to the guidelines of Exception I and Exception II as defined by the 435 Method. Samples which contained less than 10% asbestos were prepared for observation according to the point count technique as defined by the 435 Method. This analysis was performed with a standard cross-hair reticle.

Sample ID	Lab Number	Layer Description
BS-BERNARD-05-051916	11768706	**Brown Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
BS-BERNARD-06-051916	11768707	**Brown Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
BS-BERNARD-07-051916	11768708	**Brown Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
BS-BERNARD-08-051916	11768709	**Brown Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Bulk Asbestos Material Analysis

(Air Resources Board Method 435, June 6, 1991)

Curtis & Tompkins Ltd
Mike Dahlquist
2323 Fifth St.

Berkeley, CA 94710

Client ID: 1137
Report Number: N008232
Date Received: 05/23/16
Date Analyzed: 05/27/16
Date Printed: 05/27/16

Job ID/Site: 277042 - HPNS Parcel D-1

FALI Job ID: 1137
Total Samples Submitted: 22
Total Samples Analyzed: 22

PLM Report Number: N/A

Sample Preparation and Analysis:

Samples were analyzed by the Air Resources Board's Method 435, Determination of Asbestos Content of Serpentine Aggregate. Samples were ground to 200 particle size in the laboratory. Approximately 1 pint was retained for analysis. Samples were prepared for observation according to the guidelines of Exception I and Exception II as defined by the 435 Method. Samples which contained less than 10% asbestos were prepared for observation according to the point count technique as defined by the 435 Method. This analysis was performed with a standard cross-hair reticle.

Sample ID	Lab Number	Layer Description
BS-BERNARD-09-051916	11768710	**Brown Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
BS-BERNARD-10-051916	11768711	**Brown Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
BS-BERNARD-11-051916	11768712	**Brown Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
BS-BERNARD-12-051916	11768713	**Brown Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

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Bulk Asbestos Material Analysis

(Air Resources Board Method 435, June 6, 1991)

Curtis & Tompkins Ltd
Mike Dahlquist
2323 Fifth St.

Berkeley, CA 94710

Client ID: 1137
Report Number: N008232
Date Received: 05/23/16
Date Analyzed: 05/27/16
Date Printed: 05/27/16

Job ID/Site: 277042 - HPNS Parcel D-1

FALI Job ID: 1137
Total Samples Submitted: 22
Total Samples Analyzed: 22

PLM Report Number: N/A

Sample Preparation and Analysis:

Samples were analyzed by the Air Resources Board's Method 435, Determination of Asbestos Content of Serpentine Aggregate. Samples were ground to 200 particle size in the laboratory. Approximately 1 pint was retained for analysis. Samples were prepared for observation according to the guidelines of Exception I and Exception II as defined by the 435 Method. Samples which contained less than 10% asbestos were prepared for observation according to the point count technique as defined by the 435 Method. This analysis was performed with a standard cross-hair reticle.

Sample ID	Lab Number	Layer Description
BS-BERNARD-13-051916	11768714	**Brown Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
BS-BERNARD-14-051916	11768715	**Brown Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
BS-BERNARD-15-051916	11768716	**Brown Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
BS-BERNARD-16-051916	11768717	**Brown Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

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Bulk Asbestos Material Analysis

(Air Resources Board Method 435, June 6, 1991)

Curtis & Tompkins Ltd
Mike Dahlquist
2323 Fifth St.

Berkeley, CA 94710

Client ID: 1137
Report Number: N008232
Date Received: 05/23/16
Date Analyzed: 05/27/16
Date Printed: 05/27/16

Job ID/Site: 277042 - HPNS Parcel D-1

FALI Job ID: 1137
Total Samples Submitted: 22
Total Samples Analyzed: 22

PLM Report Number: N/A

Sample Preparation and Analysis:

Samples were analyzed by the Air Resources Board's Method 435, Determination of Asbestos Content of Serpentine Aggregate. Samples were ground to 200 particle size in the laboratory. Approximately 1 pint was retained for analysis. Samples were prepared for observation according to the guidelines of Exception I and Exception II as defined by the 435 Method. Samples which contained less than 10% asbestos were prepared for observation according to the point count technique as defined by the 435 Method. This analysis was performed with a standard cross-hair reticle.

Sample ID	Lab Number	Layer Description
BS-BERNARD-17-051916	11768718	**Brown Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
BS-BERNARD-18-051916	11768719	**Brown Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
BS-BERNARD-19-051916	11768720	**Brown Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
BS-BERNARD-20-051916	11768721	**Brown Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

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Forensic Analytical LABORATORIES

Final Report

Bulk Asbestos Material Analysis

(Air Resources Board Method 435, June 6, 1991)

Curtis & Tompkins Ltd
Mike Dahlquist
2323 Fifth St.

Berkeley, CA 94710

Client ID: 1137
Report Number: N008232
Date Received: 05/23/16
Date Analyzed: 05/27/16
Date Printed: 05/27/16

Job ID/Site: 277042 - HPNS Parcel D-1

PLM Report Number: N/A

FALI Job ID: 1137
Total Samples Submitted: 22
Total Samples Analyzed: 22

Sample Preparation and Analysis:

Samples were analyzed by the Air Resources Board's Method 435, Determination of Asbestos Content of Serpentine Aggregate. Samples were ground to 200 particle size in the laboratory. Approximately 1 pint was retained for analysis. Samples were prepared for observation according to the guidelines of Exception I and Exception II as defined by the 435 Method. Samples which contained less than 10% asbestos were prepared for observation according to the point count technique as defined by the 435 Method. This analysis was performed with a standard cross-hair reticle.

Sample ID	Lab Number	Layer Description
BS-BERNARD-21-051916	11768722	**Brown Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
BS-BERNARD-22-051916	11768723	**Brown Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Tad Thrower, Laboratory Supervisor, Hayward Laboratory

Note: Limit of Quantification (LOQ) = 0.25%. Trace denotes the presence of asbestos below the LOQ. ND = None Detected.

Analytical results and reports are generated by Forensic Analytical Laboratories Inc. (FALI) at the request of and for the exclusive use of the person or entity (client) named on such report. Results, reports or copies of same will not be released by FALI to any third party without prior written request from client. This report applies only to the sample(s) tested. Supporting laboratory documentation is available upon request. This report must not be reproduced except in full, unless approved by FALI. The client is solely responsible for the use and interpretation of test results and reports requested from FALI. Forensic Analytical Laboratories Inc. is not able to assess the degree of hazard resulting from materials analyzed. FALI reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified. All samples were received in acceptable condition unless otherwise noted.

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LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

CB&I
200 Fisher Avenue
San Francisco, CA 94124
ATTN: Mr. Eddie K. Kalombo

November 14, 2016

SUBJECT: Hunters Point, Parcel D-1, Data Validation

Dear Mr. Kalombo,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on October 4, 2016. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project # 37241:

SDG #	Fraction
277036, 277038	Volatiles, Semivolatiles, Chlorinated Pesticides, Polychlorinated Biphenyls, Metals, TPH as Gasoline, TPH as Extractables

The data validation was performed under Level III & IV guidelines. The analyses were validated using the following documents, as applicable to each method:

- Final Data Management Plan, Remedial Action in Parcel D-1, Hunters Naval Shipyard, San Francisco, California, January 2014
- U.S. Department of Defense, Quality Systems Manual for Environmental Laboratories, Version 5.0, July 2013
- USEPA, Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA, Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; update IV, February 2007; update V, July 2014

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng
Project Manager/Senior Chemist

LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

CB&I
200 Fisher Avenue
San Francisco, CA 94124
ATTN: Mr. Eddie K. Kalombo

January 25, 2017

SUBJECT: Hunters Point, Parcel D-1, Data Validation

Dear Mr. Kalombo,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on October 6, 2016. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project # 37245:

SDG #	Fraction
277041/N008232/398015 277042/N008232/398018	Gamma Spectroscopy, Radium-226

The data validation was performed under Level III & IV guidelines. The analyses were validated using the following documents, as applicable to each method:

- Final Data Management Plan, Remedial Action in Parcel D-1, Hunters Naval Shipyard, San Francisco, California, January 2014
- U.S. Department of Defense, Quality Systems Manual for Environmental Laboratories, Version 5.0, July 2013
- Multi Agency Radiological Laboratory Analytical Protocols, Manual, July 2004
- USEPA, Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng
Project Manager/Senior Chemist

EDD	LDC#37245 (CB&I Federal Services-Concord, CA / Hunters Point, Parcel D-1)																																					
																																							CTO 03
LDC	SDG#	DATE REC'D	(3) DATE DUE	Gamma Spec. (901.1)		Ra-226 (901.1)																																		
Matrix: Water/Soil				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	277041/ N008232/398015	10/06/16	10/27/16	0	7	0	7																															
A	277041/ N008232/398015	10/06/16	10/27/16	0	3	0	3																															
B	277042/ N008232/398018	10/06/16	10/27/16	0	12	0	12																															
Total	T/PG			0	22	0	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44

Shaded cells indicate Level IV validation (all other cells are Level III validation). These sample counts do not include MS/MSD, and DUPs

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Hunters Point, Parcel D-1

LDC Report Date: October 26, 2016

Parameters: Radium-226

Validation Level: Level III & IV

Laboratory: Curtis & Tompkins, Ltd./GEL Laboratories, LLC

Sample Delivery Group (SDG): 277041/398015

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
BS-BERNARD-13-051916	277041-001	Soil	05/19/16
BS-BERNARD-14-051916**	277041-002**	Soil	05/19/16
BS-BERNARD-15-051916	277041-003	Soil	05/19/16
BS-BERNARD-16-051916	277041-004	Soil	05/19/16
BS-BERNARD-17-051916**	277041-005**	Soil	05/19/16
BS-BERNARD-18-051916	277041-006	Soil	05/19/16
BS-BERNARD-19-051916	277041-007	Soil	05/19/16
BS-BERNARD-20-051916**	277041-008**	Soil	05/19/16
BS-BERNARD-21-051916	277041-009	Soil	05/19/16
BS-BERNARD-22-051916	277041-010	Soil	05/19/16
BS-BERNARD-13-051916DUP	277041-001DUP	Soil	05/19/16

**Indicates sample underwent Level IV validation

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with Appendix D, Final Data Management Plan, Remedial Action in Parcel D-1, Hunters Point Naval Shipyard, San Francisco, California (January 2014), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Inorganic Superfund Data Review (January 2010). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Radium-226 by DOE HASL 300 4.5.2.3/Ga-01-R

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results. Samples appended with a double asterisk on the cover page were subjected to Level IV data validation, which is comprised of the QC summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition.

All technical holding time requirements were met.

II. Initial Calibration

All criteria for the initial calibration were met.

Counting and detector efficiency were determined for each detector and each radionuclide.

III. Continuing Calibration

Continuing calibration and background determination were performed at the required frequencies. Results were within laboratory control limits.

IV. Blanks

Laboratory blanks were analyzed as required by the method. Blank results contained less than the minimum detectable activity (MDA).

V. Field Blanks

No field blanks were identified in this SDG.

VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analysis were not required by the method.

VII. Duplicate Sample Analysis

Duplicate (DUP) sample analysis was performed on an associated project sample. Results were within QC limits.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Minimum Detectable Concentrations

All minimum detectable concentrations (MDC) met required detection limits (RDL).

XI. Sample Result Verification

All sample result verifications were acceptable for samples on which underwent level IV validation. Raw data were not reviewed for Level III validation.

XII. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

Hunters Point, Parcel D-1
Radium-226 - Data Qualification Summary - SDG 277041/398015

No Sample Data Qualified in this SDG

Hunters Point, Parcel D-1
Radium-226 - Laboratory Blank Data Qualification Summary - SDG 277041/398015

No Sample Data Qualified in this SDG

Hunters Point, Parcel D-1
Radium-226 - Field Blank Data Qualification Summary - SDG 277041/398015

No Sample Data Qualified in this SDG

LDC #: 37245A29A **VALIDATION COMPLETENESS WORKSHEET** Date: 10-26-16
SDG #: 277041/398015 Level III/IV Page: 1 of 1
Laboratory: Curtis & Tompkins, Ltd./GEL Laboratories, LLC Reviewer: MG
2nd Reviewer:

METHOD: Radium-226 (DOE HASL 300 4.5.2.3/Ga-01-R)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	Initial calibration	A	
III.	Calibration verification	A	
IV.	Laboratory Blanks	A	PB only
V.	Field blanks	N	
VI.	Matrix Spike/Matrix Spike Duplicates	N	not required
VII.	Duplicates	A	DUP
VIII.	Laboratory control samples	A	LCS
IX.	Field duplicates	N	
X.	Minimum detectable activity (MDA)	A	
XI.	Sample result verification	A	Not reviewed for Level III validation.
XII	Overall assessment of data	A	

Note: A = Acceptable ND = No compounds detected D = Duplicate SB=Source blank
N = Not provided/applicable R = Rinsate TB = Trip blank OTHER:
SW = See worksheet FB = Field blank EB = Equipment blank

** Indicates sample was underwent Level IV review

	Client ID	Lab ID	Matrix	Date
1	BS-BERNARD-13-051916	277041-001	Soil	05/19/16
2	BS-BERNARD-14-051916**	277041-002**	Soil	05/19/16
3	BS-BERNARD-15-051916	277041-003	Soil	05/19/16
4	BS-BERNARD-16-051916	277041-004	Soil	05/19/16
5	BS-BERNARD-17-051916**	277041-005**	Soil	05/19/16
6	BS-BERNARD-18-051916	277041-006	Soil	05/19/16
7	BS-BERNARD-19-051916	277041-007	Soil	05/19/16
8	BS-BERNARD-20-051916**	277041-008**	Soil	05/19/16
9	BS-BERNARD-21-051916	277041-009	Soil	05/19/16
10	BS-BERNARD-22-051916	277041-010	Soil	05/19/16
11	BS-BERNARD-13-051916DUP	277041-001DUP	Soil	05/19/16
12				
13				
14	PBS			

Notes:

LDC #: 37245A29a

VALIDATION FINDINGS CHECKLIST

Reviewer: MG
2nd Reviewer:

DOE HASL 300, 4.5.2.3 / Ga-01-R

Method: Radiochemistry (EPA Method)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
II. Calibration				
Were all instruments and detectors calibration as required?	✓			
Were NIST traceable standards used for all calibrations?	✓			
Was the check source identified by activity and radionuclide?	✓			
Were check sources including background counts analyzed at the requiried frequency and within laboratory control limits?	✓			
III. Blanks				
Were blank analyses performed as required?	✓			
Were any activities detected in the blanks greater than the minimum detectable activity (MDA)? If yes, please see the Blanks validation completeness worksheet.		✓		
IV. Matrix spikes and Duplicates				
Were a matrix spike (MS) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP (Soil) Water.		✓		
Were the MS percent recoveries (%R) within the QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.			✓	
Was a duplicate sample anaylzed at the required frequency of 5% in this SDG?	✓			
Were all duplicate sample duplicate error rations (DER) ≤1.42?.	✓			
V. Laboratory control samples				
Was an LCS analyzed per analytical batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 75-125%	✓			
VI. Sample Chemical/Carrier Recovery				
Was a tracer/carrier added to each sample?		✓		
Were tracer/carrier recoveries within the QC limits?			✓	
VII. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
VIII. Sample Result Verification				
Were activities adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were the Minimum Detectable Activities (MDA) < RL?	✓			

Validation Area	Yes	No	NA	Findings/Comments
IX. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
X. Field duplicates				
Field duplicate pairs were identified in this SDG.		✓		
Target analytes were detected in the field duplicates.			✓	
XI. Field blanks				
Field blanks were identified in this SDG.		✓		
Target analytes were detected in the field blanks.			✓	

LDC #: 37245A29a

VALIDATION FINDINGS WORKSHEET
Level IV Recalculation Worksheet

Reviewer: MG
2nd Reviewer: 9

METHOD: Radiochemistry (Method: DOE HASL 300.) 4.5.2.3/Ga-01-R

Percent recoveries (%R) for a laboratory control sample, a matrix spike and a matrix spike duplicate sample were recaluculated using the following formula:

$$\%R = \frac{\text{Found}}{\text{True}} \times 100$$

Where, Found = activity of each analyte measured in the analysis of the sample.
True = activity of each analyte in the source.

A matrix spike and matrix spike duplicate relative percent difference (RPD) was recalculated using the following formula:

$$RPD = \frac{|S-D|}{(S+D)/2} \times 100$$

Where, S = Original sample activity
D = Duplicate sample activity

Sample ID	Type of Analysis	Analyte	Found/S (units)	True/D (units)	Recalculated %R or RPD	Reported %R or RPD	Acceptable (Y/N)
LCS	Laboratory control sample	Am-241	532 (pCi/g)	489 (pCi/g)	109	109	Y
-	Matrix spike sample	-	-	-	-	-	-
11	Duplicate RPD	Ra-226	0.470 (pCi/g)	0.637 (pCi/g)	30.2	30.2	Y
-	Chemical recovery	-	-	-	-	-	-

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 37245A29a

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Reviewer: MG
2nd reviewer: [signature]

METHOD: Radiochemistry (Method: DOE HASL 300,) 4.5.2.3/Ga-01-R

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".
(Y) N N/A Have results been reported and calculated correctly?
(Y) N N/A Are results within the calibrated range of the instruments?

Analyte results for # 2, Ra-226 reported with a positive detect were recalculated and verified using the following equation:

Concentration = $\frac{(cpm - background)}{2.22 \times E \times SA \times Vol}$

E = Counter Efficiency
SA = Self-absorbance factor
Vol = Volume of sample

Recalculation:

$$\frac{(116\ cts / 60\ min)}{(2.22)(0.02301)(139.900g)(0.4549)} = 0.5947\ pCi/g$$

#	Sample ID	Analyte	Reported Concentration (pCi/g)	Calculated Concentration (pCi/g)	Acceptable (Y/N)
1	2	Ra-226	0.593	0.595	Y
2	5	Ra-226	0.625	0.623	↓
3	8	Ra-226	0.575	0.576	↓

Note:

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Hunters Point, Parcel D-1

LDC Report Date: October 26, 2016

Parameters: Gamma Spectroscopy

Validation Level: Level III & IV

Laboratory: Curtis & Tompkins, Ltd./GEL Laboratories, LLC

Sample Delivery Group (SDG): 277041/398015

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
BS-BERNARD-13-051916	277041-001	Soil	05/19/16
BS-BERNARD-14-051916**	277041-002**	Soil	05/19/16
BS-BERNARD-15-051916	277041-003	Soil	05/19/16
BS-BERNARD-16-051916	277041-004	Soil	05/19/16
BS-BERNARD-17-051916**	277041-005**	Soil	05/19/16
BS-BERNARD-18-051916	277041-006	Soil	05/19/16
BS-BERNARD-19-051916	277041-007	Soil	05/19/16
BS-BERNARD-20-051916**	277041-008**	Soil	05/19/16
BS-BERNARD-21-051916	277041-009	Soil	05/19/16
BS-BERNARD-22-051916	277041-010	Soil	05/19/16
BS-BERNARD-13-051916DUP	277041-001DUP	Soil	05/19/16

**Indicates sample underwent Level IV validation

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with Appendix D, Final Data Management Plan, Remedial Action in Parcel D-1, Hunters Point Naval Shipyard, San Francisco, California (January 2014), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Inorganic Superfund Data Review (January 2010). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Gamma Spectroscopy by DOE HASL 300 4.5.2.3/Ga-01-R

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results. Samples appended with a double asterisk on the cover page were subjected to Level IV data validation, which is comprised of the QC summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition.

All technical holding time requirements were met.

II. Initial Calibration

All criteria for the initial calibration were met.

Counting and detector efficiency were determined for each detector and each radionuclide.

III. Continuing Calibration

Continuing calibration and background determination were performed at the required frequencies. Results were within laboratory control limits.

IV. Blanks

Laboratory blanks were analyzed as required by the method. Blank results contained less than the minimum detectable activity (MDA).

V. Field Blanks

No field blanks were identified in this SDG.

VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analysis were not required by the method.

VII. Duplicate Sample Analysis

Duplicate (DUP) sample analysis was performed on an associated project sample. Results were within QC limits.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Minimum Detectable Concentrations

All minimum detectable concentrations (MDC) met required detection limits (RDL).

XI. Sample Result Verification

All sample result verifications were acceptable for samples on which underwent level IV validation. Raw data were not reviewed for Level III validation.

XII. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

Hunters Point, Parcel D-1
Gamma Spectroscopy - Data Qualification Summary - SDG 277041/398015

No Sample Data Qualified in this SDG

Hunters Point, Parcel D-1
Gamma Spectroscopy - Laboratory Blank Data Qualification Summary - SDG 277041/398015

No Sample Data Qualified in this SDG

Hunters Point, Parcel D-1
Gamma Spectroscopy - Field Blank Data Qualification Summary - SDG 277041/398015

No Sample Data Qualified in this SDG

LDC #: 37245A35 **VALIDATION COMPLETENESS WORKSHEET** Date: 10-26-16

SDG #: 277041/398015 Level III/IV Page: 1 of 1

Laboratory: Curtis & Tompkins, Ltd./GEL Laboratories, LLC Reviewer: MG

2nd Reviewer:

METHOD: Gamma Spectroscopy (DOE HASL 300 4.5.2.3/Ga-01-R)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	Initial calibration	A	
III.	Calibration verification	A	
IV.	Laboratory Blanks	A	PB only
V.	Field blanks	N	
VI.	Matrix Spike/Matrix Spike Duplicates	N	not required
VII.	Duplicates	A	DUP (Tl-208, Th-232 OK by R.E.R.)
VIII.	Laboratory control samples	A	LCS
IX.	Field duplicates	N	
X.	Minimum detectable activity (MDA)	A	
XI.	Sample result verification	A	Not reviewed for Level III validation.
XII.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

** Indicates sample was underwent Level IV review

	Client ID	Lab ID	Matrix	Date
1	BS-BERNARD-13-051916	277041-001	Soil	05/19/16
2	BS-BERNARD-14-051916**	277041-002**	Soil	05/19/16
3	BS-BERNARD-15-051916	277041-003	Soil	05/19/16
4	BS-BERNARD-16-051916	277041-004	Soil	05/19/16
5	BS-BERNARD-17-051916**	277041-005**	Soil	05/19/16
6	BS-BERNARD-18-051916	277041-006	Soil	05/19/16
7	BS-BERNARD-19-051916	277041-007	Soil	05/19/16
8	BS-BERNARD-20-051916**	277041-008**	Soil	05/19/16
9	BS-BERNARD-21-051916	277041-009	Soil	05/19/16
10	BS-BERNARD-22-051916	277041-010	Soil	05/19/16
11	BS-BERNARD-13-051916DUP	277041-001DUP	Soil	05/19/16
12				
13				
14	PBS			

Notes:

LDC #: 37245A35

VALIDATION FINDINGS CHECKLIST

Reviewer: MG
2nd Reviewer: [signature]

DOE HASL 300, 4.5.2.3/Ga-01-R

Method: Radiochemistry (~~EPA Method~~)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
II. Calibration				
Were all instruments and detectors calibration as required?	✓			
Were NIST traceable standards used for all calibrations?	✓			
Was the check source identified by activity and radionuclide?	✓			
Were check sources including background counts analyzed at the requiried frequency and within laboratory control limits?	✓			
III. Blanks				
Were blank analyses performed as required?	✓			
Were any activities detected in the blanks greater than the minimum detectable activity (MDA)? If yes, please see the Blanks validation completeness worksheet.		✓		
IV. Matrix spikes and Duplicates				
Were a matrix spike (MS) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP (Soil) Water.		✓		
Were the MS percent recoveries (%R) within the QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.			✓	
Was a duplicate sample anaylzed at the required frequency of 5% in this SDG?	✓			
Were all duplicate sample duplicate error rations (DER) ≤1.42?.	✓			
V. Laboratory control samples				
Was an LCS analyzed per analytical batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 75-125%	✓			
VI. Sample Chemical/Carrier Recovery				
Was a tracer/carrier added to each sample?		✓		
Were tracer/carrier recoveries within the QC limits?			✓	
VII. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
VIII. Sample Result Verification				
Were activities adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were the Minimum Detectable Activities (MDA) < RL?	✓			

Validation Area	Yes	No	NA	Findings/Comments
IX. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
X. Field duplicates				
Field duplicate pairs were identified in this SDG.		✓		
Target analytes were detected in the field duplicates.			✓	
XI. Field blanks				
Field blanks were identified in this SDG.		✓		
Target analytes were detected in the field blanks.			✓	

LDC #: 37245A35

VALIDATION FINDINGS WORKSHEET
Level IV Recalculation Worksheet

Reviewer: MG
2nd Reviewer:

METHOD: Radiochemistry (Method: DOE HASL 300,) 4.5.2.3/Ga-01-R

Percent recoveries (%R) for a laboratory control sample, a matrix spike and a matrix spike duplicate sample were recaluculated using the following formula:

$\%R = \frac{Found}{True} \times 100$ Where, Found = activity of each analyte measured in the analysis of the sample.
True = activity of each analyte in the source.

A matrix spike and matrix spike duplicate relative percent difference (RPD) was recalculated using the following formula:

$RPD = \frac{|S-D|}{(S+D)/2} \times 100$ Where, S = Original sample activity
D = Duplicate sample activity

Sample ID	Type of Analysis	Analyte	Found/S (units)	True/D (units)	Recalculated %R or RPD	Reported %R or RPD	Acceptable (Y/N)
LCS	Laboratory control sample	Cs-137	185 (pCi/g)	181 (pCi/g)	102	102	Y
–	Matrix spike sample	–	–	–	–	–	–
11	Duplicate RPD	Pb-214	0.715 (pCi/g)	0.648 (pCi/g)	9.83	9.83	Y
–	Chemical recovery	–	–	–	–	–	–

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 37245A35

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Reviewer: MG
2nd reviewer:

METHOD: Radiochemistry (Method: DOE HASL 300,) 4.5.2.3/Ga-01-R

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".
(Y) N N/A Have results been reported and calculated correctly?
(Y) N N/A Are results within the calibrated range of the instruments?

Analyte results for #2, Pb-212 reported with a positive detect were recalculated and verified using the following equation:

Concentration = $\frac{(cpm - background)}{2.22 \times E \times SA \times Vol}$

E = Counter Efficiency
SA = Self-absorbance factor
Vol = Volume of sample

Recalculation:

$$\frac{(545\ cts / 120\ min)}{(2.22)(0.05145)(139.900g)(0.4360)} = 0.6519\ pCi/g$$

#	Sample ID	Analyte	Reported Concentration (pCi/g)	Calculated Concentration (pCi/g)	Acceptable (Y/N)
1	2	Pb-212	0.652	0.652	Y
2	5	Tl-208	0.211	0.212	↓
3	8	Bi-214	0.568	0.567	↓

Note:

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Hunters Point, Parcel D-1

LDC Report Date: October 26, 2016

Parameters: Radium-226

Validation Level: Level III

Laboratory: Curtis & Tompkins, Ltd./GEL Laboratories, LLC

Sample Delivery Group (SDG): 277042/398018

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
BS-BERNARD-01-051916	277042-001	Soil	05/19/16
BS-BERNARD-02-051916	277042-002	Soil	05/19/16
BS-BERNARD-03-051916	277042-003	Soil	05/19/16
BS-BERNARD-04-051916	277042-004	Soil	05/19/16
BS-BERNARD-05-051916	277042-005	Soil	05/19/16
BS-BERNARD-06-051916	277042-006	Soil	05/19/16
BS-BERNARD-07-051916	277042-007	Soil	05/19/16
BS-BERNARD-08-051916	277042-008	Soil	05/19/16
BS-BERNARD-09-051916	277042-009	Soil	05/19/16
BS-BERNARD-10-051916	277042-010	Soil	05/19/16
BS-BERNARD-11-051916	277042-011	Soil	05/19/16
BS-BERNARD-12-051916	277042-012	Soil	05/19/16
BS-BERNARD-01-051916DUP	277042-001DUP	Soil	05/19/16

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with Appendix D, Final Data Management Plan, Remedial Action in Parcel D-1, Hunters Point Naval Shipyard, San Francisco, California (January 2014), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Inorganic Superfund Data Review (January 2010). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Radium-226 by DOE HASL 300 4.5.2.3/Ga-01-R

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition.

All technical holding time requirements were met.

II. Initial Calibration

All criteria for the initial calibration were met.

Counting and detector efficiency were determined for each detector and each radionuclide.

III. Continuing Calibration

Continuing calibration and background determination were performed at the required frequencies. Results were within laboratory control limits.

IV. Blanks

Laboratory blanks were analyzed as required by the method. Blank results contained less than the minimum detectable activity (MDA).

V. Field Blanks

No field blanks were identified in this SDG.

VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analysis were not required by the method.

VII. Duplicate Sample Analysis

Duplicate (DUP) sample analysis was performed on an associated project sample. Results were within QC limits.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Minimum Detectable Concentrations

All minimum detectable concentrations (MDC) met required detection limits (RDL).

XI. Sample Result Verification

Raw data were not reviewed for Level III validation.

XII. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

Hunters Point, Parcel D-1
Radium-226 - Data Qualification Summary - SDG 277042/398018

No Sample Data Qualified in this SDG

Hunters Point, Parcel D-1
Radium-226 - Laboratory Blank Data Qualification Summary - SDG 277042/398018

No Sample Data Qualified in this SDG

Hunters Point, Parcel D-1
Radium-226 - Field Blank Data Qualification Summary - SDG 277042/398018

No Sample Data Qualified in this SDG

LDC #: 37245B29a **VALIDATION COMPLETENESS WORKSHEET** Date: 10-26-16

SDG #: 277042/398018 Level III Page: 1 of 1

Laboratory: Curtis & Tompkins, Ltd./GEL Laboratories, LLC Reviewer: MG

2nd Reviewer: [signature]

METHOD: Radium-226 (DOE HASL 300 4.5.2.3/Ga-01-R)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	Initial calibration	A	
III.	Calibration verification	A	
IV.	Laboratory Blanks	A	PB only
V.	Field blanks	N	
VI.	Matrix Spike/Matrix Spike Duplicates	N	not required
VII.	Duplicates	A	DUP
VIII.	Laboratory control samples	A	LCS
IX.	Field duplicates	N	
X.	Minimum detectable activity (MDA)	A	
XI.	Sample result verification	N	
XII	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	BS-BERNARD-01-051916	277042-001	Soil	05/19/16
2	BS-BERNARD-02-051916	277042-002	Soil	05/19/16
3	BS-BERNARD-03-051916	277042-003	Soil	05/19/16
4	BS-BERNARD-04-051916	277042-004	Soil	05/19/16
5	BS-BERNARD-05-051916	277042-005	Soil	05/19/16
6	BS-BERNARD-06-051916	277042-006	Soil	05/19/16
7	BS-BERNARD-07-051916	277042-007	Soil	05/19/16
8	BS-BERNARD-08-051916	277042-008	Soil	05/19/16
9	BS-BERNARD-09-051916	277042-009	Soil	05/19/16
10	BS-BERNARD-10-051916	277042-010	Soil	05/19/16
11	BS-BERNARD-11-051916	277042-011	Soil	05/19/16
12	BS-BERNARD-12-051916	277042-012	Soil	05/19/16
13	BS-BERNARD-01-051916DUP	277042-001DUP	Soil	05/19/16
14				
15	PBS			

Notes:

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Hunters Point, Parcel D-1

LDC Report Date: October 26, 2016

Parameters: Gamma Spectroscopy

Validation Level: Level III

Laboratory: Curtis & Tompkins, Ltd./GEL Laboratories, LLC

Sample Delivery Group (SDG): 277042/398018

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
BS-BERNARD-01-051916	277042-001	Soil	05/19/16
BS-BERNARD-02-051916	277042-002	Soil	05/19/16
BS-BERNARD-03-051916	277042-003	Soil	05/19/16
BS-BERNARD-04-051916	277042-004	Soil	05/19/16
BS-BERNARD-05-051916	277042-005	Soil	05/19/16
BS-BERNARD-06-051916	277042-006	Soil	05/19/16
BS-BERNARD-07-051916	277042-007	Soil	05/19/16
BS-BERNARD-08-051916	277042-008	Soil	05/19/16
BS-BERNARD-09-051916	277042-009	Soil	05/19/16
BS-BERNARD-10-051916	277042-010	Soil	05/19/16
BS-BERNARD-11-051916	277042-011	Soil	05/19/16
BS-BERNARD-12-051916	277042-012	Soil	05/19/16
BS-BERNARD-01-051916DUP	277042-001DUP	Soil	05/19/16

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with Appendix D, Final Data Management Plan, Remedial Action in Parcel D-1, Hunters Point Naval Shipyard, San Francisco, California (January 2014), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Inorganic Superfund Data Review (January 2010). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Gamma Spectroscopy by DOE HASL 300 4.5.2.3/Ga-01-R

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition.

All technical holding time requirements were met.

II. Initial Calibration

All criteria for the initial calibration were met.

Counting and detector efficiency were determined for each detector and each radionuclide.

III. Continuing Calibration

Continuing calibration and background determination were performed at the required frequencies. Results were within laboratory control limits.

IV. Blanks

Laboratory blanks were analyzed as required by the method. Blank results contained less than the minimum detectable activity (MDA).

V. Field Blanks

No field blanks were identified in this SDG.

VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analysis were not required by the method.

VII. Duplicate Sample Analysis

Duplicate (DUP) sample analysis was performed on an associated project sample. Results were within QC limits.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Minimum Detectable Concentrations

All minimum detectable concentrations (MDC) met required detection limits (RDL) with the following exceptions:

Sample	Isotope	MDC	RDL
BS-BERNARD-01-051916	Cesium-137	0.0736 pCi/g	0.070 pCi/g

The MDC was greater than the RDL as listed above.

XI. Sample Result Verification

Raw data were not reviewed for Level III validation.

XII. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

Hunters Point, Parcel D-1
Gamma Spectroscopy - Data Qualification Summary - SDG 277042/398018

No Sample Data Qualified in this SDG

Hunters Point, Parcel D-1
Gamma Spectroscopy - Laboratory Blank Data Qualification Summary - SDG 277042/398018

No Sample Data Qualified in this SDG

Hunters Point, Parcel D-1
Gamma Spectroscopy - Field Blank Data Qualification Summary - SDG 277042/398018

No Sample Data Qualified in this SDG

LDC #: 37245B35 **VALIDATION COMPLETENESS WORKSHEET** Date: 10-26-16

SDG #: 277042/398018 Level III Page: 1 of 1

Laboratory: Curtis & Tompkins, Ltd./GEL Laboratories, LLC Reviewer: MG

2nd Reviewer:

METHOD: Gamma Spectroscopy (DOE HASL 300 4.5.2.3/Ga-01-R)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	Initial calibration	A	
III.	Calibration verification	A	
IV.	Laboratory Blanks	A	PB only
V.	Field blanks	N	
VI.	Matrix Spike/Matrix Spike Duplicates	N	not required
VII.	Duplicates	A	DUP (~~I~~ TI-208 OK by R.E.R.)
VIII.	Laboratory control samples	A	LCS
IX.	Field duplicates	N	
X.	Minimum detectable activity (MDA)	SW	
XI.	Sample result verification	N	
XII	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	BS-BERNARD-01-051916	277042-001	Soil	05/19/16
2	BS-BERNARD-02-051916	277042-002	Soil	05/19/16
3	BS-BERNARD-03-051916	277042-003	Soil	05/19/16
4	BS-BERNARD-04-051916	277042-004	Soil	05/19/16
5	BS-BERNARD-05-051916	277042-005	Soil	05/19/16
6	BS-BERNARD-06-051916	277042-006	Soil	05/19/16
7	BS-BERNARD-07-051916	277042-007	Soil	05/19/16
8	BS-BERNARD-08-051916	277042-008	Soil	05/19/16
9	BS-BERNARD-09-051916	277042-009	Soil	05/19/16
10	BS-BERNARD-10-051916	277042-010	Soil	05/19/16
11	BS-BERNARD-11-051916	277042-011	Soil	05/19/16
12	BS-BERNARD-12-051916	277042-012	Soil	05/19/16
13	BS-BERNARD-01-051916DUP	277042-001DUP	Soil	05/19/16
14				
15	PBS			

Notes:

LDC #: 37245B35

VALIDATION FINDINGS WORKSHEET
Minimum Detectable Activities

Reviewer: MG
2nd Reviewer:

METHOD: Radiochemistry (Method: DOE HASL 300,) 4.5.2.3/Ga-01-R

The following sample ~~MDA~~ MDC s are above the RDL: — (pCi/g) —

#	Sample ID	Isotope	RDL (units)	~~MDA~~ MDC (units)	Dilution	Qualifications
1	1	Cs-137	0.070	0.0736		text

Comments: MDC = Minimum Detectable Concentration

EDD

LDC#37241 (CB&I Federal Services-Concord, CA / Hunters Point, Parcel D-1)

CTO 03

LDC	SDG#	DATE REC'D	(3) DATE DUE	VOA (8260C)		SVOA (8270D)		Pest. (8081B)		PCBs (8082A)		Metals (6010C /7471B)		TPH-G (8015D)		TPH-E (8015D)																							
Matrix:	Water/Soil			W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	277036	10/04/16	10/25/16	0	7	0	7	0	7	0	7	0	7	0	7	0	7																						
A	277036	10/04/16	10/25/16	0	3	0	3	0	3	0	3	0	3	0	3	0	3																						
B	277038	10/04/16	10/25/16	0	12	0	12	0	12	0	12	0	12	0	12	0	12																						
Total	T/PG			0	22	0	22	0	22	0	22	0	22	0	22	0	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	154

Shaded cells indicate Level IV validation (all other cells are Level III validation). These sample counts do not include MS/MSD, and DUPs

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Hunters Point, Parcel D-1

LDC Report Date: October 25, 2016

Parameters: Volatiles

Validation Level: Level III & IV

Laboratory: Curtis & Tompkins, Ltd.

Sample Delivery Group (SDG): 277036

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
BS-BERNARD-13-051916	277036-001	Soil	05/19/16
BS-BERNARD-14-051916**	277036-002**	Soil	05/19/16
BS-BERNARD-15-051916	277036-003	Soil	05/19/16
BS-BERNARD-16-051916	277036-004	Soil	05/19/16
BS-BERNARD-17-051916**	277036-005**	Soil	05/19/16
BS-BERNARD-18-051916	277036-006	Soil	05/19/16
BS-BERNARD-19-051916	277036-007	Soil	05/19/16
BS-BERNARD-20-051916**	277036-008**	Soil	05/19/16
BS-BERNARD-21-051916	277036-009	Soil	05/19/16
BS-BERNARD-22-051916	277036-010	Soil	05/19/16

**Indicates sample underwent Level IV validation

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with Appendix D, Final Data Management Plan, Remedial Action in Parcel D-1, Hunters Point Naval Shipyard, San Francisco, California (January 2014), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Superfund Organic Methods Data Review (June 2008). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Volatile Organic Compounds (VOCs) by Environmental Protection Agency (EPA) SW 846 Method 8260C

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results. Samples appended with a double asterisk on the cover page were subjected to Level IV data validation, which is comprised of the QC summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A bromofluorobenzene (BFB) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 15.0% for all compounds with the following exceptions:

Average relative response factors (RRF) for all compounds were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
04/23/16	Bromomethane	29	All samples in SDG 277036	UJ (all non-detects)	A

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
05/21/16	Freon 12	36	All samples in SDG 277036	UJ (all non-detects)	A
	Chloromethane	36		UJ (all non-detects)	
	Vinyl chloride	38		UJ (all non-detects)	
	Chloroethane	31		UJ (all non-detects)	
	Trichlorofluoromethane	24		UJ (all non-detects)	
	Acetone	27		UJ (all non-detects)	
	2-Butanone	28		UJ (all non-detects)	
	n-Butylbenzene	25		UJ (all non-detects)	

All of the continuing calibration relative response factors (RRF) were within validation criteria.

The percent differences (%D) of the ending continuing calibration verifications (CCVs) were less than or equal to 50.0% for all compounds.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VIII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

IX. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits with the following exceptions:

LCS ID (Associated Samples)	Compound	LCS %R (Limits)	LCSD %R (Limits)	Flag	A or P
235331BS/RSD (All samples in SDG 277036)	Vinyl chloride	136 (56-135)	-	NA	-
235331BS/RSD (All samples in SDG 277036)	1,2-Dichlorobenzene	75 (78-121)	-	UJ (all non-detects)	P

Relative percent differences (RPD) were within QC limits with the following exceptions:

LCS ID (Associated Samples)	Compound	RPD (Limits)	Flag	A or P
235331BS/RSD (All samples in SDG 277036)	1,2-Dichlorobenzene	25 (≤20)	UJ (all non-detects)	P

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Compound Quantitation

All compound quantitations met validation criteria for samples which underwent Level IV validation. Raw data were not reviewed for Level III validation.

XIII. Target Compound Identifications

All target compound identifications met validation criteria for samples which underwent Level IV validation. Raw data were not reviewed for Level III validation.

XIV. System Performance

The system performance was acceptable for samples which underwent Level IV validation. Raw data were not reviewed for Level III validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to ICV %R, continuing calibration %D, LCS/LCSD %R and RPD, data were qualified as estimated in ten samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

Hunters Point, Parcel D-1
Volatiles - Data Qualification Summary - SDG 277036

Sample	Compound	Flag	A or P	Reason (Code)
BS-BERNARD-13-051916 BS-BERNARD-14-051916** BS-BERNARD-15-051916 BS-BERNARD-16-051916 BS-BERNARD-17-051916** BS-BERNARD-18-051916 BS-BERNARD-19-051916 BS-BERNARD-20-051916** BS-BERNARD-21-051916 BS-BERNARD-22-051916	Bromomethane	UJ (all non-detects)	A	Initial calibration verification (%D) (C)
BS-BERNARD-13-051916 BS-BERNARD-14-051916** BS-BERNARD-15-051916 BS-BERNARD-16-051916 BS-BERNARD-17-051916** BS-BERNARD-18-051916 BS-BERNARD-19-051916 BS-BERNARD-20-051916** BS-BERNARD-21-051916 BS-BERNARD-22-051916	Freon 12 Chloromethane Vinyl chloride Chloroethane Trichlorofluoromethane Acetone 2-Butanone n-Butylbenzene	UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects)	A	Continuing calibration (%D) (C)
BS-BERNARD-13-051916 BS-BERNARD-14-051916** BS-BERNARD-15-051916 BS-BERNARD-16-051916 BS-BERNARD-17-051916** BS-BERNARD-18-051916 BS-BERNARD-19-051916 BS-BERNARD-20-051916** BS-BERNARD-21-051916 BS-BERNARD-22-051916	1,2-Dichlorobenzene	UJ (all non-detects)	P	Laboratory control samples (%R)(RPD) (L)

Hunters Point, Parcel D-1
Volatiles - Laboratory Blank Data Qualification Summary - SDG 277036

No Sample Data Qualified in this SDG

Hunters Point, Parcel D-1
Volatiles - Field Blank Data Qualification Summary - SDG 277036

No Sample Data Qualified in this SDG

LDC #: 37241A1 **VALIDATION COMPLETENESS WORKSHEET** Date: 10/28/16
SDG #: 277036 Level III/IV Page: 1 of 1
Laboratory: Curtis & Tompkins, Ltd. Reviewer: SVV
2nd Reviewer:

METHOD: GC/MS Volatiles (EPA SW 846 Method 8260C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A / SW	ICAL ≤ 15%. ICV ≤ 20%
IV.	Continuing calibration / ending	SW	CCV ≤ 20/50%
V.	Laboratory Blanks	A	
VI.	Field blanks	N	
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	N	LCS
IX.	Laboratory control samples	SW	LCS ID
X.	Field duplicates	N	
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	A	Not reviewed for Level III validation.
XIII.	Target compound identification	A	Not reviewed for Level III validation.
XIV.	System performance	A	Not reviewed for Level III validation.
XV.	Overall assessment of data	A	

Note: A = Acceptable ND = No compounds detected D = Duplicate SB=Source blank
N = Not provided/applicable R = Rinsate TB = Trip blank OTHER:
SW = See worksheet FB = Field blank EB = Equipment blank
** Indicates sample underwent Level IV validation

	Client ID	Lab ID	Matrix	Date
1	BS-BERNARD-13-051916	277036-001	Soil	05/19/16
2	BS-BERNARD-14-051916**	277036-002**	Soil	05/19/16
3	BS-BERNARD-15-051916	277036-003	Soil	05/19/16
4	BS-BERNARD-16-051916	277036-004	Soil	05/19/16
5	BS-BERNARD-17-051916**	277036-005**	Soil	05/19/16
6	BS-BERNARD-18-051916	277036-006	Soil	05/19/16
7	BS-BERNARD-19-051916	277036-007	Soil	05/19/16
8	BS-BERNARD-20-051916**	277036-008**	Soil	05/19/16
9	BS-BERNARD-21-051916	277036-009	Soil	05/19/16
10	BS-BERNARD-22-051916	277036-010	Soil	05/19/16
11				
12				
13	BLK 235331			

LDC #: 37241 A1

VALIDATION FINDINGS CHECKLIST

Reviewer: JVG
2nd Reviewer: [signature]

Method: Volatiles (EPA SW 846 Method 8260C)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
Were all technical holding times met?	✓			
Was cooler temperature criteria met?	✓			
II. GC/MS Instrument performance check				
Were the BFB performance results reviewed and found to be within the specified criteria?	✓			
Were all samples analyzed within the 12 hour clock criteria?	✓			
IIIa. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) ≤ 20% and relative response factors (RRF) within method criteria?	✓			
Was a curve fit used for evaluation? If yes, did the initial calibration meet the curve fit acceptance criteria of > 0.990?			✓	
IIIb. Initial Calibration Verification				
Was an initial calibration verification standard analyzed after each initial calibration for each instrument?	✓			
Were all percent differences (%D) ≤ 30% or percent recoveries (%R) 70-130%?		✓		
IV. Continuing calibration				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	✓			
Were all percent differences (%D) ≤ 20% and relative response factors (RRF) within method criteria?		✓		
V. Laboratory Blanks				
Was a laboratory blank associated with every sample in this SDG?	✓			
Was a laboratory blank analyzed at least once every 12 hours for each matrix and concentration?	✓			
Was there contamination in the laboratory blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Field blanks				
Were field blanks were identified in this SDG?		✓		
Were target compounds detected in the field blanks?			✓	
VII. Surrogate spikes				
Were all surrogate percent recovery (%R) within QC limits?	✓			
If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R outside of criteria?			✓	
VIII. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.		✓		
Was a MS/MSD analyzed every 20 samples of each matrix?		✓		

LDC #: 37291 A1

VALIDATION FINDINGS CHECKLIST

Reviewer: JVG
2nd Reviewer: CT

Validation Area	Yes	No	NA	Findings/Comments
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			✓	
IX. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per analytical batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?		✓		
X. Field duplicates				
Were field duplicate pairs identified in this SDG?		✓		
Were target compounds detected in the field duplicates?			✓	
XI. Internal standards				
Were internal standard area counts within -50% to +100% of the associated calibration standard?	✓			
Were retention times within + 30 seconds of the associated calibration standard?	✓			
XII. Compound quantitation				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	✓			
Were compound quantitation and RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XIII. Target compound identification				
Were relative retention times (RRT's) within + 0.06 RRT units of the standard?	✓			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	✓			
Were chromatogram peaks verified and accounted for?	✓			
XIV. System performance				
System performance was found to be acceptable.	✓			
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			

TARGET COMPOUND WORKSHEET

METHOD: VOA

A. Chloromethane	AA. Tetrachloroethene	AAA. 1,3,5-Trimethylbenzene	AAAA. Ethyl tert-butyl ether	A1. 1,3-Butadiene
B. Bromomethane	BB. 1,1,2,2-Tetrachloroethane	BBB. 4-Chlorotoluene	BBBB. tert-Amyl methyl ether	B1. Hexane
C. Vinyl choride	CC. Toluene	CCC. tert-Butylbenzene	CCCC. 1-Chlorohexane	C1. Heptane
D. Chloroethane	DD. Chlorobenzene	DDD. 1,2,4-Trimethylbenzene	DDDD. Isopropyl alcohol	D1. Propylene
E. Methylene chloride	EE. Ethylbenzene	EEE. sec-Butylbenzene	EEEE. Acetonitrile	E1. Freon 11
F. Acetone	FF. Styrene	FFF. 1,3-Dichlorobenzene	FFFF. Acrolein	F1. Freon 12
G. Carbon disulfide	GG. Xylenes, total	GGG. p-Isopropyltoluene	GGGG. Acrylonitrile	G1. Freon 113
H. 1,1-Dichloroethene	HH. Vinyl acetate	HHH. 1,4-Dichlorobenzene	HHHH. 1,4-Dioxane	H1. Freon 114
I. 1,1-Dichloroethane	II. 2-Chloroethylvinyl ether	III. n-Butylbenzene	IIII. Isobutyl alcohol	I1. 2-Nitropropane
J. 1,2-Dichloroethene, total	JJ. Dichlorodifluoromethane	JJJ. 1,2-Dichlorobenzene	JJJJ. Methacrylonitrile.	J1. Dimethyl disulfide
K. Chloroform	KK. Trichlorofluoromethane	KKK. 1,2,4-Trichlorobenzene	KKKK. Propionitrile	K1. 2,3-Dimethyl pentane
L. 1,2-Dichloroethane	LL. Methyl-tert-butyl ether	LLL. Hexachlorobutadiene	LLLL. Ethyl ether	L1. 2,4-Dimethyl pentane
M. 2-Butanone	MM. 1,2-Dibromo-3-chloropropane	MMM. Naphthalene	MMMM. Benzyl chloride	M1. 3,3-Dimethyl pentane
N. 1,1,1-Trichloroethane	NN. Methyl ethyl ketone	NNN. 1,2,3-Trichlorobenzene	NNNN. Iodomethane	N1. 2-Methylpentane
O. Carbon tetrachloride	OO. 2,2-Dichloropropane	OOO. 1,3,5-Trichlorobenzene	OOOO.1,1-Difluoroethane	O1. 3-Methylpentane
P. Bromodichloromethane	PP. Bromochloromethane	PPP. trans-1,2-Dichloroethene	PPPP. Tetrahydrofuran	P1. 3-Ethylpentane
Q. 1,2-Dichloropropane	QQ. 1,1-Dichloropropene	QQQ. cis-1,2-Dichloroethene	QQQQ. Methyl acetate	Q1. 2,2-Dimethylpentane
R. cis-1,3-Dichloropropene	RR. Dibromomethane	RRR. m,p-Xylenes	RRRR. Ethyl acetate	R1. 2,2,3- Trimethylbutane
S. Trichloroethene	SS. 1,3-Dichloropropane	SSS. o-Xylene	SSSS. Cyclohexane	S1. 2,2,4-Trimethylpentane
T. Dibromochloromethane	TT. 1,2-Dibromoethane	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	TTTT. Methylcyclohexane	T1. 2-Methylhexane
U. 1,1,2-Trichloroethane	UU. 1,1,1,2-Tetrachloroethane	UUU. 1,2-Dichlorotetrafluoroethane	UUUU. Allyl chloride	U1. Nonanal
V. Benzene	VV. Isopropylbenzene	VVV. 4-Ethyltoluene	VVVV. Methyl methacrylate	V1. 2-Methylnaphthalene
W. trans-1,3-Dichloropropene	WW. Bromobenzene	WWW. Ethanol	WWWW. Ethyl methacrylate	W1. Methanol
X. Bromoform	XX. 1,2,3-Trichloropropane	XXX. Di-isopropyl ether	XXXX. cis-1,4-Dichloro-2-butene	X1. 1,2,3-Trimethylbenzene
Y. 4-Methyl-2-pentanone	YY. n-Propylbenzene	YYY. tert-Butanol	YYYY. trans-1,4-Dichloro-2-butene	Y1.
Z. 2-Hexanone	ZZ. 2-Chlorotoluene	ZZZ. tert-Butyl alcohol	ZZZZ. Pentachloroethane	Z1.

LDC #: 57291A1

VALIDATION FINDINGS WORKSHEET
Initial Calibration Verification

Reviewer: JVG
2nd Reviewer: [signature]

METHOD: GC/MS VOA (EPA SW 846 Method 8260C)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Was an initial calibration verification standard analyzed after each ICAL for each instrument?

Y (N) N/A Were all %D within the validation criteria of ≤30 %D?

#	Date	Standard ID	Compound	Finding %D (Limit: ≤30.0%)	Associated Samples	Qualifications
	04/23/16	gdm35	B	29	All (ND)	J/UJ A

LDC #: 37241 A1

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Page: 1 of 1
Reviewer: JVG
2nd Reviewer: [illegible]

METHOD: GC/MS VOA (EPA SW 846 Method 8260C)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?

Y N N/A Were percent differences (%D) ≤20 % and relative response factors (RRF) within the method criteria?

#	Date	Standard ID	Compound	Finding %D (Limit: ≤20.0%)	Finding RRF (Limit)	Associated Samples	Qualifications
	05/21/16	gel04	F1	36		All (ND)	J/UJ A
			A	36		↓	↓
			C	38			
			D	31			
			KK	24			
			F	27			
			M	28			
			III	25			
	~~05/22/16~~	~~gel23~~					
		~~(ending)~~					

CONCAL.wpd

LDC #: 37241 A1

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

Reviewer: JVG
2nd Reviewer: [signature]

METHOD: GC/MS VOA (EPA SW 846 Method 8260C)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y ~~N~~ N/A Was a LCS required?

Y N N/A Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?

#	Date	LCS/LCSD ID	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
		235331 BS/BSD	C	136 (56-135)	( )	( )	All (MB)	J dets / P
			JJJ	75 (78-121)	( )	( )	↓ ↓	J/UJ / P
			JJJ	( )	( )	25 (20)	↓ ↓	↓
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
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				( )	( )	( )		

LDC #: 36809B1

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: JVG
2nd Reviewer:

METHOD: GC/MS VOA (EPA SW 846 Method 8260C)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

$RRF = (A_x)(C_{is})/(A_{is})(C_x)$ — A_x = Area of Compound — A_{is} = Area of associated internal standard

average RRF = sum of the RRFs/number of standards — C_x = Concentration of compound, — C_{is} = Concentration of internal standard

%RSD = 100 * (S/X) — S= Standard deviation of the RRFs, — X = Mean of the RRFs

#	Standard ID	Calibration Date	Compound (IS)	Reported RRF (RRF 50 std)	Recalculated RRF (RRF 50 std)	Reported Average RRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL MSVOA7	4/22/2016	cis-1,2-DCE (PFB)	0.7525	0.7525	0.7649	0.7649	4	3.6
			Trichloroethene (DFB)	0.3575	0.3575	0.3658	0.3658	4	4.3
			Ethylbenzene (CBZ)	2.0598	2.0598	2.0983	2.0983	3	2.6
			Propylbenzene (DCB)	3.7380	3.7380	4.0620	4.0620	7	6.9

LDC # 37241A1

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Reviewer: JVG
2nd Reviewer: [signature]

METHOD: GC/MS VOA (EPA SW 846 Method 8260C)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
RRF = (Ax)(Cis)/(Ais)(Cx)

Where:
ave. RRF = initial calibration average RRF
RRF = continuing calibration RRF
Ax = Area of compound,
Cx = Concentration of compound,
Ais = Area of associated internal standard
Cis = Concentration of internal standard

#	Standard ID	Calibration Date	Compound	(IS)	Average RRF (Initial)	Reported RRF (CC)	Recalculated RRF (CC)	Reported % D	Recalculated %D
1	fgp04 MSVOA6	7/25/2016	cis-1,2-DCE	(PFB)	0.7649	0.8265	0.8265	8	8.1
			Trichloroethene	(DFB)	0.3658	0.3812	0.3812	4	4.2
			Ethylbenzene	(CBZ)	2.0983	2.1691	2.1691	3	3.4
			Propylbenzene	(DCB)	4.0620	4.2627	4.2627	5	4.9

LDC #: 37241A1

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Reviewer: JVG
2nd reviewer:

METHOD: GC/MS VOA (EPA SW 846 Method 8260C)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: 1 2

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane	50.0	55.75	112	112	0
1,2-Dichloroethane-d4	↓	57.57	115	115	↓
Toluene-d8		49.93	100	100	
Bromofluorobenzene	↓	56.33	113	113	

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

LDC #: 37241A1

VALIDATION FINDINGS WORKSHEET
Laboratory Control Sample Results Verification

Reviewer: JVG
2nd Reviewer:

METHOD: GC/MS VOA (EPA SW 846 Method 8260C)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratoy control sample and laboratory control sample duplicate (if applicable) were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * SSC/SA Where: SSC = Spiked sample concentration; SA = Spike added

RPD = | LCSC - LCSDC | * 2/(LCSC + LCSDC) LCSC = Laboraotry control sample concentration LCSDC = Laboratory control sample duplicate concentration

LCS ID: 235371 BS/BSD

Compound	Spike Added (ug/kg)		Spiked Sample Concentration (ug/kg)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
1,1-Dichloroethene	25.0	25.0	25.4	23.66	107	107	95	95	7	7
Trichloroethene			25.77	22.77	103	103	91	91	12	12
Benzene			26.17	23.90	105	105	94	94	11	11
Toluene			24.87	22.93	99	99	92	92	8	8
Chlorobenzene	↓	↓	24.23	22.47	97	97	90	90	8	8

Comments: Refer to Laboratory Control Sample findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 37241A1

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Reviewer: JVG
2nd reviewer:

METHOD: GC/MS VOA (EPA SW 846 Method 8260C)

(Y) N N/A Were all reported results recalculated and verified for all level IV samples?

Y N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Concentration = $\frac{(A_x)(I_s)(DF)}{(A_{is})(RRF)(V_o)(\%S)}$

A_x = Area of the characteristic ion (EICP) for the compound to be measured

A_{is} = Area of the characteristic ion (EICP) for the specific internal standard

I_s = Amount of internal standard added in nanograms (ng)

RRF = Relative response factor of the calibration standard.

V_o = Volume or weight of sample pruged in milliliters (ml) or grams (g).

Df = Dilution factor.

%S = Percent solids, applicable to soils and solid matrices only.

Example:

Sample I.D. MD, cis-1,2-DCE LCS

Conc. = $\frac{(57640)(50.0)(\quad)}{(13875)(0.764)(\quad)(\quad)}$

= 27.20 ug/kg

#	Sample ID	Compound	Reported Concentration (ug/kg)	Calculated Concentration ( )	Qualification
	LCS	cis-1,2-DCE	27.20		

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Hunters Point, Parcel D-1

LDC Report Date: October 25, 2016

Parameters: Semivolatiles

Validation Level: Level III & IV

Laboratory: Curtis & Tompkins, Ltd.

Sample Delivery Group (SDG): 277036

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
BS-BERNARD-13-051916	277036-001	Soil	05/19/16
BS-BERNARD-14-051916**	277036-002**	Soil	05/19/16
BS-BERNARD-15-051916	277036-003	Soil	05/19/16
BS-BERNARD-16-051916	277036-004	Soil	05/19/16
BS-BERNARD-17-051916**	277036-005**	Soil	05/19/16
BS-BERNARD-18-051916	277036-006	Soil	05/19/16
BS-BERNARD-19-051916	277036-007	Soil	05/19/16
BS-BERNARD-20-051916**	277036-008**	Soil	05/19/16
BS-BERNARD-21-051916	277036-009	Soil	05/19/16
BS-BERNARD-22-051916	277036-010	Soil	05/19/16

**Indicates sample underwent Level IV validation

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with Appendix D, Final Data Management Plan, Remedial Action in Parcel D-1, Hunters Point Naval Shipyard, San Francisco, California (January 2014), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Superfund Organic Methods Data Review (June 2008). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Semivolatile Organic Compounds (SVOCs) by Environmental Protection Agency (EPA) SW 846 Method 8270D

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results. Samples appended with a double asterisk on the cover page were subjected to Level IV data validation, which is comprised of the QC summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A decafluorotriphenylphosphine (DFTPP) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

For compounds where average relative response factors (RRFs) were utilized, percent relative standard deviations (%RSD) were less than or equal to 15.0%.

In the case where the laboratory used a calibration curve to evaluate the compounds, all coefficients of determination (r^2) were greater than or equal to 0.990.

Average relative response factors (RRF) for all compounds were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0% for all compounds.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
05/24/16	4-Nitrophenol	27	BS-BERNARD-14-051916**	UJ (all non-detects)	A
05/26/16	Benzoic acid 2,4-Dinitrophenol	22 24	BS-BERNARD-14-051916**	UJ (all non-detects) UJ (all non-detects)	A
05/24/16	Bis(2-chloroethoxy)methane	32	BS-BERNARD-13-051916 BS-BERNARD-15-051916 BS-BERNARD-16-051916 BS-BERNARD-18-051916 BS-BERNARD-19-051916	UJ (all non-detects)	A

Date	Compound	%D	Associated Samples	Flag	A or P
05/24/16	Benzoic acid 2,4-Dinitrophenol 4-Nitrophenol	32 26 26	BS-BERNARD-13-051916 BS-BERNARD-15-051916 BS-BERNARD-16-051916 BS-BERNARD-17-051916** BS-BERNARD-18-051916 BS-BERNARD-19-051916	UJ (all non-detects) UJ (all non-detects) UJ (all non-detects)	A
05/26/16	Nitrobenzene Benzoic acid	23 24	BS-BERNARD-22-051916	UJ (all non-detects) UJ (all non-detects)	A

All of the continuing calibration relative response factors (RRF) were within validation.

The percent differences (%D) of the ending calibrations were less than or equal to 50.0% for all compounds with the exception of Hexachlorocyclopentadiene, 2,4-Dinitrophenol, 4,6-Dinitro-2-methylphenol, Di-n-octylphthalate, and Benzo(g,h,i)perylene. Since no samples were analyzed after this calibration, no data were qualified.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Surrogates

Surrogates were added to all samples as required by the method. Surrogate recoveries (%R) were not within QC limits for several samples. No data were qualified for samples analyzed at greater than or equal to 5X dilution.

VIII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) and relative percent differences (RPD) were not within QC limits. No data were qualified since there were no associated samples in this SDG.

IX. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits with the following exceptions:

LCS ID	Compound	%R (Limits)	Associated Samples	Flag	A or P
235426 LCS	4,6-Dinitro-2-methylphenol	24 (29-132)	BS-BERNARD-20-051916** BS-BERNARD-21-051916	UJ (all non-detects)	P
235475 LCS	4,6-Dinitro-2-methylphenol	27 (29-132)	BS-BERNARD-22-051916	UJ (all non-detects)	P

Relative percent differences (RPD) were within QC limits.

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Compound Quantitation

All compound quantitations met validation criteria for samples which underwent Level IV validation. Raw data were not reviewed for Level III validation.

XIII. Target Compound Identifications

All target compound identifications met validation criteria for samples which underwent Level IV validation. Raw data were not reviewed for Level III validation.

XIV. System Performance

The system performance was acceptable for samples which underwent Level IV validation. Raw data were not reviewed for Level III validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to continuing calibration %D and LCS %R, data were qualified as estimated in ten samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

Hunters Point, Parcel D-1
Semivolatiles - Data Qualification Summary - SDG 277036

Sample	Compound	Flag	A or P	Reason (Code)
BS-BERNARD-14-051916**	4-Nitrophenol Benzoic acid 2,4-Dinitrophenol	UJ (all non-detects) UJ (all non-detects) UJ (all non-detects)	A	Continuing calibration (%D) (C)
BS-BERNARD-13-051916 BS-BERNARD-15-051916 BS-BERNARD-16-051916 BS-BERNARD-18-051916 BS-BERNARD-19-051916	Bis(2-chloroethoxy)methane	UJ (all non-detects)	A	Continuing calibration (%D) (C)
BS-BERNARD-13-051916 BS-BERNARD-15-051916 BS-BERNARD-16-051916 BS-BERNARD-17-051916** BS-BERNARD-18-051916 BS-BERNARD-19-051916	Benzoic acid 2,4-Dinitrophenol 4-Nitrophenol	UJ (all non-detects) UJ (all non-detects) UJ (all non-detects)	A	Continuing calibration (%D) (C)
BS-BERNARD-22-051916	Nitrobenzene Benzoic acid	UJ (all non-detects) UJ (all non-detects)	A	Continuing calibration (%D) (C)
BS-BERNARD-20-051916** BS-BERNARD-21-051916 BS-BERNARD-22-051916	4,6-Dinitro-2-methylphenol	UJ (all non-detects)	P	Laboratory control samples (%R) (L)

Hunters Point, Parcel D-1
Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 277036

No Sample Data Qualified in this SDG

Hunters Point, Parcel D-1
Semivolatiles - Field Blank Data Qualification Summary - SDG 277036

No Sample Data Qualified in this SDG

LDC #: 37241A2a **VALIDATION COMPLETENESS WORKSHEET** Date: 10/24/16
SDG #: 277036 Level III/IV Page: 1 of 1
Laboratory: Curtis & Tompkins, Ltd. Reviewer: SW
2nd Reviewer:

METHOD: GC/MS Semivolatiles (EPA SW 846 Method 8270D)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A / A	ICAL ≤ 15% r ICV ≤ 20%
IV.	Continuing calibration/ending	SW	CCV ≤ 20/50%
V.	Laboratory Blanks	A	
VI.	Field blanks	N	
VII.	Surrogate spikes	SW	
VIII.	Matrix spike/Matrix spike duplicates	SW	277038-001 (%R, %RPD, no asst'd sample,
IX.	Laboratory control samples	SW	LCS NA)
X.	Field duplicates	N	
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	A	Not reviewed for Level III validation.
XIII.	Target compound identification	A	Not reviewed for Level III validation.
XIV.	System performance	A	Not reviewed for Level III validation.
XV.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

** Indicates sample underwent Level IV validation

	Client ID	Lab ID	Matrix	Date
1 1	BS-BERNARD-13-051916	277036-001	Soil	05/19/16
2 1	BS-BERNARD-14-051916**	277036-002**	Soil	05/19/16
3 1	BS-BERNARD-15-051916	277036-003	Soil	05/19/16
4 1	BS-BERNARD-16-051916	277036-004	Soil	05/19/16
5 1	BS-BERNARD-17-051916**	277036-005**	Soil	05/19/16
6 1	BS-BERNARD-18-051916	277036-006	Soil	05/19/16
7 1	BS-BERNARD-19-051916	277036-007	Soil	05/19/16
8 2	BS-BERNARD-20-051916**	277036-008**	Soil	05/19/16
9 2	BS-BERNARD-21-051916	277036-009	Soil	05/19/16
10 3	BS-BERNARD-22-051916	277036-010	Soil	05/19/16
11				
12				
13 1	Blk 235371			
2	235426			
3	235475			

LDC #: 27241A2a

VALIDATION FINDINGS CHECKLIST

Page: 1 of 2
Reviewer: JVG
2nd Reviewer:

Method: Semivolatiles (EPA SW 846 Method 8270D)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
Were all technical holding times met?	✓			
Was cooler temperature criteria met?	✓			
II. GC/MS instrument performance check				
Were the DFTPP performance results reviewed and found to be within the specified criteria?	✓			
Were all samples analyzed within the 12 hour clock criteria?	✓			
IIIa. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) ≤ 20% and relative response factors (RRF) within method criteria?	✓			
Was a curve fit used for evaluation? If yes, did the initial calibration meet the curve fit acceptance criteria of ≥ 0.990?	✓			
IIIb. Initial Calibration Verification				
Was an initial calibration verification standard analyzed after each initial calibration for each instrument?	✓			
Were all percent differences (%D) < 30% or percent recoveries (%R) 70-130%?	✓			
IV. Continuing calibration				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	✓			
Were all percent differences (%D) ≤ 20% and relative response factors (RRF) within method criteria?		✓		
V. Laboratory Blanks				
Was a laboratory blank associated with every sample in this SDG?	✓			
Was a laboratory blank analyzed at least once every 12 hours for each matrix and concentration?	✓			
Was there contamination in the laboratory blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Field blanks				
Were field blanks were identified in this SDG?		✓		
Were target compounds detected in the field blanks?			✓	
VII. Surrogate spikes				
Were all surrogate percent recovery (%R) within QC limits?		✓		
If 2 or more base neutral or acid surrogates were outside QC limits, was a reanalysis?	✓			
If 2 or more base neutral or acid surrogates were outside QC limits, was a reanalysis performed to confirm %R?			✓	

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VALIDATION FINDINGS CHECKLIST

Reviewer: JVG
2nd Reviewer:

Validation Area	Yes	No	NA	Findings/Comments
VIII. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.	✓	✓		
Was a MS/MSD analyzed every 20 samples of each matrix?	✓	✓		
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?		✓		
IX. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per analytical batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?		✓		
X. Field duplicates				
Were field duplicate pairs identified in this SDG?	-	✓		
Were target compounds detected in the field duplicates?			✓	
XI. Internal standards				
Were internal standard area counts within -50% to +100% of the associated calibration standard?	✓			
Were retention times within ± 30 seconds of the associated calibration standard?	✓			
XII. Compound quantitation				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	✓			
Were compound quantitation and RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XIII. Target compound identification				
Were relative retention times (RRT's) within ± 0.06 RRT units of the standard?	✓			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	✓			
Were chromatogram peaks verified and accounted for?	✓			
XIV. System performance				
System performance was found to be acceptable.	✓			
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			

VALIDATION FINDINGS WORKSHEET

METHOD: GC/MS SVOA

A. Phenol	AA. 2-Chloronaphthalene	AAA. Butylbenzylphthalate	AAAA. Dibenzothiophene	A1.
B. Bis (2-chloroethyl) ether	BB. 2-Nitroaniline	BBB. 3,3'-Dichlorobenzidine	BBBB. Benzo(a)fluoranthene	B1.
C. 2-Chlorophenol	CC. Dimethylphthalate	CCC. Benzo(a)anthracene	CCCC. Benzo(b)fluorene	C1.
D. 1,3-Dichlorobenzene	DD. Acenaphthylene	DDD. Chrysene	DDDD. cis/trans-Decalin	D1.
E. 1,4-Dichlorobenzene	EE. 2,6-Dinitrotoluene	EEE. Bis(2-ethylhexyl)phthalate	EEEE. Biphenyl	E1.
F. 1,2-Dichlorobenzene	FF. 3-Nitroaniline	FFF. Di-n-octylphthalate	FFFF. Retene	F1.
G. 2-Methylphenol	GG. Acenaphthene	GGG. Benzo(b)fluoranthene	GGGG. C30-Hopane	G1.
H. 2,2'-Oxybis(1-chloropropane)	HH. 2,4-Dinitrophenol	HHH. Benzo(k)fluoranthene	HHHH. 1-Methylphenanthrene	H1.
I. 4-Methylphenol	II. 4-Nitrophenol	III. Benzo(a)pyrene	IIII. 1,4-Dioxane	I1.
J. N-Nitroso-di-n-propylamine	JJ. Dibenzofuran	JJJ. Indeno(1,2,3-cd)pyrene	JJJJ. Acetophenone	J1.
K. Hexachloroethane	KK. 2,4-Dinitrotoluene	KKK. Dibenz(a,h)anthracene	KKKK. Atrazine	K1.
L. Nitrobenzene	LL. Diethylphthalate	LLL. Benzo(g,h,i)perylene	LLLL. Benzaldehyde	L1.
M. Isophorone	MM. 4-Chlorophenyl-phenyl ether	MMM. Bis(2-Chloroisopropyl)ether	MMMM. Caprolactam	M1.
N. 2-Nitrophenol	NN. Fluorene	NNN. Aniline	NNNN. 2,6-Dichlorophenol	N1.
O. 2,4-Dimethylphenol	OO. 4-Nitroaniline	OOO. N-Nitrosodimethylamine	OOOO. 1,2-Diphenylhydrazine	O1.
P. Bis(2-chloroethoxy)methane	PP. 4,6-Dinitro-2-methylphenol	PPP. Benzoic Acid	PPPP. 3-Methylphenol	P1.
Q. 2,4-Dichlorophenol	QQ. N-Nitrosodiphenylamine	QQQ. Benzyl alcohol	QQQQ. 3&4-Methylphenol	Q1.
R. 1,2,4-Trichlorobenzene	RR. 4-Bromophenyl-phenylether	RRR. Pyridine	RRRR. 4-Dimethyldibenzothiophene (4MDT)	R1.
S. Naphthalene	SS. Hexachlorobenzene	SSS. Benzidine	SSSS. 2/3-Dimethyldibenzothiophene (4MDT)	S1.
T. 4-Chloroaniline	TT. Pentachlorophenol	TTT. 1-Methylnaphthalene	TTTT. 1-Methyldibenzothiophene (1MDT)	T1.
U. Hexachlorobutadiene	UU. Phenanthrene	UUU.Benzo(b)thiophene	UUUU.	U1.
V. 4-Chloro-3-methylphenol	VV. Anthracene	VVV.Benzonaphthothiophene	VVVV.	V1.
W. 2-Methylnaphthalene	WW. Carbazole	WWW.Benzo(e)pyrene	WWWW.	W1.
X. Hexachlorocyclopentadiene	XX. Di-n-butylphthalate	XXX. 2,6-Dimethylnaphthalene	XXXX.	X1.
Y. 2,4,6-Trichlorophenol	YY. Fluoranthene	YYY. 2,3,5-Trimethylnaphthalene	YYYY.	Y1.
Z. 2,4,5-Trichlorophenol	ZZ. Pyrene	ZZZ. Perylene	ZZZZ.	Z1.

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VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Page: 1 of 2
Reviewer: JVG
2nd Reviewer:

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?
Y N N/A Were percent differences (%D) ≤20 % and relative response factors (RRF) within the method criteria?

#	Date	Standard ID	Compound	Finding %D (Limit: ≤20.0%)	Finding RRF (Limit)	Associated Samples	Qualifications
	05/24/16	ze004	II	27		2 (ND)	J/UJ/A
	05/26/16	zeq08	PPP	22			
			HH	24			
	05/24/16	re003	P	32		1, 3, 4, 6, 7 (ND)	
			PPP	32		1, 3-7	
			HH	26			
			II	26			
	05/25/16	rep03	MMM	27		##, ## BLK235771	
			L	23			
			M	21			
			P	26			
			BB	37			
	05/26/16	req03	L	23		10 (ND)	
			PPP	24			
	05/26/16	xeq18	X	80			No qual (Text) (No samples analyzed after CCV)
	05/24/16	ze019	HH	56			
	05/27/16	zeq25	X	88			
			HH	79			
			PP	57			

LDC #: 37241 A2a

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Reviewer: JVG
2nd Reviewer: Q

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?

Y (N) N/A Were percent differences (%D) ≤20 % and relative response factors (RRF) within the method criteria?

#	Date	Standard ID	Compound	Finding %D (Limit: ≤20.0%)	Finding RRF (Limit)	Associated Samples	Qualifications
	05/25/16	re012	X	60			Text
			FFF	55			(No qual, no samples
							analyzed after CCV)
	05/26/16	ref 17	X	72			↓
			FFF	117			
			LLL	60			

CONCAL.wpd

LDC #: 37241 A2a

VALIDATION FINDINGS WORKSHEET
Surrogate Recovery

Reviewer: JVG
2nd Reviewer: [signature]

METHOD: GC/MS PAH (EPA SW 846 Method 8270C-SIM)

Please see qualification below for all questions answered "N". Not applicable questions are identified as "N/A".

Y (N) N/A — Were percent recoveries (%R) for surrogates within QC limits?

(Y) N N/A — If 2 or more base neutral or acid surrogates were outside QC limits, was a reanalysis performed to confirm %R?

Y N (N/A) — If any %R was less than 10 percent, was a reanalysis performed to confirm %R?

#	Date	Sample ID	Surrogate	%R (Limits)	Qualifications
		2 (10x)	All	DO (varied)	No qual (dil)
				( )	
		5 (20x)		( )	
				( )	
		6 (10x)		( )	
				( )	
		7 (10x)		( )	
				( )	
		8 (10x)		( )	
				( )	
		9 (10x)		( )	
				( )	
		10 (10x)		( )	
				( )	
				( )	
		Blk 235371	2FP	147 (35-115)	J det / P
			PHL	139 (33-122)	Y
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	

(NBZ) = Nitrobenzene-d5
(FBP) = 2-Fluorobiphenyl
(TPH) = Terphenyl-d14

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VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

Page: 1 of 1
Reviewer: JVG
2nd Reviewer:

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a LCS required?

Y (N) N/A Were the LCS/LCSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

#	Date	LCS/LCSD ID	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
		235426 LCS	PP	24 (29-132)	( )	( )	8, 9, BK 235426	(ND) J/UJ/P
				( )	( )	( )		
				( )	( )	( )		
		235475 LCS	PP	27 (29-132)	( )	( )	10, BLK 235475	(ND)
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
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				( )	( )	( )		

LDC #: 37241A2

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: JVG
2nd Reviewer:

METHOD: GC/MS SVOA (EPA SW 846 Method 8270D)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

$RRF = (A_x)(C_{is})/(A_{is})(C_x)$ — A_x = Area of Compound — A_{is} = Area of associated internal standard

average RRF = sum of the RRFs/number of standards — C_x = Concentration of compound, — C_{is} = Concentration of internal standard

%RSD = 100 * (S/X) — S= Standard deviation of the RRFs, — X = Mean of the RRFs

#	Standard ID	Calibration Date	Compound (IS)	Reported RRF (RRF 40 std)	Recalculated RRF (RRF 40 std)	Reported Average RRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL	04/22/16	Phenol (IS1)	1.6269	1.6269	1.5612	1.5611	12	12.2
			Nitrobenzene (IS2)	0.3280	0.3280	0.3160	0.3160	9	8.8
			Diethylphthalate (IS3)	1.4782	1.4782	1.3917	1.3917	9	8.8
	MS BNA07		Hexachlorobenzene (IS4)	0.2567	0.2567	0.2421	0.2421	8	8.0
			Bis(2-ethex)phthalate (IS5	0.9244	0.9244	0.8229	0.8229	15	14.6
			Benzo(a)pyrene (IS6)	1.2781	1.2781	1.2354	1.2354	10	9.6
2	ICAL	05/16/16	Phenol (IS1)	1.6470	1.6470	1.6300	1.6300	3	3.2
			Nitrobenzene (IS2)	0.3465	0.3465	0.3324	0.3324	5	5.0
			Diethylphthalate (IS3)	1.8748	1.8748	1.8364	1.8364	5	5.1
	MS BNA09		Hexachlorobenzene (IS4)	0.2092	0.2092	0.2102	0.2102	3	2.7
			Bis(2-ethex)phthalate (IS5	1.0481	1.0481	0.9316	0.9316	15	14.6
			Benzo(a)pyrene (IS6)	1.1799	1.1799	1.1454	1.1454	8	8.2

LDC # 37241A2

VALIDATION FINDINGS WORSHEET
Continuing Calibration Calculation Verification

Reviewer: JVG
2nd Reviewer:

METHOD: GC/MS SVOA (EPA SW 846 Method 8270D)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
RRF = (Ax)(Cis)/(Ais)(Cx)

Where:
ave. RRF = initial calibration average RRF
RRF = continuing calibration RRF
Ax = Area of compound,
Cx = Concentration of compound,
Ais = Area of associated internal standard
Cis = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (IS)	Average RRF (Initial)	Reported RRF (CCV)	Recalculated RRF (CCV)	Reported % D	Recalculated %D
1	zeo04	05/24/16	Phenol (IS1)	1.56120	1.43219	1.43219	8	8.3
			Nitrobenzene (IS2)	0.31595	0.32310	0.32310	2	2.3
			Diethylphthalate (IS3)	1.39167	1.39657	1.39657	0	0.4
	MS BNA07		Hexachlorobenzene (IS4)	0.24210	0.27906	0.27906	15	15.3
			Bis(2-ethex)phthalate (IS5)	0.82291	0.89913	0.89913	9	9.3
			Benzo(a)pyrene (IS6)	1.23542	1.13728	1.13728	8	7.9
2	zeq08	05/26/16	Phenol (IS1)	1.56120	1.45863	1.45863	7	6.6
			Nitrobenzene (IS2)	0.31595	0.31426	0.31426	1	0.5
			Diethylphthalate (IS3)	1.39167	1.39283	1.39283	0	0.1
	MS BNA07		Hexachlorobenzene (IS4)	0.24210	0.26037	0.26037	8	7.5
			Bis(2-ethex)phthalate (IS5)	0.82291	0.91945	0.91945	12	11.7
			Benzo(a)pyrene (IS6)	1.23542	1.14961	1.14961	7	6.9

LDC # 37241A2

VALIDATION FINDINGS WORSHEET
Continuing Calibration Calculation Verification

Reviewer: JVG
2nd Reviewer:

METHOD: GC/MS SVOA (EPA SW 846 Method 8270D)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
RRF = (Ax)(Cis)/(Ais)(Cx)

Where:
ave. RRF = initial calibration average RRF
RRF = continuing calibration RRF
Ax = Area of compound,
Cx = Concentration of compound,
Ais = Area of associated internal standard
Cis = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (IS)	Average RRF (Initial)	Reported RRF (CCV)	Recalculated RRF (CCV)	Reported % D	Recalculated %D
3	reo03	05/24/16	Phenol (IS1)	1.6300	1.8782	1.8782	15	15.2
			Nitrobenzene (IS2)	0.3324	0.4252	0.4252	28	27.9
			Diethylphthalate (IS3)	1.8364	2.0666	2.0666	13	12.5
	MS BNA09		Hexachlorobenzene (IS4)	0.2102	0.1937	0.1937	8	7.9
			Bis(2-ethex)phthalate (IS5)	0.9316	1.0142	1.0142	9	8.9
			Benzo(a)pyrene (IS6)	1.1454	1.2693	1.2693	11	10.8
4	rep03	05/25/16	Phenol (IS1)	1.6300	1.8017	1.8017	11	10.5
			Nitrobenzene (IS2)	0.3324	0.4082	0.4082	23	22.8
			Diethylphthalate (IS3)	1.8364	1.9958	1.9958	9	8.7
	MS BNA09		Hexachlorobenzene (IS4)	0.2102	0.1893	0.1893	10	10.0
			Bis(2-ethex)phthalate (IS5)	0.9316	1.1124	1.1124	19	19.4
			Benzo(a)pyrene (IS6)	1.14544	1.23393	1.23393	8	7.7

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VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Reviewer: JVG
2nd reviewer:

METHOD: GC/MS Semivolatiles (EPA SW 846 Method 8270C)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: 2

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5	1350	790.1	DO	59	NC
2-Fluorobiphenyl		923.3		68	
Terphenyl-d14		1091		81	
Phenol-d5		8.198		0.6	
2-Fluorophenol		603.8		45	
2,4,6-Tribromophenol		642.7		48	
2-Chlorophenol-d4					
1,2-Dichlorobenzene-d4					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl					
Terphenyl-d14					
Phenol-d5					
2-Fluorophenol					
2,4,6-Tribromophenol					
2-Chlorophenol-d4					
1,2-Dichlorobenzene-d4					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl					
Terphenyl-d14					
Phenol-d5					
2-Fluorophenol					
2,4,6-Tribromophenol					
2-Chlorophenol-d4					
1,2-Dichlorobenzene-d4					

LDC #: 37241A2a

VALIDATION FINDINGS WORKSHEET

Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

Reviewer: JVG
2nd Reviewer: [signature]

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * (SC/SA Where: SSC = Spike concentration
SA = Spike added

RPD = I LCSC - LCSDC I * 2/(LCSC + LCSDC) LCSC = Laboratory control sample concentration LCSDC = Laboratory control sample duplicate concentration

LCS/LCSD samples: LCS 235371

Compound	Spike Added (ug/kg)		Spike Concentration (ug/kg)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc	Reported	Recalc	Reported	Recalculated
Phenol	269 v	NA	2061	NA	77	77				
N-Nitroso-di-n-propylamine	↓	↓	2069	↓	77	77				
4-Chloro-3-methylphenol	↓	↓	2337	↓	89	87				
Acenaphthene	1009	↓	665.7	↓	66	66				
Pentachlorophenol	269 v	↓	162 m	↓	77	77				
Pyrene	1009	↓	892.7	↓	88	88				

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 37241 A2c

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Reviewer: JVG
2nd reviewer: [signature]

METHOD: GC/MS BNA (EPA SW 846 Method 8270C)

(Y) N N/A Were all reported results recalculated and verified for all level IV samples?
Y (N) N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Concentration = $\frac{(A_x)(I_s)(V_i)(DF)(2.0)}{(A_{is})(RRF)(V_o)(V_t)(\%S)}$

A_x	=	Area of the characteristic ion (EICP) for the compound to be measured
A_{is}	=	Area of the characteristic ion (EICP) for the specific internal standard
I_s	=	Amount of internal standard added in nanograms (ng)
V_o	=	Volume or weight of sample extract in milliliters (ml) or grams (g).
V_i	=	Volume of extract injected in microliters (ul)
V_t	=	Volume of the concentrated extract in microliters (ul)
Df	=	Dilution Factor.
%S	=	Percent solids, applicable to soil and solid matrices only.
2.0	=	Factor of 2 to account for GPC cleanup

Example:

Sample I.D. 2 , Pyrene

Conc. = $\frac{(83224)(40)(1\,ml)(1000)(10)}{(405773)(1.5066)(2964)(0.92)(\quad)}$

= 199.55

≈ 200 ug/kg

#	Sample ID	Compound	Reported Concentration (ug/kg)	Calculated Concentration ( )	Qualification
	2	Pyrene	200		

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Hunters Point, Parcel D-1

LDC Report Date: October 25, 2016

Parameters: Chlorinated Pesticides

Validation Level: Level III & IV

Laboratory: Curtis & Tompkins, Ltd.

Sample Delivery Group (SDG): 277036

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
BS-BERNARD-13-051916	277036-001	Soil	05/19/16
BS-BERNARD-14-051916**	277036-002**	Soil	05/19/16
BS-BERNARD-15-051916	277036-003	Soil	05/19/16
BS-BERNARD-16-051916	277036-004	Soil	05/19/16
BS-BERNARD-17-051916**	277036-005**	Soil	05/19/16
BS-BERNARD-18-051916	277036-006	Soil	05/19/16
BS-BERNARD-19-051916	277036-007	Soil	05/19/16
BS-BERNARD-20-051916**	277036-008**	Soil	05/19/16
BS-BERNARD-21-051916	277036-009	Soil	05/19/16
BS-BERNARD-22-051916	277036-010	Soil	05/19/16

**Indicates sample underwent Level IV validation

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with Appendix D, Final Data Management Plan, Remedial Action in Parcel D-1, Hunters Point Naval Shipyard, San Francisco, California (January 2014), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Superfund Organic Methods Data Review (June 2008). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Chlorinated Pesticides by Environmental Protection Agency (EPA) SW 846 Method 8081B

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results. Samples appended with a double asterisk on the cover page were subjected to Level IV data validation, which is comprised of the QC summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

The individual 4,4'-DDT and Endrin breakdowns (%BD) were less than or equal to 15.0%.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

For compounds where average calibration factors were utilized, percent relative standard deviations (%RSD) were less than or equal to 20.0%.

In the case where the laboratory used a calibration curve to evaluate the compounds, all coefficients of determination (r^2) were greater than or equal to 0.990.

Retention time windows were established as required by the method for samples which underwent Level IV validation. Raw data were not reviewed for Level III validation.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0% for all compounds with the following exceptions:

Date	Standard	Column	Compound	%D	Associated Samples	Flag	A or P
05/27/16	147_025	Ch A	4,4'-DDE Endrin aldehyde	25 23	BS-BERNARD-13-051916 BS-BERNARD-14-051916** BS-BERNARD-15-051916 BS-BERNARD-16-051916 BS-BERNARD-17-051916** BS-BERNARD-18-051916 BS-BERNARD-19-051916 BS-BERNARD-20-051916** BS-BERNARD-21-051916 BS-BERNARD-22-051916	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A
05/27/16	147_025	Ch B	alpha-BHC gamma-BHC Endrin aldehyde	25 22 24	BS-BERNARD-13-051916 BS-BERNARD-14-051916** BS-BERNARD-15-051916 BS-BERNARD-16-051916 BS-BERNARD-17-051916** BS-BERNARD-18-051916 BS-BERNARD-19-051916 BS-BERNARD-20-051916** BS-BERNARD-21-051916 BS-BERNARD-22-051916	J (all detects) UJ (all non-detects)	A

IV. Continuing Calibration

Continuing calibration was performed at required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all compounds.

Retention times of all compounds in the calibration standards were within the established retention time windows for samples which underwent Level IV validation. Raw data were not reviewed for Level III validation.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

No field duplicates were identified in this SDG.

VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VIII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

IX. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Compound Quantitation

All compound quantitations met validation criteria for samples which underwent Level IV validation. Raw data were not reviewed for Level III validation.

XII. Target Compound Identification

All target compound identifications met validation criteria for samples which underwent Level IV validation. Raw data were not reviewed for Level III validation.

XIII. System Performance

The system performance was acceptable for samples which underwent Level IV validation. Raw data were not reviewed for Level III validation.

XIV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to ICV %D, data were qualified as estimated in ten samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

Hunters Point, Parcel D-1
Chlorinated Pesticides - Data Qualification Summary - SDG 277036

Sample	Compound	Flag	A or P	Reason (Code)
BS-BERNARD-13-051916 BS-BERNARD-14-051916** BS-BERNARD-15-051916 BS-BERNARD-16-051916 BS-BERNARD-17-051916** BS-BERNARD-18-051916 BS-BERNARD-19-051916 BS-BERNARD-20-051916** BS-BERNARD-21-051916 BS-BERNARD-22-051916	4,4'-DDE Endrin aldehyde alpha-BHC gamma-BHC	J (all detects) UJ (all non-detects)	A	Initial calibration verification (%D) (C)

Hunters Point, Parcel D-1
Chlorinated Pesticides - Laboratory Blank Data Qualification Summary - SDG 277036

No Sample Data Qualified in this SDG

Hunters Point, Parcel D-1
Chlorinated Pesticides - Field Blank Data Qualification Summary - SDG 277036

No Sample Data Qualified in this SDG

LDC #: 37241A3a

SDG #: 277036

Laboratory: Curtis & Tompkins, Ltd.

VALIDATION COMPLETENESS WORKSHEET

Level III/IV

Date: 10/24/16

Page: 1 of 1

Reviewer: JV6

2nd Reviewer: CL

METHOD: GC Chlorinated Pesticides (EPA SW846 Method 8081B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	GC Instrument Performance Check	A	
III.	Initial calibration/ICV	A SW	ICAL ≤ 20 % r ICV ≤ 20 %
IV.	Continuing calibration	A	CCV ≤ 20 %
V.	Laboratory Blanks	A	
VI.	Field blanks	N	
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	A	277038-005
IX.	Laboratory control samples	A	LCS
X.	Field duplicates	N	
XI.	Compound quantitation/RL/LOQ/LODs	A	Not reviewed for Level III validation.
XII.	Target compound identification	A	Not reviewed for Level III validation.
XIII.	System Performance	A	Not reviewed for Level III validation.
XIV.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

** Indicates sample underwent Level IV validation

	Client ID	Lab ID	Matrix	Date
1	BS-BERNARD-13-051916	277036-001	Soil	05/19/16
2	BS-BERNARD-14-051916**	277036-002**	Soil	05/19/16
3	BS-BERNARD-15-051916	277036-003	Soil	05/19/16
4	BS-BERNARD-16-051916	277036-004	Soil	05/19/16
5	BS-BERNARD-17-051916**	277036-005**	Soil	05/19/16
6	BS-BERNARD-18-051916	277036-006	Soil	05/19/16
7	BS-BERNARD-19-051916	277036-007	Soil	05/19/16
8	BS-BERNARD-20-051916**	277036-008**	Soil	05/19/16
9	BS-BERNARD-21-051916	277036-009	Soil	05/19/16
10	BS-BERNARD-22-051916	277036-010	Soil	05/19/16
11				
12				

Notes:

—	blk 235358						

LDC #: 37241 A3a

VALIDATION FINDINGS CHECKLIST

Reviewer: JVG
2nd Reviewer: CV

Method: Pesticides (EPA SW 846 Method 8081)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
Were all technical holding times met?	✓			
Was cooler temperature criteria met?	✓			
II. GC/ECD Instrument performance check				
Was the instrument performance found to be acceptable?	✓			
Were Evaluation mix standards analyzed prior to the initial calibration and at beginning of each 12-hour shift?	✓			
Were endrin and 4,4'-DDT breakdowns ≤ 15% for individual breakdown in the Evaluation mix standards?	✓			
IIIa. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) ≤ 20%?	✓			
Was a curve fit used for evaluation? If yes, did the initial calibration meet the curve fit acceptance criteria of ≥ 0.990?	✓			
Were the RT windows properly established?	✓			
IIIb. Initial calibration verification				
Was an initial calibration verification standard analyzed after each initial calibration for each instrument?	✓			
Were all percent differences (%D) ≤ 20% or percent recoveries (%R) 80-120%?		✓		
IV. Continuing calibration				
Was a continuing calibration analyzed daily?	✓			
Were all percent differences (%D) ≤ 20% or percent recoveries (%R) 80-120%?	✓			
Were all the retention times within the acceptance windows?	✓			
V. Laboratory Blanks				
Was a laboratory blank associated with every sample in this SDG?	✓			
Was a laboratory blank analyzed for each matrix and concentration?	✓			
Was there contamination in the laboratory blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Field blanks				
Were field blanks identified in this SDG?		✓		
Were target compounds detected in the field blanks?			✓	
VII. Surrogate spikes/Internal Standards				
Were all surrogate percent recovery (%R) within the QC limits?	✓			

LDC #: 37241A34

VALIDATION FINDINGS CHECKLIST

Reviewer: JVG
2nd Reviewer:

Validation Area	Yes	No	NA	Findings/Comments
If the percent recovery (%R) of one or more surrogates was outside QC limits, was a reanalysis performed to confirm %R?			✓	
If any percent recovery (%R) was less than 10 percent, was a reanalysis performed to confirm %R?			✓	
Were internal standard area counts within ± 50% of the average area calculated during calibration?			✓	
VII. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.	✓			
Was a MS/MSD analyzed every 20 samples of each matrix?	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?	✓			
IX. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
X. Field duplicates				
Were field duplicate pairs identified in this SDG?		✓		
Were target compounds detected in the field duplicates?			✓	
XI. Compound quantitation				
Were compound quantitation and RLs adjusted to reflect all sample dilutions, dry weight factors, and clean-up activities applicable to level IV validation?	✓			
Were relative percent difference (RPD) of the results between two columns ≤ 40%?	✓			
XII. Target compound identification				
Were the retention times of reported detects within the RT windows?	✓			
XIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			

VALIDATION FINDINGS WORKSHEET

METHOD: Pesticide/PCBs (EPASW 846 Method 8081/8082)

A. alpha-BHC	I. Dieldrin	Q. Endrin ketone	Y. Aroclor-1242	GG. Chlordane
B. beta-BHC	J. 4,4'-DDE	R. Endrin aldehyde	Z. Aroclor-1248	HH. Chlordane (Technical)
C. delta-BHC	K. Endrin	S. alpha-Chlordane	AA. Aroclor-1254	II. Aroclor 1262
D. gamma-BHC	L. Endosulfan II	T. gamma-Chlordane	BB. Aroclor-1260	JJ. Aroclor 1268
E. Heptachlor	M. 4,4'-DDD	U. Toxaphene	CC. 2,4'-DDD	KK. Oxychlordane
F. Aldrin	N. Endosulfan sulfate	V. Aroclor-1016	DD. 2,4'-DDE	LL. trans-Nonachlor
G. Heptachlor epoxide	O. 4,4'-DDT	W. Aroclor-1221	EE. 2,4'-DDT	MM. cis-Nonachlor
H. Endosulfan I	P. Methoxychlor	X. Aroclor-1232	FF. Hexachlorobenzene	NN.

Notes:_____

_____

_____

LDC #: 37241 A3Q

VALIDATION FINDINGS WORKSHEET
Initial Calibration Verification

Reviewer: JVG
2nd Reviewer: Q

METHOD: GC Pesticides/PCBs (EPA SW 846 Method 8081/8082)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".
What type of initial calibration verification calculation was performed? ✓ %D or ___ %R
Y N N/A Was an initial calibration verification standard analyzed after each ICAL for each instrument?
Y N N/A Did the initial calibration verification standards meet the %D / %R validation criteria of ≤20.0% / 80-120%?

#	Date	Standard ID	Detector/ Column	Compound	%D (Limit ≤ 20.0)	Associated Samples	Qualifications
K23	05/24/16	144-021	ch A	J	29	BLK 235358	J/UJ/A
			↓	L	26	↓	↓
			↓	R	22	↓	↓
			↓	Q	25	↓	↓
			ch B	P	23	↓	↓
GC23	05/27/16	147-025	CHA	J	25	1 - 10 (ND + Det)	↓
			↓	R	23	↓	↓
			ch B	A	25	↓	↓
			↓	D	22	↓	↓
			↓	R	24	↓	↓

LDC #: 37241A3a

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: JVG
2nd Reviewer:

METHOD: GC ✓ HPLC ____

The calibration factors (CF), average CF, and relative standard deviation (%RSD) were recalculated for compounds identified below using the following calculations:

CF = A/C
average CF = sum of the CF/number of standards
%RSD = 100 * (S/X)

Where:
A = Area of compound
C = Concentration of compound
S = Standard deviation of calibration factors
X = Mean of calibration factors

#	Standard ID	Calibration Date	Compound	Reported CF (10/20 std)	Recalculated CF (10/20 std)	Reported Average CF (Initial)	Recalculated Average CF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL GC23	05/23/16	g-Chlordane (Chan A)	see r2 calc					
			4,4'-DDT (Chan A)	see r2 calc					
			g-Chlordane (Chan B)	2005.9	2005.9	1898.6	1898.6	14	14.1
			4,4'-DDT (Chan B)	1566.9	1566.9	1410.6	1410.6	15	15.2
2	ICAL GC30	05/30/16	g-Chlordane (Chan A)	5487.0	5487.0	5215.0	5215.0	15	15.4
			4,4'-DDT (Chan A)	4566.3	4566.3	4207.5	4207.5	13	12.8
			g-Chlordane (Chan B)	1589.0	1589.0	2152.4	2152.4	17	16.6
			4,4'-DDT (Chan B)	1320.6	1320.6	1739.4	1739.4	20	19.8

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Method: GC Chlorinated Pesticides (EPA SW 846 Method 8081A)

Paramete g-Chlordane

Order of regression: Quadratic

Calibration Date	Instrument/Column	Compound	Standard	(Y) Response	(X) Concentration	(X2) Concentration
5/23/2016	GC23	g-Chlordane	1	10320	2	4.0
			2	29266	5	25.0
	RTX-CLP 1		3	75873	10	100.0
			4	146272	20	400.0
			5	172879	25	625.0
			6	261242	50	2500.0

Regression Output	*Calculated*		*Reported WLR*	
Constant	c =	-10932.9329	c =	*-10932.9329*
Std Err of Y Est				
Coefficient of Determination (r^2)	r^ 2	0.9992550	r^ 2	*0.999*
Degrees of Freedom				
	a =	b =	a =	b =
X Coefficient(s)	9343.3880	-77.9994	*9343.3880*	*-77.9994*
Std Err of Coef.				
Correlation Coefficient		0.999627		

LDC#: 37241A3a

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: JVG
2nd Reviewer:

Method: GC Chlorinated Pesticides (EPA SW 846 Method 8081A)

Paramete DDT

Order of regression: Quadratic

Calibration Date	Instrument/Column	Compound	Standard	(Y) Response	(X) Concentration	(X2) Concentration
5/23/2016	GC23	DDT	1	8081	2	4.0
			2	14361	4	16.0
	Chan A		3	43790	10	100.0
			4	118314	20	400.0
			5	200880	40	1600.0
			6	227973	50	2500.0
			7	325722	100	10000.0

Regression Output	*Calculated*		*Reported WLR*	
Constant	c =	-7888.9001	c =	*-7888.9001*
Std Err of Y Est				
Coefficient of Determination (r^2)	r^ 2	0.9969451	r^ 2	*0.997*
Degrees of Freedom				
	a =	b =	a =	b =
X Coefficient(s)	6363.1730	-30.3511	*6363.1730*	*-30.3511*
Std Err of Coef.				
Correlation Coefficient		0.998471		

LDC # 37241A3a

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Reviewer: JVG
2nd Reviewer:

METHOD: GC_____HPLC_____

The percent difference (%D) of the initial calibration average Calibration Factors (CF) and the continuing calibration percent difference (%D) values were recalculated for the compounds identified below using the following calculation:

Percent difference (%D) = 100 * (N - C)/N

Where: N = Initial Calibration Factor or Nominal Amount
C = Calibration Factor from Continuing Calibration Standard or Calculated Amount

#	Standard ID	Calibration Date	Compound	CCV Conc	Reported Conc	Recalculated Conc	Reported % D	Recalculated %D
1	148_003 GC23	5/27/2016	g-Chlordane (Chan A)	10	10.31	10.31	3	3.1
			4,4'-DDT (Chan A)	20	23.82	23.82	19	19.1
			g-Chlordane (Chan B)	10	9.60	9.60	4	4.0
			4,4'-DDT (Chan B)	20	19.56	19.56	2	2.2
2	148_003 GC30	5/27/2016	g-Chlordane (Chan A)	10	10.71	10.71	7	7.1
			4,4'-DDT (Chan A)	20	21.69	21.69	8	8.5
			g-Chlordane (Chan B)	10	10.82	10.82	8	8.2
			4,4'-DDT (Chan B)	20	22.76	22.76	14	13.8

LDC #: 37241 A3a

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Reviewer: JVG
2nd reviewer:

METHOD: GC Pesticides/PCBs (EPA SW 846 Method 8081/8082)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: 2

Surrogate	Column	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
Tetrachloro-m-xylene						
Tetrachloro-m-xylene	Chan A	40.0	39.15	98	98	0
Decachlorobiphenyl	1	1	35.16	88	88	1
Decachlorobiphenyl						

Sample ID:

Surrogate	Column	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
Tetrachloro-m-xylene						
Tetrachloro-m-xylene						
Decachlorobiphenyl						
Decachlorobiphenyl						

Sample ID:

Surrogate	Column	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
Tetrachloro-m-xylene						
Tetrachloro-m-xylene						
Decachlorobiphenyl						
Decachlorobiphenyl						

Sample ID:

Surrogate	Column	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
Tetrachloro-m-xylene						
Tetrachloro-m-xylene						
Decachlorobiphenyl						
Decachlorobiphenyl						

Notes:

LDC #: 37241A3a

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

Reviewer: JVG
2nd Reviewer: [signature]

METHOD: GC Pesticides/PCBs (EPA SW 846 Method 8081/8082)

The percent recoveries (%R) and Relative Percent difference (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100* (SSC-SC)/SA

Where: SSC = Spiked sample concentration; SA = Spike added; SC = Concentration

RPD = I MS - MSD I * 2/(MS + MSD)

MS = Matrix spike percent recovery; MSD = Matrix spike duplicate percent recovery

MS/MSD samples: 277038-005 MS/MSD

Compound	Spike Added (ug/kg)		Sample Concentration (ug/kg)	Spiked Sample Concentration (ug/kg)		Matrix Spike Percent Recovery		Matrix Spike Duplicate Percent Recovery		MS/MSD RPD	
	MS	MSD	-	MS	MSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
gamma-BHC	4.77	4.82	0	9.518	10.83	65	65	73	73	12	12
4,4'-DDT	↓	↓	2.113	10.79	12.90	59	59	69	69	14	14
Aroclor 1260											

Comments: Refer ot Matrix Spike/Matrix Spike Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 37241 A3A

VALIDATION FINDINGS WORKSHEET

Laboratory Control Sample/Laboratory Control Sample Duplicate Results Verification

Reviewer: JVG
2nd Reviewer: [signature]

METHOD: GC Pesticides/PCBs (EPA SW 846 Method 8081/8082)

The percent recoveries (%R) and Relative Percent difference (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100* (SSC-SC)/SA Where: SSC = Spiked sample concentration; SA = Spike added; SC = Concentration

RPD = | LCS - LCSD | * 2/(LCS + LCSD) LCS = Laboratory control sample percent recovery LCSD = Laboratory control sample duplicate percent recovery

LCS/LCSD samples: 235358 LCS

Compound	Spike Added (ug/kg)		Spiked Sample Concentration (ug/kg)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
gamma-BHC	13.40	NA	13.74	NA	103	103				
4,4'-DDT	↓	↓	13.36	↓	100	100				
Aroclor 1260										

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicate findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 37241 A3A

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: JVG
2nd reviewer:

METHOD: GC Pesticides/PCBs (EPA SW 846 Method 8081/8082)

(Y) N N/A Were all reported results recalculated and verified for all level IV samples?
Y (N) N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Example:

Sample I.D. 8 g-Chlordane Chan B

Conc. = $\frac{(2200)(20\text{ ml})(3)}{(2152.4)(30.46\text{ g})(0.9\text{ g})}$

= 2.21 ug/kg

#	Sample ID	Compound	Reported Concentration (ug/kg)	Calculated Concentration ( )	Qualification
	8	g- Chlordane	2.2		

Note:

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Hunters Point, Parcel D-1

LDC Report Date: October 25, 2016

Parameters: Polychlorinated Biphenyls

Validation Level: Level III & IV

Laboratory: Curtis & Tompkins, Ltd.

Sample Delivery Group (SDG): 277036

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
BS-BERNARD-13-051916	277036-001	Soil	05/19/16
BS-BERNARD-14-051916**	277036-002**	Soil	05/19/16
BS-BERNARD-15-051916	277036-003	Soil	05/19/16
BS-BERNARD-16-051916	277036-004	Soil	05/19/16
BS-BERNARD-17-051916**	277036-005**	Soil	05/19/16
BS-BERNARD-18-051916	277036-006	Soil	05/19/16
BS-BERNARD-19-051916	277036-007	Soil	05/19/16
BS-BERNARD-20-051916**	277036-008**	Soil	05/19/16
BS-BERNARD-21-051916	277036-009	Soil	05/19/16
BS-BERNARD-22-051916	277036-010	Soil	05/19/16
BS-BERNARD-14-051916MS	277036-002MS	Soil	05/19/16
BS-BERNARD-14-051916MSD	277036-002MSD	Soil	05/19/16

**Indicates sample underwent Level IV validation

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with Appendix D, Final Data Management Plan, Remedial Action in Parcel D-1, Hunters Point Naval Shipyard, San Francisco, California (January 2014), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Superfund Organic Methods Data Review (June 2008). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Polychlorinated Biphenyls (PCBs) by Environmental Protection Agency (EPA) SW 846 Method 8082A

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results. Samples appended with a double asterisk on the cover page were subjected to Level IV data validation, which is comprised of the QC summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. Initial Calibration and Initial Calibration Verification

Initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

Retention time windows were established as required by the method for samples which underwent Level IV validation. Raw data were not reviewed for Level III validation.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0% for all compounds.

III. Continuing Calibration

Continuing calibration was performed at required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all compounds.

Retention times of all compounds in the calibration standards were within the established retention time windows for samples which underwent Level IV validation. Raw data were not reviewed for Level III validation.

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

V. Field Blanks

No field blanks were identified in this SDG.

VI. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Compound Quantitation

All compound quantitations met validation criteria for samples which underwent Level IV validation. Raw data were not reviewed for Level III validation.

XI. Target Compound Identification

All target compound identifications met validation criteria for samples which underwent Level IV validation. Raw data were not reviewed for Level III validation.

XII. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

Hunters Point, Parcel D-1
Polychlorinated Biphenyls - Data Qualification Summary - SDG 277036

No Sample Data Qualified in this SDG

Hunters Point, Parcel D-1
Polychlorinated Biphenyls - Laboratory Blank Data Qualification Summary - SDG 277036

No Sample Data Qualified in this SDG

Hunters Point, Parcel D-1
Polychlorinated Biphenyls - Field Blank Data Qualification Summary - SDG 277036

No Sample Data Qualified in this SDG

LDC #: 37241A3b
SDG #: 277036
Laboratory: Curtis & Tompkins, Ltd.

VALIDATION COMPLETENESS WORKSHEET
Level III/IV

Date: 10/24/16
Page: 1 of 1
Reviewer: SVG
2nd Reviewer: [illegible]

METHOD: GC Polychlorinated Biphenyls (EPA SW846 Method 8082A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A/A	
II.	Initial calibration/ICV	A/A	ICAL ≤20% r² ICV ≤20%
III.	Continuing calibration	A	CCV ≤20%
IV.	Laboratory Blanks	A	
V.	Field blanks	N	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	A	
VIII.	Laboratory control samples	A	LCS
IX.	Field duplicates	N	
X.	Compound quantitation/RL/LOQ/LODs	A	Not reviewed for Level III validation.
XI.	Target compound identification	A	Not reviewed for Level III validation.
XII.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

** Indicates sample underwent Level IV validation

	Client ID	Lab ID	Matrix	Date
1	BS-BERNARD-13-051916	277036-001	Soil	05/19/16
2	BS-BERNARD-14-051916**	277036-002**	Soil	05/19/16
3	BS-BERNARD-15-051916	277036-003	Soil	05/19/16
4	BS-BERNARD-16-051916	277036-004	Soil	05/19/16
5	BS-BERNARD-17-051916**	277036-005**	Soil	05/19/16
6	BS-BERNARD-18-051916	277036-006	Soil	05/19/16
7	BS-BERNARD-19-051916	277036-007	Soil	05/19/16
8	BS-BERNARD-20-051916**	277036-008**	Soil	05/19/16
9	BS-BERNARD-21-051916	277036-009	Soil	05/19/16
10	BS-BERNARD-22-051916	277036-010	Soil	05/19/16
11	BS-BERNARD-14-051916MS	277036-002MS	Soil	05/19/16
12	BS-BERNARD-14-051916MSD	277036-002MSD	Soil	05/19/16
13				
14				

Notes:

	BLK 295358						

LDC #: 37241 A3b

VALIDATION FINDINGS CHECKLIST

Reviewer: JVG
2nd Reviewer: ()

Method: Pesticides (EPA SW 846 Method 8081)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
Were all technical holding times met?	✓			
Was cooler temperature criteria met?	✓			
II. GC/ECD Instrument performance check				
Was the instrument performance found to be acceptable?	✓		✓	
Were Evaluation mix standards analyzed prior to the initial calibration and at beginning of each 12-hour shift?			✓	
Were endrin and 4,4'-DDT breakdowns ≤ 15% for individual breakdown in the Evaluation mix standards?			✓	
IIIa. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) ≤ 20%?	✓			
Was a curve fit used for evaluation? If yes, did the initial calibration meet the curve fit acceptance criteria of ≥ 0.990?	✓			
Were the RT windows properly established?	✓			
IIIb. Initial calibration verification				
Was an initial calibration verification standard analyzed after each initial calibration for each instrument?	✓			
Were all percent differences (%D) ≤ 20% or percent recoveries (%R) 80-120%?	✓			
IV. Continuing calibration				
Was a continuing calibration analyzed daily?	✓			
Were all percent differences (%D) ≤ 20% or percent recoveries (%R) 80-120%?	✓			
Were all the retention times within the acceptance windows?	✓			
V. Laboratory Blanks				
Was a laboratory blank associated with every sample in this SDG?	✓			
Was a laboratory blank analyzed for each matrix and concentration?	✓			
Was there contamination in the laboratory blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Field blanks				
Were field blanks identified in this SDG?		✓		
Were target compounds detected in the field blanks?			✓	
VII. Surrogate Spikes/Internal Standards				
Were all surrogate percent recovery (%R) within the QC limits?	✓			

LDC #: 37241A26

VALIDATION FINDINGS CHECKLIST

Reviewer: JVG
2nd Reviewer:

Validation Area	Yes	No	NA	Findings/Comments
If the percent recovery (%R) of one or more surrogates was outside QC limits, was a reanalysis performed to confirm %R?			✓	
If any percent recovery (%R) was less than 10 percent, was a reanalysis performed to confirm %R?			✓	
Were internal standard area counts within ± 50% of the average area calculated during calibration?			✓	
VII. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.	✓			
Was a MS/MSD analyzed every 20 samples of each matrix?	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?	✓			
IX. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
X. Field duplicates				
Were field duplicate pairs identified in this SDG?		✓		
Were target compounds detected in the field duplicates?			✓	
XI. Compound quantitation				
Were compound quantitation and RLs adjusted to reflect all sample dilutions, dry weight factors, and clean-up activities applicable to level IV validation?	✓			
Were relative percent difference (RPD) of the results between two columns ≤ 40%?	✓			
XII. Target compound identification				
Were the retention times of reported detects within the RT windows?	✓			
XIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.				

LDC #: 37241A3b

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: JVG
2nd Reviewer:

METHOD: GC PCBs (EPA SW 846 Method 8082A)

The calibration factors (CF), average CF, and relative standard deviation (%RSD) were recalculated for compounds identified below using the following calculations:

CF = A/C
average CF = sum of the CF/number of standards
%RSD = 100 * (S/X)

Where:
A = Area of compound
C = Concentration of compound
S = Standard deviation of calibration factors
X = Mean of calibration factors

#	Standard ID	Calibration Date	Compound	Reported CF (100 std)	Recalculated CF (100 std)	Reported Average CF (Initial)	Recalculated Average CF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL GC16	5/17/2016	1260-2 (Chan A)	664.75	664.75	604.80	604.80	8	7.9
			1260-2 (Chan B)	935.48	935.48	856.45	856.45	20	19.9

LDC # 37241A3b

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Reviewer: JVG
2nd Reviewer:

METHOD: GC PCBs (EPA SW 846 Method 8082)

The percent difference (%D) of the initial calibration average Calibration Factors (CF) and the continuing calibration percent difference (%D) values were recalculated for the compounds identified below using the following calculation:

Percent difference (%D) = 100 * (N - C)/N

Where:
N = Initial Calibration Factor or Nominal Amount
C = Calibration Factor from Continuing Calibration Standard or Calculated Amount

#	Standard ID	Calibration Date	Compound		CCV Conc	Reported Conc	Recalculated Conc	Reported % D	Recalculated %D
1	147_015 GC16	5/26/2016	1260-Total	(Chan A)	500	534.90	534.90	7	7.0
			1260-Total	(Chan B)	500	506.32	506.32	1	1.3
2	147_037 GC16	5/27/2016	1260-Total	(Chan A)	500	487.99	487.99	2	2.4
			1260-Total	(Chan B)	500	471.52	471.52	6	5.7
3	147_053 GC16	5/27/2016	1260-Total	(Chan A)	500	443.04	443.04	11	11.4
			1260-Total	(Chan B)	500	421.81	421.81	16	15.6

LDC #: 37241 Arb

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Reviewer: JVG
2nd reviewer: ~~~

METHOD: GC Pesticides/PCBs (EPA SW 846 Method 8081/8082)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: #2

Surrogate	Column	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
Tetrachloro-m-xylene						
Tetrachloro-m-xylene	ch A	40.0	33.67	84	84	0
Decachlorobiphenyl	↓	↓	29.58	74	74	↓
Decachlorobiphenyl						

Sample ID:

Surrogate	Column	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
Tetrachloro-m-xylene						
Tetrachloro-m-xylene						
Decachlorobiphenyl						
Decachlorobiphenyl						

Sample ID:

Surrogate	Column	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
Tetrachloro-m-xylene						
Tetrachloro-m-xylene						
Decachlorobiphenyl						
Decachlorobiphenyl						

Sample ID:

Surrogate	Column	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
Tetrachloro-m-xylene						
Tetrachloro-m-xylene						
Decachlorobiphenyl						
Decachlorobiphenyl						

Notes:

LDC #: 37241 A3b

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

Reviewer: JVG
2nd Reviewer:

METHOD: GC Pesticides/PCBs (EPA SW 846 Method 8081/8082)

The percent recoveries (%R) and Relative Percent difference (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100* (SSC-SC)/SA

Where: SSC = Spiked sample concentration
SA = Spike added
SC = Concentration

RPD = | MS - MSD | * 2/(MS + MSD)

MS = Matrix spike percent recovery

MSD = Matrix spike duplicate percent recovery

MS/MSD samples: 11/12

Compound	Spike Added (ug/kg)		Sample Concentration (ug/kg)	Spiked Sample Concentration (ug/kg)		Matrix Spike Percent Recovery		Matrix Spike Duplicate Percent Recovery		MS/MSD RPD	
	MS	MSD	-	MS	MSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
gamma-BHC											
4,4'-DDT											
Aroclor 1260	183.4	184.1	9.231	105.7	144.3	53	53	73	73	30	30

Comments: Refer ot Matrix Spike/Matrix Spike Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 37241A26

VALIDATION FINDINGS WORKSHEET

Laboratory Control Sample/Laboratory Control Sample Duplicate Results Verification

Reviewer: JVG
2nd Reviewer: CT

METHOD: GC Pesticides/PCBs (EPA SW 846 Method 8081/8082)

The percent recoveries (%R) and Relative Percent difference (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100* (SSC-SC)/SA Where: SSC = Spiked sample concentration; SA = Spike added; SC = Concentration

RPD = | LCS - LCSD | * 2/(LCS + LCSD) LCS = Laboratory control sample percent recovery LCSD = Laboratory control sample duplicate percent recovery

LCS/LCSD samples: 235358 LCS

Compound	Spike Added (ug/Kg)		Spiked Sample Concentration (ug/Kg)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
gamma-BHC										
4,4'-DDT										
Aroclor 1260	166.4	NA	187.7	NA	112	112				

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicate findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 37291A3b

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Reviewer: JVG
2nd reviewer:

METHOD: GC Pesticides/PCBs (EPA SW 846 Method 8081/8082)

(Y) N N/A Were all reported results recalculated and verified for all level IV samples?
(Y) N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Example:

Sample I.D. 5 1260 Chan B
1260-2

Conc. = $\frac{(28030)}{(856.45)}$

= 32.728

1260 Total = $\frac{32.73 + 17.29 + 31.59 + 20.88}{4}$

= 25.62

final conc. = $\frac{(25.62)(20\text{ml})}{(29.91\text{g})(0.91)}$

= 18.83

≈ 19 ug/kg

#	Sample ID	Compound	Reported Concentration (ug/kg)	Calculated Concentration ( )	Qualification
	5	1260	19		

Note:

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Hunters Point, Parcel D-1

LDC Report Date: October 25, 2016

Parameters: Metals

Validation Level: Level III & IV

Laboratory: Curtis & Tompkins, Ltd.

Sample Delivery Group (SDG): 277036

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
BS-BERNARD-13-051916	277036-001	Soil	05/19/16
BS-BERNARD-14-051916**	277036-002**	Soil	05/19/16
BS-BERNARD-15-051916	277036-003	Soil	05/19/16
BS-BERNARD-16-051916	277036-004	Soil	05/19/16
BS-BERNARD-17-051916**	277036-005**	Soil	05/19/16
BS-BERNARD-18-051916	277036-006	Soil	05/19/16
BS-BERNARD-19-051916	277036-007	Soil	05/19/16
BS-BERNARD-20-051916**	277036-008**	Soil	05/19/16
BS-BERNARD-21-051916	277036-009	Soil	05/19/16
BS-BERNARD-22-051916	277036-010	Soil	05/19/16
BS-BERNARD-13-051916MS	277036-001MS	Soil	05/19/16
BS-BERNARD-13-051916MSD	277036-001MSD	Soil	05/19/16
BS-BERNARD-19-051916MS	277036-007MS	Soil	05/19/16
BS-BERNARD-19-051916MSD	277036-007MSD	Soil	05/19/16

**Indicates sample underwent Level IV validation

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with Appendix D, Final Data Management Plan, Remedial Action in Parcel D-1, Hunters Point Naval Shipyard, San Francisco, California (January 2014), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Inorganic Superfund Data Review (January 2010). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following methods:

Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Manganese, Molybdenum, Nickel, Selenium, Thallium, Vanadium, and Zinc by Environmental Protection Agency (EPA) SW 846 Methods 6010C
Mercury by EPA SW 846 Methods 7471B

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results. Samples appended with a double asterisk on the cover page were subjected to Level IV data validation, which is comprised of the QC summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition.

All technical holding time requirements were met.

II. Instrument Calibration

Initial and continuing calibrations were performed as required by the methods.

The initial calibration verification (ICV) and continuing calibration verification (CCV) standards were within QC limits.

Although the low level check standard exceeded QC limits for Arsenic, Beryllium, Cadmium, and Zinc no data was qualified since all results were greater than 2x the limit of quantitation.

III. ICP Interference Check Sample Analysis

The frequency of interference check sample (ICS) analysis was met. All criteria were within QC limits.

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the methods. No contaminants were found in the laboratory blanks with the following exceptions:

Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Arsenic Iron Selenium	0.11 mg/Kg 2.5 mg/Kg 0.21 mg/Kg	All samples in SDG 277036
ICB/CCB	Nickel Vanadium	1.394 ug/L 1.334 ug/L	All samples in SDG 277036

Data qualification by the laboratory blanks was based on the maximum contaminant concentration in the laboratory blanks in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
BS-BERNARD-19-051916	Selenium	0.36 mg/Kg	0.36U mg/Kg

V. Field Blanks

No field blanks were identified in this SDG.

VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	Flag	A or P
BS-BERNARD-19-051916MS/MSD (BS-BERNARD-19-051916)	Mercury	75 (80-124)	-	J (all detects)	A
BS-BERNARD-13-051916MS/MSD (BS-BERNARD-13-051916)	Antimony Chromium Barium	35 (79-114) 69 (85-113) -	34 (79-114) - 68 (83-113)	J (all detects) J (all detects) J (all detects) J (all detects)	A
BS-BERNARD-13-051916MS/MSD (BS-BERNARD-13-051916)	Lead	114 (81-112)	-	J (all detects)	A

For BS-BERNARD-13-051916MS/MSD, no data were qualified for Iron and Manganese percent recoveries (%R) outside the QC limits since the parent sample results were greater than 4X the spike concentration. Relative percent differences (RPD) were within QC limits.

VII. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

VIII. Serial Dilution

Serial dilution analysis was performed on an associated project sample. Percent differences (%D) were within QC limits with the following exceptions:

Diluted Sample	Analyte	%D (Limits)	Associated Samples	Flag	A or P
BS-BERNARD-13-051916	Manganese Cobalt Nickel Zinc	14 (≤10) 12 (≤10) 13 (≤10) 16 (≤10)	BS-BERNARD-13-051916	J (all detects) J (all detects) J (all detects) J (all detects)	A

IX. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Sample Result Verification

All sample result verifications were acceptable for samples which underwent Level IV validation. Raw data were not reviewed for Level III validation.

XII. Overall Assessment of Data

The analysis was conducted within all specifications of the methods. No results were rejected in this SDG.

Due to MS/MSD %R and serial dilution %D, data were qualified as estimated in two samples.

Due to laboratory blank contamination, data were qualified as not detected in one sample.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

Hunters Point, Parcel D-1
Metals - Data Qualification Summary - SDG 277036

Sample	Analyte	Flag	A or P	Reason (Code)
BS-BERNARD-19-051916	Mercury	J (all detects)	A	Matrix spike/Matrix spike duplicate (%R) (M)
BS-BERNARD-13-051916	Antimony Chromium Lead Barium	J (all detects) J (all detects) J (all detects) J (all detects)	A	Matrix spike/Matrix spike duplicate (%R) (M)
BS-BERNARD-13-051916	Manganese Cobalt Nickel Zinc	J (all detects) J (all detects) J (all detects) J (all detects)	A	Serial dilution (%D) (A)

Hunters Point, Parcel D-1
Metals - Laboratory Blank Data Qualification Summary - SDG 277036

Sample	Analyte	Modified Final Concentration	A or P	Code
BS-BERNARD-19-051916	Selenium	0.36U mg/Kg	A	B1

Hunters Point, Parcel D-1
Metals - Field Blank Data Qualification Summary - SDG 277036

No Sample Data Qualified in this SDG

LDC #: 37241A4b
SDG #: 277036
Laboratory: Curtis & Tompkins, Ltd.

VALIDATION COMPLETENESS WORKSHEET
Level III/IV

Date: 10/24/16
Page: 1 of 1
Reviewer:
2nd Reviewer:

METHOD: Metals (EPA SW 846 Method 6010C/7471B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A/A	
II.	Instrument Calibration	SW/A	
III.	ICP Interference Check Sample (ICS) Analysis	SW	
IV.	Laboratory Blanks	N	
V.	Field Blanks	SW	
VI.	Matrix Spike/Matrix Spike Duplicates	N	
VII.	Duplicate sample analysis	SW	
VIII.	Serial Dilution	A	LCS/D
IX.	Laboratory control samples	N	
X.	Field Duplicates	A	Not reviewed for Level III validation.
XI.	Sample Result Verification	A	
XII.	Overall Assessment of Data		

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

** Indicates sample underwent Level IV validation

	Client ID	Lab ID	Matrix	Date
1	BS-BERNARD-13-051916	277036-001	Soil	05/19/16
2	BS-BERNARD-14-051916**	277036-002**	Soil	05/19/16
3	BS-BERNARD-15-051916	277036-003	Soil	05/19/16
4	BS-BERNARD-16-051916	277036-004	Soil	05/19/16
5	BS-BERNARD-17-051916**	277036-005**	Soil	05/19/16
6	BS-BERNARD-18-051916	277036-006	Soil	05/19/16
7	BS-BERNARD-19-051916	277036-007	Soil	05/19/16
8	BS-BERNARD-20-051916**	277036-008**	Soil	05/19/16
9	BS-BERNARD-21-051916	277036-009	Soil	05/19/16
10	BS-BERNARD-22-051916	277036-010	Soil	05/19/16
11	BS-BERNARD-13-051916MS	277036-001MS	Soil	05/19/16
12	BS-BERNARD-13-051916MSD	277036-001MSD	Soil	05/19/16
13	BS-BERNARD-19-051916MS	277036-007MS	Soil	05/19/16
14	BS-BERNARD-19-051916MSD	277036-007MSD	Soil	05/19/16
15				
16				
17				

SDC #: 37244A4h

VALIDATION FINDINGS CHECKLIST

Reviewer: CR
2nd Reviewer: CR

Method: Metals (EPA SW 846 Method 6010/6020/7000)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. ICP/MS Tune				
Were all isotopes in the tuning solution mass resolution within 0.1 amu?			✓	
Were %RSD of isotopes in the tuning solution ≤5%?			✓	
III. Calibration				
Were all instruments calibrated daily, each set-up time?	✓			
Were the proper number of standards used?	✓			
Were all initial and continuing calibration verification %Rs within the 90-110% (80-120% for mercury) QC limits?	✓			
Were the low standard checks within ~~70-130%~~ 80-120		✓		
Were all initial calibration correlation coefficients within limits as specified by the method?	✓			
IV. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.	✓			
V. ICP Interference Check Sample				
Were ICP interference check samples performed daily?	✓			
Were the AB solution percent recoveries (%R) with the 80-120% QC limits?	✓			
VI. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.		✓		
Were the MS/MSD or duplicate relative percent differences (RPD) ≤ 20% for waters and ≤ 35% for soil samples? A control limit of +/- RL(+/-2X RL for soil) was used for samples that were ≤ 5X the RL, including when only one of the duplicate sample values were ≤ 5X the RL.	✓			
VII. Laboratory control samples				
Was an LCS anaylzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% QC limits for water samples and laboratory established QC limits for soils?	✓			

LDC #: 37246A4b

VALIDATION FINDINGS CHECKLIST

Reviewer: CR
2nd Reviewer: CT

Validation Area	Yes	No	NA	Findings/Comments
VIII. Internal Standards (EPA SW 846 Method 6020/EPA 200.8)				
Were all the percent recoveries (%R) within the 30-120% (6020)/60-125% (200.8) of the intensity of the internal standard in the associated initial calibration?			✓	
If the %Rs were outside the criteria, was a reanalysis performed?				✓
IX. ICP Serial Dilution				
Was an ICP serial dilution analyzed if analyte concentrations were > 50X the MDL (ICP)/>100X the MDL(ICP/MS)?	✓		✓	
Were all percent differences (%Ds) < 10%?		✓		
Was there evidence of negative interference? If yes, professional judgement will be used to qualify the data.		✓		
X. Sample Result Verification				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XI. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XII. Field duplicates				
Field duplicate pairs were identified in this SDG.		✓		
Target analytes were detected in the field duplicates.			✓	
XIII. Field blanks				
Field blanks were identified in this SDG.		✓	✓	
Target analytes were detected in the field blanks.				

LDC #: 37241A4b

VALIDATION FINDINGS WORKSHEET
Sample Specific Element Reference

Reviewer: OF
2nd reviewer:

All circled elements are applicable to each sample.

Sample ID	Matrix	Target Analyte List (TAL)
1-10		Al, (Sb), (As), Ba, Be, (Cd), Ca, (Cr), Co, Cu, (Fe), (Pb), Mg, (Mn), (Hg), (Ni), K, (Se), (Ag), Na, (Tl), V, Zn, (Mo), B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
QC: 11,12		Al, (Sb), As, Ba, Be, (Cd), Ca, (Cr), Co, (Cu), (Fe), (Pb), Mg, (Mn), Hg, (Ni), K, (Se), (Ag), Na, (Tl), V, Zn, (Mo), B, Sn, Ti,
B, 14		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, (Hg), Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
Analysis Method		
ICP		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
ICP-MS		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,
GFAA		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,

Comments: Mercury by CVAA if performed

LDC #: 37241A4b

VALIDATION FINDINGS WORKSHEET
Calibration

Reviewer:
2nd Reviewer:

METHOD: Trace Metals (EPA SW 846 Method 6010/7000)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were all instruments calibrated daily, each set-up time, and were the proper number of standards used?

Y N N/A Were all initial and continuing calibration verification percent recoveries (%R) within the control limits of 90-110% for all analytes except mercury (80-120%) and cyanide (85-115%)?

LEVEL IV ONLY:

Y N N/A Was a midrange cyanide standard distilled?

Y N N/A Are all correlation coefficients ≥0.995?

Y N N/A Were recalculated results acceptable? See Level IV Initial and Continuing Calibration Recalculation Worksheet for recalculations.

#	Date	Calibration ID	Analyte	%R	Associated Samples	Qualification of Data
	5/31/16	CRI (11:18)	As	74 (80-120)	All	No qualifiers (all >2x LOQ)
			Be	72		
			Cd	78		
			Zn	77		

Comments:

LDC #: 37241A4b

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES

Reviewer:
2nd Reviewer:

METHOD: Trace metals (EPA SW 864 Method 6010B/6020/7000) Soil preparation factor applied: 50x
Sample Concentration units, unless otherwise noted: mg/Kg Associated Samples: All

				Sample Identification										
Analyte	Maximum PB[a] (mg/Kg)	Maximum ICB/CCB[a] (ug/L)	Action Level	7										
As	0.11		0.55											
Fe	2.5		12.5											
Se	0.21		1.05	0.36										

Sample Concentration units, unless otherwise noted: mg/Kg Associated Samples: All

				Sample Identification										
Analyte	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Action Level	No qualifiers (>5x)										
Ni		1.394	0.3485											
V		1.334	0.3335											

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".
Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

LDC #: 37241A4b

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Reviewer:
2nd Reviewer:

METHOD: Trace metals (EPA SW 846 Method 6010/7000)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a matrix spike analyzed for each matrix in this SDG?

Y N N/A Were matrix spike percent recoveries (%R) within the control limits of 75-125? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.

Y N N/A Were all duplicate sample relative percent differences (RPD) ≤ 20% for samples?

LEVEL IV ONLY:

Y N N/A Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	MS/MSD ID	Matrix	Analyte	MS %Recovery	MSD %Recovery	RPD (Limits)	Associated Samples	Qualifications
	13/14	s	Hg	75 (80-124)			7	J/UJ/A (Det)
	11/12	s	Sb	35 (79-114)	34		1	J/UJ/A (Det)
			Cr	69 (85-113)				J/UJ/A (Det)
			Pb	114 (81-112)				Jdet/A (Det)
			Ba		68 (83-113)			J/UJ/A (Det)

Comments: 11/12: Fe, Mn >4+

LDC #: 51675V

VALIDATION FINDINGS WORKSHEET
ICP Serial Dilution

Reviewer: 9A
2nd Reviewer: AH

METHOD: Trace Metals (EPA SW 846 Method 6010/6020/7000)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A If analyte concentrations were > 50X the MDL (ICP) ,or >100X the MDL (ICP/MS), was a serial dilution analyzed?
Y N N/A Were ICP serial dilution percent differences (%D) ≤10%?
Y N N/A Is there evidence of negative interference? If yes, professional judgement will be used to qualify the data.

LEVEL IV ONLY:

Y N N/A Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	Diluted Sample ID	Matrix	Analyte	%D (Limits)	Associated Samples	Qualifications
	1	S	Mn	14	1	J (all applicable detects)
			Co	12		
			Ni	13		
			Zn	16		

Comments:

LDC #: 37241A4b

VALIDATION FINDINGS WORKSHEET
Initial and Continuing Calibration Calculation Verification

Page: 1 of 1
Reviewer: CR
2nd Reviewer:

METHOD: Trace metals (EPA SW 846 Method 6010/6020/7000)

An initial and continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

%R = Found x 100 / True

Where, Found = concentration (in ug/L) of each analyte measured in the analysis of the ICV or CCV solution
True = concentration (in ug/L) of each analyte in the ICV or CCV source

Standard ID	Type of Analysis	Element	Found (ug/L)	True (ug/L)	Recalculated %R	Reported %R	Acceptable (Y/N)
ICV (10:09)	ICP (Initial calibration)	Ba	5022	5000	100	100	Y
	ICP/MS (Initial calibration)						
ICV (15:04)	CVAA (Initial calibration)	Hg	~~5.116~~ 4.907	5.00	~~102~~ 98	98	Y
CCV 5/31/16 14:58)	ICP (Continuing calibration)	Cd	5077	5000	102	102	Y
	ICP/MS (Continuing calibration)						
CCV (15:21)	CVAA (Continuing calibration)	Hg	5.116	5.00	102	102	Y

Comments:

LDC #: 37241A4b

VALIDATION FINDINGS WORKSHEET
Level IV Recalculation Worksheet

Page: 1 of 1
Reviewer: CR
2nd Reviewer:

METHOD: Trace metals (EPA CLP SOW ISM01.2)

Percent recoveries (%R) for an ICP interference check sample, a laboratory control sample and a matrix spike sample were recalculated using the following formula:

$$\%R = \frac{Found}{True} \times 100$$

Where, Found = Concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).
True = Concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

$$RPD = \frac{|S-D|}{(S+D)/2} \times 100$$

Where, S = Original sample concentration
D = Duplicate sample concentration

An ICP serial dilution percent difference (%D) was recalculated using the following formula:

$$\%D = \frac{|I-SDR|}{I} \times 100$$

Where, I = Initial Sample Result (ug/L)
SDR = Serial Dilution Result (ug/L) (Instrument Reading x 5)

Sample ID	Type of Analysis	Element	Found / S / I (units)	True / D / SDR (units)	Recalculated %R / RPD / %D	Reported %R / RPD / %D	Acceptable (Y/N)
ICSAB	ICP interference check	Cd	954.2	1000	95	95	Y
LCS	Laboratory control sample	V	50.15	50	100	100	
11	Matrix spike	Se	(SSR-SR) 64.74	59.77	108	108	
11|12	Duplicate	Tl	56.68	51.19	4	4	
1	ICP serial dilution	Mn	446.8	507.8	14	14	

Comments: _____

LDC #: 37241A4b

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: 02
2nd reviewer:

METHOD: Trace Metals (EPA SW 846 Method 6010/6020/7000)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Have results been reported and calculated correctly?
Y N N/A Are results within the calibrated range of the instruments and within the linear range of the ICP?
Y N N/A Are all detection limits below the CRDL?

Detected analyte results for 2 were recalculated and verified using the following equation:

Concentration = $\frac{(RD)(FV)(Dil)}{(In.\ Vol.)}$

RD = Raw data concentration
FV = Final volume (ml)
In. Vol. = Initial volume (ml) or weight (G)
Dil = Dilution factor

Recalculation:

Fe $\frac{50mL(25)(17871.8\mu g/L)}{0.92(0.93g)(1000)} = 26110 mg/kg$

#	Sample ID	Analyte	Reported Concentration (mg/kg)	Calculated Concentration (mg/kg)	Acceptable (Y/N)
	2	Iron	26000	26000	Y
		Mn	370	370	
	5	Sb	0.95	0.95	
		Ni	81	81	
	8	Hg	0.18	0.18	✓

Note:

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Hunters Point, Parcel D-1

LDC Report Date: October 25, 2016

Parameters: Total Petroleum Hydrocarbons as Gasoline

Validation Level: Level III & IV

Laboratory: Curtis & Tompkins, Ltd.

Sample Delivery Group (SDG): 277036

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
BS-BERNARD-13-051916	277036-001	Soil	05/19/16
BS-BERNARD-14-051916**	277036-002**	Soil	05/19/16
BS-BERNARD-15-051916	277036-003	Soil	05/19/16
BS-BERNARD-16-051916	277036-004	Soil	05/19/16
BS-BERNARD-17-051916**	277036-005**	Soil	05/19/16
BS-BERNARD-18-051916	277036-006	Soil	05/19/16
BS-BERNARD-19-051916	277036-007	Soil	05/19/16
BS-BERNARD-20-051916**	277036-008**	Soil	05/19/16
BS-BERNARD-21-051916	277036-009	Soil	05/19/16
BS-BERNARD-22-051916	277036-010	Soil	05/19/16

**Indicates sample underwent Level IV validation

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with Appendix D, Final Data Management Plan, Remedial Action in Parcel D-1, Hunters Point Naval Shipyard, San Francisco, California (January 2014), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Superfund Organic Methods Data Review (June 2008). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Total Petroleum Hydrocarbons (TPH) as Gasoline by Environmental Protection Agency (EPA) SW 846 Method 8015D

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results. Samples appended with a double asterisk on the cover page were subjected to Level IV data validation, which is comprised of the QC summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered not detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0%.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0%.

III. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0%.

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks with the following exceptions:

Blank ID	Analysis Date	Compound	Concentration	Associated Samples
BLK 235352	05/23/16	Gasoline C7-C12	0.018 mg/Kg	All samples in SDG 277036

Sample concentrations were compared to concentrations detected in the laboratory blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
BS-BERNARD-13-051916	Gasoline C7-C12	0.050 mg/Kg	0.050U mg/Kg
BS-BERNARD-14-051916**	Gasoline C7-C12	0.025 mg/Kg	0.025U mg/Kg
BS-BERNARD-15-051916	Gasoline C7-C12	0.035 mg/Kg	0.035U mg/Kg
BS-BERNARD-16-051916	Gasoline C7-C12	0.019 mg/Kg	0.019U mg/Kg

Sample	Compound	Reported Concentration	Modified Final Concentration
BS-BERNARD-17-051916**	Gasoline C7-C12	0.020 mg/Kg	0.020U mg/Kg
BS-BERNARD-18-051916	Gasoline C7-C12	0.074 mg/Kg	0.074U mg/Kg
BS-BERNARD-19-051916	Gasoline C7-C12	0.024 mg/Kg	0.024U mg/Kg
BS-BERNARD-21-051916	Gasoline C7-C12	0.021 mg/Kg	0.021U mg/Kg
BS-BERNARD-22-051916	Gasoline C7-C12	0.016 mg/Kg	0.016U mg/Kg

V. Field Blanks

No field blanks were identified in this SDG.

VI. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Compound Quantitation

All compound quantitations met validation criteria for samples which underwent Level IV validation. Raw data were not reviewed for Level III validation.

XI. Target Compound Identifications

All target compound identifications met validation criteria for samples which underwent Level IV validation. Raw data were not reviewed for Level III validation.

XII. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to laboratory blank contamination, data were qualified as not detected in nine samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Based upon the data validation all other results are considered valid and usable for all purposes.

Hunters Point, Parcel D-1
Total Petroleum Hydrocarbons as Gasoline - Data Qualification Summary - SDG 277036

No Sample Data Qualified in this SDG

Hunters Point, Parcel D-1
Total Petroleum Hydrocarbons as Gasoline - Laboratory Blank Data Qualification Summary - SDG 277036

Sample	Compound	Modified Final Concentration	A or P	Code
BS-BERNARD-13-051916	Gasoline C7-C12	0.050U mg/Kg	A	B1
BS-BERNARD-14-051916**	Gasoline C7-C12	0.025U mg/Kg	A	B1
BS-BERNARD-15-051916	Gasoline C7-C12	0.035U mg/Kg	A	B1
BS-BERNARD-16-051916	Gasoline C7-C12	0.019U mg/Kg	A	B1
BS-BERNARD-17-051916**	Gasoline C7-C12	0.020U mg/Kg	A	B1
BS-BERNARD-18-051916	Gasoline C7-C12	0.074U mg/Kg	A	B1
BS-BERNARD-19-051916	Gasoline C7-C12	0.024U mg/Kg	A	B1
BS-BERNARD-21-051916	Gasoline C7-C12	0.021U mg/Kg	A	B1
BS-BERNARD-22-051916	Gasoline C7-C12	0.016U mg/Kg	A	B1

Hunters Point, Parcel D-1
Total Petroleum Hydrocarbons as Gasoline - Field Blank Data Qualification Summary - SDG 277036

No Sample Data Qualified in this SDG

LDC #: 37241A7 **VALIDATION COMPLETENESS WORKSHEET** Date: 10/24/16
SDG #: 277036 Level III/IV Page: 1 of 1
Laboratory: Curtis & Tompkins, Ltd. Reviewer: SW
2nd Reviewer:

METHOD: GC TPH as Gasoline (EPA SW 846 Method 8015D)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A/A	
II.	Initial calibration/ICV	A/A	ICAL ≤ 20% ICV ≤ 20 %
III.	Continuing calibration	A	CCAL ≤ 20 %
IV.	Laboratory Blanks	SW	
V.	Field blanks	N	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	CS (insufficient sample)
VIII.	Laboratory control samples	A	LCS
IX.	Field duplicates	N	
X.	Compound quantitation RL/LOQ/LODs	A	Not reviewed for Level III validation.
XI.	Target compound identification	A	Not reviewed for Level III validation.
XII.	System performance	A	Not reviewed for Level III validation.
XIII	Overall assessment of data	A	

Note: A = Acceptable ND = No compounds detected D = Duplicate SB=Source blank
N = Not provided/applicable R = Rinsate TB = Trip blank OTHER:
SW = See worksheet FB = Field blank EB = Equipment blank
** Indicates sample underwent Level IV validation

	Client ID	Lab ID	Matrix	Date
1	BS-BERNARD-13-051916	277036-001	Soil	05/19/16
2	BS-BERNARD-14-051916**	277036-002**	Soil	05/19/16
3	BS-BERNARD-15-051916	277036-003	Soil	05/19/16
4	BS-BERNARD-16-051916	277036-004	Soil	05/19/16
5	BS-BERNARD-17-051916**	277036-005**	Soil	05/19/16
6	BS-BERNARD-18-051916	277036-006	Soil	05/19/16
7	BS-BERNARD-19-051916	277036-007	Soil	05/19/16
8	BS-BERNARD-20-051916**	277036-008**	Soil	05/19/16
9	BS-BERNARD-21-051916	277036-009	Soil	05/19/16
10	BS-BERNARD-22-051916	277036-010	Soil	05/19/16
11				
12				
13				

Notes:

+	Blk235357						

LDC #: 37241 A7

VALIDATION FINDINGS CHECKLIST

Reviewer: JVG
2nd Reviewer:

Method: ✓ GC _____ HPLC

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
Were all technical holding times met?	✓			
Was cooler temperature criteria met?	✓			
IIa. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) ≤ 20%?	✓			
Was a curve fit used for evaluation? If yes, did the initial calibration meet the curve fit acceptance criteria of ≥ 0.990?			✓	
Were the RT windows properly established?	✓			
IIb. Initial calibration verification				
Was an initial calibration verification standard analyzed after each initial calibration for each instrument?	✓			
Were all percent differences (%D) ≤ 20% or percent recoveries (%R) 80-120%?	✓			
III. Continuing calibration				
Was a continuing calibration analyzed daily?	✓			
Were all percent differences (%D) ≤ 20% or percent recoveries (%R) 80-120%?	✓			
Were all the retention times within the acceptance windows?	✓			
IV. Laboratory Blanks				
Was a laboratory blank associated with every sample in this SDG?	✓			
Was a laboratory blank analyzed for each matrix and concentration?	✓			
Was there contamination in the laboratory blanks? If yes, please see the Blanks validation completeness worksheet.	✓			
V. Field Blanks				
Were field blanks identified in this SDG?		✓		
Were target compounds detected in the field blanks?			✓	
VI. Surrogate Spikes				
Were all surrogate percent recovery (%R) within the QC limits?	✓			
If the percent recovery (%R) of one or more surrogates was outside QC limits, was a reanalysis performed to confirm %R?			✓	
If any %R was less than 10 percent, was a reanalysis performed to confirm %R?				✓
VII. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.		✓		
Was a MS/MSD analyzed every 20 samples of each matrix?		✓		
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			✓	

LDC #: 37241 A7

VALIDATION FINDINGS CHECKLIST

Reviewer: JVG
2nd Reviewer:

Validation Area	Yes	No	NA	Findings/Comments
VIII. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
IX. Field duplicates				
Were field duplicate pairs identified in this SDG?		✓		
Were target compounds detected in the field duplicates?			✓	
X. Compound quantitation				
Were compound quantitation and RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XI. Target compound identification				
Were the retention times of reported detects within the RT windows?	✓			
XII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			

LDC #: 37241 A7

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer: JV6
2nd Reviewer: [illegible]

METHOD: / GC ___ HPLC

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were all samples associated with a given method blank?
Y N N/A Was a method blank performed for each matrix and whenever a sample extraction procedure was performed?
Y N N/A Was a method blank performed with each extraction batch?
Y N N/A Were any contaminants found in the method blanks? If yes, please see findings below.

Level IV/D Only

Y N N/A (Gasoline and aromatics only)Was a method blank analyzed with each 24 hour batch?
Y N N/A Was a method blank analyzed for each analytical / extraction batch of ≤20 samples?

Blank extraction date: ___ Blank analysis date: 05/23/16 Associated samples: All

Conc. units: mg/kg

Compound	Blank ID	Sample Identification									
	Blk 235357	1	2	3	4	5	6	7	8 9	10	
Gasoline G-G2	0.018	0.050/U	0.025/U	0.035/U	0.019/U	0.020/U	0.074/U	0.024/U	0.021/U	0.016/U	

Blank extraction date: ___ Blank analysis date: ___ Associated samples: ___

Conc. units: ___

Compound	Blank ID	Sample Identification									

ALL CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
All contaminants within five times the method blank concentration were qualified as not detected, "U".

LDC #: 37241A7

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: JVG
2nd Reviewer:

METHOD: GC / HPLC _____

The calibration factors (CF), average CF, and relative standard deviation (%RSD) were recalculated for compounds identified below using the following calculations:

CF = A/C
average CF = sum of the CF/number of standards
%RSD = 100 * (S/X)

Where:
A = Area of compound
C = Concentration of compound
S = Standard deviation of calibration factors
X = Mean of calibration factors

#	Standard ID	Calibration Date	Compound	Reported CF (10000 std)	Recalculated CF (10000 std)	Reported Average CF (Initial)	Recalculated Average CF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL GC19	12/17/16	Gasoline (C7-C12) FID	1755.8	1755.8	1818.9	1818.9	10	10

LDC # 36647A7

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Reviewer: JVG
2nd Reviewer: [signature]

METHOD: GC ___ / HPLC ___

The percent difference (%D) of the initial calibration average Calibration Factors (CF) and the continuing calibration percent difference (%D) values were recalculated for the compounds identified below using the following calculation:

Percent difference (%D) = 100 * (N - C)/N

Where:
N = Initial Calibration Factor or Nominal Amount
C = Calibration Factor from Continuing Calibration Standard or Calculated Amount

#	Standard ID	Calibration Date	Compound	CCV Conc	Reported Conc	Recalculated Conc	Reported % D	Recalculated %D
1	144-003 GC19	5/23/2016	Gasoline (C7-C12) FID	5000.0	4996	4996	0	0

LDC #: 37241A7

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Reviewer: JVG
2nd reviewer:

METHOD: GC HPLC

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: #2

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
BFB	FID	900	927.094	103	103	0

Sample ID:

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	

	Surrogate Compound		Surrogate Compound		Surrogate Compound		Surrogate Compound		Surrogate Compound
A	Chlorobenzene (CBZ)	H	Ortho-Terphenyl	O	Decachlorobiphenyl (DCB)	V	Tri-n-propyltin	CC	2,5-Dibromotoluene
B	4-Bromofluorobenzene (BFB)	I	Fluorobenzene (FBZ)	P	1-methylnaphthalene	W	Tributyl Phosphate	DD	n-Nonatriacontane
C	a,a,a-Trifluorotoluene	J	n-Triacontane	Q	Dichlorophenyl Acetic Acid (DCAA)	X	Triphenyl Phosphate	EE	1,2-Dibromopropane
D	Bromochlorobenene	K	Hexacosane	R	4-Nitrophenol	Y	Tetrachloro-m- xylene	FF	1,2-Dinitrobenzene
E	1,4-Dichlorobutane	L	Bromobenzene	S	1-Chloro-3-Nitrobenzene	Z	2-Bromonaphthalene	GG	2-Nitro-m-xylene
F	1,4-Difluorobenzene (DFB)	M	Benzo(e)Pyrene	T	3,4-Dinitrotoluene	AA	1-Chlorooctadecane	HH	p-Terphenyl
G	Octacosane	N	Terphenyl-D14	U	Tripentyltin	BB	2,4-Dichlorophenylacetic acid	II	

LDC #: 37241 A7

VALIDATION FINDINGS WORKSHEET

Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

Reviewer: JVG
2nd Reviewer: [illegible]

METHOD: ✓ GC __HPLC

The percent recoveries (%R) and relative percent differences (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

%Recovery = 100 * (SSC/SA)
RPD =(({SSCLCS - SSCLCSD} * 2) / (SSCLCS + SSCLCSD))*100

Where SSC = Spiked sample concentration; SA = Spike added
LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample duplicate

LCS/LCSD samples: 235757 LCS

Compound	Spike Added (mg/kg)		Spike Sample Concentration (mg/kg)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
Gasoline C7-C9 (8015)	1.00	NA	0.999	NA	108	100	—	—	—	—
Diesel (8015)										
Benzene (8021B)										
Methane (RSK-175)										
2,4-D (8151)										
Dinoseb (8151)										
Naphthalene (8310)										
Anthracene (8310)										
HMX (8330)										
2,4,6-Trinitrotoluene (8330)										
Phorate (8141A)										
Malathion (8141A)										
Formaldehyde (8315A)										

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicate findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 37241 A7

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Reviewer: JVG
2nd Reviewer:

METHOD: / GC __ HPLC

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds within 10% of the reported results?

Concentration= (A)(Fv)(Df) / (RF)(Vs or Ws)(%S/100)

A= Area or height of the compound to be measured
Fv= Final Volume of extract
Df= Dilution Factor
RF= Average response factor of the compound in the initial calibration
Vs= Initial volume of the sample
Ws= Initial weight of the sample
%S= Percent Solid

Example:

Sample ID. # 7 Compound Name Gasoline C_7-C_{12}

Concentration = $\frac{(19849)(5\,ml)}{(1818.9)(4.79)(0.97)(5\,ml)(1000)}$ = 0.0249 mg/kg

#	Sample ID	Compound	Reported Concentrations (mg/kg)	Recalculated Results Concentrations ( )	Qualifications
	2	Gasoline	0.025		

Comments:

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Hunters Point, Parcel D-1

LDC Report Date: October 25, 2016

Parameters: Total Petroleum Hydrocarbons as Extractables

Validation Level: Level III & IV

Laboratory: Curtis & Tompkins, Ltd.

Sample Delivery Group (SDG): 277036

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
BS-BERNARD-13-051916	277036-001	Soil	05/19/16
BS-BERNARD-14-051916**	277036-002**	Soil	05/19/16
BS-BERNARD-15-051916	277036-003	Soil	05/19/16
BS-BERNARD-16-051916	277036-004	Soil	05/19/16
BS-BERNARD-17-051916**	277036-005**	Soil	05/19/16
BS-BERNARD-18-051916	277036-006	Soil	05/19/16
BS-BERNARD-19-051916	277036-007	Soil	05/19/16
BS-BERNARD-20-051916**	277036-008**	Soil	05/19/16
BS-BERNARD-21-051916	277036-009	Soil	05/19/16
BS-BERNARD-22-051916	277036-010	Soil	05/19/16

**Indicates sample underwent Level IV validation

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with Appendix D, Final Data Management Plan, Remedial Action in Parcel D-1, Hunters Point Naval Shipyard, San Francisco, California (January 2014), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Superfund Organic Methods Data Review (June 2008). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Total Petroleum Hydrocarbons (TPH) as Extractables by Environmental Protection Agency (EPA) SW 846 Method 8015D

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results. Samples appended with a double asterisk on the cover page were subjected to Level IV data validation, which is comprised of the QC summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered not detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0% for all compounds.

III. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all compounds.

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks with the following exceptions:

Blank ID	Extraction Date	Compound	Concentration	Associated Samples
BLK 235402	05/24/16	Diesel C10-C24	0.32 mg/Kg	BS-BERNARD-13-051916 BS-BERNARD-14-051916**

Sample concentrations were compared to concentrations detected in the laboratory blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks.

V. Field Blanks

No field blanks were identified in this SDG.

VI. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Compound Quantitation

All compound quantitations met validation criteria for samples which underwent Level IV validation. Raw data were not reviewed for Level III validation.

XI. Target Compound Identifications

All target compound identifications met validation criteria for samples which underwent Level IV validation. Raw data were not reviewed for Level III validation.

XII. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

Hunters Point, Parcel D-1
Total Petroleum Hydrocarbons as Extractables - Data Qualification Summary - SDG 277036

No Sample Data Qualified in this SDG

Hunters Point, Parcel D-1
Total Petroleum Hydrocarbons as Extractables - Laboratory Blank Data Qualification Summary - SDG 277036

No Sample Data Qualified in this SDG

Hunters Point, Parcel D-1
Total Petroleum Hydrocarbons as Extractables - Field Blank Data Qualification Summary - SDG 277036

No Sample Data Qualified in this SDG

LDC #: 37241A8
SDG #: 277036
Laboratory: Curtis & Tompkins, Ltd.

VALIDATION COMPLETENESS WORKSHEET

Level III/IV

Date: 10/24/16
Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC TPH as Extractables (EPA SW 846 Method 8015D)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	Initial calibration/ICV	A / A	ICAV ≤ 20% ICV ≤ 20%
III.	Continuing calibration	A	CCV ≤ 20%
IV.	Laboratory Blanks	SW	
V.	Field blanks	N	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	CS (non-client)
VIII.	Laboratory control samples	A	LCS
IX.	Field duplicates	N	
X.	Compound quantitation RL/LOQ/LODs	A	Not reviewed for Level III validation.
XI.	Target compound identification	A	Not reviewed for Level III validation.
XII.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

** Indicates sample underwent Level IV validation

	Client ID	Lab ID	Matrix	Date
1 1	BS-BERNARD-13-051916	277036-001	Soil	05/19/16
2 1	BS-BERNARD-14-051916**	277036-002**	Soil	05/19/16
3 2	BS-BERNARD-15-051916	277036-003	Soil	05/19/16
4 2	BS-BERNARD-16-051916	277036-004	Soil	05/19/16
5 2	BS-BERNARD-17-051916**	277036-005**	Soil	05/19/16
6 2	BS-BERNARD-18-051916	277036-006	Soil	05/19/16
7 2	BS-BERNARD-19-051916	277036-007	Soil	05/19/16
8 2	BS-BERNARD-20-051916**	277036-008**	Soil	05/19/16
9 2	BS-BERNARD-21-051916	277036-009	Soil	05/19/16
10 2	BS-BERNARD-22-051916	277036-010	Soil	05/19/16
11				
12				
13				
14				

Notes:

+		Blk 235402						
−		↓ 235424						

LDC #: 37241 A8

VALIDATION FINDINGS CHECKLIST

Reviewer: JVG
2nd Reviewer: [illegible]

Method: ✓ GC _____ HPLC

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
Were all technical holding times met?	✓			
Was cooler temperature criteria met?	✓			
IIa. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) ≤ 20%?	✓			
Was a curve fit used for evaluation? If yes, did the initial calibration meet the curve fit acceptance criteria of ≥ 0.990?			✓	
Were the RT windows properly established?	✓			
IIb. Initial calibration verification				
Was an initial calibration verification standard analyzed after each initial calibration for each instrument?	✓			
Were all percent differences (%D) ≤ 20% or percent recoveries (%R) 80-120%?	✓			
III. Continuing calibration				
Was a continuing calibration analyzed daily?	✓			
Were all percent differences (%D) ≤ 20% or percent recoveries (%R) 80-120%?	✓			
Were all the retention times within the acceptance windows?	✓			
IV. Laboratory Blanks				
Was a laboratory blank associated with every sample in this SDG?	✓			
Was a laboratory blank analyzed for each matrix and concentration?	✓			
Was there contamination in the laboratory blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
V. Field Blanks				
Were field blanks identified in this SDG?		✓		
Were target compounds detected in the field blanks?			✓	
VI. Surrogate spikes				
Were all surrogate percent recovery (%R) within the QC limits?	✓			
If the percent recovery (%R) of one or more surrogates was outside QC limits, was a reanalysis performed to confirm %R?			✓	
If any %R was less than 10 percent, was a reanalysis performed to confirm %R?			✓	
VII. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.		✓		
Was a MS/MSD analyzed every 20 samples of each matrix?		✓		
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			✓	

LDC #: 37241A8

VALIDATION FINDINGS CHECKLIST

Reviewer: JVG
2nd Reviewer:

Validation Area	Yes	No	NA	Findings/Comments
VIII. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
IX. Field duplicates				
Were field duplicate pairs identified in this SDG?		✓		
Were target compounds detected in the field duplicates?			✓	
X. Compound quantitation				
Were compound quantitation and RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XI. Target compound identification				
Were the retention times of reported detects within the RT windows?	✓			
XII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			

LDC #: 37291 A8

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer: JVG
2nd Reviewer: CL

METHOD: ___ GC ___ HPLC

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were all samples associated with a given method blank?
Y N N/A Was a method blank performed for each matrix and whenever a sample extraction procedure was performed?
Y N N/A Was a method blank performed with each extraction batch?
Y N N/A Were any contaminants found in the method blanks? If yes, please see findings below.

Level IV/D Only

Y N N/A (Gasoline and aromatics only)Was a method blank analyzed with each 24 hour batch?
Y N N/A Was a method blank analyzed for each analytical / extraction batch of ≤20 samples?

Blank extraction date: 05/24/16 **Blank analysis date:** 05/24/16 **Associated samples:** 1 2 (>5X)

Conc. units: mg/kg

Compound	Blank ID	Sample Identification									
	Blk 235402										
Diesel C10-C24	0.32										

Blank extraction date: _____ **Blank analysis date:** _____ **Associated samples:** _____

Conc. units: _____

Compound	Blank ID	Sample Identification									

ALL CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
All contaminants within five times the method blank concentration were qualified as not detected, "U".

LDC #: 37241A8

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: JVG
2nd Reviewer:

METHOD: GC / HPLC _____

The calibration factors (CF), average CF, and relative standard deviation (%RSD) were recalculated for compounds identified below using the following calculations:

CF = A/C
average CF = sum of the CF/number of standards
%RSD = 100 * (S/X)

Where:
A = Area of compound
C = Concentration of compound
S = Standard deviation of calibration factors
X = Mean of calibration factors

#	Standard ID	Calibration Date	Compound	Reported CF (500 std)	Recalculated CF (500 std)	Reported Average CF (Initial)	Recalculated Average CF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL 14B	05/20/16	Diesel (C10-C24)	32937	32937	32401	32401	10	10
2	ICAL 15B	05/04/16	Diesel (C10-C24)	60539	60539	57798	57798	8	8

LDC # 37241A8

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Reviewer: JVG
2nd Reviewer:

METHOD: GC_____HPLC_____

The percent difference (%D) of the initial calibration average Calibration Factors (CF) and the continuing calibration percent difference (%D) values were recalculated for the compounds identified below using the following calculation:

Percent difference (%D) = 100 * (N - C)/N

Where:

N = Initial Calibration Factor or Nominal Amount

C = Calibration Factor from Continuing Calibration Standard or Calculated Amount

#	Standard ID	Calibration Date	Compound	CCV Conc	Reported Conc	Recalculated Conc	Reported % D	Recalculated %D
1	146B004 15B	5/25/2015	Diesel (C10-C24)	1000.00	1104.52	1104.52	10	10
2	146B018 15B	5/25/2016	Diesel (C10-C24)	500.00	507.89	507.89	2	2
3	146B034 15B	5/25/2016	Diesel (C10-C24)	1000.00	1118.89	1118.89	12	12
4	146B083 15B	5/26/2016	Diesel (C10-C24)	250.00	259.52	259.52	4	4
5	145_020 14B	5/24/2016	Diesel (C10-C24)	500.00	475.77	475.77	5	5

LDC #: 57241 A8

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Reviewer: JVG
2nd reviewer:

METHOD: ✓ GC __ HPLC

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: # 2

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
H		50.0	45.5 ✓	91	91	0

Sample ID: _____

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	

	Surrogate Compound		Surrogate Compound		Surrogate Compound		Surrogate Compound		Surrogate Compound
A	Chlorobenzene (CBZ)	H	Ortho-Terphenyl	O	Decachlorobiphenyl (DCB)	V	Tri-n-propyltin	CC	2,5-Dibromotoluene
B	4-Bromofluorobenzene (BFB)	I	Fluorobenzene (FBZ)	P	1-methylnaphthalene	W	Tributyl Phosphate	DD	n-Nonatriacontane
C	a,a,a-Trifluorotoluene	J	n-Triacontane	Q	Dichlorophenyl Acetic Acid (DCAA)	X	Triphenyl Phosphate	EE	1,2-Dibromopropane
D	Bromochlorobenene	K	Hexacosane	R	4-Nitrophenol	Y	Tetrachloro-m- xylene	FF	1,2-Dinitrobenzene
E	1,4-Dichlorobutane	L	Bromobenzene	S	1-Chloro-3-Nitrobenzene	Z	2-Bromonaphthalene	GG	2-Nitro-m-xylene
F	1,4-Difluorobenzene (DFB)	M	Benzo(e)Pyrene	T	3,4-Dinitrotoluene	AA	1-Chlorooctadecane	HH	p-Terphenyl
G	Octacosane	N	Terphenyl-D14	U	Tripentyltin	BB	2,4-Dichlorophenylacetic acid	II	

LDC #: 37241 A8

VALIDATION FINDINGS WORKSHEET

Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

Reviewer: JVG
2nd Reviewer:

METHOD: ✓ GC __HPLC

The percent recoveries (%R) and relative percent differences (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

%Recovery = 100 * (SSC/SA)
RPD =(({SSCLCS - SSCLCSD} * 2) / (SSCLCS + SSCLCSD))*100

Where SSC = Spiked sample concentration; LCS = Laboratory Control Sample; SA = Spike added; LCSD = Laboratory Control Sample duplicate

LCS/LCSD samples: LCS235407

Compound		Spike Added (mg/kg)		Spike Sample Concentration (mg/kg)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
		LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
Gasoline	(8015)										
Diesel	(8015)	50.24	NA	50.36	NA	100	100				
Benzene	(8021B)										
Methane	(RSK-175)										
2,4-D	(8151)										
Dinoseb	(8151)										
Naphthalene	(8310)										
Anthracene	(8310)										
HMX	(8330)										
2,4,6-Trinitrotoluene	(8330)										
Phorate	(8141A)										
Malathion	(8141A)										
Formaldehyde	(8315A)										

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicate findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 37241 A8

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Reviewer: JVG
2nd Reviewer: [signature]

METHOD: / GC __ HPLC

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds within 10% of the reported results?

Concentration= (A)(Fv)(Df) / (RF)(Vs or Ws)(%S/100)

A= Area or height of the compound to be measured
Fv= Final Volume of extract
Df= Dilution Factor
RF= Average response factor of the compound In the initial calibration
Vs= Initial volume of the sample
Ws= Initial weight of the sample
%S= Percent Solid

Example:

Sample ID. 2 Compound Name Diesel $C_{10}-C_{24}$

Concentration = $\frac{[(12368895) - (3411455)](5\ ml)}{(5.7798)(49.82\ g)(0.97)} = 16.91 \approx 17\ mg/kg$

#	Sample ID	Compound	Reported Concentrations (mg/kg)	Recalculated Results Concentrations ( )	Qualifications
	2	Diesel	17		

Comments: _____

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Hunters Point, Parcel D-1

LDC Report Date: October 25, 2016

Parameters: Volatiles

Validation Level: Level III

Laboratory: Curtis & Tompkins, Ltd.

Sample Delivery Group (SDG): 277038

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
BS-BERNARD-01-051916	277038-001	Soil	05/19/16
BS-BERNARD-02-051916	277038-002	Soil	05/19/16
BS-BERNARD-03-051916	277038-003	Soil	05/19/16
BS-BERNARD-04-051916	277038-004	Soil	05/19/16
BS-BERNARD-05-051916	277038-005	Soil	05/19/16
BS-BERNARD-06-051916	277038-006	Soil	05/19/16
BS-BERNARD-07-051916	277038-007	Soil	05/19/16
BS-BERNARD-08-051916	277038-008	Soil	05/19/16
BS-BERNARD-09-051916	277038-009	Soil	05/19/16
BS-BERNARD-10-051916	277038-010	Soil	05/19/16
BS-BERNARD-11-051916	277038-011	Soil	05/19/16
BS-BERNARD-12-051916	277038-012	Soil	05/19/16

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with Appendix D, Final Data Management Plan, Remedial Action in Parcel D-1, Hunters Point Naval Shipyard, San Francisco, California (January 2014), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Superfund Organic Methods Data Review (June 2008). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Volatile Organic Compounds (VOCs) by Environmental Protection Agency (EPA) SW 846 Method 8260C

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A bromofluorobenzene (BFB) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 15.0% for all compounds.

Average relative response factors (RRF) for all compounds were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
04/22/16	Bromomethane	29	All samples in SDG 277038	UJ (all non-detects)	A

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
05/22/16	Acetone 2-Hexanone 1,2,4-Trichlorobenzene Hexachlorobutadiene 1,2,3-Trichlorobenzene	26 24 25 21 25	BS-BERNARD-02-051916 BS-BERNARD-03-051916 BS-BERNARD-04-051916 BS-BERNARD-05-051916 BS-BERNARD-06-051916 BS-BERNARD-07-051916 BS-BERNARD-08-051916 BS-BERNARD-10-051916 BS-BERNARD-11-051916 BS-BERNARD-12-051916	UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects)	A
05/24/16	Freon 12 Chloromethane	32 26	BS-BERNARD-01-051916 BS-BERNARD-09-051916	UJ (all non-detects) UJ (all non-detects)	A

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks with the following exceptions:

Blank ID	Analysis Date	Compound	Concentration	Associated Samples
BLK 235335	05/22/16	Acetone	3.3 ug/L	BS-BERNARD-02-051916 BS-BERNARD-03-051916 BS-BERNARD-04-051916 BS-BERNARD-05-051916 BS-BERNARD-06-051916 BS-BERNARD-07-051916 BS-BERNARD-08-051916 BS-BERNARD-10-051916 BS-BERNARD-11-051916 BS-BERNARD-12-051916

Sample concentrations were compared to concentrations detected in the laboratory blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated laboratory blanks.

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Surrogate	%R (Limits)	Affected Compound	Flag	A or P
BS-BERNARD-06-051916	Dibromofluoromethane	123 (78-119)	All compounds	NA	-
BS-BERNARD-07-051916	Dibromofluoromethane	120 (78-119)	All compounds	NA	-
BS-BERNARD-08-051916	Dibromofluoromethane	123 (78-119)	All compounds	NA	-
BS-BERNARD-09-051916	Dibromofluoromethane	126 (78-119)	All compounds	NA	-
BS-BERNARD-10-051916	Dibromofluoromethane	127 (78-119)	All compounds	NA	-
BS-BERNARD-11-051916	Dibromofluoromethane	121 (78-119)	All compounds	NA	-
BS-BERNARD-12-051916	Dibromofluoromethane	120 (78-119)	All compounds	NA	-

VIII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

IX. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Compound Quantitation

Raw data were not reviewed for Level III validation.

XIII. Target Compound Identifications

Raw data were not reviewed for Level III validation.

XIV. System Performance

Raw data were not reviewed for Level III validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to ICV %D and continuing calibration %D, data were qualified as estimated in twelve samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

Hunters Point, Parcel D-1
Volatiles - Data Qualification Summary - SDG 277038

Sample	Compound	Flag	A or P	Reason (Code)
BS-BERNARD-01-051916 BS-BERNARD-02-051916 BS-BERNARD-03-051916 BS-BERNARD-04-051916 BS-BERNARD-05-051916 BS-BERNARD-06-051916 BS-BERNARD-07-051916 BS-BERNARD-08-051916 BS-BERNARD-09-051916 BS-BERNARD-10-051916 BS-BERNARD-11-051916 BS-BERNARD-12-051916	Bromomethane	UJ (all non-detects)	A	Initial calibration verification (%D) (C1)
BS-BERNARD-02-051916 BS-BERNARD-03-051916 BS-BERNARD-04-051916 BS-BERNARD-05-051916 BS-BERNARD-06-051916 BS-BERNARD-07-051916 BS-BERNARD-08-051916 BS-BERNARD-10-051916 BS-BERNARD-11-051916 BS-BERNARD-12-051916	Acetone 2-Hexanone 1,2,4-Trichlorobenzene Hexachlorobutadiene 1,2,3-Trichlorobenzene	UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects)	A	Continuing calibration (%D) (C)
BS-BERNARD-01-051916 BS-BERNARD-09-051916	Freon 12 Chloromethane	UJ (all non-detects) UJ (all non-detects)	A	Continuing calibration (%D) (C)

Hunters Point, Parcel D-1
Volatiles - Laboratory Blank Data Qualification Summary - SDG 277038

No Sample Data Qualified in this SDG

Hunters Point, Parcel D-1
Volatiles - Field Blank Data Qualification Summary - SDG 277038

No Sample Data Qualified in this SDG

LDC #: 37241B1 **VALIDATION COMPLETENESS WORKSHEET** Date: 10/24/16
SDG #: 277038 Level III Page: 1 of 1
Laboratory: Curtis & Tompkins, Ltd. Reviewer: JG
2nd Reviewer:

METHOD: GC/MS Volatiles (EPA SW 846 Method 8260C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A / SW	ICAL ∈ 15%, ICV ∈ 20%
IV.	Continuing calibration (pending)	SW	CCV ∈ 20/50%
V.	Laboratory Blanks	SW	
VI.	Field blanks	N	
VII.	Surrogate spikes	SW	
VIII.	Matrix spike/Matrix spike duplicates	N	CS (non-client)
IX.	Laboratory control samples	A	LCS/D
X.	Field duplicates	N	
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	BS-BERNARD-01-051916	277038-001	Soil	05/19/16
2	BS-BERNARD-02-051916	277038-002	Soil	05/19/16
3	BS-BERNARD-03-051916	277038-003	Soil	05/19/16
4	BS-BERNARD-04-051916	277038-004	Soil	05/19/16
5	BS-BERNARD-05-051916	277038-005	Soil	05/19/16
6	BS-BERNARD-06-051916	277038-006	Soil	05/19/16
7	BS-BERNARD-07-051916	277038-007	Soil	05/19/16
8	BS-BERNARD-08-051916	277038-008	Soil	05/19/16
9	BS-BERNARD-09-051916	277038-009	Soil	05/19/16
10	BS-BERNARD-10-051916	277038-010	Soil	05/19/16
11	BS-BERNARD-11-051916	277038-011	Soil	05/19/16
12	BS-BERNARD-12-051916	277038-012	Soil	05/19/16
13				

+ 1 BLK 235335
− 2 BLK 235404

TARGET COMPOUND WORKSHEET

METHOD: VOA

A. Chloromethane	AA. Tetrachloroethene	AAA. 1,3,5-Trimethylbenzene	AAAA. Ethyl tert-butyl ether	A1. 1,3-Butadiene
B. Bromomethane	BB. 1,1,2,2-Tetrachloroethane	BBB. 4-Chlorotoluene	BBBB. tert-Amyl methyl ether	B1. Hexane
C. Vinyl choride	CC. Toluene	CCC. tert-Butylbenzene	CCCC. 1-Chlorohexane	C1. Heptane
D. Chloroethane	DD. Chlorobenzene	DDD. 1,2,4-Trimethylbenzene	DDDD. Isopropyl alcohol	D1. Propylene
E. Methylene chloride	EE. Ethylbenzene	EEE. sec-Butylbenzene	EEEE. Acetonitrile	E1. Freon 11
F. Acetone	FF. Styrene	FFF. 1,3-Dichlorobenzene	FFFF. Acrolein	F1. Freon 12
G. Carbon disulfide	GG. Xylenes, total	GGG. p-Isopropyltoluene	GGGG. Acrylonitrile	G1. Freon 113
H. 1,1-Dichloroethene	HH. Vinyl acetate	HHH. 1,4-Dichlorobenzene	HHHH. 1,4-Dioxane	H1. Freon 114
I. 1,1-Dichloroethane	II. 2-Chloroethylvinyl ether	III. n-Butylbenzene	IIII. Isobutyl alcohol	I1. 2-Nitropropane
J. 1,2-Dichloroethene, total	JJ. Dichlorodifluoromethane	JJJ. 1,2-Dichlorobenzene	JJJJ. Methacrylonitrile	J1. Dimethyl disulfide
K. Chloroform	KK. Trichlorofluoromethane	KKK. 1,2,4-Trichlorobenzene	KKKK. Propionitrile	K1. 2,3-Dimethyl pentane
L. 1,2-Dichloroethane	LL. Methyl-tert-butyl ether	LLL. Hexachlorobutadiene	LLLL. Ethyl ether	L1. 2,4-Dimethyl pentane
M. 2-Butanone	MM. 1,2-Dibromo-3-chloropropane	MMM. Naphthalene	MMMM. Benzyl chloride	M1. 3,3-Dimethyl pentane
N. 1,1,1-Trichloroethane	NN. Methyl ethyl ketone	NNN. 1,2,3-Trichlorobenzene	NNNN. Iodomethane	N1. 2-Methylpentane
O. Carbon tetrachloride	OO. 2,2-Dichloropropane	OOO. 1,3,5-Trichlorobenzene	OOOO.1,1-Difluoroethane	O1. 3-Methylpentane
P. Bromodichloromethane	PP. Bromochloromethane	PPP. trans-1,2-Dichloroethene	PPPP. Tetrahydrofuran	P1. 3-Ethylpentane
Q. 1,2-Dichloropropane	QQ. 1,1-Dichloropropene	QQQ. cis-1,2-Dichloroethene	QQQQ. Methyl acetate	Q1. 2,2-Dimethylpentane
R. cis-1,3-Dichloropropene	RR. Dibromomethane	RRR. m,p-Xylenes	RRRR. Ethyl acetate	R1. 2,2,3- Trimethylbutane
S. Trichloroethene	SS. 1,3-Dichloropropane	SSS. o-Xylene	SSSS. Cyclohexane	S1. 2,2,4-Trimethylpentane
T. Dibromochloromethane	TT. 1,2-Dibromoethane	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	TTTT. Methylcyclohexane	T1. 2-Methylhexane
U. 1,1,2-Trichloroethane	UU. 1,1,1,2-Tetrachloroethane	UUU. 1,2-Dichlorotetrafluoroethane	UUUU. Allyl chloride	U1. Nonanal
V. Benzene	VV. Isopropylbenzene	VVV. 4-Ethyltoluene	VVVV. Methyl methacrylate	V1. 2-Methylnaphthalene
W. trans-1,3-Dichloropropene	WW. Bromobenzene	WWW. Ethanol	WWWW. Ethyl methacrylate	W1. Methanol
X. Bromoform	XX. 1,2,3-Trichloropropane	XXX. Di-isopropyl ether	XXXX. cis-1,4-Dichloro-2-butene	X1. 1,2,3-Trimethylbenzene
Y. 4-Methyl-2-pentanone	YY. n-Propylbenzene	YYY. tert-Butanol	YYYY. trans-1,4-Dichloro-2-butene	Y1.
Z. 2-Hexanone	ZZ. 2-Chlorotoluene	ZZZ. tert-Butyl alcohol	ZZZZ. Pentachloroethane	Z1.

LDC #: 37241 B1

VALIDATION FINDINGS WORKSHEET
Initial Calibration Verification

Reviewer: JVG
2nd Reviewer: CV

METHOD: GC/MS VOA (EPA SW 846 Method 8260C)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was an initial calibration verification standard analyzed after each ICAL for each instrument?

Y N N/A Were all %D within the validation criteria of ~~≤30~~ 20 %D?

#	Date	Standard ID	Compound	Finding %D (Limit: ~~≤30.0%~~ 20)	Associated Samples	Qualifications
	04/22/16	ld 120	B	29	All (ND)	J/UJ/A

LDC #: 37241 B1

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Reviewer: JVG
2nd Reviewer: ✓

METHOD: GC/MS VOA (EPA SW 846 Method 8260C)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?

Y N N/A Were percent differences (%D) ≤20 % and relative response factors (RRF) within the method criteria?

#	Date	Standard ID	Compound	Finding %D (Limit: ≤20.0%)	Finding RRF (Limit)	Associated Samples	Qualifications
	05/22/16	lem 04	F	26		2-8, 10-12, Blk 235335	(ND) J/UJ/A
			Z	24			
			KKK	25			
			LLL	21			
			NNN	25			
	05/24/16	le003	F1	32		1, 9, Blk 235404	(ND)
			A	26			

Note: * = Ave RRF failed method criteria but within validation criteria

LDC #: 37241 B1

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer: JVG
2nd Reviewer: Q

METHOD: GC/MS VOA (EPA SW 846 Method 8260C)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a method blank associated with every sample in this SDG?

Y N N/A Was a method blank analyzed at least once every 12 hours for each matrix and concentration?

Y N N/A Was there contamination in the method blanks? If yes, please see the qualifications below.

Blank analysis date: 05/22/16

Conc. units: ug/kg Associated Samples: 2-8, 10-12 (ND)

Compound	Blank ID	Sample Identification								
	Blk 235335									
F	3.3									

Blank analysis date:

Conc. units: Associated Samples:

Compound	Blank ID	Sample Identification								
	Blk 235404									

LDC #: 37241 B1

VALIDATION FINDINGS WORKSHEET
Surrogate Spikes

Reviewer: JVG
2nd Reviewer:

METHOD: GC/MS VOA (EPA SW 846 Method 8260C)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y (N) N/A Were all surrogate %R within QC limits?

Y (N) N/A If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R out of outside of criteria?

#	Date	Sample ID	Surrogate	%Recovery (Limits)	Qualifications
		6 (MD)	DFM	123 (78-119)	J detects / P
		7		120 ( )	
		8		123 ( )	
		9		126 ( )	
		10		127 ( )	
		11		121 ( )	
		12		120 ( )	

(TOL) = Toluene-d8 (DCE) = 1,2-Dichloroethane-d4
(BFB) = Bromofluorobenzene (DFM) = Dibromofluoromethane

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Hunters Point, Parcel D-1

LDC Report Date: October 25, 2016

Parameters: Semivolatiles

Validation Level: Level III

Laboratory: Curtis & Tompkins, Ltd.

Sample Delivery Group (SDG): 277038

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
BS-BERNARD-01-051916	277038-001	Soil	05/19/16
BS-BERNARD-02-051916	277038-002	Soil	05/19/16
BS-BERNARD-03-051916	277038-003	Soil	05/19/16
BS-BERNARD-04-051916	277038-004	Soil	05/19/16
BS-BERNARD-05-051916	277038-005	Soil	05/19/16
BS-BERNARD-06-051916	277038-006	Soil	05/19/16
BS-BERNARD-07-051916	277038-007	Soil	05/19/16
BS-BERNARD-08-051916	277038-008	Soil	05/19/16
BS-BERNARD-09-051916	277038-009	Soil	05/19/16
BS-BERNARD-10-051916	277038-010	Soil	05/19/16
BS-BERNARD-11-051916	277038-011	Soil	05/19/16
BS-BERNARD-12-051916	277038-012	Soil	05/19/16
BS-BERNARD-01-051916MS	277038-001MS	Soil	05/19/16
BS-BERNARD-01-051916MSD	277038-001MSD	Soil	05/19/16

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with Appendix D, Final Data Management Plan, Remedial Action in Parcel D-1, Hunters Point Naval Shipyard, San Francisco, California (January 2014), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Superfund Organic Methods Data Review (June 2008). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Semivolatile Organic Compounds (SVOCs) by Environmental Protection Agency (EPA) SW 846 Method 8270D

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A decafluorotriphenylphosphine (DFTPP) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

For compounds where average relative response factors (RRFs) were utilized, percent relative standard deviations (%RSD) were less than or equal to 15.0%.

In the case where the laboratory used a calibration curve to evaluate the compounds, all coefficients of determination (r^2) were greater than or equal to 0.990.

Average relative response factors (RRF) for all compounds were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0% for all compounds.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
05/26/16	Benzoic acid 2,4-Dinitrophenol	22 24	BS-BERNARD-09-051916 BS-BERNARD-10-051916 BS-BERNARD-11-051916 BS-BERNARD-12-051916	UJ (all non-detects) UJ (all non-detects)	A
05/26/16	4-Nitrophenol	27	BS-BERNARD-11-051916 BS-BERNARD-12-051916	UJ (all non-detects)	A

Date	Compound	%D	Associated Samples	Flag	A or P
05/26/16	Bis(2-chloroisopropyl) ether	25	BS-BERNARD-03-051916	UJ (all non-detects)	A
	Nitrobenzene	23	BS-BERNARD-05-051916	UJ (all non-detects)	
	Bis(2-chloroethoxy)methane	25		UJ (all non-detects)	
	Benzoic acid	24		UJ (all non-detects)	
	2-Nitroaniline	33		UJ (all non-detects)	
	Azobenzene	22		UJ (all non-detects)	

All of the continuing calibration relative response factors (RRF) were within validation criteria.

The percent differences (%D) of the ending calibrations were less than or equal to 50.0% for all compounds with the exception of Hexachlorocyclopentadiene, 2,4-Dinitrophenol, 4,6-Dinitro-2-methylphenol, Di-n-octylphthalate, and Benzo(g,h,i)perylene. Since no samples were analyzed after this calibration, no data were qualified.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Surrogate	%R (Limits)	Affected Compound	Flag	A or P
BS-BERNARD-04-051916	Phenol-d5	126 (33-122)	2,4-Dinitrophenol	NA	-
	2-Fluorophenol	127 (35-115)			

Surrogate recoveries (%R) were not within QC limits for samples BS-BERNARD-02-051916 and BS-BERNARD-05-051916. Using professional judgment, no data were qualified when one base or one acid surrogate %R was outside the QC limits and the %R was greater than or equal to 10%.

Surrogates were added to all samples as required by the method. Surrogate recoveries (%R) were not within QC limits for sample BS-BERNARD-09-051916 and BS-BERNARD-10-051916. No data were qualified for samples analyzed at greater than or equal to 5X dilution.

VIII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	Flag	A or P
BS-BERNARD-01-051916MS/MSD (BS-BERNARD-01-051916)	Hexachlorocyclopentadiene	9 (23-120)	4 (23-120)	UJ (all non-detects)	A

Relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	RPD (Limits)	Flag	A or P
BS-BERNARD-01-051916MS/MSD (BS-BERNARD-01-051916)	4-Chloroaniline Hexachlorocyclopentadiene 2,4-Dinitrophenol 4,6-Dinitro-2-methylphenol Pentachlorophenol	28 (≤20) 62 (≤20) 39 (≤20) 28 (≤20) 21 (≤20)	NA	-

IX. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits with the following exceptions:

LCS ID	Compound	%R (Limits)	Associated Samples	Flag	A or P
235475 LCS	4,6-Dinitro-2-methylphenol	27 (29-132)	All samples in SDG 277038	UJ (all non-detects)	P

Relative percent differences (RPD) were within QC limits.

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Compound Quantitation

Raw data were not reviewed for Level III validation.

XIII. Target Compound Identifications

Raw data were not reviewed for Level III validation.

XIV. System Performance

Raw data were not reviewed for Level III validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to continuing calibration %D, MS/MSD %R, and LCS %R, data were qualified as estimated in twelve samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

Hunters Point, Parcel D-1
Semivolatiles - Data Qualification Summary - SDG 277038

Sample	Compound	Flag	A or P	Reason (Code)
BS-BERNARD-09-051916 BS-BERNARD-10-051916 BS-BERNARD-11-051916 BS-BERNARD-12-051916	Benzoic acid 2,4-Dinitrophenol	UJ (all non-detects) UJ (all non-detects)	A	Continuing calibration (%D) (C)
BS-BERNARD-11-051916 BS-BERNARD-12-051916	4-Nitrophenol	UJ (all non-detects)	A	Continuing calibration (%D) (C)
BS-BERNARD-03-051916 BS-BERNARD-05-051916	Bis(2-chloroisopropyl) ether Nitrobenzene Bis(2-chloroethoxy)methane Benzoic acid 2-Nitroaniline Azobenzene	UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects)	A	Continuing calibration (%D) (C)
BS-BERNARD-01-051916	Hexachlorocyclopentadiene	UJ (all non-detects)	A	Matrix spike/Matrix spike duplicate (%R) (M)
BS-BERNARD-01-051916 BS-BERNARD-02-051916 BS-BERNARD-03-051916 BS-BERNARD-04-051916 BS-BERNARD-05-051916 BS-BERNARD-06-051916 BS-BERNARD-07-051916 BS-BERNARD-08-051916 BS-BERNARD-09-051916 BS-BERNARD-10-051916 BS-BERNARD-11-051916 BS-BERNARD-12-051916	4,6-Dinitro-2-methylphenol	UJ (all non-detects)	P	Laboratory control samples (%R) (L)

Hunters Point, Parcel D-1
Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 277038

No Sample Data Qualified in this SDG

Hunters Point, Parcel D-1
Semivolatiles - Field Blank Data Qualification Summary - SDG 277038

No Sample Data Qualified in this SDG

LDC #: 37241B2a **VALIDATION COMPLETENESS WORKSHEET** Date: 10/24/16
SDG #: 277038 Level III Page: 1 of 2
Laboratory: Curtis & Tompkins, Ltd. Reviewer: JVG
2nd Reviewer:

METHOD: GC/MS Semivolatiles (EPA SW 846 Method 8270D)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A/A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/A	ICAL ≤ 15% r ICV ≤ 20%
IV.	Continuing calibration	SW	CCV ≤ 20/50%
V.	Laboratory Blanks	A	
VI.	Field blanks	N	
VII.	Surrogate spikes	SW	
VIII.	Matrix spike/Matrix spike duplicates	SW	
IX.	Laboratory control samples	SW	LCS
X.	Field duplicates	N	
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	BS-BERNARD-01-051916	277038-001	Soil	05/19/16
2	BS-BERNARD-02-051916	277038-002	Soil	05/19/16
3	BS-BERNARD-03-051916	277038-003	Soil	05/19/16
4	BS-BERNARD-04-051916	277038-004	Soil	05/19/16
5	BS-BERNARD-05-051916	277038-005	Soil	05/19/16
6	BS-BERNARD-06-051916	277038-006	Soil	05/19/16
7	BS-BERNARD-07-051916	277038-007	Soil	05/19/16
8	BS-BERNARD-08-051916	277038-008	Soil	05/19/16
9	BS-BERNARD-09-051916	277038-009	Soil	05/19/16
10	BS-BERNARD-10-051916	277038-010	Soil	05/19/16
11	BS-BERNARD-11-051916	277038-011	Soil	05/19/16
12	BS-BERNARD-12-051916	277038-012	Soil	05/19/16
13	BS-BERNARD-01-051916MS	277038-001MS	Soil	05/19/16

LDC #: 37241B2a **VALIDATION COMPLETENESS WORKSHEET** Date: 16/20/16
SDG #: 277038 Level III Page: 2 of 2
Laboratory: Curtis & Tompkins, Ltd. Reviewer: JV6
2nd Reviewer:

METHOD: GC/MS Semivolatiles (EPA SW 846 Method 8270D)

	Client ID	Lab ID	Matrix	Date
14	BS-BERNARD-01-051916MSD	277038-001MSD	Soil	05/19/16
15				
16				
17				
18				
19				

Notes:

Blk235475							

(IS failure in #2 - no ascid compounds)

VALIDATION FINDINGS WORKSHEET

METHOD: GC/MS SVOA

A. Phenol	AA. 2-Chloronaphthalene	AAA. Butylbenzylphthalate	AAAA. Dibenzothiophene	A1.
B. Bis (2-chloroethyl) ether	BB. 2-Nitroaniline	BBB. 3,3'-Dichlorobenzidine	BBBB. Benzo(a)fluoranthene	B1.
C. 2-Chlorophenol	CC. Dimethylphthalate	CCC. Benzo(a)anthracene	CCCC. Benzo(b)fluorene	C1.
D. 1,3-Dichlorobenzene	DD. Acenaphthylene	DDD. Chrysene	DDDD. cis/trans-Decalin	D1.
E. 1,4-Dichlorobenzene	EE. 2,6-Dinitrotoluene	EEE. Bis(2-ethylhexyl)phthalate	EEEE. Biphenyl	E1.
F. 1,2-Dichlorobenzene	FF. 3-Nitroaniline	FFF. Di-n-octylphthalate	FFFF. Retene	F1.
G. 2-Methylphenol	GG. Acenaphthene	GGG. Benzo(b)fluoranthene	GGGG. C30-Hopane	G1.
H. 2,2'-Oxybis(1-chloropropane)	HH. 2,4-Dinitrophenol	HHH. Benzo(k)fluoranthene	HHHH. 1-Methylphenanthrene	H1.
I. 4-Methylphenol	II. 4-Nitrophenol	III. Benzo(a)pyrene	IIII. 1,4-Dioxane	I1.
J. N-Nitroso-di-n-propylamine	JJ. Dibenzofuran	JJJ. Indeno(1,2,3-cd)pyrene	JJJJ. Acetophenone	J1.
K. Hexachloroethane	KK. 2,4-Dinitrotoluene	KKK. Dibenz(a,h)anthracene	KKKK. Atrazine	K1.
L. Nitrobenzene	LL. Diethylphthalate	LLL. Benzo(g,h,i)perylene	LLLL. Benzaldehyde	L1.
M. Isophorone	MM. 4-Chlorophenyl-phenyl ether	MMM. Bis(2-Chloroisopropyl)ether	MMMM. Caprolactam	M1.
N. 2-Nitrophenol	NN. Fluorene	NNN. Aniline	NNNN. 2,6-Dichlorophenol	N1.
O. 2,4-Dimethylphenol	OO. 4-Nitroaniline	OOO. N-Nitrosodimethylamine	OOOO. 1,2-Diphenylhydrazine	O1.
P. Bis(2-chloroethoxy)methane	PP. 4,6-Dinitro-2-methylphenol	PPP. Benzoic Acid	PPPP. 3-Methylphenol	P1.
Q. 2,4-Dichlorophenol	QQ. N-Nitrosodiphenylamine	QQQ. Benzyl alcohol	QQQQ. 3&4-Methylphenol	Q1.
R. 1,2,4-Trichlorobenzene	RR. 4-Bromophenyl-phenylether	RRR. Pyridine	RRRR. 4-Dimethyldibenzothiophene (4MDT)	R1.
S. Naphthalene	SS. Hexachlorobenzene	SSS. Benzidine	SSSS. 2/3-Dimethyldibenzothiophene (4MDT)	S1.
T. 4-Chloroaniline	TT. Pentachlorophenol	TTT. 1-Methylnaphthalene	TTTT. 1-Methyldibenzothiophene (1MDT)	T1.
U. Hexachlorobutadiene	UU. Phenanthrene	UUU.Benzo(b)thiophene	UUUU. Azobenzene	U1.
V. 4-Chloro-3-methylphenol	VV. Anthracene	VVV.Benzonaphthothiophene	VVVV.	V1.
W. 2-Methylnaphthalene	WW. Carbazole	WWW.Benzo(e)pyrene	WWWW.	W1.
X. Hexachlorocyclopentadiene	XX. Di-n-butylphthalate	XXX. 2,6-Dimethylnaphthalene	XXXX.	X1.
Y. 2,4,6-Trichlorophenol	YY. Fluoranthene	YYY. 2,3,5-Trimethylnaphthalene	YYYY.	Y1.
Z. 2,4,5-Trichlorophenol	ZZ. Pyrene	ZZZ. Perylene	ZZZZ.	Z1.

LDC #: 37241 B2a

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Reviewer: JVG
2nd Reviewer:

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?
Y N N/A Were percent differences (%D) ≤20 % and relative response factors (RRF) within the method criteria?

#	Date	Standard ID	Compound	Finding %D (Limit: ≤20.0%)	Finding RRF (Limit)	Associated Samples	Qualifications
	05/26/16	zeq08	PPP	22		9-12 (ND)	J/UJ/A
			HH	24		↓	↓
			II	27		11-12	
15/15SD	05/27/16	zer03	HH	32		~~3~~, 9, 10 (ND)	
	05/26/16	reg03	MMM	25		3, 5 (ND)	
			L	23		↓ ↓	
			P	25			
			PPP	24			
			~~BB~~	33			
			UUUU	22			
	05/26/16	xeq18	X	80			Text
		ending					(No qual, no sample
							analyzed after ccv)
	05/28/16	xer15	X	80			
		(ending)	HH	58			
	05/27/16	zeq25	X	88			
		(ending)	HH	79			
			PP	57			
	05/27/16	zer16	X	85			
		(ending)	HH	69			
	05/26/16	reg17	X	77			
		(ending)	FFF	117			
			LLL	60			

LDC #: 37241B2a

VALIDATION FINDINGS WORKSHEET
Surrogate Recovery

Page: 1 of 1
Reviewer: JVG
2nd Reviewer: [signature]

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

Please see qualification below for all questions answered "N". Not applicable questions are identified as "N/A".

Y (N) N/A — Were percent recoveries (%R) for surrogates within QC limits?
Y N (N/A) — If 2 or more base neutral or acid surrogates were outside QC limits, was a reanalysis performed to confirm %R?
Y N (N/A) — If any %R was less than 10 percent, was a reanalysis performed to confirm %R?

#	Date	Sample ID	Surrogate	%R (Limits)	Qualifications
		2	PHL	166 (33-127)	No qual (only 1 out)
				(↓)	
		4 (ND)	PHL	126 (↓)	J dets A (qual HH only)
			2FP	127 (35-115)	
				( )	
		5	FBP	28 (44-115)	No qual (only 1 out)
				( )	
		9 (50x)	All	DO (varied)	(dil)
				(↓)	
		10 (10x)	All	DO (↓)	↓
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	

(NBZ) = Nitrobenzene-d5
(FBP) = 2-Fluorobiphenyl
(TPH) = Terphenyl-d14
(PHL) = Phenol-d5
(2FP)= 2-Fluorophenol
(TBP) = 2,4,6-Tribromophenol
(2CP) = 2-Chlorophenol-d4
(DCB) = 1,2-Dichlorobenzene-d4

LDC #: 57241 B2a

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Page: 1 of 1
Reviewer: JVG
2nd Reviewer: [signature]

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.

(Y) N N/A Was a MS/MSD analyzed every 20 samples of each matrix?

Y (N) N/A Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

#	Date	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
		13/14	X	9 (23-120)	4 (23-~~166~~ 120)	( )	1 (ND)	J/UJ/A
			T	( )	( )	28 (20)		J det/A
			X	( )	( )	62 ( )		
			HH	( )	( )	39 ( )		
			PP	( )	( )	28 ( )		
			TT	( )	( )	21 ( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
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				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

LDC #: 37241 B7Q

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

Reviewer: JVG
2nd Reviewer: [illegible]

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a LCS required?

Y (N) N/A Were the LCS/LCSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

#	Date	LCS/LCSD ID	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
		235475 LCS	PP	27 (29-132)	( )	( )	All (ND)	J/UJ (LCS)
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
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				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Hunters Point, Parcel D-1

LDC Report Date: October 25, 2016

Parameters: Chlorinated Pesticides

Validation Level: Level III

Laboratory: Curtis & Tompkins, Ltd.

Sample Delivery Group (SDG): 277038

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
BS-BERNARD-01-051916	277038-001	Soil	05/19/16
BS-BERNARD-02-051916	277038-002	Soil	05/19/16
BS-BERNARD-03-051916	277038-003	Soil	05/19/16
BS-BERNARD-04-051916	277038-004	Soil	05/19/16
BS-BERNARD-05-051916	277038-005	Soil	05/19/16
BS-BERNARD-06-051916	277038-006	Soil	05/19/16
BS-BERNARD-07-051916	277038-007	Soil	05/19/16
BS-BERNARD-08-051916	277038-008	Soil	05/19/16
BS-BERNARD-09-051916	277038-009	Soil	05/19/16
BS-BERNARD-10-051916	277038-010	Soil	05/19/16
BS-BERNARD-11-051916	277038-011	Soil	05/19/16
BS-BERNARD-12-051916	277038-012	Soil	05/19/16
BS-BERNARD-05-051916MS	277038-005MS	Soil	05/19/16
BS-BERNARD-05-051916MSD	277038-005MSD	Soil	05/19/16
BS-BERNARD-11-051916MS	277038-011MS	Soil	05/19/16
BS-BERNARD-11-051916MSD	277038-011MSD	Soil	05/19/16

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with Appendix D, Final Data Management Plan, Remedial Action in Parcel D-1, Hunters Point Naval Shipyard, San Francisco, California (January 2014), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Superfund Organic Methods Data Review (June 2008). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Chlorinated Pesticides by Environmental Protection Agency (EPA) SW 846 Method 8081B

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

The individual 4,4'-DDT and Endrin breakdowns (%BD) were less than or equal to 15.0%.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

For compounds where average calibration factors were utilized, percent relative standard deviations (%RSD) were less than or equal to 20.0%.

In the case where the laboratory used a calibration curve to evaluate the compounds, all coefficients of determination (r^2) were greater than or equal to 0.990.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0% for all compounds with the following exceptions:

Date	Standard	Column	Compound	%D	Associated Samples	Flag	A or P
05/24/16	144_021	Ch A	4,4'-DDE Endosulfan II Endrin aldehyde Endrin ketone	29 26 22 25	BS-BERNARD-01-051916 BS-BERNARD-02-051916 BS-BERNARD-03-051916 BS-BERNARD-04-051916 BS-BERNARD-05-051916 BS-BERNARD-06-051916 BS-BERNARD-07-051916 BS-BERNARD-08-051916 BS-BERNARD-09-051916 BS-BERNARD-10-051916 BS-BERNARD-11-051916 BS-BERNARD-12-051916	J (all detects) UJ (all non-detects)	A
05/24/16	144_021	Ch B	Methoxychlor	23	BS-BERNARD-01-051916 BS-BERNARD-02-051916 BS-BERNARD-03-051916 BS-BERNARD-04-051916 BS-BERNARD-05-051916 BS-BERNARD-06-051916 BS-BERNARD-07-051916 BS-BERNARD-08-051916 BS-BERNARD-09-051916 BS-BERNARD-10-051916 BS-BERNARD-11-051916 BS-BERNARD-12-051916	J (all detects) UJ (all non-detects)	A

IV. Continuing Calibration

Continuing calibration was performed at required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all compounds with the following exceptions:

Date	Standard	Column	Compound	%D	Associated Samples	Flag	A or P
05/27/16	148_016	Ch A	4,4'-DDE 4,4'-DDT Methoxychlor	23 21 22	BS-BERNARD-11-051916 BS-BERNARD-12-051916	J (all detects) UJ (all non-detects)	A
05/27/16	148_016	Ch B	Endrin 4,4'-DDD	21 21	BS-BERNARD-11-051916 BS-BERNARD-12-051916	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks with the following exceptions:

Blank ID	Extraction Date	Compound	Concentration	Associated Samples
BLK 235428	05/24/16	Heptachlor epoxide 4,4'-DDE Endrin	0.33 ug/Kg 0.77 ug/Kg 0.60 ug/Kg	BS-BERNARD-11-051916 BS-BERNARD-12-051916

Sample concentrations were compared to concentrations detected in the laboratory blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
BS-BERNARD-11-051916	Endrin	3.0 ug/Kg	3.0U ug/Kg

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VIII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	Flag	A or P
BS-BERNARD-11-051916MS/MSD (BS-BERNARD-11-051916)	Dieldrin	144 (56-136)	-	J (all detects)	A
BS-BERNARD-11-051916MS/MSD (BS-BERNARD-11-051916)	4,4'-DDE alpha-Chlordane 4,4'-DDT	51 (56-134) 31 (54-133) -	54 (56-134) 48 (54-133) 30 (50-141)	J (all detects) J (all detects) J (all detects)	A
BS-BERNARD-11-051916MS/MSD (BS-BERNARD-11-051916)	4,4'-DDD	-	321 (56-139)	NA	-

Relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	RPD (Limits)	Flag	A or P
BS-BERNARD-11-051916MS/MSD (BS-BERNARD-11-051916)	Dieldrin 4,4'-DDT	44 (≤30) 48 (≤30)	J (all detects) J (all detects)	A
BS-BERNARD-11-051916MS/MSD (BS-BERNARD-11-051916)	4,4'-DDD	120 (≤30)	NA	-

IX. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Compound Quantitation

The sample results for detected compounds from the two columns were within 40% relative percent difference (RPD) with the following exceptions:

Sample	Compound	RPD	Flag	A or P
BS-BERNARD-03-051916	4,4'-DDT alpha-Chlordane	105 124	J (all detects) J (all detects)	A

Sample	Compound	RPD	Flag	A or P
BS-BERNARD-04-051916	4,4'-DDT	102	J (all detects)	A
BS-BERNARD-05-051916	4,4'-DDT alpha-Chlordane	72 126	J (all detects) J (all detects)	A
BS-BERNARD-06-051916	gamma-Chlordane	82	J (all detects)	A
BS-BERNARD-08-051916	gamma-Chlordane	89	J (all detects)	A
BS-BERNARD-09-051916	4,4'-DDD alpha-Chlordane	46 80	J (all detects) J (all detects)	A
BS-BERNARD-10-051916	4,4'-DDT alpha-Chlordane	62 108	J (all detects) J (all detects)	A
BS-BERNARD-11-051916	gamma-BHC Heptachlor epoxide Dieldrin 4,4'-DDE Endrin 4,4'-DDT alpha-Chlordane gamma-Chlordane	112 48 80 129 142 91 97 139	J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects)	A
BS-BERNARD-12-051916	Endosulfan II alpha-Chlordane gamma-Chlordane	52 119 151	J (all detects) J (all detects) J (all detects)	A

Raw data were not reviewed for Level III validation.

XII. Target Compound Identification

Raw data were not reviewed for Level III validation.

XIII. System Performance

Raw data were not reviewed for Level III validation.

XIII. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to ICV %D, continuing calibration %D, MS/MSD %R and RPD, and RPDs between two columns, data were qualified as estimated in twelve samples.

Due laboratory blank contamination, data were qualified as not detected in one sample.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

Hunters Point, Parcel D-1
Chlorinated Pesticides - Data Qualification Summary - SDG 277038

Sample	Compound	Flag	A or P	Reason (Code)
BS-BERNARD-01-051916 BS-BERNARD-02-051916 BS-BERNARD-03-051916 BS-BERNARD-04-051916 BS-BERNARD-05-051916 BS-BERNARD-06-051916 BS-BERNARD-07-051916 BS-BERNARD-08-051916 BS-BERNARD-09-051916 BS-BERNARD-10-051916 BS-BERNARD-11-051916 BS-BERNARD-12-051916	4,4'-DDE Endosulfan II Endrin aldehyde Endrin ketone Methoxychlor	J (all detects) UJ (all non-detects)	A	Initial calibration verification (%D) (C)
BS-BERNARD-11-051916 BS-BERNARD-12-051916	4,4'-DDE 4,4'-DDT Methoxychlor Endrin 4,4'-DDD	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D) (C)
BS-BERNARD-11-051916	Dieldrin 4,4'-DDE alpha-Chlordane 4,4'-DDT	J (all detects) J (all detects) J (all detects) J (all detects)	A	Matrix spike/Matrix spike duplicate (%R) (M)
BS-BERNARD-11-051916	Dieldrin 4,4'-DDT	J (all detects) J (all detects)	A	Matrix spike/Matrix spike duplicate (RPD) (D2)
BS-BERNARD-03-051916 BS-BERNARD-05-051916	4,4'-DDT alpha-Chlordane	J (all detects) J (all detects)	A	Compound quantitation (RPD between two columns) (Y1)
BS-BERNARD-04-051916	4,4'-DDT	J (all detects)	A	Compound quantitation (RPD between two columns) (Y1)
BS-BERNARD-06-051916 BS-BERNARD-08-051916	gamma-Chlordane	J (all detects)	A	Compound quantitation (RPD between two columns) (Y1)
BS-BERNARD-09-051916	4,4'-DDD alpha-Chlordane	J (all detects) J (all detects)	A	Compound quantitation (RPD between two columns) (Y1)
BS-BERNARD-10-051916	4,4'-DDT alpha-Chlordane	J (all detects) J (all detects)	A	Compound quantitation (RPD between two columns) (Y1)

Sample	Compound	Flag	A or P	Reason (Code)
BS-BERNARD-11-051916	gamma-BHC Heptachlor epoxide Dieldrin 4,4'-DDE Endrin 4,4'-DDT alpha-Chlordane gamma-Chlordane	J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects)	A	Compound quantitation (RPD between two columns) (Y1)
BS-BERNARD-12-051916	Endosulfan II alpha-Chlordane gamma-Chlordane	J (all detects) J (all detects) J (all detects)	A	Compound quantitation (RPD between two columns) (Y1)

Hunters Point, Parcel D-1
Chlorinated Pesticides - Laboratory Blank Data Qualification Summary - SDG 277038

Sample	Compound	Modified Final Concentration	A or P	Code
BS-BERNARD-11-051916	Endrin	3.0U ug/Kg	A	B1

Hunters Point, Parcel D-1
Chlorinated Pesticides - Field Blank Data Qualification Summary - SDG 277038

No Sample Data Qualified in this SDG

LDC #: 37241B3a

VALIDATION COMPLETENESS WORKSHEET

Level III

Date: 10/24/16

SDG #: 277038

Page: 1 of 2

Laboratory: Curtis & Tompkins, Ltd.

Reviewer: IV6

2nd Reviewer: [illegible]

METHOD: GC Chlorinated Pesticides (EPA SW846 Method 8081B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	GC Instrument Performance Check	A	
III.	Initial calibration/ICV	A / SW	ICAL ≤ 20% ✓ ICV ≤ 20%
IV.	Continuing calibration	SW	CCV ≤ 20%
V.	Laboratory Blanks	SW	
VI.	Field blanks	N	
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	SW	
IX.	Laboratory control samples	A	LCS
X.	Field duplicates	N	
XI.	Compound quantitation/RL/LOQ/LODs	SW	
XII.	Target compound identification	N	
XIII.	System Performance	N	
XIV	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	BS-BERNARD-01-051916	277038-001	Soil	05/19/16
2	BS-BERNARD-02-051916	277038-002	Soil	05/19/16
3	BS-BERNARD-03-051916	277038-003	Soil	05/19/16
4	BS-BERNARD-04-051916	277038-004	Soil	05/19/16
5	BS-BERNARD-05-051916	277038-005	Soil	05/19/16
6	BS-BERNARD-06-051916	277038-006	Soil	05/19/16
7	BS-BERNARD-07-051916	277038-007	Soil	05/19/16
8	BS-BERNARD-08-051916	277038-008	Soil	05/19/16
9	BS-BERNARD-09-051916	277038-009	Soil	05/19/16
10	BS-BERNARD-10-051916	277038-010	Soil	05/19/16
11	BS-BERNARD-11-051916	277038-011	Soil	05/19/16
12	BS-BERNARD-12-051916	277038-012	Soil	05/19/16
13	BS-BERNARD-05-051916MS	277038-005MS	Soil	05/19/16
14	BS-BERNARD-05-051916MSD	277038-005MSD	Soil	05/19/16
15	BS-BERNARD-11-051916MS	277038-011MS	Soil	05/19/16

LDC #: 37241B3a

SDG #: 277038

Laboratory: Curtis & Tompkins, Ltd.

VALIDATION COMPLETENESS WORKSHEET

Level III

Date: 10/24/16

Page: 2 of 2

Reviewer: JVG

2nd Reviewer:

METHOD: GC Chlorinated Pesticides (EPA SW846 Method 8081B)

	Client ID	Lab ID	Matrix	Date
16	BS-BERNARD-11-051916MSD	277038-011MSD	Soil	05/19/16
17				
18				
19				
20				
21				

Notes:

1	Blk 235358						
2	Blk 235428						

VALIDATION FINDINGS WORKSHEET

METHOD: Pesticide/PCBs (EPASW 846 Method 8081/8082)

A. alpha-BHC	I. Dieldrin	Q. Endrin ketone	Y. Aroclor-1242	GG. Chlordane
B. beta-BHC	J. 4,4'-DDE	R. Endrin aldehyde	Z. Aroclor-1248	HH. Chlordane (Technical)
C. delta-BHC	K. Endrin	S. alpha-Chlordane	AA. Aroclor-1254	II. Aroclor 1262
D. gamma-BHC	L. Endosulfan II	T. gamma-Chlordane	BB. Aroclor-1260	JJ. Aroclor 1268
E. Heptachlor	M. 4,4'-DDD	U. Toxaphene	CC. 2,4'-DDD	KK. Oxychlordane
F. Aldrin	N. Endosulfan sulfate	V. Aroclor-1016	DD. 2,4'-DDE	LL. trans-Nonachlor
G. Heptachlor epoxide	O. 4,4'-DDT	W. Aroclor-1221	EE. 2,4'-DDT	MM. cis-Nonachlor
H. Endosulfan I	P. Methoxychlor	X. Aroclor-1232	FF. Hexachlorobenzene	NN.

Notes:_____

LDC #: 37241 B3G

VALIDATION FINDINGS WORKSHEET
Initial Calibration Verification

Reviewer: JVG
2nd Reviewer: [illegible]

METHOD: GC Pesticides/PCBs (EPA SW 846 Method 8081/8082)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".
What type of initial calibration verification calculation was performed? ___%D or ___%R
Y (N) N/A Was an initial calibration verification standard analyzed after each ICAL for each instrument?
Y (N) N/A Did the initial calibration verification standards meet the %D / %R validation criteria of ≤20.0% / 80-120%?

#	Date	Standard ID	Detector/ Column	Compound	%D (Limit ≤ 20.0)	Associated Samples	Qualifications
GC23	05/24/16	144_021	Ch A	J	29	1-12, Blk 235358 (ND+Det)	J/UJ/A
			↓	L	26	↓	↓
			↓	R	22	↓	↓
			↓	Q	25	↓	↓
			Ch B	P	23	↓	↓
GC30	05/27/16	147_025	Ch A	J	25	13-16, Blk 235428	
			↓	R	23	↓	
			Ch B	A	25	↓	
			↓	D	22	↓	
			↓	R	24	↓	↓

LDC #: 37241B3a

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Page: 1 of 1
Reviewer: JVG
2nd Reviewer: ✓

METHOD: GC Pesticides/PCBs (EPA SW 846 Method 8081/8082)

Please see qualifications below for all questions answered "N" Not applicable questions are identified as "N/A".

Y N N/A — Were Evaluation mix standards run before initial calibration and before samples?

Y N N/A — Were Endrin & 4,4'-DDT breakdowns acceptable in the Evaluation Mix standard (≤15.0% for individual breakdowns)?

Y N N/A — Was at least one standard run daily to verify the working curve?

Y N N/A — Did the continuing calibration standards meet the percent difference (%D) / relative percent difference (RPD) criteria of ≤20.0%?

Level IV/D Only

Y N N/A — Were the retention times for all calibrated compounds within their respective acceptance windows?

#	Date	Standard ID	Column	Compound	%D (Limit ≤ 20.0)	RT (Limits)	Associated Samples	Qualifications
	05/27/16	148_016	Ch A	J	23	( )	11, 12 (ND + Det)	J / UJ / A
			↓	O	21	( )	↓	↓
			✓	P	22	( )		
			Ch B	K	21	( )		
				M	21	( )		
						( )		
						( )		
						( )		
						( )		
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						( )		
						( )		
						( )		
						( )		

A. alpha-BHC	F. Aldrin	K. Endrin	P. Methoxychlor	U. Toxaphene	Z. Aroclor-1248	EE. 2,4'-DDT	JJ. Aroclor 1268	OO.
B. beta-BHC	G. Heptachlor epoxide	L. Endosulfan II	Q. Endrin ketone	V. Aroclor-1016	AA. Aroclor-1254	FF. Hexachlorobenzene	KK. Oxychlordane	PP.
C. delta-BHC	H. Endosulfan I	M. 4,4'-DDD	R. Endrin aldehyde	W. Aroclor-1221	BB. Aroclor-1260	GG. Chlordane	LL. trans- Nonachlor	QQ.
D. gamma-BHC	I. Dieldrin	N. Endosulfan sulfate	S. alpha-Chlordane	X. Aroclor-1232	CC. 2,4'-DDD	HH. Chlordane (Tech)	MM. cis-Nonachlor	RR.
E. Heptachlor	J. 4,4'-DDE	O. 4,4'-DDT	T. gamma-Chlordane	Y. Aroclor-1242	DD. 2,4'-DDE	II. Aroclor 1262	NN.	SS.

(b) (4)

LDC #: 37241 B3a

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Page: 1 of 1
Reviewer: JVG
2nd Reviewer: Q

METHOD: GC Pesticides/PCBs (EPA SW 846 Method 8081/8082)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG?
(Y) N N/A Was a MS/MSD analyzed every 20 samples for each matrix or whenever a sample extraction was performed?
Y (N) N/A Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

#	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
	15/16	I	144 (56-136)	( )	( )	11 (Det)	J dets/A
		J	51 (56-134)	54 (56-134)	( )	↓	J/UJ/A
		S	31 (54-133)	48 (54-133)	( )	↓	↓
		M	( )	321 (56-139)	( )	(ND)	J dets/A
		O	( )	30 (50-141)	( )	(Det)	J/UJ/A
		I	( )	( )	44 (30)	↓	J dets/A
		M	( )	( )	120 ( )	(ND)	↓
		O	( )	( )	48 ( )	↓ (Det)	↓
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		

LDC #: 37241 B31

VALIDATION FINDINGS WORKSHEET
Compound Quantitation and Reported CRQLs

Reviewer: JVG
2nd Reviewer: [illegible]

METHOD: ✓ GC __ HPLC

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Level IV/D Only

(Y) N N/A Were CRQLs adjusted for sample dilutions, dry weight factors, etc.?
Y N N/A Did the reported results for detected target compounds agree within 10.0% of the recalculated results?
Y (N) N/A Did the percent difference of detected compounds between two columns./detectors ≤40%?
If no, please see findings bellow.

#	Compound Name	Sample ID	%RPD/%D Between Two Columns/Detectors Limit (≤ 40%)	Qualifications
	O	3	105	J detects/A
	S	↓	124	
	O	4	102	
	O	5	72	
	S	↓	126	
	T	6	82	
	8 T	8	89	
	M	9	46	
	S	↓	80	
	O	10	62	
	S	↓	108	↓

Comments: See sample calculation verification worksheet for recalculations

LDC #: 37241B3a

VALIDATION FINDINGS WORKSHEET
Compound Quantitation and Reported CRQLs

Reviewer: JVG
2nd Reviewer: [signature]

METHOD: ✓ GC ___ HPLC

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Level IV/D Only

Y N N/A Were CRQLs adjusted for sample dilutions, dry weight factors, etc.?
Y N N/A Did the reported results for detected target compounds agree within 10.0% of the recalculated results?
Y N N/A Did the percent difference of detected compounds between two columns./detectors ≤40%?
If no, please see findings bellow.

#	Compound Name	Sample ID	%RPD/%D Between Two Columns/Detectors Limit (≤ 40%)	Qualifications
	D	11	112	J dets/A
	G		48	
	I		80	
	J		129	
	K		142	
	O		91	
	S		97	
	T		139	
	L	12	52	
	S		119	
	T		151	

Comments: See sample calculation verification worksheet for recalculations

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Hunters Point, Parcel D-1

LDC Report Date: November 15, 2016

Parameters: Polychlorinated Biphenyls

Validation Level: Level III

Laboratory: Curtis & Tompkins, Ltd.

Sample Delivery Group (SDG): 277038

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
BS-BERNARD-01-051916	277038-001	Soil	05/19/16
BS-BERNARD-02-051916	277038-002	Soil	05/19/16
BS-BERNARD-03-051916	277038-003	Soil	05/19/16
BS-BERNARD-04-051916	277038-004	Soil	05/19/16
BS-BERNARD-05-051916	277038-005	Soil	05/19/16
BS-BERNARD-06-051916	277038-006	Soil	05/19/16
BS-BERNARD-07-051916	277038-007	Soil	05/19/16
BS-BERNARD-08-051916	277038-008	Soil	05/19/16
BS-BERNARD-09-051916	277038-009	Soil	05/19/16
BS-BERNARD-10-051916	277038-010	Soil	05/19/16
BS-BERNARD-11-051916	277038-011	Soil	05/19/16
BS-BERNARD-12-051916	277038-012	Soil	05/19/16

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with Appendix D, Final Data Management Plan, Remedial Action in Parcel D-1, Hunters Point Naval Shipyard, San Francisco, California (January 2014), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Superfund Organic Methods Data Review (June 2008). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Polychlorinated Biphenyls (PCBs) by Environmental Protection Agency (EPA) SW 846 Method 8082A

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. Initial Calibration and Initial Calibration Verification

Initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0% for all compounds.

III. Continuing Calibration

Continuing calibration was performed at required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all compounds.

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

V. Field Blanks

No field blanks were identified in this SDG.

VI. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Compound Quantitation

Raw data were not reviewed for Level III validation.

XI. Target Compound Identification

Raw data were not reviewed for Level III validation.

XII. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

Hunters Point, Parcel D-1
Polychlorinated Biphenyls - Data Qualification Summary - SDG 277038

No Sample Data Qualified in this SDG

Hunters Point, Parcel D-1
Polychlorinated Biphenyls - Laboratory Blank Data Qualification Summary - SDG 277038

No Sample Data Qualified in this SDG

Hunters Point, Parcel D-1
Polychlorinated Biphenyls - Field Blank Data Qualification Summary - SDG 277038

No Sample Data Qualified in this SDG

LDC #: 37241B3b
SDG #: 277038
Laboratory: Curtis & Tompkins, Ltd.

VALIDATION COMPLETENESS WORKSHEET
Level III

Date: 10/24/16
Page: 1 of 1
Reviewer: JV6
2nd Reviewer:

METHOD: GC Polychlorinated Biphenyls (EPA SW846 Method 8082A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	Initial calibration/ICV	A / A	ICAL ≤ 20% r ICV ≤ 20%
III.	Continuing calibration	A	CCV ≤ 20%
IV.	Laboratory Blanks	A	
V.	Field blanks	N	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	A	277036-002
VIII.	Laboratory control samples	A	LCS
IX.	Field duplicates	N	
X.	Compound quantitation/RL/LOQ/LODs	N	
XI.	Target compound identification	N	
XII	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	BS-BERNARD-01-051916	277038-001	Soil	05/19/16
2	BS-BERNARD-02-051916	277038-002	Soil	05/19/16
3	BS-BERNARD-03-051916	277038-003	Soil	05/19/16
4	BS-BERNARD-04-051916	277038-004	Soil	05/19/16
5	BS-BERNARD-05-051916	277038-005	Soil	05/19/16
6	BS-BERNARD-06-051916	277038-006	Soil	05/19/16
7	BS-BERNARD-07-051916	277038-007	Soil	05/19/16
8	BS-BERNARD-08-051916	277038-008	Soil	05/19/16
9	BS-BERNARD-09-051916	277038-009	Soil	05/19/16
10	BS-BERNARD-10-051916	277038-010	Soil	05/19/16
11	BS-BERNARD-11-051916	277038-011	Soil	05/19/16
12	BS-BERNARD-12-051916	277038-012	Soil	05/19/16
13				
14				
15				
16	Blk 235358			
17	235472			

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Hunters Point, Parcel D-1

LDC Report Date: October 25, 2016

Parameters: Metals

Validation Level: Level III

Laboratory: Curtis & Tompkins, Ltd.

Sample Delivery Group (SDG): 277038

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
BS-BERNARD-01-051916	277038-001	Soil	05/19/16
BS-BERNARD-02-051916	277038-002	Soil	05/19/16
BS-BERNARD-03-051916	277038-003	Soil	05/19/16
BS-BERNARD-04-051916	277038-004	Soil	05/19/16
BS-BERNARD-05-051916	277038-005	Soil	05/19/16
BS-BERNARD-06-051916	277038-006	Soil	05/19/16
BS-BERNARD-07-051916	277038-007	Soil	05/19/16
BS-BERNARD-08-051916	277038-008	Soil	05/19/16
BS-BERNARD-09-051916	277038-009	Soil	05/19/16
BS-BERNARD-10-051916	277038-010	Soil	05/19/16
BS-BERNARD-11-051916	277038-011	Soil	05/19/16
BS-BERNARD-12-051916	277038-012	Soil	05/19/16
BS-BERNARD-01-051916MS	277038-001MS	Soil	05/19/16
BS-BERNARD-01-051916MSD	277038-001MSD	Soil	05/19/16
BS-BERNARD-09-051916MS	277038-009MS	Soil	05/19/16
BS-BERNARD-09-051916MSD	277038-009MSD	Soil	05/19/16

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with Appendix D, Final Data Management Plan, Remedial Action in Parcel D-1, Hunters Point Naval Shipyard, San Francisco, California (January 2014), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Inorganic Superfund Data Review (January 2010). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following methods:

Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Manganese, Molybdenum, Nickel, Selenium, Silver, Thallium, Vanadium, and Zinc by Environmental Protection Agency (EPA) SW 846 Methods 6010C
Mercury by EPA SW 846 Methods 7471B

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition.

All technical holding time requirements were met.

II. Instrument Calibration

Initial and continuing calibrations were performed as required by the methods.

The initial calibration verification (ICV) and continuing calibration verification (CCV) standards were within QC limits.

Although the low level check standard exceeded QC limits for Arsenic, Beryllium, Cadmium, and Zinc, no data was qualified since all results were greater than 2x the limit of quantitation.

III. ICP Interference Check Sample Analysis

The frequency of interference check sample (ICS) analysis was met. All criteria were within QC limits.

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the methods. No contaminants were found in the laboratory blanks with the following exceptions:

Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Iron	3.7 mg/Kg	All samples in SDG 277038
PB (prep blank)	Mercury	0.0062 mg/Kg	BS-BERNARD-08-051916 BS-BERNARD-09-051916 BS-BERNARD-10-051916 BS-BERNARD-11-051916 BS-BERNARD-12-051916
ICB/CCB	Nickel Vanadium	1.394 ug/L 1.334 ug/L	All samples in SDG 277038

Data qualification by the laboratory blanks was based on the maximum contaminant concentration in the laboratory blanks in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks.

V. Field Blanks

No field blanks were identified in this SDG.

VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	Flag	A or P
BS-BERNAED-09-051916MS/MSD (BS-BERNARD-09-051916)	Mercury	-	128 (80-124)	J (all detects)	A
BS-BERNARD-01-051916MS/MSD (BS-BERNARD-01-051916)	Antimony	38 (79-114)	40 (79-114)	J (all detects)	A
BS-BERNARD-01-051916MS/MSD (BS-BERNARD-01-051916)	Nickel Barium	127 (83-113) -	119 (83-113) 126 (83-113)	J (all detects) J (all detects)	A

For BS-BERNAED-19-051916MS/MSD, no data were qualified for Mercury percent recoveries (%R) outside the QC limits since there were no associated samples in this SDG.

Relative percent differences (RPD) were within QC limits.

VII. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

VIII. Serial Dilution

Serial dilution analysis was performed on an associated project sample. Percent differences (%D) were within QC limits with the following exceptions:

Diluted Sample	Analyte	%D (Limits)	Associated Samples	Flag	A or P
BS-BERNARD-01-051916	Manganese Cobalt Nickel Zinc	13 (≤10) 15 (≤10) 13 (≤10) 13 (≤10)	BS-BERNARD-01-051916	J (all detects) J (all detects) J (all detects) J (all detects)	A

IX. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Sample Result Verification

Raw data were not reviewed for Level III validation.

XII. Overall Assessment of Data

The analysis was conducted within all specifications of the methods. No results were rejected in this SDG.

Due to MS/MSD %R and serial dilution %D, data were qualified as estimated in two samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

Hunters Point, Parcel D-1
Metals - Data Qualification Summary - SDG 277038

Sample	Analyte	Flag	A or P	Reason (Code)
BS-BERNARD-09-051916	Mercury	J (all detects)	A	Matrix spike/Matrix spike duplicate (%R) (M)
BS-BERNARD-01-051916	Antimony Nickel Barium	J (all detects) J (all detects) J (all detects)	A	Matrix spike/Matrix spike duplicate (%R) (M)
BS-BERNARD-01-051916	Manganese Cobalt Nickel Zinc	J (all detects) J (all detects) J (all detects) J (all detects)	A	Serial dilution (%D) (A)

Hunters Point, Parcel D-1
Metals - Laboratory Blank Data Qualification Summary - SDG 277038

No Sample Data Qualified in this SDG

Hunters Point, Parcel D-1
Metals - Field Blank Data Qualification Summary - SDG 277038

No Sample Data Qualified in this SDG

LDC #: 37241B4b
SDG #: 277038
Laboratory: Curtis & Tompkins, Ltd.

VALIDATION COMPLETENESS WORKSHEET
Level III

Date: 10/24/16
Page: 1 of 1
Reviewer: C
2nd Reviewer: C

METHOD: Metals (EPA SW 846 Method 6010B/7471B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A/A	
II.	Instrument Calibration	SW	
III.	ICP Interference Check Sample (ICS) Analysis	A	
IV.	Laboratory Blanks	SW	
V.	Field Blanks	N	
VI.	Matrix Spike/Matrix Spike Duplicates	SW	
VII.	Duplicate sample analysis	N	
VIII.	Serial Dilution	SW	
IX.	Laboratory control samples	A	LCS/D
X.	Field Duplicates	N	
XI.	Sample Result Verification	N	
XII.	Overall Assessment of Data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	BS-BERNARD-01-051916	277038-001	Soil	05/19/16
2	BS-BERNARD-02-051916	277038-002	Soil	05/19/16
3	BS-BERNARD-03-051916	277038-003	Soil	05/19/16
4	BS-BERNARD-04-051916	277038-004	Soil	05/19/16
5	BS-BERNARD-05-051916	277038-005	Soil	05/19/16
6	BS-BERNARD-06-051916	277038-006	Soil	05/19/16
7	BS-BERNARD-07-051916	277038-007	Soil	05/19/16
8	BS-BERNARD-08-051916	277038-008	Soil	05/19/16
9	BS-BERNARD-09-051916	277038-009	Soil	05/19/16
10	BS-BERNARD-10-051916	277038-010	Soil	05/19/16
11	BS-BERNARD-11-051916	277038-011	Soil	05/19/16
12	BS-BERNARD-12-051916	277038-012	Soil	05/19/16
13	BS-BERNARD-01-051916MS	277038-001MS	Soil	05/19/16
14	BS-BERNARD-01-051916MSD	277038-001MSD	Soil	05/19/16
15	BS-BERNARD-09-051916MS	277038-009MS	Soil	05/19/16
16	BS-BERNARD-09-051916MSD	277038-009MSD	Soil	05/19/16
17				

LDC #: 37241B6b

VALIDATION FINDINGS WORKSHEET
Sample Specific Element Reference

Reviewer: CS
2nd reviewer: CS

All circled elements are applicable to each sample.

Sample ID	Matrix	Target Analyte List (TAL)
1-12		Al, (Sb, As, Ba, Be, Cd) Ca, (Cr, Co, Cu) (Fe, Pb) Mg (Mn, Hg, Ni) K (Se, Ag) Na (Tl, V, Zn, Mo,) B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
QC: 13,14		Al, (Sb, As, Ba, Be, Cd) Ca, (Cr, Co, Cu) (Fe) (Pb) Mg (Mn, Hg, Ni) K (Se, Ag) Na (Tl, V, Zn, Mo,) B, Sn, Ti, ___
15,16		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, (Hg,) Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
Analysis Method		
ICP		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
ICP-MS		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___
GFAA		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___

Comments: Mercury by CVAA if performed

LDC #: 37241B4b

VALIDATION FINDINGS WORKSHEET
Calibration

Reviewer: 9
2nd Reviewer: 0

METHOD: Trace Metals (EPA SW 846 Method 6010/7000)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were all instruments calibrated daily, each set-up time, and were the proper number of standards used?

Y N N/A Were all initial and continuing calibration verification percent recoveries (%R) within the control limits of 90-110% for all analytes except mercury (80-120%) and cyanide (85-115%)?

LEVEL IV ONLY:

Y N N/A Was a midrange cyanide standard distilled?

Y N N/A Are all correlation coefficients ≥0.995?

Y N N/A Were recalculated results acceptable? See Level IV Initial and Continuing Calibration Recalculation Worksheet for recalculations.

#	Date	Calibration ID	Analyte	%R	Associated Samples	Qualification of Data
	5/31/16	CRI (11:18)	As	74 (80-120)	All	No qualifiers (all >2x LOQ)
			Be	72		
			Cd	78		
			Zn	77		

Comments:

LDC #: 37241B4b

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES

Reviewer: a
2nd Reviewer: a

METHOD: Trace metals (EPA SW 864 Method 6010B/6020/7000) Soil preparation factor applied: 50x

Sample Concentration units, unless otherwise noted: mg/Kg Associated Samples: All

				Sample Identification										
Analyte	Maximum PB[a] (mg/Kg)	Maximum ICB/CCB[a] (ug/L)	Action Level	No qualifiers (>5x)										
Fe	3.7		18.5											

Sample Concentration units, unless otherwise noted: mg/Kg Associated Samples: 8-12

				Sample Identification										
Analyte	Maximum PB[a] (mg/Kg)	Maximum ICB/CCB[a] (ug/L)	Action Level	No qualifiers (>5x)										
Hg	0.0062		0.031											

Sample Concentration units, unless otherwise noted: mg/Kg Associated Samples: All

				Sample Identification										
Analyte	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Action Level	No qualifiers (>5x)										
Ni		1.394	0.3485											
V		1.334	0.3335											

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".

Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

LDC #: 37241B4b

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Reviewer: CA
2nd Reviewer: CA

METHOD: Trace metals (EPA SW 846 Method 6010/7000)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Was a matrix spike analyzed for each matrix in this SDG?

Y (N) N/A Were matrix spike percent recoveries (%R) within the control limits of 75-125? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.

(Y) N N/A Were all duplicate sample relative percent differences (RPD) ≤ 20% for samples?

LEVEL IV ONLY:

Y N (N/A) Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	MS/MSD ID	Matrix	Analyte	MS %Recovery	MSD %Recovery	RPD (Limits)	Associated Samples	Qualifications
	BS-BERNAED-19-051916MS/MSD	s	Hg	75 (80-124)			none	no association
	(From 277036)							
	15/16	s	Hg		128 (80-124)		9	Jdet/A (Det)
	13/14	s	Sb	38 (79-114)	40		1	J/UJ/A (Det)
			Ni	127 (83-113)	119			Jdet/A (Det)
			Ba		126 (83-113)			Jdet/A (Det)

Comments: 13/14: Fe, Mn >4x

LDC #: J1U4645

VALIDATION FINDINGS WORKSHEET
ICP Serial Dilution

Page: 1 of 1
Reviewer: QR
2nd Reviewer: A

METHOD: Trace Metals (EPA SW 846 Method 6010/6020/7000)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A If analyte concentrations were > 50X the MDL (ICP) ,or >100X the MDL (ICP/MS), was a serial dilution analyzed?

Y N N/A Were ICP serial dilution percent differences (%D) ≤10%?

Y N N/A Is there evidence of negative interference? If yes, professional judgement will be used to qualify the data.

LEVEL IV ONLY:

Y N N/A Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	Diluted Sample ID	Matrix	Analyte	%D (Limits)	Associated Samples	Qualifications
	1	S	Mn	13	1	J/UJ/A (Det.)
			Co	15		
			Ni	13		
			Zn	13		

Comments:

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Hunters Point, Parcel D-1

LDC Report Date: October 25, 2016

Parameters: Total Petroleum Hydrocarbons as Gasoline

Validation Level: Level III

Laboratory: Curtis & Tompkins, Ltd.

Sample Delivery Group (SDG): 277038

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
BS-BERNARD-01-051916	277038-001	Soil	05/19/16
BS-BERNARD-02-051916	277038-002	Soil	05/19/16
BS-BERNARD-03-051916	277038-003	Soil	05/19/16
BS-BERNARD-04-051916	277038-004	Soil	05/19/16
BS-BERNARD-05-051916	277038-005	Soil	05/19/16
BS-BERNARD-06-051916	277038-006	Soil	05/19/16
BS-BERNARD-07-051916	277038-007	Soil	05/19/16
BS-BERNARD-08-051916	277038-008	Soil	05/19/16
BS-BERNARD-09-051916	277038-009	Soil	05/19/16
BS-BERNARD-10-051916	277038-010	Soil	05/19/16
BS-BERNARD-11-051916	277038-011	Soil	05/19/16
BS-BERNARD-12-051916	277038-012	Soil	05/19/16

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with Appendix D, Final Data Management Plan, Remedial Action in Parcel D-1, Hunters Point Naval Shipyard, San Francisco, California (January 2014), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Superfund Organic Methods Data Review (June 2008). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Total Petroleum Hydrocarbons (TPH) as Gasoline by Environmental Protection Agency (EPA) SW 846 Method 8015D

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered not detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0%.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0%.

III. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0%.

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks with the following exceptions:

Blank ID	Analysis Date	Compound	Concentration	Associated Samples
BLK 235352	05/23/16	Gasoline C7-C12	0.018 mg/Kg	BS-BERNARD-01-051916 BS-BERNARD-02-051916 BS-BERNARD-03-051916 BS-BERNARD-04-051916 BS-BERNARD-05-051916 BS-BERNARD-06-051916 BS-BERNARD-07-051916 BS-BERNARD-08-051916 BS-BERNARD-09-051916 BS-BERNARD-10-051916
BLK 235356	05/23/16	Gasoline C7-C12	0.15 mg/Kg	BS-BERNARD-11-051916 BS-BERNARD-12-051916

Sample concentrations were compared to concentrations detected in the laboratory blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
BS-BERNARD-01-051916	Gasoline C7-C12	0.023 mg/Kg	0.023U mg/Kg
BS-BERNARD-02-051916	Gasoline C7-C12	0.021 mg/Kg	0.021U mg/Kg
BS-BERNARD-03-051916	Gasoline C7-C12	0.016 mg/Kg	0.016U mg/Kg
BS-BERNARD-04-051916	Gasoline C7-C12	0.019 mg/Kg	0.019U mg/Kg
BS-BERNARD-05-051916	Gasoline C7-C12	0.021 mg/Kg	0.021U mg/Kg
BS-BERNARD-06-051916	Gasoline C7-C12	0.019 mg/Kg	0.019U mg/Kg
BS-BERNARD-07-051916	Gasoline C7-C12	0.029 mg/Kg	0.029U mg/Kg
BS-BERNARD-08-051916	Gasoline C7-C12	0.039 mg/Kg	0.039U mg/Kg
BS-BERNARD-09-051916	Gasoline C7-C12	0.015 mg/Kg	0.015U mg/Kg
BS-BERNARD-10-051916	Gasoline C7-C12	0.018 mg/Kg	0.018U mg/Kg
BS-BERNARD-11-051916	Gasoline C7-C12	0.039 mg/Kg	0.039U mg/Kg
BS-BERNARD-12-051916	Gasoline C7-C12	0.023 mg/Kg	0.023U mg/Kg

V. Field Blanks

No field blanks were identified in this SDG.

VI. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Compound Quantitation

Raw data were not reviewed for Level III validation.

XI. Target Compound Identifications

Raw data were not reviewed for Level III validation.

XII. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to laboratory blank contamination, data were qualified as not detected in twelve samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Based upon the data validation all other results are considered valid and usable for all purposes.

Hunters Point, Parcel D-1
Total Petroleum Hydrocarbons as Gasoline - Data Qualification Summary - SDG 277038

No Sample Data Qualified in this SDG

Hunters Point, Parcel D-1
Total Petroleum Hydrocarbons as Gasoline - Laboratory Blank Data Qualification Summary - SDG 277038

Sample	Compound	Modified Final Concentration	A or P	Code
BS-BERNARD-01-051916	Gasoline C7-C12	0.023U mg/Kg	A	B1
BS-BERNARD-02-051916	Gasoline C7-C12	0.021U mg/Kg	A	B1
BS-BERNARD-03-051916	Gasoline C7-C12	0.016U mg/Kg	A	B1
BS-BERNARD-04-051916	Gasoline C7-C12	0.019U mg/Kg	A	B1
BS-BERNARD-05-051916	Gasoline C7-C12	0.021U mg/Kg	A	B1
BS-BERNARD-06-051916	Gasoline C7-C12	0.019U mg/Kg	A	B1
BS-BERNARD-07-051916	Gasoline C7-C12	0.029U mg/Kg	A	B1
BS-BERNARD-08-051916	Gasoline C7-C12	0.039U mg/Kg	A	B1
BS-BERNARD-09-051916	Gasoline C7-C12	0.015U mg/Kg	A	B1
BS-BERNARD-10-051916	Gasoline C7-C12	0.018U mg/Kg	A	B1
BS-BERNARD-11-051916	Gasoline C7-C12	0.039U mg/Kg	A	B1
BS-BERNARD-12-051916	Gasoline C7-C12	0.023U mg/Kg	A	B1

Hunters Point, Parcel D-1
Total Petroleum Hydrocarbons as Gasoline - Field Blank Data Qualification Summary - SDG 277038

No Sample Data Qualified in this SDG

LDC #: 37241B7 **VALIDATION COMPLETENESS WORKSHEET** Date: 10/24/16
SDG #: 277038 Level III Page: 1 of 1
Laboratory: Curtis & Tompkins, Ltd. Reviewer: MC
2nd Reviewer:

METHOD: GC TPH as Gasoline (EPA SW 846 Method 8015D)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	Initial calibration/ICV	A / A	ICAL ≤ 20 % ICV ≤ 20 %,
III.	Continuing calibration	A	CCV ≤ 20 %
IV.	Laboratory Blanks	SW	
V.	Field blanks	N	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	CS (non-client)
VIII.	Laboratory control samples	A	LCS
IX.	Field duplicates	N	
X.	Compound quantitation RL/LOQ/LODs	N	
XI.	Target compound identification	N	
XII.	System performance	N	
XIII	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	BS-BERNARD-01-051916	277038-001	Soil	05/19/16
2	BS-BERNARD-02-051916	277038-002	Soil	05/19/16
3	BS-BERNARD-03-051916	277038-003	Soil	05/19/16
4	BS-BERNARD-04-051916	277038-004	Soil	05/19/16
5	BS-BERNARD-05-051916	277038-005	Soil	05/19/16
6	BS-BERNARD-06-051916	277038-006	Soil	05/19/16
7	BS-BERNARD-07-051916	277038-007	Soil	05/19/16
8	BS-BERNARD-08-051916	277038-008	Soil	05/19/16
9	BS-BERNARD-09-051916	277038-009	Soil	05/19/16
10	BS-BERNARD-10-051916	277038-010	Soil	05/19/16
11	BS-BERNARD-11-051916	277038-011	Soil	05/19/16
12	BS-BERNARD-12-051916	277038-012	Soil	05/19/16
13				
14				
15	Blk 235352			
16	Blk 235356			

LDC #: 37241 B7

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer: JV6
2nd Reviewer: Q

METHOD: / GC ___ HPLC

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were all samples associated with a given method blank?
Y N N/A Was a method blank performed for each matrix and whenever a sample extraction procedure was performed?
Y N N/A Was a method blank performed with each extraction batch?
Y N N/A Were any contaminants found in the method blanks? If yes, please see findings below.

Level IV/D Only

Y N N/A (Gasoline and aromatics only)Was a method blank analyzed with each 24 hour batch?
Y N N/A Was a method blank analyzed for each analytical / extraction batch of ≤20 samples?

Blank extraction date: - **Blank analysis date:** 05/23/16 **Associated samples:** 1-10
Conc. units: mg/kg

Compound	Blank ID	Sample Identification									
	Blk 235357	1	2	3	4	5	6	7	8	9	10
Gasoline C7-C12	0.018	0.023/	0.021/U.	0.016/U	0.019/U.	0.021/U	0.019/U	0.029/U	0.039/U	0.015/U	0.018/U

Blank extraction date: - **Blank analysis date:** 05/23/16 **Associated samples:** 11, 12
Conc. units: mg/kg

Compound	Blank ID	Sample Identification									
	Blk 235356	11	12								
Gasoline C7-C12	0.15	0.039/U	0.023/U								

ALL CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
All contaminants within five times the method blank concentration were qualified as not detected, "U".

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Hunters Point, Parcel D-1

LDC Report Date: October 25, 2016

Parameters: Total Petroleum Hydrocarbons as Extractables

Validation Level: Level III

Laboratory: Curtis & Tompkins, Ltd.

Sample Delivery Group (SDG): 277038

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
BS-BERNARD-01-051916	277038-001	Soil	05/19/16
BS-BERNARD-02-051916	277038-002	Soil	05/19/16
BS-BERNARD-03-051916	277038-003	Soil	05/19/16
BS-BERNARD-04-051916	277038-004	Soil	05/19/16
BS-BERNARD-05-051916	277038-005	Soil	05/19/16
BS-BERNARD-06-051916	277038-006	Soil	05/19/16
BS-BERNARD-07-051916	277038-007	Soil	05/19/16
BS-BERNARD-08-051916	277038-008	Soil	05/19/16
BS-BERNARD-09-051916	277038-009	Soil	05/19/16
BS-BERNARD-10-051916	277038-010	Soil	05/19/16
BS-BERNARD-11-051916	277038-011	Soil	05/19/16
BS-BERNARD-12-051916	277038-012	Soil	05/19/16
BS-BERNARD-01-051916MS	277038-001MS	Soil	05/19/16
BS-BERNARD-01-051916MSD	277038-001MSD	Soil	05/19/16

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with Appendix D, Final Data Management Plan, Remedial Action in Parcel D-1, Hunters Point Naval Shipyard, San Francisco, California (January 2014), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Superfund Organic Methods Data Review (June 2008). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Total Petroleum Hydrocarbons (TPH) as Extractables by Environmental Protection Agency (EPA) SW 846 Method 8015D

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered not detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0% for all compounds.

III. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all compounds.

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

V. Field Blanks

No field blanks were identified in this SDG.

VI. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Compound Quantitation

Raw data were not reviewed for Level III validation.

XI. Target Compound Identifications

Raw data were not reviewed for Level III validation.

XII. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

Hunters Point, Parcel D-1
Total Petroleum Hydrocarbons as Extractables - Data Qualification Summary - SDG 277038

No Sample Data Qualified in this SDG

Hunters Point, Parcel D-1
Total Petroleum Hydrocarbons as Extractables - Laboratory Blank Data Qualification Summary - SDG 277038

No Sample Data Qualified in this SDG

Hunters Point, Parcel D-1
Total Petroleum Hydrocarbons as Extractables - Field Blank Data Qualification Summary - SDG 277038

No Sample Data Qualified in this SDG

LDC #: 37241B8 **VALIDATION COMPLETENESS WORKSHEET** Date: 10/26/16
SDG #: 277038 Level III Page: 1 of 1
Laboratory: Curtis & Tompkins, Ltd. Reviewer: SW
2nd Reviewer: [illegible]

METHOD: GC TPH as Extractables (EPA SW 846 Method 8015D)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	Initial calibration/ICV	A / A	ICAL ≤ 20 2 ICV ≤ 20 3
III.	Continuing calibration	A	CCV ≤ 20 2.
IV.	Laboratory Blanks	A	
V.	Field blanks	N	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	A	
VIII.	Laboratory control samples	A	LCS
IX.	Field duplicates	N	
X.	Compound quantitation RL/LOQ/LODs	N	
XI.	Target compound identification	N	
XII.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	BS-BERNARD-01-051916	277038-001	Soil	05/19/16
2	BS-BERNARD-02-051916	277038-002	Soil	05/19/16
3	BS-BERNARD-03-051916	277038-003	Soil	05/19/16
4	BS-BERNARD-04-051916	277038-004	Soil	05/19/16
5	BS-BERNARD-05-051916	277038-005	Soil	05/19/16
6	BS-BERNARD-06-051916	277038-006	Soil	05/19/16
7	BS-BERNARD-07-051916	277038-007	Soil	05/19/16
8	BS-BERNARD-08-051916	277038-008	Soil	05/19/16
9	BS-BERNARD-09-051916	277038-009	Soil	05/19/16
10	BS-BERNARD-10-051916	277038-010	Soil	05/19/16
11	BS-BERNARD-11-051916	277038-011	Soil	05/19/16
12	BS-BERNARD-12-051916	277038-012	Soil	05/19/16
13	BS-BERNARD-01-051916MS	277038-001MS	Soil	05/19/16
14	BS-BERNARD-01-051916MSD	277038-001MSD	Soil	05/19/16
15				
16				
17	Blk 235456			

1 – 1 235424

The attached zipped file contains three files:

File	Format	Description	
1) Readme_HuntersPoint_111416.docx	MS Word	A "Readme" file (this document).	
	MS Excel	A spreadsheet for the following SDG(s):	
2) 277036_validation.xlsx		277036	37241A
3) 277038_validation.xlsx		277038	37241B

No discrepancies were observed between the hardcopy data packages and the electronic data deliverables during EDD population of validation qualifiers. A 100% verification of the EDD was not performed.

Please contact Pei Geng at (760) 827-1100 if you have any questions regarding this electronic data submittal.

LDC #: 37241

EDD POPULATION COMPLETENESS WORKSHEET

Date: 11/14/16
Page: 1 of 1
2nd Reviewer: KK

The LDC job number listed above was entered by DE.

	EDD Process		Comments/Action
I.	EDD Completeness	-	
Ia.	- All methods present?	Y	
Ib.	- All samples present/match report?	Y	
Ic.	- All reported analytes present?	Y	
Id.	- 10% or 100% verification of EDD?	Y	
II.	EDD Preparation/Entry	-	
IIa.	- Carryover U/J?	Y	
IIb.	- Reason Codes used? If so, note which codes.	Y	client
IIc.	- Additional Information (QC Level, Validator, Validated Y/N, etc.)	Y	
III.	Reasonableness Checks	-	
IIIa.	- Do all qualified ND results have ND qualifier (e.g. UJ)?	Y	
IIIb.	- Do all qualified detect results have detect qualifier (e.g. J)?	Y	
IIIc.	- If reason codes are used, do all qualified results have reason code field populated, and vice versa?	Y	
IIId.	-Does the detect flag require changing for blank qualifier? If so, are all U results marked ND?	Y/Y	
IIIe.	- Do blank concentrations in report match EDD where data was qualified due to blank contamination?	Y	
IIIf.	- Were any results reported above calibration range? If so, were results qualified appropriately?	+	
IIIg.	-Is the readme complete? If applicable, were edits or discrepancies listed in the readme?	Y	

Notes: *see discrepancy sheet

(b) (4)

(b) (4)

(b) (4)

(b) (4)

(b) (4)

(b) (4)

(b) (4)

(b) (4)

(b) (4)

TABLE 2
AGGREGATE BASE CHEMICAL AND RADIOLOGICAL DATA

Analtyical Method	Analyte	Comparison Criteria	Units	BLANK		HPNS-D1-AB2-001		HPNS-D1-AB-002		HPNS-D1-AB-003		HPNS-D1-AB-004		HPNS-D1-AB-005		HPNS-D1-AB-006		HPNS-D1-AB-007		HPNS-D1-AB-008		HPNS-D1-AB-009		HPNS-D1-AB-010		HPNS-D1-AB-011		HPNS-D1-AB-012		HPNS-D1-AB-013		HPNS-D1-AB-014		HPNS-D1-AB-015	
				Result	VQ	Result	VQ	Result	VQ	Result	VQ	Result	VQ	Result	VQ	Result	VQ	Result	VQ	Result	VQ	Result	VQ	Result	VQ	Result	VQ	Result	VQ	Result	VQ	Result	VQ	Result	VQ
Metals by EPA 6010/6020/7471	Antimony	31	mg/kg	0.095	U	0.27		0.26	J	0.28		0.34		0.24	J	0.26		0 23	J	0.2	J	0 24		0.25	J	0.46		0.43		0.21	J	0.13	J	0.16	J
	Arsenic	11.1	mg/kg	0 23	U	4.7		4		4 3		4.9		4.4		4.4		4.4		4.4		4.2		4.6		3 9		5		4 3		3 8		4.5	
	Barium	15,000	mg/kg	0 24	U	150		140		150		160		130		140		150		150		160		160		130		150		140		130		140	
	Beryllium	160	mg/kg	0.095	U	0.31		0.32		0.25	J	0.31		0.34		0.32		0 25	J	0 32		0 27		0.27		0.27		0 3		0.23	J	0.25	J	0.34	
	Cadmium	70	mg/kg	0.095	U	0.26		0.68		0 2	J	0.27		0.27		0.2	J	0 38		0.2	J	0 26		0 25	J	0.18	J	0.13	J	0.26		0 2	J	0.2	J
	Chromium	NA	mg/kg	0.19	U	39		36		38		43		34		35		37		38		39		40		36		37		40		32	b	43	b
	Cobalt	23	mg/kg	0.19	U	9 9		9 8		12		9.3		8.8		8.4		9.5		9.4		9.5		9.5		9		11		10		8.8		11	
	Copper	3,100	mg/kg	0.19	U	29		21	b	44		33		26		27		30		29		29		34		23	b	30	b	30	b	25	b	29	b
	Lead	400	mg/kg	0.095	U	29		27		27		33		55		29		33		31		31		31		31		33		32		30		47	
	Manganese	1,800	mg/kg	0.12	U	460		420		470		480		420		410		440		460		590		420		410		450		450		370		390	
	Mercury	10	mg/kg	0.0086	U	0.12		0.12		0.18		0.12		0.16		0.15		0.12		0.12		0.12		0.16		0.1		0.11		0 092		0.12		0.11	
	Molybdenum	390	mg/kg	0.095	U	0 8	b	0.77	b	0.99	b	0.86	b	0.77	b	0.73	b	0.78	b	0 66	b	0 86	b	0.71	b	0.76	b	1.1	b	0.67	b	0.54	b	0.79	b
	Nickel	2,650	mg/kg	0.19	U	45	b	41	b	46	b	44	b	41		40		44		49		43		45		43		47		50		38	b	47	b
	Selenium	390	mg/kg	0.19	U	0.31		0.16	J	0.27		0.22	J	0.16	J	0.16	J	0 21	U	0.19	J	0.14	J	0.12	J	0.21	J	0 3		0.17	J	0.17	J	0.3	
	Silver	390	mg/kg	0.095	U	0.091	J	0.1	J	0 089	J	0 063	J	0 063	J	0 062	J	0.085	J	0.086	J	0.087	J	0.094	J	0.11	J	0.13	J	0 096	J	0 063	J	0.11	J
	Thallium	0.81	mg/kg	0.095	U	0.06	J	0.058	J	0 061	J	0 069	J	0 055	J	0 067	J	0.079	J	0.063	J	0.059	J	0.069	J	0.084	J	0.098	J	0.05	J	0 057	J	0.06	J
	Vanadium	390	mg/kg	0 54	U	55		51		57		51		51		50		55		51		53		52		46		51		49		46	b	54	b
	Zinc	23,400	mg/kg	0 95	U	59		55		63		59		60		55		64		58		62		59		52		62		73		52		62	
Radionuclides by Gamma Spectroscopy	Radium-226	1.633	pCi/g	0.0138	U	0.494		0.476		0.4		0 623		0.464		0 393		0.473		0.464		0.516		0.495		0	U	0.446		0.51		0 548		0.55	
Asbestos by CARB 435	Asbestos	<0.25	%	0	U	0	U	0	U	0	U	0	U	0	U	0	U	0	U	0	U	0	U	0	U	0	U	0	U	0	U	0	U	0	U

TABLE 2
AGGREGATE BASE CHEMICAL AND RADIOLOGICAL DATA

Analtyical Method	Analyte	Comparison Criteria	Units	HPNS-D1-AB-016		HPNS-D1-AB-017		HPNS-D1-AB-018		HPNS-D1-AB-019		HPNS-D1-AB-020		HPNS-D1-AB-021		HPNS-D1-AB-022		HPNS-D1-AB-023		HPNS-D1-AB-024		HPNS-D1-AB-025		HPNS-D1-AB-026		HPNS-D1-AB-027	
				Result	VQ	Result	VQ	Result	VQ	Result	VQ	Result	VQ	Result	VQ	Result	VQ	Result	VQ	Result	VQ	Result	VQ	Result	VQ	Result	VQ
Metals by EPA 6010/6020/7471	Antimony	31	mg/kg	0.19	J	0.18	J	0.15	J	0.14	J	0.12	J	0.46		0.17	J	0.11	J	0.22	J	0 2	J	0.17	J	0.18	J
	Arsenic	11.1	mg/kg	4 6		3.9		4.8		3.7		3.9		4.6		3.8		5		5 2		4.1		4 6		4 2	
	Barium	15,000	mg/kg	130		130		130		130		120		130		130		130		150		150		140		170	
	Beryllium	160	mg/kg	0.31		0.27		0.26	J	0.21	J	0 25	J	0.3		0 22	J	0 27		0.33		0.31		0.21	J	0.28	
	Cadmium	70	mg/kg	0.34		0.15	J	0.26		0.22	J	0 25	J	0 27		0.16	J	0 27		0.29		0 3		0.22	J	0.25	J
	Chromium	NA	mg/kg	34	b	32	b	36	b	34	b	34	b	41	b	37	b	41	b	43	b	40	b	38	b	36	b
	Cobalt	23	mg/kg	9.1		9.7		8.7		9.1		8.3		9.8		9.5		9.2		12		9 9		11		10	
	Copper	3,100	mg/kg	28	b	18	b	21	b	26	b	26	b	24	b	31	b	25	b	27	b	31	b	33	b	27	b
	Lead	400	mg/kg	37		23		27		35		46		35		26		27		37		33		27		26	
	Manganese	1,800	mg/kg	420		390		330		390		380		400		380		380		370		470		390		710	
	Mercury	10	mg/kg	0.13		0.18		0.11		0.16		0.13		0.13		0.089		0.11		0.083		0.11		0.17		0 092	
	Molybdenum	390	mg/kg	0.79	b	0.6	b	0.7	b	0.59	b	0 59	b	0 64	b	0.48	b	0 87	b	0.82	b	0.56	b	0.63	b	0 6	b
	Nickel	2,650	mg/kg	42	b	43	b	40	b	43	b	38	b	51	b	45	b	44	b	48	b	46	b	50	b	41	b
	Selenium	390	mg/kg	0.14	J	0.12	J	0 099	J	0.19	J	0.12	J	0 21	J	0.2	J	0 22	J	0.22	J	0.22	J	0.18	J	0.21	J
	Silver	390	mg/kg	0.084	J	0 091	J	0.11	J	0 085	J	0.082	J	0.096	J	0.068	J	0.067	J	0.09	J	0.084	J	0.07	J	0 075	J
	Thallium	0.81	mg/kg	0.067	J	0.11	U	0 062	J	0.1	U	0.051	J	0.1	U	0.11	U	0.055	J	0.094	U	0.098	U	0.098	U	0.1	U
	Vanadium	390	mg/kg	51	b	45	b	52	b	47	b	44	b	50	b	47	b	50	b	56	b	52	b	54	b	49	b
	Zinc	23,400	mg/kg	60		53		57		51		52		54		52		85		69		62		57		54	
Radionuclides by Gamma Spectroscopy	Radium-226	1.633	pCi/g	0.585		0.447		0.437		0 391		0.604		0.544		0.542		0.596		0.477		0.459		0.509		0.477	
Asbestos by CARB 435	Asbestos	<0.25	%	0	U	0	U	0	U	0	U	0	U	0	U	0	U	0	U	0	U	0	U	0	U	0	U

Notes:
Draft 7-day gamma spectroscopy results are reported. The table will be updated with final results when they become available.
% - percent
b - low response observed; however analytes met minimum response criteria
EPA - U S. Environmental Protection Agency
J - estimated result (detected below reporting limit)
mg/kg - milligram per kilogram
pCi/g - picocurie per gram
RSL - EPA Regional Screening Levels for Residential Soil
U - not detected at or above the reporting limit
VQ - validation qualifier

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 281269
ANALYTICAL REPORT

CB&I
4005 Port Chicago Highway
Concord, CA 94520-1120

Project : 149831
Location : HPNS Parcel D-1
Level : III

Sample ID	Lab ID	Sample ID	Lab ID
HPNS-D1-AB2-001	281269-001	HPNS-D1-AB2-015	281269-015
HPNS-D1-AB-002	281269-002	HPNS-D1-AB-016	281269-016
HPNS-D1-AB-003	281269-003	HPNS-D1-AB-017	281269-017
HPNS-D1-AB-004	281269-004	HPNS-D1-AB-018	281269-018
HPNS-D1-AB-005	281269-005	HPNS-D1-AB-019	281269-019
HPNS-D1-AB-006	281269-006	HPNS-D1-AB-020	281269-020
HPNS-D1-AB-007	281269-007	HPNS-D1-AB-021	281269-021
HPNS-D1-AB-008	281269-008	HPNS-D1-AB-022	281269-022
HPNS-D1-AB-009	281269-009	HPNS-D1-AB-023	281269-023
HPNS-D1-AB-010	281269-010	HPNS-D1-AB-024	281269-024
HPNS-D1-AB-011	281269-011	HPNS-D1-AB-025	281269-025
HPNS-D1-AB-012	281269-012	HPNS-D1-AB-026	281269-026
HPNS-D1-AB-013	281269-013	HPNS-D1-AB-027	281269-027
HPNS-D1-AB-014	281269-014		

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: _____ Date: 10/19/2016

Mike Dahlquist
Project Manager
mike.dahlquist@ctberk.com

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**281269**
Client:	**CB&I**
Project:	**149831**
Location:	**HPNS Parcel D-1**
Request Date:	**09/21/16**
Samples Received:	**09/21/16**

This data package contains sample and QC results for twenty seven soil samples, requested for the above referenced project on 09/21/16. See attached cooler receipt form for any sample receipt problems or discrepancies.

Radiation Chemistry (Ingrowth) (DOE HASL 300 4.5.2.3):
The ingrowth period for these samples was at least 21 days.

General Engineering Labs in Charleston, SC performed the analysis (DoD ELAP certified). Please see the General Engineering Labs case narrative.

Chain of Custody

CBI

4005 Port Chicago Hwy
Concord, CA 94520

CHAIN OF CUSTODY 281269

Ref. Document # 149831-006

Project Manager: *Lisa Bersich*

(Name & phone #)

Send Report To: *Eddie Kalombo*
Phone/Fax Number: *415-987-0760*
Address: *4005 Port Chicago Hwy*
City: *Concord, CA, 94520*

Project Number: 149831
Project Name: HPNS - Parcel D-1
Project Location: HPNS
Purchase Order #: 202570
Shipment/Pickup Date: 9/21/2016
Waybill Number:
Lab Destination: Curtis & Tompkins, 2323 5th Street, Berkeley, CA 94710
Lab Contact Name / ph. #: Mike Dahlquist 510.204.2225

Sampler's Name(s): Eddie Kalombo

Sample ID	Location ID	Collection Information: Date	Time	Method	Matrix	# of containers	Preservative	Container Type: Beginning Depth	Ending depth	Analyses Requested: Radium 226 (EPA 901.1 MOD/DOE EML HASL 300 Method GA-01-R)									Cooler Temperature
										ice	ice	ice	ice	ice	ice	ice	ice		
										16 oz Jar									
HPNS-D1-AB2-001	S&S Brisbane AB2	9/21/16	0900	G	SO	1		3	6	X									
HPNS-D1-AB-002	S&S Brisbane AB2	9/21/16	0905	G	SO	1		3	6	X									
HPNS-D1-AB-003	S&S Brisbane AB2	9/21/16	0910	G	SO	1		3	6	X									
HPNS-D1-AB-004	S&S Brisbane AB2	9/21/16	0920	G	SO	1		3	6	X									
HPNS-D1-AB-005	S&S Brisbane AB2	9/21/16	0922	G	SO	1		3	6	X									
HPNS-D1-AB-006	S&S Brisbane AB2	9/21/16	0925	G	SO	1		3	6	X									
HPNS-D1-AB-007	S&S Brisbane AB2	9/21/16	0930	G	SO	1		3	6	X									
HPNS-D1-AB-008	S&S Brisbane AB2	9/21/16	0940	G	SO	1		3	6	X									
HPNS-D1-AB-009	S&S Brisbane AB2	9/21/16	0945	G	SO	1		3	6	X									
HPNS-D1-AB-010	S&S Brisbane AB2	9/21/16	0947	G	SO	1		3	6	X									
HPNS-D1-AB-011	S&S Brisbane AB2	9/21/16	0950	G	SO	1		3	6	X									
HPNS-D1-AB-012	S&S Brisbane AB2	9/21/16	0952	G	SO	1		3	6	X									
HPNS-D1-AB-013	S&S Brisbane AB2	9/21/16	0955	G	SO	1		3	6	X									
HPNS-D1-AB-014	S&S Brisbane AB2	9/21/16	1000	G	SO	1		3	6	X									
Temp Blank																			X

Special Instructions: Report on Dry Weight Basis.

Turnaround Time: ☐ 24-hr ☐ 48-hr
Standard TAT -5-day ☐ 72-hr ☐ 5-day

Level of QC Required: II **III** IV Project Specific:

Relinquished By: Eddie Kalombo Date: 9.21.16 Time: 1511
Relinquished By: Date: Time:

Received By: Date: 9/21/16 Time: 1511
Received By: Date: Time:

Method Codes
LF= low flow
G = Grab

Matrix Codes
DW = Drinking Water
SO =Soil
GW = Ground Water
BW= Blank Water
WW = Waste Water
WP=Waste Product

281269

CHAIN OF CUSTODY

Ref. Document # 149831-006

Page 2 of 2

CBI
4005 Port Chicago Hwy
Concord, CA 94520

Project Manager: *Lisa Bersich*

(Name & phone #)

Send Report To: *Eddie Kalombo*
Phone/Fax Number: *415-987-0760*
Address: *4005 Port Chicago Hwy*
City: *Concord, CA, 94520*

Project Number: 149831
Project Name: HPNS - Parcel D-1
Project Location: HPNS
Purchase Order #: 202570
Shipment/Pickup Date: 9/21/2016
Waybill Number:
Lab Destination: Curtis & Tompkins, 2323 5th Street, Berkeley, CA 94710
Lab Contact Name / ph. #: Mike Dahlquist 510.204.2225

Sampler's Name(s): Eddie Kalombo

Sample ID	Location ID	Collection Information: Date	Time	Method	Matrix	# of containers	Preservative	Container Type: Beginning Depth	Ending depth	Analyses Requested: Radium 226 (EPA 901.1 MOD/DOE EML HASL 300 Method GA-01-R)									Cooler Temperature
							ice	ice	ice	ice	ice	ice	ice	ice	ice	ice			
							16 oz Jar												
HPNS-D1-AB2-015	S&S Brisbane AB2	9/21/16	1002	G	SO	1	3	6	X										
HPNS-D1-AB-016	S&S Brisbane AB2	9/21/16	1005	G	SO	1	3	6	X										
HPNS-D1-AB-017	S&S Brisbane AB2	9/21/16	1010	G	SO	1	3	6	X										
HPNS-D1-AB-018	S&S Brisbane AB2	9/21/16	1015	G	SO	1	3	6	X										
HPNS-D1-AB-019	S&S Brisbane AB2	9/21/16	1020	G	SO	1	3	6	X										
HPNS-D1-AB-020	S&S Brisbane AB2	9/21/16	1024	G	SO	1	3	6	X										
HPNS-D1-AB-021	S&S Brisbane AB2	9/21/16	1026	G	SO	1	3	6	X										
HPNS-D1-AB-022	S&S Brisbane AB2	9/21/16	1030	G	SO	1	3	6	X										
HPNS-D1-AB-023	S&S Brisbane AB2	9/21/16	1035	G	SO	1	3	6	X										
HPNS-D1-AB-024	S&S Brisbane AB2	9/21/16	1040	G	SO	1	3	6	X										
HPNS-D1-AB-025	S&S Brisbane AB2	9/21/16	1042	G	SO	1	3	6	X										
HPNS-D1-AB-026	S&S Brisbane AB2	9/21/16	1044	G	SO	1	3	6	X										
HPNS-D1-AB-027	S&S Brisbane AB2	9/21/16	1050	G	SO	1	3	6	X										
Temp Blank																			X

Special Instructions: Report on Dry Weight Basis.

Turnaround Time: ☐ 24-hr ☐ 48-hr
Standard TAT -5-day ☐ 72-hr ☐ 5-day

Level of QC Required: II III IV Project Specific:

Relinquished By: Eddie Kalombo Date: 9.21.16 Time: 1511
Relinquished By: Date: Time:

Received By: Date: 9/21/16 Time: 1511
Received By: Date: Time:

Method Codes
LF= low flow G = Grab

Matrix Codes
DW = Drinking Water SO =Soil
GW = Ground Water BW= Blank Water
WW = Waste Water WP=Waste Product

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 281269 Date Received 9/21/16 Number of coolers 4
Client CBI Project 149831

Date Opened 9/21 By (print) SL (sign)
Date Logged in ↓ By (print) DTN (sign)
Date Labeled ↓ By (print) ↓ (sign) ↓

1. Did cooler come with a shipping slip (airbill, etc) YES (NO)
Shipping info

2A. Were custody seals present? .... ☐ YES (circle) on cooler on samples ☒ NO
How many Name Date
2B. Were custody seals intact upon arrival? YES NO (N/A)
3. Were custody papers dry and intact when received? (YES) NO
4. Were custody papers filled out properly (ink, signed, etc)? (YES) NO
5. Is the project identifiable from custody papers? (If so fill out top of form) (YES) NO
6. Indicate the packing in cooler: (if other, describe)

☐ Bubble Wrap ☐ Foam blocks ☐ Bags ☒ None
☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation: * Notify PM if temperature exceeds 6°C

Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C) 1.7, 1.5, 2.1, 1.8

☐ Temperature blank(s) included? ☐ Thermometer# ☒ IR Gun# A

☐ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? YES (NO)
If YES, what time were they transferred to freezer?
9. Did all bottles arrive unbroken/unopened? (YES) NO
10. Are there any missing / extra samples? YES (NO)
11. Are samples in the appropriate containers for indicated tests? (YES) NO
12. Are sample labels present, in good condition and complete? (YES) NO
13. Do the sample labels agree with custody papers? (YES) NO
14. Was sufficient amount of sample sent for tests requested? (YES) NO
15. Are the samples appropriately preserved? YES NO (N/A)
16. Did you check preservatives for all bottles for each sample? YES NO (N/A)
17. Did you document your preservative check? (pH strip lot#) YES NO (N/A)
18. Did you change the hold time in LIMS for unpreserved VOAs? YES NO (N/A)
19. Did you change the hold time in LIMS for preserved terracores? YES NO (N/A)
20. Are bubbles > 6mm absent in VOA samples? YES NO (N/A)
21. Was the client contacted concerning this sample delivery? YES (NO)
If YES, Who was called? By Date:

COMMENTS

Curtis & Tompkins, Ltd.

Detections Summary for 281269

Results for any subcontracted analyses are not included in this summary.

Client : CB&I
Project : 149831
Location : HPNS Parcel D-1

Client Sample ID : HPNS-D1-AB2-001 Laboratory Sample ID : 281269-001

No Detections

Client Sample ID : HPNS-D1-AB-002 Laboratory Sample ID : 281269-002

No Detections

Client Sample ID : HPNS-D1-AB-003 Laboratory Sample ID : 281269-003

No Detections

Client Sample ID : HPNS-D1-AB-004 Laboratory Sample ID : 281269-004

No Detections

Client Sample ID : HPNS-D1-AB-005 Laboratory Sample ID : 281269-005

No Detections

Client Sample ID : HPNS-D1-AB-006 Laboratory Sample ID : 281269-006

No Detections

Client Sample ID : HPNS-D1-AB-007 Laboratory Sample ID : 281269-007

No Detections

Client Sample ID : HPNS-D1-AB-008 Laboratory Sample ID : 281269-008

No Detections

Client Sample ID : HPNS-D1-AB-009 Laboratory Sample ID : 281269-009

No Detections

Curtis & Tompkins, Ltd.

Client Sample ID : HPNS-D1-AB-010 Laboratory Sample ID : 281269-010

No Detections

Client Sample ID : HPNS-D1-AB-011 Laboratory Sample ID : 281269-011

No Detections

Client Sample ID : HPNS-D1-AB-012 Laboratory Sample ID : 281269-012

No Detections

Client Sample ID : HPNS-D1-AB-013 Laboratory Sample ID : 281269-013

No Detections

Client Sample ID : HPNS-D1-AB-014 Laboratory Sample ID : 281269-014

No Detections

Client Sample ID : HPNS-D1-AB2-015 Laboratory Sample ID : 281269-015

No Detections

Client Sample ID : HPNS-D1-AB-016 Laboratory Sample ID : 281269-016

No Detections

Client Sample ID : HPNS-D1-AB-017 Laboratory Sample ID : 281269-017

No Detections

Client Sample ID : HPNS-D1-AB-018 Laboratory Sample ID : 281269-018

No Detections

Client Sample ID : HPNS-D1-AB-019 Laboratory Sample ID : 281269-019

No Detections

Curtis & Tompkins, Ltd.

Client Sample ID : HPNS-D1-AB-020 Laboratory Sample ID : 281269-020

No Detections

Client Sample ID : HPNS-D1-AB-021 Laboratory Sample ID : 281269-021

No Detections

Client Sample ID : HPNS-D1-AB-022 Laboratory Sample ID : 281269-022

No Detections

Client Sample ID : HPNS-D1-AB-023 Laboratory Sample ID : 281269-023

No Detections

Client Sample ID : HPNS-D1-AB-024 Laboratory Sample ID : 281269-024

No Detections

Client Sample ID : HPNS-D1-AB-025 Laboratory Sample ID : 281269-025

No Detections

Client Sample ID : HPNS-D1-AB-026 Laboratory Sample ID : 281269-026

No Detections

Client Sample ID : HPNS-D1-AB-027 Laboratory Sample ID : 281269-027

No Detections

Laboratory Job Number 281269

ANALYTICAL REPORT

Radiation Chemistry (Ingrowth)

Matrix: Soil

Laboratory Job Number 281269

Subcontracted Products

General Engineering Labs

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171
F 843.766.1178

gel.com

Packing Slip:

Curtis & Tompkins, Ltd.
Hunter's Point Project Number:
SDG: 406541
Attn:John Goyette

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DODQSM Cover Sheet

DOD-QSM Cover Sheet

Hunter's Point Project Number:

October 18, 2016

GEL Laboratories, LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Project Manager: Valerie Davis
Phone Extension: 4485
Email: Valerie.Davis@gel.com

Contract Purchase Order: GELP14- 281269

Work Order: 406541 **SDG:** 406541

Client Contact:
John Goyette
Curtis & Tompkins, Ltd.
2323 5th Street
Berkeley, California 94710

Project Identification: Hunter's Point Project Number:

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

GEL appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on September 22, 2016. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures. If you have any questions, please do not hesitate to contact me at the phone number or e-mail address listed above.

Sincerely,

Linda Pullano for
Valerie Davis
Project Manager

Case Narrative

DODQSM Case Narrative
for
Curtis & Tompkins, Ltd.
SDG: 406541

October 18, 2016

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary

Sample Receipt The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on September 22, 2016 for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

Sample Identification The laboratory received the following samples:

Laboratory ID	Client ID
406541001	HPNS-D1-AB2-001
406541002	HPNS-D1-AB-002
406541003	HPNS-D1-AB-003
406541004	HPNS-D1-AB-004
406541005	HPNS-D1-AB-005
406541006	HPNS-D1-AB-006
406541007	HPNS-D1-AB-007
406541008	HPNS-D1-AB-008
406541009	HPNS-D1-AB-009
406541010	HPNS-D1-AB-010
406541011	HPNS-D1-AB-011
406541012	HPNS-D1-AB-012
406541013	HPNS-D1-AB-013
406541014	HPNS-D1-AB-014
406541015	HPNS-D1-AB2-015
406541016	HPNS-D1-AB-016
406541017	HPNS-D1-AB-017
406541018	HPNS-D1-AB-018
406541019	HPNS-D1-AB-019
406541020	HPNS-D1-AB-020
406541021	HPNS-D1-AB-021
406541022	HPNS-D1-AB-022
406541023	HPNS-D1-AB-023
406541024	HPNS-D1-AB-024
406541025	HPNS-D1-AB-025
406541026	HPNS-D1-AB-026
406541027	HPNS-D1-AB-027

The enclosed data package contains the following sections: General Narrative, Chain of Custody and Supporting Documentation, and data from the following fractions: Radiochemistry.

Linda Pullano for
Valerie Davis
Project Manager

Chain of Custody and Supporting Documentation

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878
2323 Fifth Street
Berkeley, CA 94710
(510) 486-0900
(510) 486-0532

RUSH!

406541

Project Number: 281269
Site: HPNS Parcel D-1

Subcontract Laboratory:
General Engineering Labs
2040 Savage Road
Charleston, SC 29407
(843) 556-8171
ATTN: Valerie Davis

Results due: 10/12/16 Report Level: III

Please send report to: John Goyette (goyette@ctberk.com)
*** Please report using Sample ID rather than C&T Lab #.

Sample ID	Sampled	Matrix	Analysis	C&T Lab #	Comments
HPNS-D1-AB2-001	09/21 09:00	Soil	RA226	281269-001	
HPNS-D1-AB-002	09/21 09:05	Soil	RA226	281269-002	
HPNS-D1-AB-003	09/21 09:10	Soil	RA226	281269-003	
HPNS-D1-AB-004	09/21 09:20	Soil	RA226	281269-004	
HPNS-D1-AB-005	09/21 09:22	Soil	RA226	281269-005	
HPNS-D1-AB-006	09/21 09:25	Soil	RA226	281269-006	
HPNS-D1-AB-007	09/21 09:30	Soil	RA226	281269-007	
HPNS-D1-AB-008	09/21 09:40	Soil	RA226	281269-008	
HPNS-D1-AB-009	09/21 09:45	Soil	RA226	281269-009	
HPNS-D1-AB-010	09/21 09:47	Soil	RA226	281269-010	
HPNS-D1-AB-011	09/21 09:50	Soil	RA226	281269-011	
HPNS-D1-AB-012	09/21 09:52	Soil	RA226	281269-012	
HPNS-D1-AB-013	09/21 09:55	Soil	RA226	281269-013	
HPNS-D1-AB-014	09/21 10:00	Soil	RA226	281269-014	
HPNS-D1-AB2-015	09/21 10:02	Soil	RA226	281269-015	
HPNS-D1-AB-016	09/21 10:05	Soil	RA226	281269-016	
HPNS-D1-AB-017	09/21 10:10	Soil	RA226	281269-017	
HPNS-D1-AB-018	09/21 10:15	Soil	RA226	281269-018	
HPNS-D1-AB-019	09/21 10:20	Soil	RA226	281269-019	
HPNS-D1-AB-020	09/21 10:24	Soil	RA226	281269-020	
HPNS-D1-AB-021	09/21 10:26	Soil	RA226	281269-021	
HPNS-D1-AB-022	09/21 10:30	Soil	RA226	281269-022	
HPNS-D1-AB-023	09/21 10:35	Soil	RA226	281269-023	
HPNS-D1-AB-024	09/21 10:40	Soil	RA226	281269-024	
HPNS-D1-AB-025	09/21 10:42	Soil	RA226	281269-025	
HPNS-D1-AB-026	09/21 10:44	Soil	RA226	281269-026	
HPNS-D1-AB-027	09/21 10:50	Soil	RA226	281269-027	

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878
2323 Fifth Street
Berkeley, CA 94710
(510) 486-0900
(510) 486-0532

PUSH!

Notes:	Relinquished By:	Received By:
Please provide 7-day prelim data	dnguyen	P. Klent
	Date/Time: 9/21/16 @ 17:00	Date/Time: 9/22/16 09:35
	Date/Time:	Date/Time:

Signature on this form constitutes a firm Purchase Order for the services requested above.

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: GRTL	**SDG/AR/COC/Work Order:** 406541
Received By: P. Klent	**Date Received:** 9.22.16

Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0 cpm
Classified Radioactive II or III by RSO?		✓	If yes, Were swipes taken of sample containers < action levels?
COC/Samples marked containing PCBs?		✓	
Package, COC, and/or Samples marked as beryllium or asbestos containing?		✓	If yes, samples are to be segregated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		✓	

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*		✓		Preservation Method: Ice bags Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius 21
2a	Daily check performed and passed on IR temperature gun?	✓			Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable): 20140433 7
3	Chain of custody documents included with shipment?	✓			
4	Sample containers intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiring chemical preservation at proper pH?		✓		Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6	Do Low Level Perchlorate samples have headspace as required?		✓		Sample ID's and containers affected:
7	VOA vials contain acid preservation?		✓		(If unknown, select No)
8	VOA vials free of headspace (defined as < 6mm bubble)?		✓		Sample ID's and containers affected:
9	Are Encore containers present?			✓	(If yes, immediately deliver to Volatiles laboratory)
10	Samples received within holding time?	✓			ID's and tests affected:
11	Sample ID's on COC match ID's on bottles?	✓			Sample ID's and containers affected:
12	Date & time on COC match date & time on bottles?	✓			Sample ID's affected:
13	Number of containers received match number indicated on COC?			✓	Sample ID's affected: Lab rec'd (1) container PER ID
14	Are sample containers identifiable as GEL provided?			✓	
15	COC form is properly signed in relinquished/received sections?	✓			
16	Carrier and tracking number.				Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other 1Z 66V 545 13 9257 2737

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials VSO Date 9/22/16 Page 1 of 1

GL-CHL-SR-001 Rev 3

Laboratory Certifications

List of current GEL Certifications as of 18 October 2016

State	Certification
Alaska	UST−0110
Arkansas	88−0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH−0169
Delaware	SC00012
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330−15−00283, P330−15−00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho Chemistry	SC00012
Idaho Radiochemistry	SC00012
Illinois NELAP	200029
Indiana	C−SC−01
Kansas NELAP	E−10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA160006
Maryland	270
Massachusetts	M−SC012
Michigan	9976
Mississippi	SC00012
Nebraska	NE−OS−26−13
Nevada	SC000122016−1
New Hampshire NELAP	205415
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R−158
Oklahoma	9904
Pennsylvania NELAP	68−00485
S.Carolina Radchem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235−16−11
Utah NELAP	SC000122016−21
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
West Virginia	997404

Radiological Analysis

Case Narrative

Radiochemistry
Technical Case Narrative
Curtis & Tompkins, Ltd. (CRTL)
SDG #: 406541

Method/Analysis Information

Product:	**Gammaspec, Solid Ra226**
Analytical Method:	DOE HASL 300, 4.5.2.3/Ga-01-R
Prep Method:	Dry Soil Prep
Analytical Batch Number:	1601576
Prep Batch Number:	1601428

Sample ID	Client ID
406541001	HPNS-D1-AB2-001
406541002	HPNS-D1-AB-002
406541003	HPNS-D1-AB-003
406541004	HPNS-D1-AB-004
406541005	HPNS-D1-AB-005
406541006	HPNS-D1-AB-006
406541007	HPNS-D1-AB-007
406541008	HPNS-D1-AB-008
406541009	HPNS-D1-AB-009
406541010	HPNS-D1-AB-010
406541011	HPNS-D1-AB-011
406541012	HPNS-D1-AB-012
406541013	HPNS-D1-AB-013
406541014	HPNS-D1-AB-014
406541015	HPNS-D1-AB2-015
406541016	HPNS-D1-AB-016
406541017	HPNS-D1-AB-017
406541018	HPNS-D1-AB-018
406541019	HPNS-D1-AB-019
406541020	HPNS-D1-AB-020
1203634403	Method Blank (MB)
1203634405	Laboratory Control Sample (LCS)
1203634404	406541001(HPNS-D1-AB2-001) Sample Duplicate (DUP)

The samples in this SDG were analyzed on a "dry weight" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-013 REV# 25.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volume in this batch.

QC Information
All of the QC samples met the required acceptance limits.

Designated QC
The following sample was used for QC: 406541001 (HPNS-D1-AB2-001).

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Recounts
None of the samples in this sample set were recounted.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Sample-Specific MDA/MDC
The MDA/MDC reported on the certificate of analysis is a sample-specific MDA/MDC.

Additional Comments
Additional comments were not required for this sample set.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Gammaspec, Solid Ra226**
Analytical Method:	DOE HASL 300, 4.5.2.3/Ga-01-R
Prep Method:	Dry Soil Prep
Analytical Batch Number:	1601577
Prep Batch Number:	1601427

Sample ID	Client ID
406541021	HPNS-D1-AB-021
406541022	HPNS-D1-AB-022
406541023	HPNS-D1-AB-023
406541024	HPNS-D1-AB-024
406541025	HPNS-D1-AB-025
406541026	HPNS-D1-AB-026
406541027	HPNS-D1-AB-027
1203634407	Method Blank (MB)
1203634409	Laboratory Control Sample (LCS)
1203634408	406541021(HPNS-D1-AB-021) Sample Duplicate (DUP)

The samples in this SDG were analyzed on a "dry weight" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-013 REV# 25.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volume in this batch.

QC Information
All of the QC samples met the required acceptance limits.

Designated QC
The following sample was used for QC: 406541021 (HPNS-D1-AB-021).

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Recounts
None of the samples in this sample set were recounted.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Sample-Specific MDA/MDC
The MDA/MDC reported on the certificate of analysis is a sample-specific MDA/MDC.

Additional Comments
Additional comments were not required for this sample set.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Gamma, Ra226, Solid**
Analytical Method:	DOE HASL 300, 4.5.2.3/Ga-01-R
Prep Method:	Dry Soil Prep
Analytical Batch Number:	1602493
Prep Batch Number:	1601428

Sample ID	Client ID
406541001	HPNS-D1-AB2-001
406541002	HPNS-D1-AB-002
406541003	HPNS-D1-AB-003
406541004	HPNS-D1-AB-004
406541005	HPNS-D1-AB-005
406541006	HPNS-D1-AB-006
406541007	HPNS-D1-AB-007
406541008	HPNS-D1-AB-008
406541009	HPNS-D1-AB-009
406541010	HPNS-D1-AB-010

406541011	HPNS-D1-AB-011
406541012	HPNS-D1-AB-012
406541013	HPNS-D1-AB-013
406541014	HPNS-D1-AB-014
406541015	HPNS-D1-AB2-015
406541016	HPNS-D1-AB-016
406541017	HPNS-D1-AB-017
406541018	HPNS-D1-AB-018
406541019	HPNS-D1-AB-019
406541020	HPNS-D1-AB-020
1203636823	Method Blank (MB)
1203636825	Laboratory Control Sample (LCS)
1203636824	406541001(HPNS-D1-AB2-001) Sample Duplicate (DUP)

The samples in this SDG were analyzed on a "dry weight" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-013 REV# 25.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volume in this batch.

QC Information
All of the QC samples met the required acceptance limits.

Designated QC
The following sample was used for QC: 406541001 (HPNS-D1-AB2-001).

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Recounts
None of the samples in this sample set were recounted.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Sample-Specific MDA/MDC
The MDA/MDC reported on the certificate of analysis is a sample-specific MDA/MDC.

Additional Comments
Additional comments were not required for this sample set.

Qualifier Information

Qualifier	Reason	Analyte	Sample	Client Sample
UI	Data rejected due to low abundance.	Radium-226	406541011	HPNS-D1-AB-011

Method/Analysis Information

Product:	**Gamma, Ra226, Solid**
Analytical Method:	DOE HASL 300, 4.5.2.3/Ga-01-R
Prep Method:	Dry Soil Prep
Analytical Batch Number:	1602494
Prep Batch Number:	1601427

Sample ID	Client ID
406541021	HPNS-D1-AB-021
406541022	HPNS-D1-AB-022
406541023	HPNS-D1-AB-023
406541024	HPNS-D1-AB-024
406541025	HPNS-D1-AB-025
406541026	HPNS-D1-AB-026
406541027	HPNS-D1-AB-027
1203636826	Method Blank (MB)
1203636828	Laboratory Control Sample (LCS)
1203636827	406541021(HPNS-D1-AB-021) Sample Duplicate (DUP)

The samples in this SDG were analyzed on a "dry weight" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as

Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-013 REV# 25.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volume in this batch.

QC Information
All of the QC samples met the required acceptance limits.

Designated QC
The following sample was used for QC: 406541021 (HPNS-D1-AB-021).

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Recounts
None of the samples in this sample set were recounted.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Sample-Specific MDA/MDC
The MDA/MDC reported on the certificate of analysis is a sample-specific MDA/MDC.

Additional Comments
Additional comments were not required for this sample set.

Qualifier Information

Manual qualifiers were not required.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

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Qualifier Definition Report
for

CRTL001 Curtis & Tompkins, Ltd.

Client SDG: 406541 GEL Work Order: 406541

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
** Analyte is a Tracer compound
M Result above MDC and less than RDL
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
UI Gamma Spectroscopy--Uncertain identification

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: **Name: Kate Gellatly**

Date: 19 OCT 2016 **Title: Analyst I**

Sample Data Summary

GEL LABORATORIES LLC
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Certificate of Analysis

Company : Curtis and Tompkins Laboratories
Address : 2323 5th Street
Berkeley, California 94710
Report Date: October 19, 2016
Contact: Mr. John Goyette
Project: Hunter's Point Project Number:281269

Client Sample ID: HPNS-D1-AB2-001
Sample ID: 406541001
Matrix: Soil
Collect Date: 21-SEP-16
Receive Date: 22-SEP-16
Collector: Client
Moisture: 1.95%

Project: CRTL00101
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
Gamma, Ra226, Solid "Dry Weight Corrected"														
Radium-226	M	0.494	+/-0.0836	0.0646	+/-0.0932	1.00	pCi/g			MXR1	09/27/16	1617	1602493	1
Gammaspec, Solid Ra226 "Dry Weight Corrected"														
Radium-226		0.624	+/-0.119	0.0776	+/-0.122		pCi/g			MXR1	10/16/16	0847	1601576	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JXO1	09/23/16	1108	1601428

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:
The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:
DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Certificate of Analysis

Company : Curtis and Tompkins Laboratories
Address : 2323 5th Street

Berkeley, California 94710

Report Date: October 19, 2016

Contact: Mr. John Goyette

Project: Hunter's Point Project Number:281269

Client Sample ID: HPNS-D1-AB-002
Sample ID: 406541002
Matrix: Soil
Collect Date: 21-SEP-16
Receive Date: 22-SEP-16
Collector: Client
Moisture: 1.96%

Project: CRTL00101
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
Gamma, Ra226, Solid "Dry Weight Corrected"														
Radium-226	M	0.476	+/-0.098	0.066	+/-0.100	1.00	pCi/g			MXR1	09/27/16	1617	1602493	1
Gammaspec, Solid Ra226 "Dry Weight Corrected"														
Radium-226		0.539	+/-0.116	0.0872	+/-0.118		pCi/g			MXR1	10/16/16	0847	1601576	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JXO1	09/23/16	1108	1601428

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Certificate of Analysis

Company : Curtis and Tompkins Laboratories
Address : 2323 5th Street
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Report Date: October 19, 2016
Contact: Mr. John Goyette
Project: Hunter's Point Project Number:281269

Client Sample ID: HPNS-D1-AB-003
Sample ID: 406541003
Matrix: Soil
Collect Date: 21-SEP-16
Receive Date: 22-SEP-16
Collector: Client
Moisture: 2.65%

Project: CRTL00101
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
Gamma, Ra226, Solid "Dry Weight Corrected"														
Radium-226	M	0.400	+/-0.144	0.108	+/-0.145	1.00	pCi/g			MXR1	09/27/16	1618	1602493	1
Gammaspec, Solid Ra226 "Dry Weight Corrected"														
Radium-226		0.369	+/-0.140	0.078	+/-0.144		pCi/g			MXR1	10/16/16	0847	1601576	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JXO1	09/23/16	1108	1601428

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Company : Curtis and Tompkins Laboratories
Address : 2323 5th Street
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Report Date: October 19, 2016
Contact: Mr. John Goyette
Project: Hunter's Point Project Number:281269

Client Sample ID: HPNS-D1-AB-004
Sample ID: 406541004
Matrix: Soil
Collect Date: 21-SEP-16
Receive Date: 22-SEP-16
Collector: Client
Moisture: 1.92%

Project: CRTL00101
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
Gamma, Ra226, Solid "Dry Weight Corrected"														
Radium-226	M	0.623	+/-0.148	0.112	+/-0.150	1.00	pCi/g			MXR1	09/28/16	0644	1602493	1
Gammaspec, Solid Ra226 "Dry Weight Corrected"														
Radium-226		0.540	+/-0.101	0.0644	+/-0.103		pCi/g			MXR1	10/16/16	0848	1601576	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JXO1	09/23/16	1108	1601428

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Address : 2323 5th Street
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Report Date: October 19, 2016
Contact: Mr. John Goyette
Project: Hunter's Point Project Number:281269

Client Sample ID: HPNS-D1-AB-005
Sample ID: 406541005
Matrix: Soil
Collect Date: 21-SEP-16
Receive Date: 22-SEP-16
Collector: Client
Moisture: 3%

Project: CRTL00101
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
Gamma, Ra226, Solid "Dry Weight Corrected"														
Radium-226	M	0.464	+/-0.144	0.111	+/-0.145	1.00	pCi/g			MXR1	09/28/16	0648	1602493	1
Gammaspec, Solid Ra226 "Dry Weight Corrected"														
Radium-226		0.612	+/-0.087	0.0604	+/-0.0909		pCi/g			MXR1	10/16/16	0848	1601576	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JXO1	09/23/16	1108	1601428

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Address : 2323 5th Street
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Report Date: October 19, 2016
Contact: Mr. John Goyette
Project: Hunter's Point Project Number:281269

Client Sample ID: HPNS-D1-AB-006
Sample ID: 406541006
Matrix: Soil
Collect Date: 21-SEP-16
Receive Date: 22-SEP-16
Collector: Client
Moisture: 1.9%

Project: CRTL00101
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
Gamma, Ra226, Solid "Dry Weight Corrected"														
Radium-226	M	0.393	+/-0.138	0.123	+/-0.139	1.00	pCi/g			MXR1	09/28/16	0649	1602493	1
Gammaspec, Solid Ra226 "Dry Weight Corrected"														
Radium-226		0.607	+/-0.0987	0.0614	+/-0.102		pCi/g			MXR1	10/16/16	0848	1601576	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JXO1	09/23/16	1108	1601428

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Certificate of Analysis

Company : Curtis and Tompkins Laboratories
Address : 2323 5th Street

Berkeley, California 94710 Report Date: October 19, 2016

Contact: Mr. John Goyette
Project: Hunter's Point Project Number:281269

Client Sample ID: HPNS-D1-AB-007 Project: CRTL00101
Sample ID: 406541007 Client ID: CRTL001
Matrix: Soil
Collect Date: 21-SEP-16
Receive Date: 22-SEP-16
Collector: Client
Moisture: 2.08%

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
Gamma, Ra226, Solid "Dry Weight Corrected"														
Radium-226	M	0.473	+/-0.168	0.102	+/-0.169	1.00	pCi/g			MXR1	09/28/16	0649	1602493	1
Gammaspec, Solid Ra226 "Dry Weight Corrected"														
Radium-226		0.451	+/-0.114	0.085	+/-0.116		pCi/g			MXR1	10/16/16	0849	1601576	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JXO1	09/23/16	1108	1601428

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Report Date: October 19, 2016
Contact: Mr. John Goyette
Project: Hunter's Point Project Number:281269

Client Sample ID: HPNS-D1-AB-008
Sample ID: 406541008
Matrix: Soil
Collect Date: 21-SEP-16
Receive Date: 22-SEP-16
Collector: Client
Moisture: 1.95%

Project: CRTL00101
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
Gamma, Ra226, Solid "Dry Weight Corrected"														
Radium-226	M	0.464	+/-0.151	0.130	+/-0.153	1.00	pCi/g			MXR1	09/28/16	0651	1602493	1
Gammaspec, Solid Ra226 "Dry Weight Corrected"														
Radium-226		0.551	+/-0.0975	0.0766	+/-0.100		pCi/g			MXR1	10/16/16	0903	1601576	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JXO1	09/23/16	1108	1601428

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Company : Curtis and Tompkins Laboratories
Address : 2323 5th Street
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Report Date: October 19, 2016
Contact: Mr. John Goyette
Project: Hunter's Point Project Number:281269

Client Sample ID: HPNS-D1-AB-009
Sample ID: 406541009
Matrix: Soil
Collect Date: 21-SEP-16
Receive Date: 22-SEP-16
Collector: Client
Moisture: 2.53%

Project: CRTL00101
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
Gamma, Ra226, Solid "Dry Weight Corrected"														
Radium-226	M	0.516	+/-0.129	0.104	+/-0.131	1.00	pCi/g			MXR1	09/28/16	0652	1602493	1
Gammaspec, Solid Ra226 "Dry Weight Corrected"														
Radium-226		0.587	+/-0.117	0.0705	+/-0.120		pCi/g			MXR1	10/16/16	0903	1601576	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JXO1	09/23/16	1108	1601428

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:
The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:
DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Certificate of Analysis

Company : Curtis and Tompkins Laboratories
Address : 2323 5th Street
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Report Date: October 19, 2016
Contact: Mr. John Goyette
Project: Hunter's Point Project Number:281269

Client Sample ID: HPNS-D1-AB-010
Sample ID: 406541010
Matrix: Soil
Collect Date: 21-SEP-16
Receive Date: 22-SEP-16
Collector: Client
Moisture: 2.28%

Project: CRTL00101
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
Gamma, Ra226, Solid "Dry Weight Corrected"														
Radium-226	M	0.495	+/-0.167	0.137	+/-0.172	1.00	pCi/g			MXR1	09/28/16	0652	1602493	1
Gammaspec, Solid Ra226 "Dry Weight Corrected"														
Radium-226		0.628	+/-0.110	0.0721	+/-0.113		pCi/g			MXR1	10/16/16	0908	1601576	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JXO1	09/23/16	1108	1601428

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Certificate of Analysis

Company : Curtis and Tompkins Laboratories
Address : 2323 5th Street
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Report Date: October 19, 2016
Contact: Mr. John Goyette
Project: Hunter's Point Project Number:281269

Client Sample ID: HPNS-D1-AB-011
Sample ID: 406541011
Matrix: Soil
Collect Date: 21-SEP-16
Receive Date: 22-SEP-16
Collector: Client
Moisture: 2.41%

Project: CRTL00101
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
Gamma, Ra226, Solid "Dry Weight Corrected"														
Radium-226	UI	0.00	+/-0.224	0.357	+/-0.323	1.00	pCi/g			MXR1	09/28/16	0655	1602493	1
Gammaspec, Solid Ra226 "Dry Weight Corrected"														
Radium-226		0.507	+/-0.107	0.0658	+/-0.109		pCi/g			MXR1	10/16/16	0908	1601576	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JXO1	09/23/16	1108	1601428

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Company : Curtis and Tompkins Laboratories
Address : 2323 5th Street

Berkeley, California 94710

Report Date: October 19, 2016

Contact: Mr. John Goyette

Project: Hunter's Point Project Number:281269

Client Sample ID: HPNS-D1-AB-012
Sample ID: 406541012
Matrix: Soil
Collect Date: 21-SEP-16
Receive Date: 22-SEP-16
Collector: Client
Moisture: 2.19%

Project: CRTL00101
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
Gamma, Ra226, Solid "Dry Weight Corrected"														
Radium-226	M	0.446	+/-0.153	0.138	+/-0.154	1.00	pCi/g			MXR1	09/28/16	0736	1602493	1
Gammaspec, Solid Ra226 "Dry Weight Corrected"														
Radium-226		0.503	+/-0.121	0.0835	+/-0.122		pCi/g			MXR1	10/16/16	0905	1601576	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JXO1	09/23/16	1108	1601428

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Certificate of Analysis

Company : Curtis and Tompkins Laboratories
Address : 2323 5th Street
Berkeley, California 94710
Report Date: October 19, 2016
Contact: Mr. John Goyette
Project: Hunter's Point Project Number:281269

Client Sample ID: HPNS-D1-AB-013
Sample ID: 406541013
Matrix: Soil
Collect Date: 21-SEP-16
Receive Date: 22-SEP-16
Collector: Client
Moisture: 3.23%

Project: CRTL00101
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
Gamma, Ra226, Solid "Dry Weight Corrected"														
Radium-226	M	0.510	+/-0.167	0.103	+/-0.168	1.00	pCi/g			MXR1	09/28/16	0740	1602493	1
Gammaspec, Solid Ra226 "Dry Weight Corrected"														
Radium-226		0.514	+/-0.120	0.0799	+/-0.122		pCi/g			MXR1	10/16/16	0905	1601576	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JXO1	09/23/16	1108	1601428

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Berkeley, California 94710 Report Date: October 19, 2016

Contact: Mr. John Goyette
Project: Hunter's Point Project Number:281269

Client Sample ID: HPNS-D1-AB-014 Project: CRTL00101
Sample ID: 406541014 Client ID: CRTL001
Matrix: Soil
Collect Date: 21-SEP-16
Receive Date: 22-SEP-16
Collector: Client
Moisture: 2.21%

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
Gamma, Ra226, Solid "Dry Weight Corrected"														
Radium-226	M	0.548	+/-0.162	0.0994	+/-0.163	1.00	pCi/g			MXR1	09/28/16	0740	1602493	1
Gammaspec, Solid Ra226 "Dry Weight Corrected"														
Radium-226		0.466	+/-0.130	0.0937	+/-0.132		pCi/g			MXR1	10/16/16	0906	1601576	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JXO1	09/23/16	1108	1601428

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Report Date: October 19, 2016

Contact: Mr. John Goyette

Project: Hunter's Point Project Number:281269

Client Sample ID: HPNS-D1-AB2-015
Sample ID: 406541015
Matrix: Soil
Collect Date: 21-SEP-16
Receive Date: 22-SEP-16
Collector: Client
Moisture: 2.7%

Project: CRTL00101
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
Gamma, Ra226, Solid "Dry Weight Corrected"														
Radium-226	M	0.550	+/-0.119	0.0842	+/-0.127	1.00	pCi/g			MXR1	09/28/16	0741	1602493	1
Gammaspec, Solid Ra226 "Dry Weight Corrected"														
Radium-226		0.568	+/-0.131	0.0747	+/-0.133		pCi/g			MXR1	10/16/16	0913	1601576	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JXO1	09/23/16	1108	1601428

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Report Date: October 19, 2016
Contact: Mr. John Goyette
Project: Hunter's Point Project Number:281269

Client Sample ID: HPNS-D1-AB-016
Sample ID: 406541016
Matrix: Soil
Collect Date: 21-SEP-16
Receive Date: 22-SEP-16
Collector: Client
Moisture: 3.16%

Project: CRTL00101
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
Gamma, Ra226, Solid "Dry Weight Corrected"														
Radium-226	M	0.585	+/-0.131	0.102	+/-0.133	1.00	pCi/g			MXR1	09/28/16	0807	1602493	1
Gammaspec, Solid Ra226 "Dry Weight Corrected"														
Radium-226		0.593	+/-0.122	0.0822	+/-0.125		pCi/g			MXR1	10/16/16	0914	1601576	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JXO1	09/23/16	1108	1601428

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Contact: Mr. John Goyette
Project: Hunter's Point Project Number:281269

Client Sample ID: HPNS-D1-AB-017
Sample ID: 406541017
Matrix: Soil
Collect Date: 21-SEP-16
Receive Date: 22-SEP-16
Collector: Client
Moisture: 3.15%

Project: CRTL00101
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
Gamma, Ra226, Solid "Dry Weight Corrected"														
Radium-226	M	0.447	+/-0.164	0.145	+/-0.165	1.00	pCi/g			MXR1	09/28/16	0807	1602493	1
Gammaspec, Solid Ra226 "Dry Weight Corrected"														
Radium-226		0.554	+/-0.108	0.0666	+/-0.111		pCi/g			MXR1	10/16/16	0914	1601576	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JXO1	09/23/16	1108	1601428

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Report Date: October 19, 2016
Contact: Mr. John Goyette
Project: Hunter's Point Project Number:281269

Client Sample ID: HPNS-D1-AB-018
Sample ID: 406541018
Matrix: Soil
Collect Date: 21-SEP-16
Receive Date: 22-SEP-16
Collector: Client
Moisture: 3%

Project: CRTL00101
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
Gamma, Ra226, Solid "Dry Weight Corrected"														
Radium-226	M	0.437	+/-0.133	0.0991	+/-0.134	1.00	pCi/g			MXR1	09/28/16	0808	1602493	1
Gammaspec, Solid Ra226 "Dry Weight Corrected"														
Radium-226		0.675	+/-0.163	0.0988	+/-0.165		pCi/g			MXR1	10/16/16	0915	1601576	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JXO1	09/23/16	1108	1601428

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Report Date: October 19, 2016
Contact: Mr. John Goyette
Project: Hunter's Point Project Number:281269

Client Sample ID: HPNS-D1-AB-019
Sample ID: 406541019
Matrix: Soil
Collect Date: 21-SEP-16
Receive Date: 22-SEP-16
Collector: Client
Moisture: 2.06%

Project: CRTL00101
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
Gamma, Ra226, Solid "Dry Weight Corrected"														
Radium-226	M	0.391	+/-0.170	0.128	+/-0.171	1.00	pCi/g			MXR1	09/28/16	0808	1602493	1
Gammaspec, Solid Ra226 "Dry Weight Corrected"														
Radium-226		0.521	+/-0.119	0.0798	+/-0.121		pCi/g			MXR1	10/16/16	0953	1601576	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JXO1	09/23/16	1108	1601428

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Report Date: October 19, 2016

Contact: Mr. John Goyette

Project: Hunter's Point Project Number:281269

Client Sample ID: HPNS-D1-AB-020
Sample ID: 406541020
Matrix: Soil
Collect Date: 21-SEP-16
Receive Date: 22-SEP-16
Collector: Client
Moisture: 2.78%

Project: CRTL00101
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
Gamma, Ra226, Solid "Dry Weight Corrected"														
Radium-226	M	0.604	+/-0.196	0.132	+/-0.198	1.00	pCi/g			MXR1	09/28/16	0809	1602493	1
Gammaspec, Solid Ra226 "Dry Weight Corrected"														
Radium-226		0.526	+/-0.114	0.0884	+/-0.116		pCi/g			MXR1	10/17/16	0908	1601576	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JXO1	09/23/16	1108	1601428

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Report Date: October 19, 2016
Contact: Mr. John Goyette
Project: Hunter's Point Project Number:281269

Client Sample ID: HPNS-D1-AB-021
Sample ID: 406541021
Matrix: Soil
Collect Date: 21-SEP-16
Receive Date: 22-SEP-16
Collector: Client
Moisture: 2.5%

Project: CRTL00101
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
Gamma, Ra226, Solid "Dry Weight Corrected"														
Radium-226	M	0.544	+/-0.152	0.118	+/-0.154	1.00	pCi/g			MXR1	09/28/16	0902	1602494	1
Gammaspec, Solid Ra226 "Dry Weight Corrected"														
Radium-226		0.515	+/-0.121	0.103	+/-0.123		pCi/g			MXR1	10/16/16	0849	1601577	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JXO1	09/23/16	1101	1601427

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Report Date: October 19, 2016

Contact: Mr. John Goyette

Project: Hunter's Point Project Number:281269

Client Sample ID: HPNS-D1-AB-022
Sample ID: 406541022
Matrix: Soil
Collect Date: 21-SEP-16
Receive Date: 22-SEP-16
Collector: Client
Moisture: 2.85%

Project: CRTL00101
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
Gamma, Ra226, Solid "Dry Weight Corrected"														
Radium-226	M	0.542	+/-0.248	0.125	+/-0.249	1.00	pCi/g			MXR1	09/28/16	0903	1602494	1
Gammaspec, Solid Ra226 "Dry Weight Corrected"														
Radium-226		0.504	+/-0.126	0.0843	+/-0.128		pCi/g			MXR1	10/17/16	0910	1601577	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JXO1	09/23/16	1101	1601427

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Contact: Mr. John Goyette
Project: Hunter's Point Project Number:281269

Client Sample ID: HPNS-D1-AB-023 Project: CRTL00101
Sample ID: 406541023 Client ID: CRTL001
Matrix: Soil
Collect Date: 21-SEP-16
Receive Date: 22-SEP-16
Collector: Client
Moisture: 2.49%

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
Gamma, Ra226, Solid "Dry Weight Corrected"														
Radium-226	M	0.596	+/-0.152	0.114	+/-0.154	1.00	pCi/g			MXR1	09/28/16	0903	1602494	1
Gammaspec, Solid Ra226 "Dry Weight Corrected"														
Radium-226		0.499	+/-0.112	0.0787	+/-0.114		pCi/g			MXR1	10/17/16	0910	1601577	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JXO1	09/23/16	1101	1601427

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Contact: Mr. John Goyette
Project: Hunter's Point Project Number:281269

Client Sample ID: HPNS-D1-AB-024
Sample ID: 406541024
Matrix: Soil
Collect Date: 21-SEP-16
Receive Date: 22-SEP-16
Collector: Client
Moisture: 2.13%

Project: CRTL00101
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
Gamma, Ra226, Solid "Dry Weight Corrected"														
Radium-226	M	0.477	+/-0.141	0.106	+/-0.147	1.00	pCi/g			MXR1	09/28/16	0904	1602494	1
Gammaspec, Solid Ra226 "Dry Weight Corrected"														
Radium-226		0.559	+/-0.114	0.067	+/-0.116		pCi/g			MXR1	10/17/16	0911	1601577	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JXO1	09/23/16	1101	1601427

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:
The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:
DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Berkeley, California 94710

Report Date: October 19, 2016

Contact: Mr. John Goyette

Project: Hunter's Point Project Number:281269

Client Sample ID: HPNS-D1-AB-025
Sample ID: 406541025
Matrix: Soil
Collect Date: 21-SEP-16
Receive Date: 22-SEP-16
Collector: Client
Moisture: 2.51%

Project: CRTL00101
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
Gamma, Ra226, Solid "Dry Weight Corrected"														
Radium-226	M	0.459	+/-0.170	0.126	+/-0.171	1.00	pCi/g			MXR1	09/28/16	0904	1602494	1
Gammaspec, Solid Ra226 "Dry Weight Corrected"														
Radium-226		0.611	+/-0.105	0.0785	+/-0.108		pCi/g			MXR1	10/17/16	0911	1601577	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JXO1	09/23/16	1101	1601427

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Curtis and Tompkins Laboratories
Address : 2323 5th Street

Berkeley, California 94710

Report Date: October 19, 2016

Contact: Mr. John Goyette

Project: Hunter's Point Project Number:281269

Client Sample ID: HPNS-D1-AB-026
Sample ID: 406541026
Matrix: Soil
Collect Date: 21-SEP-16
Receive Date: 22-SEP-16
Collector: Client
Moisture: 1.94%

Project: CRTL00101
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
Gamma, Ra226, Solid "Dry Weight Corrected"														
Radium-226	M	0.509	+/-0.132	0.0958	+/-0.134	1.00	pCi/g			MXR1	09/28/16	0905	1602494	1
Gammaspec, Solid Ra226 "Dry Weight Corrected"														
Radium-226		0.554	+/-0.107	0.0932	+/-0.109		pCi/g			MXR1	10/17/16	0911	1601577	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JXO1	09/23/16	1101	1601427

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Curtis and Tompkins Laboratories
Address : 2323 5th Street

Berkeley, California 94710 Report Date: October 19, 2016

Contact: Mr. John Goyette
Project: Hunter's Point Project Number:281269

Client Sample ID: HPNS-D1-AB-027 Project: CRTL00101
Sample ID: 406541027 Client ID: CRTL001
Matrix: Soil
Collect Date: 21-SEP-16
Receive Date: 22-SEP-16
Collector: Client
Moisture: 2.64%

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
Gamma, Ra226, Solid "Dry Weight Corrected"														
Radium-226	M	0.477	+/-0.119	0.0797	+/-0.126	1.00	pCi/g			MXR1	09/28/16	0905	1602494	1
Gammaspec, Solid Ra226 "Dry Weight Corrected"														
Radium-226		0.489	+/-0.104	0.091	+/-0.106		pCi/g			MXR1	10/17/16	0917	1601577	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	JXO1	09/23/16	1101	1601427

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

Quality Control Summary

QC Summary

Client : **Curtis and Tompkins Laboratories**
2323 5th Street
Berkeley, California
Contact: **Mr. John Goyette**
Workorder: **406541**

Report Date: October 19, 2016

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 1601576										
QC1203634404 406541001 DUP										
Radium-226		0.624		0.618	pCi/g	.934		(0%-20%)	MXR1	10/17/1609:09
	Uncert:	+/-0.119		+/-0.116						
	TPU:	+/-0.122		+/-0.119						
QC1203634405 LCS										
Americium-241	489			565	pCi/g		116	(75%-125%)	MXR1	10/16/1611:17
	Uncert:			+/-10.7						
	TPU:			+/-43.1						
Cesium-137	179			183	pCi/g		102	(75%-125%)		
	Uncert:			+/-3.13						
	TPU:			+/-8.49						
Cobalt-60	161			153	pCi/g		95.3	(75%-125%)		
	Uncert:			+/-3.25						
	TPU:			+/-6.52						
Radium-226			U	0.165	pCi/g					
	Uncert:			+/-0.904						
	TPU:			+/-0.907						
QC1203634403 MB										
Radium-226			U	-0.0156	pCi/g				MXR1	10/17/1609:09
	Uncert:			+/-0.0307						
	TPU:			+/-0.0315						
Batch 1601577										
QC1203634408 406541021 DUP										
Radium-226		0.515		0.488	pCi/g	5.35		(0%-20%)	MXR1	10/17/1609:18
	Uncert:	+/-0.121		+/-0.144						
	TPU:	+/-0.123		+/-0.145						
QC1203634409 LCS										
Americium-241	489			552	pCi/g		113	(75%-125%)	MXR1	10/17/1609:39
	Uncert:			+/-9.17						
	TPU:			+/-41.6						
Cesium-137	179			188	pCi/g		105	(75%-125%)		
	Uncert:			+/-3.26						
	TPU:			+/-8.70						
Cobalt-60	161			154	pCi/g		95.6	(75%-125%)		
	Uncert:			+/-3.45						
	TPU:			+/-6.63						
Radium-226			U	0.611	pCi/g					
	Uncert:			+/-0.985						
	TPU:			+/-1.02						
QC1203634407 MB										
Radium-226			U	0.00496	pCi/g				MXR1	10/17/1609:18

QC Summary

Workorder: **406541**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 1601577										
	Uncert:			+/-0.0341						
	TPU:			+/-0.0342						
Batch 1602493										
QC1203636824 406541001 DUP										
Radium-226	M	0.494	M	0.435	pCi/g	12.9		(0%-20%)	MXR1	09/28/1608:09
	Uncert:	+/-0.0836		+/-0.167						
	TPU:	+/-0.0932		+/-0.168						
QC1203636825 LCS										
Americium-241	489			539	pCi/g		110	(75%-125%)	MXR1	09/28/1606:59
	Uncert:			+/-6.30						
	TPU:			+/-40.1						
Cesium-137	179			183	pCi/g		102	(75%-125%)		
	Uncert:			+/-3.84						
	TPU:			+/-8.76						
Cobalt-60	161			158	pCi/g		97.9	(75%-125%)		
	Uncert:			+/-4.04						
	TPU:			+/-7.08						
Radium-226			U	0.247	pCi/g					
	Uncert:			+/-1.25						
	TPU:			+/-1.26						
QC1203636823 MB										
Radium-226			U	0.00893	pCi/g				MXR1	09/28/1608:09
	Uncert:			+/-0.0879						
	TPU:			+/-0.088						
Batch 1602494										
QC1203636827 406541021 DUP										
Radium-226	M	0.544	M	0.652	pCi/g	17.9		(0%-20%)	MXR1	09/28/1610:14
	Uncert:	+/-0.152		+/-0.153						
	TPU:	+/-0.154		+/-0.156						
QC1203636828 LCS										
Americium-241	489			546	pCi/g		112	(75%-125%)	MXR1	09/28/1610:14
	Uncert:			+/-9.44						
	TPU:			+/-44.3						
Cesium-137	179			178	pCi/g		99.2	(75%-125%)		
	Uncert:			+/-3.07						
	TPU:			+/-14.3						
Cobalt-60	161			152	pCi/g		94.6	(75%-125%)		
	Uncert:			+/-3.27						
	TPU:			+/-13.1						
Radium-226			U	0.681	pCi/g					
	Uncert:			+/-0.957						
	TPU:			+/-1.01						
QC1203636826 MB										
Radium-226			U	0.0138	pCi/g				MXR1	09/28/1609:05
	Uncert:			+/-0.0462						
	TPU:			+/-0.0466						

QC Summary

Workorder: **406541**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time

Notes:

TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

The Qualifiers in this report are defined as follows:

**	Analyte is a Tracer compound
<	Result is less than value reported
>	Result is greater than value reported
BD	Results are either below the MDC or tracer recovery is low
FA	Failed analysis.
H	Analytical holding time was exceeded
J	Value is estimated
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
M	Result above MDC and less than RDL
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	Other specific qualifiers were required to properly define the results. Consult case narrative.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
** Indicates analyte is a surrogate/tracer compound.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 281270
ANALYTICAL REPORT

CB&I
4005 Port Chicago Highway
Concord, CA 94520-1120

Project : 149831
Location : HPNS Parcel D-1
Level : III

Sample ID	Lab ID	Sample ID	Lab ID
HPNS-D1-AB2-001	281270-001	HPNS-D1-AB2-015	281270-015
HPNS-D1-AB-002	281270-002	HPNS-D1-AB-016	281270-016
HPNS-D1-AB-003	281270-003	HPNS-D1-AB-017	281270-017
HPNS-D1-AB-004	281270-004	HPNS-D1-AB-018	281270-018
HPNS-D1-AB-005	281270-005	HPNS-D1-AB-019	281270-019
HPNS-D1-AB-006	281270-006	HPNS-D1-AB-020	281270-020
HPNS-D1-AB-007	281270-007	HPNS-D1-AB-021	281270-021
HPNS-D1-AB-008	281270-008	HPNS-D1-AB-022	281270-022
HPNS-D1-AB-009	281270-009	HPNS-D1-AB-023	281270-023
HPNS-D1-AB-010	281270-010	HPNS-D1-AB-024	281270-024
HPNS-D1-AB-011	281270-011	HPNS-D1-AB-025	281270-025
HPNS-D1-AB-012	281270-012	HPNS-D1-AB-026	281270-026
HPNS-D1-AB-013	281270-013	HPNS-D1-AB-027	281270-027
HPNS-D1-AB-014	281270-014		

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: _____ Date: 09/28/2016

Dina Ali
Project Manager
dina.ali@ctberk.com

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**281270**
Client:	**CB&I**
Project:	**149831**
Location:	**HPNS Parcel D-1**
Request Date:	**09/21/16**
Samples Received:	**09/21/16**

This data package contains sample and QC results for twenty seven soil samples, requested for the above referenced project on 09/21/16. See attached cooler receipt form for any sample receipt problems or discrepancies.

CARB 435 Asbestos (CARB 435):

Forensic Analytical in Hayward, CA performed the analysis (not NELAP certified). Please see the Forensic Analytical case narrative.

Chain of Custody

4005 Port Chicago Hwy
Concord, CA 94520

CHAIN OF CUSTODY

281270

Ref. Document # 149831-006

Project Manager: *Lisa Bersich*

(Name & phone #)

Send Report To: *Eddie Kalombo*
Phone/Fax Number: *415-987-0760*
Address: *4005 Port Chicago Hwy*
City: *Concord, CA, 94520*

Project Number: 149831
Project Name: HPNS - Parcel D-1
Project Location: HPNS
Purchase Order #: 202570
Shipment/Pickup Date: 9/21/2016
Waybill Number:
Lab Destination: Curtis & Tompkins, 2323 5th Street, Berkeley, CA 94710
Lab Contact Name / ph. #: Mike Dahlquist 510.204.2225

Sampler's Name(s): Eddie Kalombo

Sample ID	Location ID	Collection Information: Date	Time	Method	Matrix	# of containers	Preservative	Container Type: Beginning Depth	Ending depth	Analyses Requested: Asbestos (CARB 435)									Cooler Temperature
										ice	ice	ice	ice	ice	ice	ice	ice		
										16 oz Jar									
HPNS-D1-AB2-001	S&S Brisbane AB2	9/21/16	0900	G	SO	1		3	6	X									
HPNS-D1-AB-002	S&S Brisbane AB2	9/21/16	0905	G	SO	1		3	6	X									
HPNS-D1-AB-003	S&S Brisbane AB2	9/21/16	0910	G	SO	1		3	6	X									
HPNS-D1-AB-004	S&S Brisbane AB2	9/21/16	0920	G	SO	1		3	6	X									
HPNS-D1-AB-005	S&S Brisbane AB2	9/21/16	0922	G	SO	1		3	6	X									
HPNS-D1-AB-006	S&S Brisbane AB2	9/21/16	0925	G	SO	1		3	6	X									
HPNS-D1-AB-007	S&S Brisbane AB2	9/21/16	0930	G	SO	1		3	6	X									
HPNS-D1-AB-008	S&S Brisbane AB2	9/21/16	0940	G	SO	1		3	6	X									
HPNS-D1-AB-009	S&S Brisbane AB2	9/21/16	0945	G	SO	1		3	6	X									
HPNS-D1-AB-010	S&S Brisbane AB2	9/21/16	0947	G	SO	1		3	6	X									
HPNS-D1-AB-011	S&S Brisbane AB2	9/21/16	0950	G	SO	1		3	6	X									
HPNS-D1-AB-012	S&S Brisbane AB2	9/21/16	0952	G	SO	1		3	6	X									
HPNS-D1-AB-013	S&S Brisbane AB2	9/21/16	0955	G	SO	1		3	6	X									
HPNS-D1-AB-014	S&S Brisbane AB2	9/21/16	1000	G	SO	1		3	6	X									
Temp Blank																			X

Special Instructions: Report on Dry Weight Basis.

Turnaround Time: ☐ 24-hr ☐ 48-hr
Standard TAT -5-day ☐ 72-hr ☐ 5-day

Level of QC Required: II **III** IV Project Specific:

Relinquished By: Date: 9.21.16 Time: 1511
Received By: Date: 9/21/16 Time: 1511
Relinquished By: Date: Time:
Received By: Date: Time:

Method Codes
LF= low flow
G = Grab

Matrix Codes
DW = Drinking Water
SO =Soil
GW = Ground Water
BW= Blank Water
WW = Waste Water
WP=Waste Product

CBI

4005 Port Chicago Hwy
Concord, CA 94520

CHAIN OF CUSTODY

281270

Ref. Document # 149831-006

Project Manager: *Lisa Bersich*

(Name & phone #)

Send Report To: *Eddie Kalombo*
Phone/Fax Number: *415-987-0760*
Address: *4005 Port Chicago Hwy*
City: *Concord, CA, 94520*

Project Number: 149831
Project Name: HPNS - Parcel D-1
Project Location: HPNS
Purchase Order #: 202570
Shipment/Pickup Date: 9/21/2016
Waybill Number:
Lab Destination: Curtis & Tompkins, 2323 5th Street, Berkeley, CA 94710
Lab Contact Name / ph. #: Mike Dahlquist 510.204.2225

Sampler's Name(s): Eddie Kalombo

Sample ID	Location ID	Collection Information: Date	Time	Method	Matrix	# of containers	Preservative	Container Type: Beginning Depth	Ending depth	Analyses Requested: Asbestos (CARB 435)									Cooler Temperature
										ice	ice	ice	ice	ice	ice	ice	ice		
										16 oz Jar									
HPNS-D1-AB2-015	S&S Brisbane AB2	9/21/16	1002	G	SO	1		3	6	X									
HPNS-D1-AB-016	S&S Brisbane AB2	9/21/16	1005	G	SO	1		3	6	X									
HPNS-D1-AB-017	S&S Brisbane AB2	9/21/16	1010	G	SO	1		3	6	X									
HPNS-D1-AB-018	S&S Brisbane AB2	9/21/16	1015	G	SO	1		3	6	X									
HPNS-D1-AB-019	S&S Brisbane AB2	9/21/16	1020	G	SO	1		3	6	X									
HPNS-D1-AB-020	S&S Brisbane AB2	9/21/16	1024	G	SO	1		3	6	X									
HPNS-D1-AB-021	S&S Brisbane AB2	9/21/16	1026	G	SO	1		3	6	X									
HPNS-D1-AB-022	S&S Brisbane AB2	9/21/16	1030	G	SO	1		3	6	X									
HPNS-D1-AB-023	S&S Brisbane AB2	9/21/16	1035	G	SO	1		3	6	X									
HPNS-D1-AB-024	S&S Brisbane AB2	9/21/16	1040	G	SO	1		3	6	X									
HPNS-D1-AB-025	S&S Brisbane AB2	9/21/16	1042	G	SO	1		3	6	X									
HPNS-D1-AB-026	S&S Brisbane AB2	9/21/16	1044	G	SO	1		3	6	X									
HPNS-D1-AB-027	S&S Brisbane AB2	9/21/16	1050	G	SO	1		3	6	X									
Temp Blank																			X

Special Instructions: Report on Dry Weight Basis.

Turnaround Time: ☐ 24-hr ☐ 48-hr
Standard TAT -5-day ☐ 72-hr ☐ 5-day

Level of QC Required: II **III** IV Project Specific:

Relinquished By: Date: 9.21.16 Time: 1511
Received By: Date: 09/21/16 Time: 1511
Relinquished By: Date: Time:
Received By: Date: Time:

Method Codes
LF= low flow G = Grab

Matrix Codes
DW = Drinking Water SO =Soil
GW = Ground Water BW= Blank Water
WW = Waste Water WP=Waste Product

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 281270 Date Received 9/21/16 Number of coolers 4
Client CB&I Project HPNS - Parcel D-1

Date Opened 9/21 By (print) SL (sign)
Date Logged in ↓ By (print) ↓ (sign) ↓
Date Labeled ↓ By (print) ↓ (sign) ↓

1. Did cooler come with a shipping slip (airbill, etc) YES (NO)
   Shipping info
2A. Were custody seals present? .... ☐ YES (circle) on cooler on samples (X) NO
   How many Name Date
2B. Were custody seals intact upon arrival? YES NO (N/A)
3. Were custody papers dry and intact when received? (YES) NO
4. Were custody papers filled out properly (ink, signed, etc)? (YES) NO
5. Is the project identifiable from custody papers? (If so fill out top of form) (YES) NO
6. Indicate the packing in cooler: (if other, describe)

   ☐ Bubble Wrap ☐ Foam blocks ☐ Bags (X) None
   ☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels
7. Temperature documentation: * Notify PM if temperature exceeds 6°C

   Type of ice used: (X) Wet ☐ Blue/Gel ☐ None Temp(°C) 1.7, 1.5, 2.1, 1.8

   ☐ Temperature blank(s) included? ☐ Thermometer# (X) IR Gun# A

   ☐ Samples received on ice directly from the field. Cooling process had begun
8. Were Method 5035 sampling containers present? YES (NO)
   If YES, what time were they transferred to freezer?
9. Did all bottles arrive unbroken/unopened? (YES) NO
10. Are there any missing / extra samples? YES (NO)
11. Are samples in the appropriate containers for indicated tests? (YES) NO
12. Are sample labels present, in good condition and complete? (YES) NO
13. Do the sample labels agree with custody papers? (YES) NO
14. Was sufficient amount of sample sent for tests requested? (YES) NO
15. Are the samples appropriately preserved? YES NO (N/A)
16. Did you check preservatives for all bottles for each sample? YES NO (N/A)
17. Did you document your preservative check? (pH strip lot#) YES NO (N/A)
18. Did you change the hold time in LIMS for unpreserved VOAs? YES NO (N/A)
19. Did you change the hold time in LIMS for preserved terracores? YES NO (N/A)
20. Are bubbles > 6mm absent in VOA samples? YES NO (N/A)
21. Was the client contacted concerning this sample delivery? YES (NO)
   If YES, Who was called? By Date:

COMMENTS

Laboratory Job Number 281270

ANALYTICAL REPORT

Subcontracted Products

Laboratory Job Number 281270

Subcontracted Products

Forensic Analytical

Forensic Analytical LABORATORIES

Final Report

Bulk Asbestos Material Analysis

(Air Resources Board Method 435, June 6, 1991)

Curtis & Tompkins Ltd
Mike Dalhquist
2323 Fifth St.

Berkeley, CA 94710

Client ID: 1137
Report Number: N008653
Date Received: 09/22/16
Date Analyzed: 09/28/16
Date Printed: 09/28/16

Job ID/Site: 281270 - HPNS Parcel D-1

PLM Report Number: N/A

FALI Job ID: 1137
Total Samples Submitted: 27
Total Samples Analyzed: 27

Sample Preparation and Analysis:

Samples were analyzed by the Air Resources Board's Method 435, Determination of Asbestos Content of Serpentine Aggregate. Samples were ground to 200 particle size in the laboratory. Approximately 1 pint was retained for analysis. Samples were prepared for observation according to the guidelines of Exception I and Exception II as defined by the 435 Method. Samples which contained less than 10% asbestos were prepared for observation according to the point count technique as defined by the 435 Method. This analysis was performed with a standard cross-hair reticle.

Sample ID	Lab Number	Layer Description
HPNS-D1-AB2-001	11811734	**Brown/Grey Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
HPNS-D1-AB-002	11811735	**Brown/Grey Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
HPNS-D1-AB-003	11811736	**Brown/Grey Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
HPNS-D1-AB-004	11811737	**Brown/Grey Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

3777 Depot Road, Suite 409, Hayward, CA 94545 / Telephone: (510) 887-8828 (800) 827-FASI / Fax: (510) 887-4218

Bulk Asbestos Material Analysis

(Air Resources Board Method 435, June 6, 1991)

Curtis & Tompkins Ltd
Mike Dalhquist
2323 Fifth St.

Berkeley, CA 94710

Client ID: 1137
Report Number: N008653
Date Received: 09/22/16
Date Analyzed: 09/28/16
Date Printed: 09/28/16

Job ID/Site: 281270 - HPNS Parcel D-1

FALI Job ID: 1137
Total Samples Submitted: 27
Total Samples Analyzed: 27

PLM Report Number: N/A

Sample Preparation and Analysis:

Samples were analyzed by the Air Resources Board's Method 435, Determination of Asbestos Content of Serpentine Aggregate. Samples were ground to 200 particle size in the laboratory. Approximately 1 pint was retained for analysis. Samples were prepared for observation according to the guidelines of Exception I and Exception II as defined by the 435 Method. Samples which contained less than 10% asbestos were prepared for observation according to the point count technique as defined by the 435 Method. This analysis was performed with a standard cross-hair reticle.

Sample ID	Lab Number	Layer Description
HPNS-D1-AB-005	11811738	**Brown/Grey Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
HPNS-D1-AB-006	11811739	**Brown/Grey Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
HPNS-D1-AB-007	11811740	**Brown/Grey Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
HPNS-D1-AB-008	11811741	**Brown/Grey Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

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Bulk Asbestos Material Analysis

(Air Resources Board Method 435, June 6, 1991)

Curtis & Tompkins Ltd
Mike Dalhquist
2323 Fifth St.

Berkeley, CA 94710

Client ID: 1137
Report Number: N008653
Date Received: 09/22/16
Date Analyzed: 09/28/16
Date Printed: 09/28/16

Job ID/Site: 281270 - HPNS Parcel D-1

FALI Job ID: 1137
Total Samples Submitted: 27
Total Samples Analyzed: 27

PLM Report Number: N/A

Sample Preparation and Analysis:

Samples were analyzed by the Air Resources Board's Method 435, Determination of Asbestos Content of Serpentine Aggregate. Samples were ground to 200 particle size in the laboratory. Approximately 1 pint was retained for analysis. Samples were prepared for observation according to the guidelines of Exception I and Exception II as defined by the 435 Method. Samples which contained less than 10% asbestos were prepared for observation according to the point count technique as defined by the 435 Method. This analysis was performed with a standard cross-hair reticle.

Sample ID	Lab Number	Layer Description
HPNS-D1-AB-009	11811742	**Brown/Grey Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
HPNS-D1-AB-010	11811743	**Brown/Grey Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
HPNS-D1-AB-011	11811744	**Brown/Grey Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
HPNS-D1-AB-012	11811745	**Brown/Grey Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

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Bulk Asbestos Material Analysis

(Air Resources Board Method 435, June 6, 1991)

Curtis & Tompkins Ltd
Mike Dalhquist
2323 Fifth St.

Berkeley, CA 94710

Client ID: 1137
Report Number: N008653
Date Received: 09/22/16
Date Analyzed: 09/28/16
Date Printed: 09/28/16

Job ID/Site: 281270 - HPNS Parcel D-1

FALI Job ID: 1137
Total Samples Submitted: 27
Total Samples Analyzed: 27

PLM Report Number: N/A

Sample Preparation and Analysis:

Samples were analyzed by the Air Resources Board's Method 435, Determination of Asbestos Content of Serpentine Aggregate. Samples were ground to 200 particle size in the laboratory. Approximately 1 pint was retained for analysis. Samples were prepared for observation according to the guidelines of Exception I and Exception II as defined by the 435 Method. Samples which contained less than 10% asbestos were prepared for observation according to the point count technique as defined by the 435 Method. This analysis was performed with a standard cross-hair reticle.

Sample ID	Lab Number	Layer Description
HPNS-D1-AB-013	11811746	**Brown/Grey Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
HPNS-D1-AB-014	11811747	**Brown/Grey Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
HPNS-D1-AB2-015	11811748	**Brown/Grey Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
HPNS-D1-AB-016	11811749	**Brown/Grey Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

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Bulk Asbestos Material Analysis

(Air Resources Board Method 435, June 6, 1991)

Curtis & Tompkins Ltd
Mike Dalhquist
2323 Fifth St.

Berkeley, CA 94710

Client ID: 1137
Report Number: N008653
Date Received: 09/22/16
Date Analyzed: 09/28/16
Date Printed: 09/28/16

Job ID/Site: 281270 - HPNS Parcel D-1

FALI Job ID: 1137
Total Samples Submitted: 27
Total Samples Analyzed: 27

PLM Report Number: N/A

Sample Preparation and Analysis:

Samples were analyzed by the Air Resources Board's Method 435, Determination of Asbestos Content of Serpentine Aggregate. Samples were ground to 200 particle size in the laboratory. Approximately 1 pint was retained for analysis. Samples were prepared for observation according to the guidelines of Exception I and Exception II as defined by the 435 Method. Samples which contained less than 10% asbestos were prepared for observation according to the point count technique as defined by the 435 Method. This analysis was performed with a standard cross-hair reticle.

Sample ID	Lab Number	Layer Description
HPNS-D1-AB-017	11811750	**Brown/Grey Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
HPNS-D1-AB-018	11811751	**Brown/Grey Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
HPNS-D1-AB-019	11811752	**Brown/Grey Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
HPNS-D1-AB-020	11811753	**Brown/Grey Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

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Bulk Asbestos Material Analysis

(Air Resources Board Method 435, June 6, 1991)

Curtis & Tompkins Ltd
Mike Dalhquist
2323 Fifth St.

Berkeley, CA 94710

Client ID: 1137
Report Number: N008653
Date Received: 09/22/16
Date Analyzed: 09/28/16
Date Printed: 09/28/16

Job ID/Site: 281270 - HPNS Parcel D-1

FALI Job ID: 1137
Total Samples Submitted: 27
Total Samples Analyzed: 27

PLM Report Number: N/A

Sample Preparation and Analysis:

Samples were analyzed by the Air Resources Board's Method 435, Determination of Asbestos Content of Serpentine Aggregate. Samples were ground to 200 particle size in the laboratory. Approximately 1 pint was retained for analysis. Samples were prepared for observation according to the guidelines of Exception I and Exception II as defined by the 435 Method. Samples which contained less than 10% asbestos were prepared for observation according to the point count technique as defined by the 435 Method. This analysis was performed with a standard cross-hair reticle.

Sample ID	Lab Number	Layer Description
HPNS-D1-AB-021	11811754	**Brown/Grey Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
HPNS-D1-AB-022	11811755	**Brown/Grey Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
HPNS-D1-AB-023	11811756	**Brown/Grey Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
HPNS-D1-AB-024	11811757	**Brown/Grey Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

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Bulk Asbestos Material Analysis

(Air Resources Board Method 435, June 6, 1991)

Curtis & Tompkins Ltd
Mike Dalhquist
2323 Fifth St.

Berkeley, CA 94710

Client ID: 1137
Report Number: N008653
Date Received: 09/22/16
Date Analyzed: 09/28/16
Date Printed: 09/28/16

Job ID/Site: 281270 - HPNS Parcel D-1

FALI Job ID: 1137
Total Samples Submitted: 27
Total Samples Analyzed: 27

PLM Report Number: N/A

Sample Preparation and Analysis:

Samples were analyzed by the Air Resources Board's Method 435, Determination of Asbestos Content of Serpentine Aggregate. Samples were ground to 200 particle size in the laboratory. Approximately 1 pint was retained for analysis. Samples were prepared for observation according to the guidelines of Exception I and Exception II as defined by the 435 Method. Samples which contained less than 10% asbestos were prepared for observation according to the point count technique as defined by the 435 Method. This analysis was performed with a standard cross-hair reticle.

Sample ID	Lab Number	Layer Description
HPNS-D1-AB-025	11811758	**Brown/Grey Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
HPNS-D1-AB-026	11811759	**Brown/Grey Soil**

Point Count Results:

Number of asbestos points counted:	0
Number of non-empty points:	400
Matrix percentage of entire	100
Percent asbestos in matrix:	**< 0.25**
Visual estimation percentage:	None Detected
Asbestos type(s) detected:	Chrysotile

Comment: Asbestos was detected but no points were counted due to counting criteria. Therefore quantitation deemed to be < 0.25%.

Sample ID	Lab Number	Layer Description
HPNS-D1-AB-027	11811760	**Brown/Grey Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

3777 Depot Road, Suite 409, Hayward, CA 94545 / Telephone: (510) 887-8828 (800) 827-FASI / Fax: (510) 887-4218

Forensic Analytical LABORATORIES

Final Report

Bulk Asbestos Material Analysis

(Air Resources Board Method 435, June 6, 1991)

Curtis & Tompkins Ltd
Mike Dalhquist
2323 Fifth St.

Berkeley, CA 94710

Client ID: 1137
Report Number: N008653
Date Received: 09/22/16
Date Analyzed: 09/28/16
Date Printed: 09/28/16

Job ID/Site: 281270 - HPNS Parcel D-1

PLM Report Number: N/A

FALI Job ID: 1137
Total Samples Submitted: 27
Total Samples Analyzed: 27

Sample Preparation and Analysis:

Samples were analyzed by the Air Resources Board's Method 435, Determination of Asbestos Content of Serpentine Aggregate. Samples were ground to 200 particle size in the laboratory. Approximately 1 pint was retained for analysis. Samples were prepared for observation according to the guidelines of Exception I and Exception II as defined by the 435 Method. Samples which contained less than 10% asbestos were prepared for observation according to the point count technique as defined by the 435 Method. This analysis was performed with a standard cross-hair reticle.

Sample ID	Lab Number	Layer Description

Tad Thrower

Tad Thrower, Laboratory Supervisor, Hayward Laboratory

Note: Limit of Quantification (LOQ) = 0.25%. Trace denotes the presence of asbestos below the LOQ. ND = None Detected.

Analytical results and reports are generated by Forensic Analytical Laboratories Inc. (FALI) at the request of and for the exclusive use of the person or entity (client) named on such report. Results, reports or copies of same will not be released by FALI to any third party without prior written request from client. This report applies only to the sample(s) tested. Supporting laboratory documentation is available upon request. This report must not be reproduced except in full, unless approved by FALI. The client is solely responsible for the use and interpretation of test results and reports requested from FALI. Forensic Analytical Laboratories Inc. is not able to assess the degree of hazard resulting from materials analyzed. FALI reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified. All samples were received in acceptable condition unless otherwise noted.

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Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 281271
ANALYTICAL REPORT

CB&I
4005 Port Chicago Highway
Concord, CA 94520-1120

Project : 149831
Location : HPNS Parcel D-1
Level : III

Sample ID	Lab ID	Sample ID	Lab ID
HPNS-D1-AB2-001	281271-001	HPNS-D1-AB2-015	281271-015
HPNS-D1-AB-002	281271-002	HPNS-D1-AB-016	281271-016
HPNS-D1-AB-003	281271-003	HPNS-D1-AB-017	281271-017
HPNS-D1-AB-004	281271-004	HPNS-D1-AB-018	281271-018
HPNS-D1-AB-005	281271-005	HPNS-D1-AB-019	281271-019
HPNS-D1-AB-006	281271-006	HPNS-D1-AB-020	281271-020
HPNS-D1-AB-007	281271-007	HPNS-D1-AB-021	281271-021
HPNS-D1-AB-008	281271-008	HPNS-D1-AB-022	281271-022
HPNS-D1-AB-009	281271-009	HPNS-D1-AB-023	281271-023
HPNS-D1-AB-010	281271-010	HPNS-D1-AB-024	281271-024
HPNS-D1-AB-011	281271-011	HPNS-D1-AB-025	281271-025
HPNS-D1-AB-012	281271-012	HPNS-D1-AB-026	281271-026
HPNS-D1-AB-013	281271-013	HPNS-D1-AB-027	281271-027
HPNS-D1-AB-014	281271-014		

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: _____ Date: 09/29/2016

Dina Ali
Project Manager
dina.ali@ctberk.com

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**281271**
Client:	**CB&I**
Project:	**149831**
Location:	**HPNS Parcel D-1**
Request Date:	**09/21/16**
Samples Received:	**09/21/16**

This data package contains sample and QC results for twenty seven soil samples, requested for the above referenced project on 09/21/16. See attached cooler receipt form for any sample receipt problems or discrepancies.

Metals (EPA 6020A and EPA 7471B):

Matrix spikes QC852723,QC852724 (batch 239404) were not reported because the parent sample was reextracted in another batch.

High recovery was observed for cobalt in the BS for batch 239526; the associated RPD was within limits.

Low recoveries were observed for antimony and zinc in the MS/MSD for batch 239526; the parent sample was not a project sample, the BS/BSD were within limits, and the associated RPDs were within limits. High recoveries were observed for many analytes. High RPD was observed for barium; the RPD was acceptable in the BS/BSD.

Low recoveries were observed for antimony in the MS/MSD of HPNS-D1-AB-011 (lab # 281271-011); the BS/BSD were within limits, and the associated RPD was within limits. High recoveries were observed for a number of analytes; the BS/BSD were within limits. High RPD was observed for copper; the RPD was acceptable in the BS/BSD.

High % differences were observed for arsenic, copper, and mercury in the serial dilution for batch 239404 and the serial dilution of HPNS-D1-AB-011 (lab # 281271-011).

Arsenic, nickel, and vanadium were detected above half the RL in the method blank for batch 239526; these analytes were detected in samples at a level at least 10 times that of the blank. Barium and cadmium were detected between the MDL and half the RL in the method blank for batch 239526.

Arsenic and vanadium were detected above half the RL in the method blank for batch 239551; these analytes were detected in samples at a level at least 10 times that of the blank.

No other analytical problems were encountered.

Moisture (ASTM D2216/CLP):

No analytical problems were encountered.

Chain of Custody

4005 Port Chicago Hwy
Concord, CA 94520

CHAIN OF CUSTODY

281271

Ref. Document # 149831-006

Project Number: 149831
Project Name: HPNS - Parcel D-1
Project Location: HPNS
Purchase Order #: 202570
Shipment/Pickup Date: 9/21/2016
Waybill Number:
Lab Destination: Curtis & Tompkins, 2323 5th Street, Berkeley, CA 94710
Lab Contact Name / ph. #: Mike Dahlquist 510.204.2225

Project Manager: *Lisa Bersich*
(Name & phone #)

Send Report To: *Eddie Kalombo*
Phone/Fax Number: *415-987-0760*
Address: *4005 Port Chicago Hwy*
City: *Concord, CA, 94520*

Sampler's Name(s): Eddie Kalombo

Sample ID	Location ID	Collection Information: Date	Time	Method	Matrix	# of containers	Preservative	Container Type	Beginning Depth	Ending depth	Analyses Requested: Total Metals (EPA 6020/7471)									Cooler Temperature
							ice	16 oz Jar			ice	ice	ice	ice	ice	ice	ice	ice		
HPNS-D1-AB2-001	S&S Brisbane AB2	9/21/16	0900	G	SO	1	3	6	X											
HPNS-D1-AB-002	S&S Brisbane AB2	9/21/16	0905	G	SO	1	3	6	X											
HPNS-D1-AB-003	S&S Brisbane AB2	9/21/16	0910	G	SO	1	3	6	X											
HPNS-D1-AB-004	S&S Brisbane AB2	9/21/16	0920	G	SO	1	3	6	X											
HPNS-D1-AB-005	S&S Brisbane AB2	9/21/16	0922	G	SO	1	3	6	X											
HPNS-D1-AB-006	S&S Brisbane AB2	9/21/16	0925	G	SO	1	3	6	X											
HPNS-D1-AB-007	S&S Brisbane AB2	9/21/16	0930	G	SO	1	3	6	X											
HPNS-D1-AB-008	S&S Brisbane AB2	9/21/16	0940	G	SO	1	3	6	X											
HPNS-D1-AB-009	S&S Brisbane AB2	9/21/16	0945	G	SO	1	3	6	X											
HPNS-D1-AB-010	S&S Brisbane AB2	9/21/16	0947	G	SO	1	3	6	X											
HPNS-D1-AB-011	S&S Brisbane AB2	9/21/16	0950	G	SO	1	3	6	X											
HPNS-D1-AB-012	S&S Brisbane AB2	9/21/16	0952	G	SO	1	3	6	X											
HPNS-D1-AB-013	S&S Brisbane AB2	9/21/16	0955	G	SO	1	3	6	X											
HPNS-D1-AB-014	S&S Brisbane AB2	9/21/16	1000	G	SO	1	3	6	X											
Temp Blank																				X

Special Instructions: Report on Dry Weight Basis.

Turnaround Time: ☐ 24-hr ☐ 48-hr
Standard TAT -5-day ☐ 72-hr ☐ 5-day

Level of QC Required: II **III** IV Project Specific:

Relinquished By: Date: 9.21.16 Time: 1511
Received By: Date: 9/21 Time: 1511

Relinquished By: Date: Time:
Received By: Date: Time:

Method Codes
LF= low flow
G = Grab

Matrix Codes
DW = Drinking Water
SO =Soil
GW = Ground Water
BW= Blank Water
WW = Waste Water
WP=Waste Product

CBI

4005 Port Chicago Hwy
Concord, CA 94520

CHAIN OF CUSTODY

281271

Ref. Document # 149831-006

Project Manager: *Lisa Bersich*

(Name & phone #)

Send Report To: *Eddie Kalombo*
Phone/Fax Number: *415-987-0760*
Address: *4005 Port Chicago Hwy*
City: *Concord, CA, 94520*

Project Number: 149831
Project Name: HPNS - Parcel D-1
Project Location: HPNS
Purchase Order #: 202570
Shipment/Pickup Date: 9/21/2016
Waybill Number:
Lab Destination: Curtis & Tompkins, 2323 5th Street, Berkeley, CA 94710
Lab Contact Name / ph. #: Mike Dahlquist 510.204.2225

Sampler's Name(s): Eddie Kalombo

Sample ID	Location ID	Collection Information: Date	Time	Method	Matrix	# of containers	Preservative	Container Type: Beginning Depth	Ending depth	Analyses Requested: Total Metals (EPA 6020/7471)	Cooler Temperature
										ice / 16 oz Jar	
HPNS-D1-AB2-015	S&S Brisbane AB2	9/21/16	1002	G	SO	1		3	6	X	
HPNS-D1-AB-016	S&S Brisbane AB2	9/21/16	1005	G	SO	1		3	6	X	
HPNS-D1-AB-017	S&S Brisbane AB2	9/21/16	1010	G	SO	1		3	6	X	
HPNS-D1-AB-018	S&S Brisbane AB2	9/21/16	1015	G	SO	1		3	6	X	
HPNS-D1-AB-019	S&S Brisbane AB2	9/21/16	1020	G	SO	1		3	6	X	
HPNS-D1-AB-020	S&S Brisbane AB2	9/21/16	1024	G	SO	1		3	6	X	
HPNS-D1-AB-021	S&S Brisbane AB2	9/21/16	1026	G	SO	1		3	6	X	
HPNS-D1-AB-022	S&S Brisbane AB2	9/21/16	1030	G	SO	1		3	6	X	
HPNS-D1-AB-023	S&S Brisbane AB2	9/21/16	1035	G	SO	1		3	6	X	
HPNS-D1-AB-024	S&S Brisbane AB2	9/21/16	1040	G	SO	1		3	6	X	
HPNS-D1-AB-025	S&S Brisbane AB2	9/21/16	1042	G	SO	1		3	6	X	
HPNS-D1-AB-026	S&S Brisbane AB2	9/21/16	1044	G	SO	1		3	6	X	
HPNS-D1-AB-027	S&S Brisbane AB2	9/21/16	1050	G	SO	1		3	6	X	
Temp Blank											X

Special Instructions: Report on Dry Weight Basis.

Turnaround Time: ☐ 24-hr ☐ 48-hr
Standard TAT -5-day ☐ 72-hr ☐ 5-day

Level of QC Required: II III IV Project Specific:

Relinquished By: Date: 9.21.16 Time: 1511
Received By: Date: 9/21/16 Time: 1511
Relinquished By: Date: Time:
Received By: Date: Time:

Method Codes
LF= low flow
G = Grab

Matrix Codes
DW = Drinking Water
SO =Soil
GW = Ground Water
BW= Blank Water
WW = Waste Water
WP=Waste Product

COOLER RECEIPT CHECKLIST Curtis & Tompkins, Ltd.

Login # 281271 Date Received 9/21/16 Number of coolers 4
Client CB&I Project HPNS - Parcel D-1

Date Opened 9/21 By (print) SZ (sign)
Date Logged in / By (print) / (sign) /
Date Labeled / By (print) / (sign) /

1. Did cooler come with a shipping slip (airbill, etc)_____ YES (NO)
Shipping info_____

2A. Were custody seals present? .... ☐ YES (circle) on cooler on samples ☒ NO
How many _____ Name_____ Date_____
2B. Were custody seals intact upon arrival? _____ YES NO (N/A)
3. Were custody papers dry and intact when received?_____ (YES) NO
4. Were custody papers filled out properly (ink, signed, etc)? _____ (YES) NO
5. Is the project identifiable from custody papers? (If so fill out top of form)___ (YES) NO
6. Indicate the packing in cooler: (if other, describe)_____

☐ Bubble Wrap ☐ Foam blocks ☐ Bags ☒ None
☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation: * Notify PM if temperature exceeds 6°C

Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C) 1.7, 1.5, 2.1, 1.8

☐ Temperature blank(s) included? ☐ Thermometer#_____ ☒ IR Gun# A

☐ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present?_____ YES (NO)
If YES, what time were they transferred to freezer?_____
9. Did all bottles arrive unbroken/unopened?_____ (YES) NO
10. Are there any missing / extra samples? _____ YES (NO)
11. Are samples in the appropriate containers for indicated tests? _____ (YES) NO
12. Are sample labels present, in good condition and complete? _____ (YES) NO
13. Do the sample labels agree with custody papers? _____ (YES) NO
14. Was sufficient amount of sample sent for tests requested? _____ (YES) NO
15. Are the samples appropriately preserved? _____ YES NO (N/A)
16. Did you check preservatives for all bottles for each sample? _____ YES NO (N/A)
17. Did you document your preservative check? (pH strip lot#_____) YES NO (N/A)
18. Did you change the hold time in LIMS for unpreserved VOAs? _____ YES NO (N/A)
19. Did you change the hold time in LIMS for preserved terracores? _____ YES NO (N/A)
20. Are bubbles > 6mm absent in VOA samples? _____ YES NO (N/A)
21. Was the client contacted concerning this sample delivery? _____ YES (NO)
If YES, Who was called?_____ By_____ Date:_____

COMMENTS

_____
_____
_____
_____
_____
_____

Curtis & Tompkins, Ltd.

Detections Summary for 281271

Results for any subcontracted analyses are not included in this summary.

Client : CB&I
Project : 149831
Location : HPNS Parcel D-1

Client Sample ID : HPNS-D1-AB2-001 Laboratory Sample ID : 281271-001

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Antimony	0.27		0.26	0.084	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Arsenic	4.7		0.28	0.093	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Barium	150		0.26	0.058	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Beryllium	0.31		0.26	0.054	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Cadmium	0.26		0.26	0.031	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Chromium	39		0.26	0.083	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Cobalt	9.9		0.26	0.052	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Copper	29		0.31	0.10	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Lead	29		0.26	0.076	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Mercury	0.12		0.017	0.0050	mg/Kg	Dry	1.000	EPA 7471B	METHOD
Molybdenum	0.80	b	0.26	0.085	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Nickel	45	b	0.26	0.080	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Selenium	0.31		0.26	0.079	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Silver	0.091	J	0.26	0.032	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Thallium	0.060	J	0.26	0.057	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Vanadium	55		0.50	0.17	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Zinc	59		1.0	0.28	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B

Client Sample ID : HPNS-D1-AB-002 Laboratory Sample ID : 281271-002

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Antimony	0.26	J	0.26	0.077	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Arsenic	4.0		0.26	0.085	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Barium	140		0.26	0.052	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Beryllium	0.32		0.26	0.049	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Cadmium	0.68		0.26	0.029	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Chromium	36		0.26	0.076	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Cobalt	9.8		0.26	0.047	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Copper	21	b	0.64	0.10	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Lead	27		0.26	0.069	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Mercury	0.12		0.017	0.0050	mg/Kg	Dry	1.000	EPA 7471B	METHOD
Molybdenum	0.77	b	0.26	0.077	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Nickel	41	b	0.26	0.073	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Selenium	0.16	J	0.26	0.072	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Silver	0.10	J	0.26	0.029	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Thallium	0.058	J	0.26	0.052	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Vanadium	51		0.45	0.15	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Zinc	55		1.0	0.25	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B

Curtis & Tompkins, Ltd.

Client Sample ID : HPNS-D1-AB-003 Laboratory Sample ID : 281271-003

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Antimony	0.28		0.26	0.052	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Arsenic	4.3		0.27	0.088	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Barium	150		0.26	0.055	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Beryllium	0.25	J	0.26	0.051	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Cadmium	0.20	J	0.26	0.030	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Chromium	38		0.26	0.079	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Cobalt	12		0.26	0.049	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Copper	44		0.30	0.099	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Lead	27		0.26	0.072	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Mercury	0.18		0.016	0.0048	mg/Kg	Dry	1.000	EPA 7471B	METHOD
Molybdenum	0.99	b	0.26	0.081	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Nickel	46	b	0.26	0.076	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Selenium	0.27		0.26	0.075	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Silver	0.089	J	0.26	0.030	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Thallium	0.061	J	0.26	0.054	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Vanadium	57		0.47	0.16	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Zinc	63		1.0	0.26	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B

Client Sample ID : HPNS-D1-AB-004 Laboratory Sample ID : 281271-004

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Antimony	0.34		0.26	0.083	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Arsenic	4.9		0.28	0.092	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Barium	160		0.26	0.057	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Beryllium	0.31		0.26	0.053	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Cadmium	0.27		0.26	0.061	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Chromium	43		0.26	0.082	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Cobalt	9.3		0.26	0.051	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Copper	33		0.31	0.10	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Lead	33		0.26	0.075	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Mercury	0.12		0.017	0.0051	mg/Kg	Dry	1.000	EPA 7471B	METHOD
Molybdenum	0.86	b	0.26	0.084	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Nickel	44	b	0.26	0.080	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Selenium	0.22	J	0.26	0.078	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Silver	0.063	J	0.26	0.031	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Thallium	0.069	J	0.26	0.056	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Vanadium	51		0.49	0.16	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Zinc	59		1.0	0.27	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B

Curtis & Tompkins, Ltd.

Client Sample ID : HPNS-D1-AB-005 Laboratory Sample ID : 281271-005

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Antimony	0.24	J	0.25	0.075	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Arsenic	4.4		0.25	0.082	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Barium	130		0.25	0.051	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Beryllium	0.34		0.25	0.048	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Cadmium	0.27		0.25	0.055	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Chromium	34		0.25	0.074	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Cobalt	8.8		0.25	0.059	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Copper	26		0.28	0.092	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Lead	55		0.25	0.067	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Mercury	0.16		0.016	0.0049	mg/Kg	Dry	1.000	EPA 7471B	METHOD
Molybdenum	0.77	b	0.25	0.075	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Nickel	41		0.39	0.13	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Selenium	0.16	J	0.25	0.070	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Silver	0.063	J	0.25	0.028	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Thallium	0.055	J	0.25	0.050	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Vanadium	51		0.44	0.15	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Zinc	60		1.0	0.24	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B

Client Sample ID : HPNS-D1-AB-006 Laboratory Sample ID : 281271-006

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Antimony	0.26		0.25	0.075	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Arsenic	4.4		0.25	0.082	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Barium	140		0.25	0.051	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Beryllium	0.32		0.25	0.048	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Cadmium	0.20	J	0.25	0.028	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Chromium	35		0.25	0.074	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Cobalt	8.4		0.25	0.059	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Copper	27		0.28	0.092	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Lead	29		0.25	0.067	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Mercury	0.15		0.017	0.0050	mg/Kg	Dry	1.000	EPA 7471B	METHOD
Molybdenum	0.73	b	0.25	0.075	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Nickel	40		0.39	0.13	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Selenium	0.16	J	0.25	0.070	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Silver	0.062	J	0.25	0.028	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Thallium	0.067	J	0.25	0.050	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Vanadium	50		0.44	0.15	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Zinc	55		1.0	0.24	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B

Curtis & Tompkins, Ltd.

Client Sample ID : HPNS-D1-AB-007 Laboratory Sample ID : 281271-007

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Antimony	0.23	J	0.26	0.077	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Arsenic	4.4		0.26	0.085	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Barium	150		0.26	0.052	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Beryllium	0.25	J	0.26	0.049	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Cadmium	0.38		0.26	0.056	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Chromium	37		0.26	0.076	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Cobalt	9.5		0.26	0.061	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Copper	30		0.28	0.095	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Lead	33		0.26	0.069	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Mercury	0.12		0.019	0.0057	mg/Kg	Dry	1.000	EPA 7471B	METHOD
Molybdenum	0.78	b	0.26	0.077	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Nickel	44		0.40	0.13	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Silver	0.085	J	0.26	0.029	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Thallium	0.079	J	0.26	0.052	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Vanadium	55		0.45	0.15	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Zinc	64		1.0	0.25	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B

Client Sample ID : HPNS-D1-AB-008 Laboratory Sample ID : 281271-008

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Antimony	0.20	J	0.26	0.076	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Arsenic	4.4		0.26	0.084	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Barium	150		0.26	0.052	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Beryllium	0.32		0.26	0.036	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Cadmium	0.20	J	0.26	0.056	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Chromium	38		0.26	0.075	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Cobalt	9.4		0.26	0.060	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Copper	29		0.28	0.094	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Lead	31		0.26	0.068	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Mercury	0.12		0.018	0.0055	mg/Kg	Dry	1.000	EPA 7471B	METHOD
Molybdenum	0.66	b	0.26	0.077	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Nickel	49		0.40	0.13	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Selenium	0.19	J	0.26	0.072	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Silver	0.086	J	0.26	0.028	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Thallium	0.063	J	0.26	0.051	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Vanadium	51		0.45	0.15	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Zinc	58		1.0	0.25	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B

Curtis & Tompkins, Ltd.

Client Sample ID : HPNS-D1-AB-009 Laboratory Sample ID : 281271-009

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Antimony	0.24		0.24	0.071	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Arsenic	4.2		0.24	0.079	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Barium	160		0.24	0.049	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Beryllium	0.27		0.24	0.045	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Cadmium	0.26		0.24	0.052	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Chromium	39		0.24	0.070	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Cobalt	9.5		0.24	0.056	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Copper	29		0.26	0.088	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Lead	31		0.24	0.064	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Mercury	0.12		0.018	0.0054	mg/Kg	Dry	1.000	EPA 7471B	METHOD
Molybdenum	0.86	b	0.24	0.072	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Nickel	43		0.37	0.12	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Selenium	0.14	J	0.24	0.067	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Silver	0.087	J	0.24	0.027	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Thallium	0.059	J	0.24	0.048	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Vanadium	53		0.42	0.14	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Zinc	62		0.95	0.23	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B

Client Sample ID : HPNS-D1-AB-010 Laboratory Sample ID : 281271-010

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Antimony	0.25	J	0.26	0.082	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Arsenic	4.6		0.27	0.090	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Barium	160		0.26	0.056	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Beryllium	0.27		0.26	0.052	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Cadmium	0.25	J	0.26	0.030	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Chromium	40		0.26	0.081	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Cobalt	9.5		0.26	0.065	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Copper	34		0.30	0.10	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Lead	31		0.26	0.073	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Mercury	0.16		0.017	0.0051	mg/Kg	Dry	1.000	EPA 7471B	METHOD
Molybdenum	0.71	b	0.26	0.082	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Nickel	45		0.43	0.14	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Selenium	0.12	J	0.26	0.077	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Silver	0.094	J	0.26	0.031	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Thallium	0.069	J	0.26	0.055	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Vanadium	52		0.48	0.16	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Zinc	59		1.0	0.27	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B

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Client Sample ID : HPNS-D1-AB-011 Laboratory Sample ID : 281271-011

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Antimony	0.46		0.26	0.079	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Arsenic	3.9		0.26	0.073	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Barium	130		0.26	0.054	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Beryllium	0.27		0.26	0.050	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Cadmium	0.18	J	0.26	0.029	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Chromium	36		0.26	0.078	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Cobalt	9.0		0.26	0.048	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Copper	23	b	0.32	0.11	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Lead	31		0.26	0.071	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Mercury	0.10		0.018	0.0053	mg/Kg	Dry	1.000	EPA 7471B	METHOD
Molybdenum	0.76	b	0.26	0.080	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Nickel	43		0.41	0.14	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Selenium	0.21	J	0.26	0.074	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Silver	0.11	J	0.26	0.030	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Thallium	0.084	J	0.26	0.053	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Vanadium	46		0.47	0.16	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Zinc	52		1.0	0.26	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B

Client Sample ID : HPNS-D1-AB-012 Laboratory Sample ID : 281271-012

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Antimony	0.43		0.25	0.074	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Arsenic	5.0		0.25	0.068	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Barium	150		0.25	0.050	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Beryllium	0.30		0.25	0.047	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Cadmium	0.13	J	0.25	0.027	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Chromium	37		0.25	0.073	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Cobalt	11		0.25	0.045	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Copper	30	b	0.30	0.099	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Lead	33		0.25	0.066	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Mercury	0.11		0.017	0.0050	mg/Kg	Dry	1.000	EPA 7471B	METHOD
Molybdenum	1.1	b	0.25	0.074	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Nickel	47		0.39	0.13	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Selenium	0.30		0.25	0.069	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Silver	0.13	J	0.25	0.028	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Thallium	0.098	J	0.25	0.050	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Vanadium	51		0.44	0.15	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Zinc	62		0.99	0.24	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B

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Client Sample ID : HPNS-D1-AB-013 Laboratory Sample ID : 281271-013

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Antimony	0.21	J	0.25	0.073	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Arsenic	4.3		0.25	0.068	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Barium	140		0.25	0.050	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Beryllium	0.23	J	0.25	0.047	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Cadmium	0.26		0.25	0.027	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Chromium	40		0.25	0.072	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Cobalt	10		0.25	0.045	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Copper	30	b	0.29	0.098	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Lead	32		0.25	0.065	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Mercury	0.092		0.017	0.0051	mg/Kg	Dry	1.000	EPA 7471B	METHOD
Molybdenum	0.67	b	0.25	0.074	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Nickel	50		0.38	0.13	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Selenium	0.17	J	0.25	0.069	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Silver	0.096	J	0.25	0.027	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Thallium	0.050	J	0.25	0.049	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Vanadium	49		0.43	0.14	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Zinc	73		0.98	0.24	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B

Client Sample ID : HPNS-D1-AB-014 Laboratory Sample ID : 281271-014

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Antimony	0.13	J	0.26	0.078	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Arsenic	3.8		0.26	0.072	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Barium	130		0.26	0.053	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Beryllium	0.25	J	0.26	0.049	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Cadmium	0.20	J	0.26	0.029	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Chromium	32	b	0.26	0.076	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Cobalt	8.8		0.26	0.048	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Copper	25	b	0.31	0.10	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Lead	30		0.26	0.070	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Mercury	0.12		0.016	0.0048	mg/Kg	Dry	1.000	EPA 7471B	METHOD
Molybdenum	0.54	b	0.26	0.078	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Nickel	38	b	0.26	0.074	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Selenium	0.17	J	0.26	0.073	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Silver	0.063	J	0.26	0.029	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Thallium	0.057	J	0.26	0.052	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Vanadium	46	b	0.31	0.10	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Zinc	52		1.0	0.25	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B

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Client Sample ID : HPNS-D1-AB2-015 Laboratory Sample ID : 281271-015

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Antimony	0.16	J	0.26	0.083	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Arsenic	4.5		0.26	0.076	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Barium	140		0.26	0.056	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Beryllium	0.34		0.26	0.053	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Cadmium	0.20	J	0.26	0.031	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Chromium	43	b	0.26	0.080	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Cobalt	11		0.26	0.051	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Copper	29	b	0.33	0.11	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Lead	47		0.26	0.074	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Mercury	0.11		0.017	0.0052	mg/Kg	Dry	1.000	EPA 7471B	METHOD
Molybdenum	0.79	b	0.26	0.083	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Nickel	47	b	0.26	0.079	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Selenium	0.30		0.26	0.078	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Silver	0.11	J	0.26	0.031	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Thallium	0.060	J	0.26	0.055	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Vanadium	54	b	0.33	0.11	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Zinc	62		1.0	0.27	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B

Client Sample ID : HPNS-D1-AB-016 Laboratory Sample ID : 281271-016

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Antimony	0.19	J	0.26	0.076	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Arsenic	4.6		0.26	0.070	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Barium	130		0.26	0.052	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Beryllium	0.31		0.26	0.048	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Cadmium	0.34		0.26	0.028	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Chromium	34	b	0.26	0.074	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Cobalt	9.1		0.26	0.047	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Copper	28	b	0.31	0.10	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Lead	37		0.26	0.068	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Mercury	0.13		0.016	0.0049	mg/Kg	Dry	1.000	EPA 7471B	METHOD
Molybdenum	0.79	b	0.26	0.077	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Nickel	42	b	0.26	0.072	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Selenium	0.14	J	0.26	0.072	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Silver	0.084	J	0.26	0.028	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Thallium	0.067	J	0.26	0.051	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Vanadium	51	b	0.31	0.10	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Zinc	60		1.0	0.25	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B

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Client Sample ID : HPNS-D1-AB-017 Laboratory Sample ID : 281271-017

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Antimony	0.18	J	0.26	0.081	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Arsenic	3.9		0.26	0.075	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Barium	130		0.26	0.055	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Beryllium	0.27		0.26	0.052	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Cadmium	0.15	J	0.26	0.030	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Chromium	32	b	0.26	0.079	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Cobalt	9.7		0.26	0.049	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Copper	18	b	0.68	0.11	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Lead	23		0.26	0.072	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Mercury	0.18		0.017	0.0052	mg/Kg	Dry	1.000	EPA 7471B	METHOD
Molybdenum	0.60	b	0.26	0.081	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Nickel	43	b	0.26	0.077	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Selenium	0.12	J	0.26	0.076	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Silver	0.091	J	0.26	0.030	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Vanadium	45	b	0.33	0.11	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Zinc	53		1.0	0.27	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B

Client Sample ID : HPNS-D1-AB-018 Laboratory Sample ID : 281271-018

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Antimony	0.15	J	0.26	0.084	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Arsenic	4.8		0.26	0.077	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Barium	130		0.26	0.057	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Beryllium	0.26	J	0.26	0.053	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Cadmium	0.26		0.26	0.031	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Chromium	36	b	0.26	0.081	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Cobalt	8.7		0.26	0.051	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Copper	21	b	0.70	0.11	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Lead	27		0.26	0.075	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Mercury	0.11		0.017	0.0051	mg/Kg	Dry	1.000	EPA 7471B	METHOD
Molybdenum	0.70	b	0.26	0.084	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Nickel	40	b	0.26	0.080	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Selenium	0.099	J	0.26	0.078	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Silver	0.11	J	0.26	0.031	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Thallium	0.062	J	0.26	0.056	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Vanadium	52	b	0.34	0.11	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Zinc	57		1.0	0.27	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B

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Client Sample ID : HPNS-D1-AB-019 Laboratory Sample ID : 281271-019

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Antimony	0.14	J	0.25	0.075	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Arsenic	3.7		0.25	0.069	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Barium	130		0.25	0.051	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Beryllium	0.21	J	0.25	0.048	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Cadmium	0.22	J	0.25	0.028	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Chromium	34	b	0.25	0.073	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Cobalt	9.1		0.25	0.046	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Copper	26	b	0.30	0.10	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Lead	35		0.25	0.067	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Mercury	0.16		0.016	0.0049	mg/Kg	Dry	1.000	EPA 7471B	METHOD
Molybdenum	0.59	b	0.25	0.075	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Nickel	43	b	0.25	0.071	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Selenium	0.19	J	0.25	0.070	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Silver	0.085	J	0.25	0.028	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Vanadium	47	b	0.30	0.10	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Zinc	51		1.0	0.24	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B

Client Sample ID : HPNS-D1-AB-020 Laboratory Sample ID : 281271-020

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Antimony	0.12	J	0.25	0.075	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Arsenic	3.9		0.25	0.070	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Barium	120		0.25	0.051	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Beryllium	0.25	J	0.25	0.048	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Cadmium	0.25	J	0.25	0.028	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Chromium	34	b	0.25	0.073	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Cobalt	8.3		0.25	0.046	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Copper	26	b	0.30	0.10	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Lead	46		0.25	0.068	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Mercury	0.13		0.017	0.0052	mg/Kg	Dry	1.000	EPA 7471B	METHOD
Molybdenum	0.59	b	0.25	0.076	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Nickel	38	b	0.25	0.072	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Selenium	0.12	J	0.25	0.071	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Silver	0.082	J	0.25	0.028	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Thallium	0.051	J	0.25	0.051	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Vanadium	44	b	0.30	0.10	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Zinc	52		1.0	0.25	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B

Curtis & Tompkins, Ltd.

Client Sample ID : HPNS-D1-AB-021 Laboratory Sample ID : 281271-021

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Antimony	0.46		0.26	0.078	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Arsenic	4.6		0.26	0.072	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Barium	130		0.26	0.053	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Beryllium	0.30		0.26	0.049	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Cadmium	0.27		0.26	0.029	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Chromium	41	b	0.26	0.076	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Cobalt	9.8		0.26	0.047	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Copper	24	b	0.31	0.10	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Lead	35		0.26	0.070	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Mercury	0.13		0.017	0.0052	mg/Kg	Dry	1.000	EPA 7471B	METHOD
Molybdenum	0.64	b	0.26	0.078	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Nickel	51	b	0.26	0.074	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Selenium	0.21	J	0.26	0.073	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Silver	0.096	J	0.26	0.029	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Vanadium	50	b	0.31	0.10	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Zinc	54		1.0	0.25	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B

Client Sample ID : HPNS-D1-AB-022 Laboratory Sample ID : 281271-022

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Antimony	0.17	J	0.26	0.078	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Arsenic	3.8		0.26	0.072	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Barium	130		0.26	0.053	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Beryllium	0.22	J	0.26	0.050	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Cadmium	0.16	J	0.26	0.029	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Chromium	37	b	0.26	0.076	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Cobalt	9.5		0.26	0.048	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Copper	31	b	0.32	0.11	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Lead	26		0.26	0.070	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Mercury	0.089		0.017	0.0052	mg/Kg	Dry	1.000	EPA 7471B	METHOD
Molybdenum	0.48	b	0.26	0.079	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Nickel	45	b	0.26	0.075	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Selenium	0.20	J	0.26	0.074	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Silver	0.068	J	0.26	0.029	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Vanadium	47	b	0.32	0.11	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Zinc	52		1.0	0.26	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B

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Client Sample ID : HPNS-D1-AB-023 Laboratory Sample ID : 281271-023

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Antimony	0.11	J	0.24	0.072	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Arsenic	5.0		0.24	0.066	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Barium	130		0.24	0.049	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Beryllium	0.27		0.24	0.046	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Cadmium	0.27		0.24	0.027	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Chromium	41	b	0.24	0.070	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Cobalt	9.2		0.24	0.044	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Copper	25	b	0.29	0.096	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Lead	27		0.24	0.064	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Mercury	0.11		0.018	0.0053	mg/Kg	Dry	1.000	EPA 7471B	METHOD
Molybdenum	0.87	b	0.24	0.072	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Nickel	44	b	0.24	0.068	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Selenium	0.22	J	0.24	0.067	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Silver	0.067	J	0.24	0.027	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Thallium	0.055	J	0.24	0.048	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Vanadium	50	b	0.29	0.096	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Zinc	85		0.96	0.24	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B

Client Sample ID : HPNS-D1-AB-024 Laboratory Sample ID : 281271-024

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Antimony	0.22	J	0.24	0.070	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Arsenic	5.2		0.24	0.065	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Barium	150		0.24	0.048	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Beryllium	0.33		0.24	0.045	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Cadmium	0.29		0.24	0.026	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Chromium	43	b	0.24	0.069	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Cobalt	12		0.24	0.043	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Copper	27	b	0.28	0.094	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Lead	37		0.24	0.063	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Mercury	0.083		0.018	0.0054	mg/Kg	Dry	1.000	EPA 7471B	METHOD
Molybdenum	0.82	b	0.24	0.071	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Nickel	48	b	0.24	0.067	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Selenium	0.22	J	0.24	0.066	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Silver	0.090	J	0.24	0.026	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Vanadium	56	b	0.28	0.094	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Zinc	69		0.94	0.23	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B

Curtis & Tompkins, Ltd.

Client Sample ID : HPNS-D1-AB-025 Laboratory Sample ID : 281271-025

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Antimony	0.20	J	0.25	0.073	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Arsenic	4.1		0.25	0.068	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Barium	150		0.25	0.050	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Beryllium	0.31		0.25	0.047	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Cadmium	0.30		0.25	0.027	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Chromium	40	b	0.25	0.071	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Cobalt	9.9		0.25	0.045	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Copper	31	b	0.29	0.098	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Lead	33		0.25	0.065	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Mercury	0.11		0.016	0.0047	mg/Kg	Dry	1.000	EPA 7471B	METHOD
Molybdenum	0.56	b	0.25	0.074	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Nickel	46	b	0.25	0.070	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Selenium	0.22	J	0.25	0.069	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Silver	0.084	J	0.25	0.027	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Vanadium	52	b	0.29	0.098	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Zinc	62		0.98	0.24	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B

Client Sample ID : HPNS-D1-AB-026 Laboratory Sample ID : 281271-026

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Antimony	0.17	J	0.25	0.073	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Arsenic	4.6		0.25	0.068	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Barium	140		0.25	0.050	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Beryllium	0.21	J	0.25	0.047	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Cadmium	0.22	J	0.25	0.027	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Chromium	38	b	0.25	0.071	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Cobalt	11		0.25	0.045	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Copper	33	b	0.29	0.098	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Lead	27		0.25	0.066	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Mercury	0.17		0.017	0.0050	mg/Kg	Dry	1.000	EPA 7471B	METHOD
Molybdenum	0.63	b	0.25	0.074	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Nickel	50	b	0.25	0.070	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Selenium	0.18	J	0.25	0.069	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Silver	0.070	J	0.25	0.027	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Vanadium	54	b	0.29	0.098	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Zinc	57		0.98	0.24	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B

Curtis & Tompkins, Ltd.

Client Sample ID : HPNS-D1-AB-027 Laboratory Sample ID : 281271-027

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Antimony	0.18	J	0.26	0.076	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Arsenic	4.2		0.26	0.070	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Barium	170		0.26	0.052	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Beryllium	0.28		0.26	0.048	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Cadmium	0.25	J	0.26	0.028	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Chromium	36	b	0.26	0.074	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Cobalt	10		0.26	0.047	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Copper	27	b	0.31	0.10	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Lead	26		0.26	0.068	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Mercury	0.092		0.016	0.0048	mg/Kg	Dry	1.000	EPA 7471B	METHOD
Molybdenum	0.60	b	0.26	0.077	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Nickel	41	b	0.26	0.072	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Selenium	0.21	J	0.26	0.071	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Silver	0.075	J	0.26	0.028	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Vanadium	49	b	0.31	0.10	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B
Zinc	54		1.0	0.25	mg/Kg	Dry	25.00	EPA 6020A	EPA 3050B

J = Estimated value
b = See narrative

Laboratory Job Number 281271

ANALYTICAL REPORT

Metals

Matrix: Soil

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	281271	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	HPNS-D1-AB2-001	Basis:	dry
Lab ID:	281271-001	Sampled:	09/21/16
Matrix:	Soil	Received:	09/21/16
Units:	mg/Kg		

Moisture: 4%

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	0.27	0.26	0.084	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Arsenic	4.7	0.28	0.093	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Barium	150	0.26	0.058	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Beryllium	0.31	0.26	0.054	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Cadmium	0.26	0.26	0.031	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Chromium	39	0.26	0.083	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Cobalt	9.9	0.26	0.052	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Copper	29	0.31	0.10	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Lead	29	0.26	0.076	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Mercury	0.12	0.017	0.0050	1.000	239404	09/22/16	09/22/16	METHOD	EPA 7471B
Molybdenum	0.80 b	0.26	0.085	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Nickel	45 b	0.26	0.080	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Selenium	0.31	0.26	0.079	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Silver	0.091 J	0.26	0.032	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Thallium	0.060 J	0.26	0.057	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Vanadium	55	0.50	0.17	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Zinc	59	1.0	0.28	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A

J= Estimated value
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	281271	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	HPNS-D1-AB-002	Basis:	dry
Lab ID:	281271-002	Sampled:	09/21/16
Matrix:	Soil	Received:	09/21/16
Units:	mg/Kg		

Moisture: 4%

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	0.26 J	0.26	0.077	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Arsenic	4.0	0.26	0.085	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Barium	140	0.26	0.052	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Beryllium	0.32	0.26	0.049	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Cadmium	0.68	0.26	0.029	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Chromium	36	0.26	0.076	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Cobalt	9.8	0.26	0.047	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Copper	21 b	0.64	0.10	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Lead	27	0.26	0.069	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Mercury	0.12	0.017	0.0050	1.000	239404	09/22/16	09/22/16	METHOD	EPA 7471B
Molybdenum	0.77 b	0.26	0.077	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Nickel	41 b	0.26	0.073	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Selenium	0.16 J	0.26	0.072	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Silver	0.10 J	0.26	0.029	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Thallium	0.058 J	0.26	0.052	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Vanadium	51	0.45	0.15	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Zinc	55	1.0	0.25	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A

J= Estimated value
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	281271	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	HPNS-D1-AB-003	Basis:	dry
Lab ID:	281271-003	Sampled:	09/21/16
Matrix:	Soil	Received:	09/21/16
Units:	mg/Kg		

Moisture: 4%

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	0.28	0.26	0.052	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Arsenic	4.3	0.27	0.088	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Barium	150	0.26	0.055	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Beryllium	0.25 J	0.26	0.051	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Cadmium	0.20 J	0.26	0.030	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Chromium	38	0.26	0.079	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Cobalt	12	0.26	0.049	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Copper	44	0.30	0.099	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Lead	27	0.26	0.072	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Mercury	0.18	0.016	0.0048	1.000	239404	09/22/16	09/22/16	METHOD	EPA 7471B
Molybdenum	0.99 b	0.26	0.081	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Nickel	46 b	0.26	0.076	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Selenium	0.27	0.26	0.075	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Silver	0.089 J	0.26	0.030	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Thallium	0.061 J	0.26	0.054	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Vanadium	57	0.47	0.16	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Zinc	63	1.0	0.26	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A

J= Estimated value
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	281271	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	HPNS-D1-AB-004	Basis:	dry
Lab ID:	281271-004	Sampled:	09/21/16
Matrix:	Soil	Received:	09/21/16
Units:	mg/Kg		

Moisture: 4%

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	0.34	0.26	0.083	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Arsenic	4.9	0.28	0.092	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Barium	160	0.26	0.057	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Beryllium	0.31	0.26	0.053	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Cadmium	0.27	0.26	0.061	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Chromium	43	0.26	0.082	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Cobalt	9.3	0.26	0.051	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Copper	33	0.31	0.10	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Lead	33	0.26	0.075	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Mercury	0.12	0.017	0.0051	1.000	239404	09/22/16	09/22/16	METHOD	EPA 7471B
Molybdenum	0.86 b	0.26	0.084	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Nickel	44 b	0.26	0.080	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Selenium	0.22 J	0.26	0.078	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Silver	0.063 J	0.26	0.031	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Thallium	0.069 J	0.26	0.056	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Vanadium	51	0.49	0.16	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Zinc	59	1.0	0.27	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A

J= Estimated value
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	281271	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	HPNS-D1-AB-005	Basis:	dry
Lab ID:	281271-005	Sampled:	09/21/16
Matrix:	Soil	Received:	09/21/16
Units:	mg/Kg		

Moisture: 4%

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	0.24 J	0.25	0.075	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Arsenic	4.4	0.25	0.082	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Barium	130	0.25	0.051	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Beryllium	0.34	0.25	0.048	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Cadmium	0.27	0.25	0.055	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Chromium	34	0.25	0.074	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Cobalt	8.8	0.25	0.059	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Copper	26	0.28	0.092	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Lead	55	0.25	0.067	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Mercury	0.16	0.016	0.0049	1.000	239404	09/22/16	09/22/16	METHOD	EPA 7471B
Molybdenum	0.77 b	0.25	0.075	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Nickel	41	0.39	0.13	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Selenium	0.16 J	0.25	0.070	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Silver	0.063 J	0.25	0.028	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Thallium	0.055 J	0.25	0.050	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Vanadium	51	0.44	0.15	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Zinc	60	1.0	0.24	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A

J= Estimated value
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	281271	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	HPNS-D1-AB-006	Basis:	dry
Lab ID:	281271-006	Sampled:	09/21/16
Matrix:	Soil	Received:	09/21/16
Units:	mg/Kg		

Moisture: 4%

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	0.26	0.25	0.075	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Arsenic	4.4	0.25	0.082	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Barium	140	0.25	0.051	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Beryllium	0.32	0.25	0.048	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Cadmium	0.20 J	0.25	0.028	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Chromium	35	0.25	0.074	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Cobalt	8.4	0.25	0.059	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Copper	27	0.28	0.092	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Lead	29	0.25	0.067	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Mercury	0.15	0.017	0.0050	1.000	239404	09/22/16	09/22/16	METHOD	EPA 7471B
Molybdenum	0.73 b	0.25	0.075	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Nickel	40	0.39	0.13	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Selenium	0.16 J	0.25	0.070	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Silver	0.062 J	0.25	0.028	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Thallium	0.067 J	0.25	0.050	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Vanadium	50	0.44	0.15	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Zinc	55	1.0	0.24	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A

J= Estimated value
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	281271	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	HPNS-D1-AB-007	Basis:	dry
Lab ID:	281271-007	Sampled:	09/21/16
Matrix:	Soil	Received:	09/21/16
Units:	mg/Kg		

Moisture: 4%

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	0.23 J	0.26	0.077	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Arsenic	4.4	0.26	0.085	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Barium	150	0.26	0.052	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Beryllium	0.25 J	0.26	0.049	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Cadmium	0.38	0.26	0.056	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Chromium	37	0.26	0.076	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Cobalt	9.5	0.26	0.061	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Copper	30	0.28	0.095	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Lead	33	0.26	0.069	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Mercury	0.12	0.019	0.0057	1.000	239404	09/22/16	09/22/16	METHOD	EPA 7471B
Molybdenum	0.78 b	0.26	0.077	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Nickel	44	0.40	0.13	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Selenium	0.21 U	0.26	0.072	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Silver	0.085 J	0.26	0.029	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Thallium	0.079 J	0.26	0.052	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Vanadium	55	0.45	0.15	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Zinc	64	1.0	0.25	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A

J= Estimated value
U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	281271	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	HPNS-D1-AB-008	Basis:	dry
Lab ID:	281271-008	Sampled:	09/21/16
Matrix:	Soil	Received:	09/21/16
Units:	mg/Kg		

Moisture: 4%

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	0.20 J	0.26	0.076	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Arsenic	4.4	0.26	0.084	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Barium	150	0.26	0.052	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Beryllium	0.32	0.26	0.036	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Cadmium	0.20 J	0.26	0.056	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Chromium	38	0.26	0.075	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Cobalt	9.4	0.26	0.060	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Copper	29	0.28	0.094	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Lead	31	0.26	0.068	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Mercury	0.12	0.018	0.0055	1.000	239404	09/22/16	09/22/16	METHOD	EPA 7471B
Molybdenum	0.66 b	0.26	0.077	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Nickel	49	0.40	0.13	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Selenium	0.19 J	0.26	0.072	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Silver	0.086 J	0.26	0.028	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Thallium	0.063 J	0.26	0.051	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Vanadium	51	0.45	0.15	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Zinc	58	1.0	0.25	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A

J= Estimated value
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	281271	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	HPNS-D1-AB-009	Basis:	dry
Lab ID:	281271-009	Sampled:	09/21/16
Matrix:	Soil	Received:	09/21/16
Units:	mg/Kg		

Moisture: 3%

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	0.24	0.24	0.071	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Arsenic	4.2	0.24	0.079	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Barium	160	0.24	0.049	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Beryllium	0.27	0.24	0.045	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Cadmium	0.26	0.24	0.052	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Chromium	39	0.24	0.070	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Cobalt	9.5	0.24	0.056	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Copper	29	0.26	0.088	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Lead	31	0.24	0.064	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Mercury	0.12	0.018	0.0054	1.000	239404	09/22/16	09/22/16	METHOD	EPA 7471B
Molybdenum	0.86 b	0.24	0.072	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Nickel	43	0.37	0.12	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Selenium	0.14 J	0.24	0.067	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Silver	0.087 J	0.24	0.027	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Thallium	0.059 J	0.24	0.048	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Vanadium	53	0.42	0.14	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Zinc	62	0.95	0.23	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A

J= Estimated value
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	281271	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	HPNS-D1-AB-010	Basis:	dry
Lab ID:	281271-010	Sampled:	09/21/16
Matrix:	Soil	Received:	09/21/16
Units:	mg/Kg		

Moisture: 3%

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	0.25 J	0.26	0.082	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Arsenic	4.6	0.27	0.090	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Barium	160	0.26	0.056	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Beryllium	0.27	0.26	0.052	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Cadmium	0.25 J	0.26	0.030	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Chromium	40	0.26	0.081	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Cobalt	9.5	0.26	0.065	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Copper	34	0.30	0.10	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Lead	31	0.26	0.073	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Mercury	0.16	0.017	0.0051	1.000	239404	09/22/16	09/22/16	METHOD	EPA 7471B
Molybdenum	0.71 b	0.26	0.082	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Nickel	45	0.43	0.14	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Selenium	0.12 J	0.26	0.077	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Silver	0.094 J	0.26	0.031	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Thallium	0.069 J	0.26	0.055	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Vanadium	52	0.48	0.16	25.00	239526	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Zinc	59	1.0	0.27	25.00	239526	09/27/16	09/27/16	EPA 3050B	EPA 6020A

J= Estimated value
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	281271	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	HPNS-D1-AB-011	Basis:	dry
Lab ID:	281271-011	Sampled:	09/21/16
Matrix:	Soil	Received:	09/21/16
Units:	mg/Kg		

Moisture: 2%

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	0.46	0.26	0.079	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Arsenic	3.9	0.26	0.073	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Barium	130	0.26	0.054	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Beryllium	0.27	0.26	0.050	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Cadmium	0.18 J	0.26	0.029	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Chromium	36	0.26	0.078	25.00	239551	09/27/16	09/29/16	EPA 3050B	EPA 6020A
Cobalt	9.0	0.26	0.048	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Copper	23 b	0.32	0.11	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Lead	31	0.26	0.071	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Mercury	0.10	0.018	0.0053	1.000	239404	09/22/16	09/22/16	METHOD	EPA 7471B
Molybdenum	0.76 b	0.26	0.080	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Nickel	43	0.41	0.14	25.00	239551	09/27/16	09/29/16	EPA 3050B	EPA 6020A
Selenium	0.21 J	0.26	0.074	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Silver	0.11 J	0.26	0.030	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Thallium	0.084 J	0.26	0.053	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Vanadium	46	0.47	0.16	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Zinc	52	1.0	0.26	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A

J= Estimated value
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	281271	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	HPNS-D1-AB-012	Basis:	dry
Lab ID:	281271-012	Sampled:	09/21/16
Matrix:	Soil	Received:	09/21/16
Units:	mg/Kg		

Moisture: 3%

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	0.43	0.25	0.074	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Arsenic	5.0	0.25	0.068	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Barium	150	0.25	0.050	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Beryllium	0.30	0.25	0.047	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Cadmium	0.13 J	0.25	0.027	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Chromium	37	0.25	0.073	25.00	239551	09/27/16	09/29/16	EPA 3050B	EPA 6020A
Cobalt	11	0.25	0.045	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Copper	30 b	0.30	0.099	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Lead	33	0.25	0.066	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Mercury	0.11	0.017	0.0050	1.000	239404	09/22/16	09/22/16	METHOD	EPA 7471B
Molybdenum	1.1 b	0.25	0.074	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Nickel	47	0.39	0.13	25.00	239551	09/27/16	09/29/16	EPA 3050B	EPA 6020A
Selenium	0.30	0.25	0.069	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Silver	0.13 J	0.25	0.028	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Thallium	0.098 J	0.25	0.050	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Vanadium	51	0.44	0.15	25.00	239551	09/27/16	09/29/16	EPA 3050B	EPA 6020A
Zinc	62	0.99	0.24	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A

J= Estimated value
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	281271	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	HPNS-D1-AB-013	Basis:	dry
Lab ID:	281271-013	Sampled:	09/21/16
Matrix:	Soil	Received:	09/21/16
Units:	mg/Kg		

Moisture: 2%

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	0.21 J	0.25	0.073	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Arsenic	4.3	0.25	0.068	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Barium	140	0.25	0.050	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Beryllium	0.23 J	0.25	0.047	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Cadmium	0.26	0.25	0.027	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Chromium	40	0.25	0.072	25.00	239551	09/27/16	09/29/16	EPA 3050B	EPA 6020A
Cobalt	10	0.25	0.045	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Copper	30 b	0.29	0.098	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Lead	32	0.25	0.065	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Mercury	0.092	0.017	0.0051	1.000	239404	09/22/16	09/22/16	METHOD	EPA 7471B
Molybdenum	0.67 b	0.25	0.074	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Nickel	50	0.38	0.13	25.00	239551	09/27/16	09/29/16	EPA 3050B	EPA 6020A
Selenium	0.17 J	0.25	0.069	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Silver	0.096 J	0.25	0.027	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Thallium	0.050 J	0.25	0.049	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Vanadium	49	0.43	0.14	25.00	239551	09/27/16	09/29/16	EPA 3050B	EPA 6020A
Zinc	73	0.98	0.24	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A

J= Estimated value
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	281271	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	HPNS-D1-AB-014	Basis:	dry
Lab ID:	281271-014	Sampled:	09/21/16
Matrix:	Soil	Received:	09/21/16
Units:	mg/Kg		

Moisture: 4%

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	0.13 J	0.26	0.078	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Arsenic	3.8	0.26	0.072	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Barium	130	0.26	0.053	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Beryllium	0.25 J	0.26	0.049	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Cadmium	0.20 J	0.26	0.029	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Chromium	32 b	0.26	0.076	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Cobalt	8.8	0.26	0.048	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Copper	25 b	0.31	0.10	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Lead	30	0.26	0.070	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Mercury	0.12	0.016	0.0048	1.000	239404	09/22/16	09/22/16	METHOD	EPA 7471B
Molybdenum	0.54 b	0.26	0.078	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Nickel	38 b	0.26	0.074	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Selenium	0.17 J	0.26	0.073	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Silver	0.063 J	0.26	0.029	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Thallium	0.057 J	0.26	0.052	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Vanadium	46 b	0.31	0.10	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Zinc	52	1.0	0.25	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A

J= Estimated value
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	281271	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	HPNS-D1-AB2-015	Basis:	dry
Lab ID:	281271-015	Sampled:	09/21/16
Matrix:	Soil	Received:	09/21/16
Units:	mg/Kg		

Moisture: 2%

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	0.16 J	0.26	0.083	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Arsenic	4.5	0.26	0.076	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Barium	140	0.26	0.056	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Beryllium	0.34	0.26	0.053	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Cadmium	0.20 J	0.26	0.031	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Chromium	43 b	0.26	0.080	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Cobalt	11	0.26	0.051	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Copper	29 b	0.33	0.11	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Lead	47	0.26	0.074	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Mercury	0.11	0.017	0.0052	1.000	239404	09/22/16	09/22/16	METHOD	EPA 7471B
Molybdenum	0.79 b	0.26	0.083	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Nickel	47 b	0.26	0.079	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Selenium	0.30	0.26	0.078	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Silver	0.11 J	0.26	0.031	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Thallium	0.060 J	0.26	0.055	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Vanadium	54 b	0.33	0.11	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Zinc	62	1.0	0.27	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A

J= Estimated value
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	281271	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	HPNS-D1-AB-016	Basis:	dry
Lab ID:	281271-016	Sampled:	09/21/16
Matrix:	Soil	Received:	09/21/16
Units:	mg/Kg		

Moisture: 4%

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	0.19 J	0.26	0.076	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Arsenic	4.6	0.26	0.070	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Barium	130	0.26	0.052	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Beryllium	0.31	0.26	0.048	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Cadmium	0.34	0.26	0.028	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Chromium	34 b	0.26	0.074	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Cobalt	9.1	0.26	0.047	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Copper	28 b	0.31	0.10	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Lead	37	0.26	0.068	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Mercury	0.13	0.016	0.0049	1.000	239404	09/22/16	09/22/16	METHOD	EPA 7471B
Molybdenum	0.79 b	0.26	0.077	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Nickel	42 b	0.26	0.072	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Selenium	0.14 J	0.26	0.072	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Silver	0.084 J	0.26	0.028	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Thallium	0.067 J	0.26	0.051	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Vanadium	51 b	0.31	0.10	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Zinc	60	1.0	0.25	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A

J= Estimated value
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	281271	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	HPNS-D1-AB-017	Basis:	dry
Lab ID:	281271-017	Sampled:	09/21/16
Matrix:	Soil	Received:	09/21/16
Units:	mg/Kg		

Moisture: 3%

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	0.18 J	0.26	0.081	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Arsenic	3.9	0.26	0.075	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Barium	130	0.26	0.055	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Beryllium	0.27	0.26	0.052	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Cadmium	0.15 J	0.26	0.030	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Chromium	32 b	0.26	0.079	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Cobalt	9.7	0.26	0.049	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Copper	18 b	0.68	0.11	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Lead	23	0.26	0.072	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Mercury	0.18	0.017	0.0052	1.000	239404	09/22/16	09/22/16	METHOD	EPA 7471B
Molybdenum	0.60 b	0.26	0.081	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Nickel	43 b	0.26	0.077	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Selenium	0.12 J	0.26	0.076	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Silver	0.091 J	0.26	0.030	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Thallium	0.11 U	0.26	0.054	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Vanadium	45 b	0.33	0.11	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Zinc	53	1.0	0.27	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A

J= Estimated value
U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	281271	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	HPNS-D1-AB-018	Basis:	dry
Lab ID:	281271-018	Sampled:	09/21/16
Matrix:	Soil	Received:	09/21/16
Units:	mg/Kg		

Moisture: 3%

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	0.15 J	0.26	0.084	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Arsenic	4.8	0.26	0.077	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Barium	130	0.26	0.057	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Beryllium	0.26 J	0.26	0.053	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Cadmium	0.26	0.26	0.031	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Chromium	36 b	0.26	0.081	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Cobalt	8.7	0.26	0.051	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Copper	21 b	0.70	0.11	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Lead	27	0.26	0.075	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Mercury	0.11	0.017	0.0051	1.000	239490	09/26/16	09/26/16	METHOD	EPA 7471B
Molybdenum	0.70 b	0.26	0.084	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Nickel	40 b	0.26	0.080	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Selenium	0.099 J	0.26	0.078	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Silver	0.11 J	0.26	0.031	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Thallium	0.062 J	0.26	0.056	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Vanadium	52 b	0.34	0.11	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A
Zinc	57	1.0	0.27	25.00	239551	09/27/16	09/27/16	EPA 3050B	EPA 6020A

J= Estimated value
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	281271	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	HPNS-D1-AB-019	Basis:	dry
Lab ID:	281271-019	Sampled:	09/21/16
Matrix:	Soil	Received:	09/21/16
Units:	mg/Kg		

Moisture: 4%

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	0.14 J	0.25	0.075	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Arsenic	3.7	0.25	0.069	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Barium	130	0.25	0.051	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Beryllium	0.21 J	0.25	0.048	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Cadmium	0.22 J	0.25	0.028	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Chromium	34 b	0.25	0.073	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Cobalt	9.1	0.25	0.046	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Copper	26 b	0.30	0.10	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Lead	35	0.25	0.067	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Mercury	0.16	0.016	0.0049	1.000	239490	09/26/16	09/26/16	METHOD	EPA 7471B
Molybdenum	0.59 b	0.25	0.075	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Nickel	43 b	0.25	0.071	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Selenium	0.19 J	0.25	0.070	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Silver	0.085 J	0.25	0.028	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Thallium	0.10 U	0.25	0.050	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Vanadium	47 b	0.30	0.10	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Zinc	51	1.0	0.24	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A

J= Estimated value
U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	281271	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	HPNS-D1-AB-020	Basis:	dry
Lab ID:	281271-020	Sampled:	09/21/16
Matrix:	Soil	Received:	09/21/16
Units:	mg/Kg		

Moisture: 4%

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	0.12 J	0.25	0.075	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Arsenic	3.9	0.25	0.070	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Barium	120	0.25	0.051	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Beryllium	0.25 J	0.25	0.048	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Cadmium	0.25 J	0.25	0.028	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Chromium	34 b	0.25	0.073	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Cobalt	8.3	0.25	0.046	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Copper	26 b	0.30	0.10	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Lead	46	0.25	0.068	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Mercury	0.13	0.017	0.0052	1.000	239490	09/26/16	09/26/16	METHOD	EPA 7471B
Molybdenum	0.59 b	0.25	0.076	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Nickel	38 b	0.25	0.072	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Selenium	0.12 J	0.25	0.071	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Silver	0.082 J	0.25	0.028	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Thallium	0.051 J	0.25	0.051	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Vanadium	44 b	0.30	0.10	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Zinc	52	1.0	0.25	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A

J= Estimated value
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	281271	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	HPNS-D1-AB-021	Basis:	dry
Lab ID:	281271-021	Sampled:	09/21/16
Matrix:	Soil	Received:	09/21/16
Units:	mg/Kg		

Moisture: 3%

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	0.46	0.26	0.078	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Arsenic	4.6	0.26	0.072	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Barium	130	0.26	0.053	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Beryllium	0.30	0.26	0.049	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Cadmium	0.27	0.26	0.029	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Chromium	41 b	0.26	0.076	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Cobalt	9.8	0.26	0.047	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Copper	24 b	0.31	0.10	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Lead	35	0.26	0.070	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Mercury	0.13	0.017	0.0052	1.000	239490	09/26/16	09/26/16	METHOD	EPA 7471B
Molybdenum	0.64 b	0.26	0.078	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Nickel	51 b	0.26	0.074	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Selenium	0.21 J	0.26	0.073	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Silver	0.096 J	0.26	0.029	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Thallium	0.10 U	0.26	0.052	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Vanadium	50 b	0.31	0.10	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Zinc	54	1.0	0.25	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A

J= Estimated value
U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	281271	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	HPNS-D1-AB-022	Basis:	dry
Lab ID:	281271-022	Sampled:	09/21/16
Matrix:	Soil	Received:	09/21/16
Units:	mg/Kg		

Moisture: 2%

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	0.17 J	0.26	0.078	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Arsenic	3.8	0.26	0.072	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Barium	130	0.26	0.053	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Beryllium	0.22 J	0.26	0.050	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Cadmium	0.16 J	0.26	0.029	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Chromium	37 b	0.26	0.076	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Cobalt	9.5	0.26	0.048	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Copper	31 b	0.32	0.11	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Lead	26	0.26	0.070	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Mercury	0.089	0.017	0.0052	1.000	239490	09/26/16	09/26/16	METHOD	EPA 7471B
Molybdenum	0.48 b	0.26	0.079	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Nickel	45 b	0.26	0.075	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Selenium	0.20 J	0.26	0.074	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Silver	0.068 J	0.26	0.029	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Thallium	0.11 U	0.26	0.053	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Vanadium	47 b	0.32	0.11	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Zinc	52	1.0	0.26	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A

J= Estimated value
U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	281271	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	HPNS-D1-AB-023	Basis:	dry
Lab ID:	281271-023	Sampled:	09/21/16
Matrix:	Soil	Received:	09/21/16
Units:	mg/Kg		

Moisture: 2%

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	0.11 J	0.24	0.072	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Arsenic	5.0	0.24	0.066	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Barium	130	0.24	0.049	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Beryllium	0.27	0.24	0.046	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Cadmium	0.27	0.24	0.027	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Chromium	41 b	0.24	0.070	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Cobalt	9.2	0.24	0.044	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Copper	25 b	0.29	0.096	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Lead	27	0.24	0.064	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Mercury	0.11	0.018	0.0053	1.000	239490	09/26/16	09/26/16	METHOD	EPA 7471B
Molybdenum	0.87 b	0.24	0.072	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Nickel	44 b	0.24	0.068	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Selenium	0.22 J	0.24	0.067	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Silver	0.067 J	0.24	0.027	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Thallium	0.055 J	0.24	0.048	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Vanadium	50 b	0.29	0.096	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Zinc	85	0.96	0.24	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A

J= Estimated value
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	281271	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	HPNS-D1-AB-024	Basis:	dry
Lab ID:	281271-024	Sampled:	09/21/16
Matrix:	Soil	Received:	09/21/16
Units:	mg/Kg		

Moisture: 2%

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	0.22 J	0.24	0.070	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Arsenic	5.2	0.24	0.065	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Barium	150	0.24	0.048	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Beryllium	0.33	0.24	0.045	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Cadmium	0.29	0.24	0.026	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Chromium	43 b	0.24	0.069	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Cobalt	12	0.24	0.043	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Copper	27 b	0.28	0.094	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Lead	37	0.24	0.063	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Mercury	0.083	0.018	0.0054	1.000	239490	09/26/16	09/26/16	METHOD	EPA 7471B
Molybdenum	0.82 b	0.24	0.071	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Nickel	48 b	0.24	0.067	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Selenium	0.22 J	0.24	0.066	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Silver	0.090 J	0.24	0.026	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Thallium	0.094 U	0.24	0.047	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Vanadium	56 b	0.28	0.094	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Zinc	69	0.94	0.23	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A

J= Estimated value
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DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	281271	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	HPNS-D1-AB-025	Basis:	dry
Lab ID:	281271-025	Sampled:	09/21/16
Matrix:	Soil	Received:	09/21/16
Units:	mg/Kg		

Moisture: 2%

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	0.20 J	0.25	0.073	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Arsenic	4.1	0.25	0.068	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Barium	150	0.25	0.050	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Beryllium	0.31	0.25	0.047	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Cadmium	0.30	0.25	0.027	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Chromium	40 b	0.25	0.071	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Cobalt	9.9	0.25	0.045	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Copper	31 b	0.29	0.098	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Lead	33	0.25	0.065	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Mercury	0.11	0.016	0.0047	1.000	239490	09/26/16	09/26/16	METHOD	EPA 7471B
Molybdenum	0.56 b	0.25	0.074	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Nickel	46 b	0.25	0.070	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Selenium	0.22 J	0.25	0.069	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Silver	0.084 J	0.25	0.027	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Thallium	0.098 U	0.25	0.049	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Vanadium	52 b	0.29	0.098	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Zinc	62	0.98	0.24	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A

J= Estimated value
U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	281271	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	HPNS-D1-AB-026	Basis:	dry
Lab ID:	281271-026	Sampled:	09/21/16
Matrix:	Soil	Received:	09/21/16
Units:	mg/Kg		

Moisture: 3%

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	0.17 J	0.25	0.073	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Arsenic	4.6	0.25	0.068	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Barium	140	0.25	0.050	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Beryllium	0.21 J	0.25	0.047	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Cadmium	0.22 J	0.25	0.027	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Chromium	38 b	0.25	0.071	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Cobalt	11	0.25	0.045	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Copper	33 b	0.29	0.098	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Lead	27	0.25	0.066	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Mercury	0.17	0.017	0.0050	1.000	239490	09/26/16	09/26/16	METHOD	EPA 7471B
Molybdenum	0.63 b	0.25	0.074	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Nickel	50 b	0.25	0.070	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Selenium	0.18 J	0.25	0.069	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Silver	0.070 J	0.25	0.027	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Thallium	0.098 U	0.25	0.049	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Vanadium	54 b	0.29	0.098	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Zinc	57	0.98	0.24	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A

J= Estimated value
U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	281271	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	HPNS-D1-AB-027	Basis:	dry
Lab ID:	281271-027	Sampled:	09/21/16
Matrix:	Soil	Received:	09/21/16
Units:	mg/Kg		

Moisture: 2%

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	0.18 J	0.26	0.076	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Arsenic	4.2	0.26	0.070	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Barium	170	0.26	0.052	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Beryllium	0.28	0.26	0.048	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Cadmium	0.25 J	0.26	0.028	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Chromium	36 b	0.26	0.074	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Cobalt	10	0.26	0.047	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Copper	27 b	0.31	0.10	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Lead	26	0.26	0.068	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Mercury	0.092	0.016	0.0048	1.000	239490	09/26/16	09/26/16	METHOD	EPA 7471B
Molybdenum	0.60 b	0.26	0.077	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Nickel	41 b	0.26	0.072	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Selenium	0.21 J	0.26	0.071	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Silver	0.075 J	0.26	0.028	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Thallium	0.10 U	0.26	0.051	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Vanadium	49 b	0.31	0.10	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A
Zinc	54	1.0	0.25	25.00	239551	09/27/16	09/28/16	EPA 3050B	EPA 6020A

J= Estimated value
U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	281271	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	METHOD
Project#:	149831	Analysis:	EPA 7471B
Analyte:	Mercury	Diln Fac:	1.000
Type:	BLANK	Batch#:	239404
Lab ID:	QC852720	Prepared:	09/22/16
Matrix:	Soil	Analyzed:	09/22/16
Units:	mg/Kg		

Result	LOQ	DL
0.0086 U	0.017	0.0052

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	281271	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	METHOD
Project#:	149831	Analysis:	EPA 7471B
Analyte:	Mercury	Batch#:	239404
Matrix:	Soil	Prepared:	09/22/16
Units:	mg/Kg	Analyzed:	09/22/16
Diln Fac:	1.000		

Type	Lab ID	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC852721	0.2155	0.2339	109	80-124		
BSD	QC852722	0.1984	0.2121	107	80-124	1	20

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	281271	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	METHOD
Project#:	149831	Analysis:	EPA 7471B
Analyte:	Mercury	Basis:	as received
Field ID:	ZZZZZZZZZZ	Diln Fac:	5.000
Type:	Serial Dilution	Batch#:	239404
MSS Lab ID:	281256-001	Sampled:	09/21/16
Lab ID:	QC852725	Received:	09/21/16
Matrix:	Soil	Analyzed:	09/22/16
Units:	mg/Kg		

MSS Result	MSS LOQ	Result	LOQ	% Diff	Lim
0.6559	0.01538	1.016	0.07692	55 *	10

*= Value outside of QC limits; see narrative
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	281271	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	METHOD
Project#:	149831	Analysis:	EPA 7471B
Analyte:	Mercury	Diln Fac:	1.000
Type:	BLANK	Batch#:	239490
Lab ID:	QC853072	Prepared:	09/26/16
Matrix:	Soil	Analyzed:	09/26/16
Units:	mg/Kg		

Result	LOQ	DL
0.0078 U	0.016	0.0047

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	281271	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	METHOD
Project#:	149831	Analysis:	EPA 7471B
Analyte:	Mercury	Batch#:	239490
Matrix:	Soil	Prepared:	09/26/16
Units:	mg/Kg	Analyzed:	09/26/16
Diln Fac:	1.000		

Type	Lab ID	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC853073	0.2083	0.2355	113	80-124		
BSD	QC853074	0.1923	0.2197	114	80-124	1	20

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	281271	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	METHOD
Project#:	149831	Analysis:	EPA 7471B
Analyte:	Mercury	Diln Fac:	1.000
Field ID:	ZZZZZZZZZZ	Batch#:	239490
MSS Lab ID:	281256-001	Sampled:	09/21/16
Matrix:	Soil	Received:	09/21/16
Units:	mg/Kg	Prepared:	09/26/16
Basis:	as received	Analyzed:	09/26/16

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
MS	QC853075	1.355	0.2049	0.4589	-438 NM	80-124		
MSD	QC853076		0.2016	0.5082	-420 NM	80-124	10	20

NM= Not Meaningful: Sample concentration > 4X spike concentration
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	281271	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	METHOD
Project#:	149831	Analysis:	EPA 7471B
Analyte:	Mercury	Basis:	as received
Field ID:	ZZZZZZZZZZ	Diln Fac:	5.000
Type:	Serial Dilution	Batch#:	239490
MSS Lab ID:	281256-001	Sampled:	09/21/16
Lab ID:	QC853077	Received:	09/21/16
Matrix:	Soil	Analyzed:	09/26/16
Units:	mg/Kg		

MSS Result	MSS LOQ	Result	LOQ	% Diff	Lim
1.084 >LR	0.01667	1.468	0.08333	NC	10

NC= Not Calculated
>LR= Response exceeds instrument's linear range
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	281271	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3050B
Project#:	149831	Analysis:	EPA 6020A
Type:	BLANK	Diln Fac:	25.00
Lab ID:	QC853199	Batch#:	239526
Matrix:	Soil	Prepared:	09/27/16
Units:	mg/Kg		

Analyte	Result	LOQ	DL	Analyzed
Antimony	0.19 U	0.23	0.069	09/27/16
Arsenic	0.26 b	0.23	0.064	09/27/16
Barium	0.095 J	0.23	0.047	09/27/16
Beryllium	0.093 U	0.23	0.044	09/27/16
Cadmium	0.037 J	0.23	0.026	09/27/16
Chromium	0.19 U	0.23	0.068	09/28/16
Cobalt	0.093 U	0.23	0.042	09/27/16
Copper	0.19 U	0.26	0.085	09/28/16
Lead	0.19 U	0.23	0.062	09/27/16
Molybdenum	0.19 U	0.38	0.13	09/28/16
Nickel	2.0 b	0.23	0.066	09/27/16
Selenium	0.19 U	0.23	0.065	09/27/16
Silver	0.093 U	0.23	0.026	09/27/16
Thallium	0.093 U	0.23	0.046	09/27/16
Vanadium	0.43 b	0.41	0.14	09/28/16
Zinc	0.23 U	0.93	0.23	09/27/16

J= Estimated value
U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	281271	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3050B
Project#:	149831	Analysis:	EPA 6020A
Matrix:	Soil	Batch#:	239526
Units:	mg/Kg	Prepared:	09/27/16
Diln Fac:	25.00		

Type: BS Lab ID: QC853200

Analyte	Spiked	Result	%REC	Limits	Analyzed
Antimony	24.27	24.73	102	72-124	09/27/16
Arsenic	24.27	27.56	114	82-118	09/27/16
Barium	24.27	26.31	108	86-116	09/27/16
Beryllium	12.14	12.82	106	80-120	09/27/16
Cadmium	24.27	25.78	106	84-116	09/27/16
Chromium	24.27	24.14	99	83-119	09/28/16
Cobalt	24.27	28.65	118 *	84-115	09/27/16
Copper	24.27	22.92	94	84-119	09/28/16
Lead	24.27	26.30	108	84-118	09/27/16
Molybdenum	24.27	25.15	104	83-114	09/27/16
Nickel	24.27	27.67 b	114	84-119	09/27/16
Selenium	24.27	27.96	115	80-119	09/27/16
Silver	2.427	2.574	106	83-118	09/27/16
Thallium	24.27	25.85	107	83-118	09/27/16
Vanadium	24.27	23.57	97	82-116	09/28/16
Zinc	24.27	27.52	113	82-119	09/27/16

Type: BSD Lab ID: QC853201

Analyte	Spiked	Result	%REC	Limits	RPD	Lim	Analyzed
Antimony	24.04	23.81	99	72-124	3	20	09/27/16
Arsenic	24.04	26.06	108	82-118	5	20	09/27/16
Barium	24.04	25.46	106	86-116	2	20	09/27/16
Beryllium	12.02	11.87	99	80-120	7	20	09/27/16
Cadmium	24.04	23.98	100	84-116	6	20	09/27/16
Chromium	24.04	23.63	98	83-119	1	20	09/28/16
Cobalt	24.04	26.39	110	84-115	7	20	09/27/16
Copper	24.04	22.98	96	84-119	1	20	09/28/16
Lead	24.04	24.95	104	84-118	4	20	09/27/16
Molybdenum	24.04	23.69	99	83-114	5	20	09/27/16
Nickel	24.04	25.07 b	104	84-119	9	20	09/27/16
Selenium	24.04	24.75	103	80-119	11	20	09/27/16
Silver	2.404	2.433	101	83-118	5	20	09/27/16
Thallium	24.04	24.30	101	83-118	5	20	09/27/16
Vanadium	24.04	22.99	96	82-116	2	20	09/28/16
Zinc	24.04	25.49	106	82-119	7	20	09/27/16

*= Value outside of QC limits; see narrative
b= See narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	281271	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3050B
Project#:	149831	Analysis:	EPA 6020A
Field ID:	ZZZZZZZZZZ	Dil'n Fac:	25.00
MSS Lab ID:	281441-001	Batch#:	239526
Matrix:	Soil	Sampled:	09/26/16
Units:	mg/Kg	Received:	09/26/16
Basis:	as received	Prepared:	09/27/16

Type: MS Lab ID: QC853202

Analyte	MSS Result	Spiked	Result	%REC	Limits	Analyzed
Antimony	0.3058	24.75	12.60	50 *	72-124	09/27/16
Arsenic	3.816	24.75	31.46	112	82-118	09/27/16
Barium	44.19	24.75	202.8	641 *	86-116	09/27/16
Beryllium	0.2961	12.38	13.99	111	80-120	09/27/16
Cadmium	0.1693	24.75	28.35	114	84-116	09/27/16
Chromium	60.39	24.75	86.31	105	83-119	09/28/16
Cobalt	9.586	24.75	39.01	119 *	84-115	09/27/16
Copper	2.351	24.75	29.96	112	84-119	09/28/16
Lead	19.53	24.75	52.04	131 *	84-118	09/27/16
Molybdenum	0.4732	24.75	22.25	88	83-114	09/28/16
Nickel	68.75	24.75	124.9 b	227 *	84-119	09/27/16
Selenium	0.1980	24.75	29.13	117	80-119	09/27/16
Silver	0.04596	2.475	2.899	115	83-118	09/27/16
Thallium	0.06326	24.75	27.54	111	83-118	09/27/16
Vanadium	40.45	24.75	65.67	102	82-116	09/28/16
Zinc	37.73	24.75	60.24	91	82-119	09/28/16

Type: MSD Lab ID: QC853203

Analyte	Spiked	Result	%REC	Limits	RPD	Lim	Analyzed
Antimony	25.51	12.34	47 *	72-124	5	20	09/27/16
Arsenic	25.51	30.55	105	82-118	6	20	09/27/16
Barium	25.51	71.06	105	86-116	97 *	20	09/27/16
Beryllium	12.76	13.00	100	80-120	10	20	09/27/16
Cadmium	25.51	25.23	98	84-116	15	20	09/27/16
Chromium	25.51	94.63	134 *	83-119	8	20	09/28/16
Cobalt	25.51	35.92	103	84-115	10	20	09/27/16
Copper	25.51	32.96	120 *	84-119	7	20	09/28/16
Lead	25.51	43.19	93	84-118	20	20	09/27/16
Molybdenum	25.51	24.38	94	83-114	6	20	09/28/16
Nickel	25.51	110.2 b	163 *	84-119	13	20	09/27/16
Selenium	25.51	24.49	95	80-119	20	20	09/27/16
Silver	2.551	2.563	99	83-118	15	20	09/27/16
Thallium	25.51	24.95	98	83-118	13	20	09/27/16
Vanadium	25.51	73.37	129 *	82-116	10	20	09/28/16
Zinc	25.51	56.91	75 *	82-119	7	20	09/28/16

*= Value outside of QC limits; see narrative
b= See narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	281271	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3050B
Project#:	149831	Analysis:	EPA 6020A
Type:	BLANK	Diln Fac:	25.00
Lab ID:	QC853290	Batch#:	239551
Matrix:	Soil	Prepared:	09/27/16
Units:	mg/Kg		

Analyte	Result	LOQ	DL	Analyzed
Antimony	0.095 U	0.24	0.046	09/28/16
Arsenic	0.23 J	0.24	0.066	09/27/16
Barium	0.24 U	0.24	0.064	09/28/16
Beryllium	0.095 U	0.24	0.034	09/28/16
Cadmium	0.095 U	0.24	0.052	09/28/16
Chromium	0.19 U	0.24	0.070	09/28/16
Cobalt	0.19 U	0.24	0.056	09/28/16
Copper	0.19 U	0.26	0.088	09/28/16
Lead	0.095 U	0.24	0.034	09/28/16
Molybdenum	0.19 U	0.39	0.13	09/28/16
Nickel	0.19 U	0.37	0.12	09/28/16
Selenium	0.19 U	0.24	0.067	09/27/16
Silver	0.095 U	0.24	0.024	09/28/16
Thallium	0.095 U	0.24	0.032	09/28/16
Vanadium	0.54 b	0.42	0.14	09/28/16
Zinc	0.95 U	1.4	0.48	09/28/16

J= Estimated value
U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	281271	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3050B
Project#:	149831	Analysis:	EPA 6020A
Matrix:	Soil	Batch#:	239551
Units:	mg/Kg	Prepared:	09/27/16
Diln Fac:	25.00		

Type: BS Lab ID: QC853291

Analyte	Spiked	Result	%REC	Limits	Analyzed
Antimony	24.04	25.52	106	72-124	09/27/16
Arsenic	24.04	28.08	117	82-118	09/27/16
Barium	24.04	27.97	116	86-116	09/27/16
Beryllium	12.02	12.87	107	80-120	09/27/16
Cadmium	24.04	26.47	110	84-116	09/27/16
Chromium	24.04	25.76	107	83-119	09/28/16
Cobalt	24.04	25.37	106	84-115	09/28/16
Copper	24.04	25.32 b	105	84-119	09/28/16
Lead	24.04	27.24	113	84-118	09/27/16
Molybdenum	24.04	26.53	110	83-114	09/27/16
Nickel	24.04	26.01	108	84-119	09/28/16
Selenium	24.04	25.66	107	80-119	09/27/16
Silver	2.404	2.438	101	83-118	09/28/16
Thallium	24.04	26.79	111	83-118	09/27/16
Vanadium	24.04	25.29	105	82-116	09/28/16
Zinc	24.04	28.39	118	82-119	09/27/16

Type: BSD Lab ID: QC853292

Analyte	Spiked	Result	%REC	Limits	RPD	Lim	Analyzed
Antimony	24.75	23.65	96	72-124	11	20	09/27/16
Arsenic	24.75	26.00	105	82-118	11	20	09/27/16
Barium	24.75	26.06	105	86-116	10	20	09/27/16
Beryllium	12.38	12.46	101	80-120	6	20	09/27/16
Cadmium	24.75	25.11	101	84-116	8	20	09/27/16
Chromium	24.75	25.82	104	83-119	3	20	09/28/16
Cobalt	24.75	26.15	106	84-115	0	20	09/28/16
Copper	24.75	25.73 b	104	84-119	1	20	09/28/16
Lead	24.75	25.43	103	84-118	10	20	09/27/16
Molybdenum	24.75	24.63	100	83-114	10	20	09/27/16
Nickel	24.75	26.06	105	84-119	3	20	09/28/16
Selenium	24.75	25.32	102	80-119	4	20	09/27/16
Silver	2.475	2.631	106	83-118	5	20	09/28/16
Thallium	24.75	25.21	102	83-118	9	20	09/27/16
Vanadium	24.75	25.58	103	82-116	2	20	09/28/16
Zinc	24.75	26.37	107	82-119	10	20	09/27/16

b= See narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	281271	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3050B
Project#:	149831	Analysis:	EPA 6020A
Field ID:	HPNS-D1-AB-011	Dil'n Fac:	25.00
MSS Lab ID:	281271-011	Batch#:	239551
Matrix:	Soil	Sampled:	09/21/16
Units:	mg/Kg	Received:	09/21/16
Basis:	dry	Prepared:	09/27/16

Type: MS Moisture: 2%
Lab ID: QC853293

Analyte	MSS Result	Spiked	Result	%REC	Limits	Analyzed
Antimony	0.4604	25.51	5.353	19 *	72-124	09/27/16
Arsenic	3.933	25.51	29.53	100	82-118	09/27/16
Barium	128.6	25.51	160.2	124 NM	86-116	09/27/16
Beryllium	0.2713	12.76	12.39	95	80-120	09/27/16
Cadmium	0.1762	25.51	25.56	100	84-116	09/28/16
Chromium	35.61	25.51	59.44	93	83-119	09/28/16
Cobalt	8.983	25.51	35.24	103	84-115	09/28/16
Copper	23.08	25.51	69.92 b	184 *	84-119	09/28/16
Lead	30.80	25.51	55.23	96	84-118	09/27/16
Molybdenum	0.7568	25.51	23.07	87	83-114	09/27/16
Nickel	42.26	25.51	68.75	104	84-119	09/28/16
Selenium	0.2134	25.51	23.34	91	80-119	09/27/16
Silver	0.1105	2.551	2.651	100	83-118	09/27/16
Thallium	0.08424	25.51	24.64	96	83-118	09/27/16
Vanadium	46.26	25.51	71.62	99	82-116	09/28/16
Zinc	52.38	25.51	82.41	118	82-119	09/29/16

Type: MSD Moisture: 2%
Lab ID: QC853294

Analyte	Spiked	Result	%REC	Limits	RPD	Lim	Analyzed
Antimony	26.85	5.859	20 *	72-124	4	20	09/27/16
Arsenic	26.85	31.04	101	82-118	1	20	09/27/16
Barium	26.85	148.8	75 NM	86-116	8	20	09/27/16
Beryllium	13.43	12.80	93	80-120	2	20	09/27/16
Cadmium	26.85	25.74	95	84-116	4	20	09/28/16
Chromium	26.85	67.80	120 *	83-119	11	20	09/28/16
Cobalt	26.85	36.08	101	84-115	1	20	09/28/16
Copper	26.85	52.79 b	111	84-119	31 *	20	09/28/16
Lead	26.85	55.91	94	84-118	1	20	09/27/16
Molybdenum	26.85	24.19	87	83-114	0	20	09/27/16
Nickel	26.85	80.26	142 *	84-119	14	20	09/28/16
Selenium	26.85	25.54	94	80-119	4	20	09/27/16
Silver	2.685	2.642	94	83-118	5	20	09/27/16
Thallium	26.85	25.50	95	83-118	2	20	09/27/16
Vanadium	26.85	70.69	91	82-116	3	20	09/28/16
Zinc	26.85	84.84	121 *	82-119	1	20	09/29/16

*= Value outside of QC limits; see narrative
b= See narrative
NM= Not Meaningful: Sample concentration > 4X spike concentration
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	281271	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3050B
Project#:	149831	Analysis:	EPA 6020A
Field ID:	HPNS-D1-AB-011	Basis:	dry
Type:	Serial Dilution	Diln Fac:	125.0
MSS Lab ID:	281271-011	Batch#:	239551
Lab ID:	QC853295	Sampled:	09/21/16
Matrix:	Soil	Received:	09/21/16
Units:	mg/Kg		

Moisture: 2%

Analyte	MSS Result	MSS LOQ	Result	LOQ	% Diff	Lim	Analyzed
Antimony	0.4604	0.2551	0.4391 J	1.188	NC	10	09/27/16
Arsenic	3.933	0.2551	5.593	1.097	42 *	10	09/27/16
Barium	128.6	0.2551	126.8	0.8104	1	10	09/28/16
Beryllium	0.2713	0.2551	0.3840 J	0.7570	NC	10	09/27/16
Cadmium	0.1762	0.2551	0.4670 J	0.6643	NC	10	09/27/16
Chromium	35.61	0.2551	37.53	1.173	5	10	09/28/16
Cobalt	8.983	0.2551	9.148	0.7272	2	10	09/28/16
Copper	23.08	0.3189	18.58 b	1.594	19 *	10	09/28/16
Lead	30.80	0.2551	31.44	1.064	2	10	09/27/16
Molybdenum	0.7568	0.2551	1.188 J	1.196	NC	10	09/27/16
Nickel	42.26	0.4132	45.43	2.066	7	10	09/28/16
Selenium	0.2134	0.2551	1.063 U	1.116	NC	10	09/27/16
Silver	0.1105	0.2551	0.5315 U	0.6643	NC	10	09/27/16
Thallium	0.08424	0.2551	0.5315 U	0.7972	NC	10	09/27/16
Vanadium	46.26	0.4685	49.40	2.343	7	10	09/28/16
Zinc	52.38	1.020	52.20	3.895	0	10	09/27/16

*= Value outside of QC limits; see narrative
J= Estimated value
U= Not Detected at or above DL
b= See narrative
NC= Not Calculated
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	281271	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3050B
Project#:	149831	Analysis:	EPA 6020A
Field ID:	HPNS-D1-AB-011	Basis:	dry
Type:	Post Digest Spike	Diln Fac:	25.00
MSS Lab ID:	281271-011	Batch#:	239551
Lab ID:	QC853296	Sampled:	09/21/16
Matrix:	Soil	Received:	09/21/16
Units:	mg/Kg		

Moisture: 2%

Analyte	MSS Result	Spiked	Result	%REC	Limits	Analyzed
Antimony	0.4604	66.43	68.90	103	80-120	09/27/16
Arsenic	3.933	66.43	78.02	112	80-120	09/27/16
Barium	128.6	66.43	203.3	112	80-120	09/27/16
Beryllium	0.2713	66.43	72.37	109	80-120	09/27/16
Cadmium	0.1762	66.43	73.18	110	80-120	09/28/16
Chromium	35.61	66.43	108.7	110	80-120	09/28/16
Cobalt	8.983	66.43	83.56	112	80-120	09/28/16
Copper	23.08	66.43	99.45 b	115	80-120	09/28/16
Lead	30.80	66.43	103.9	110	80-120	09/27/16
Molybdenum	0.7568	66.43	67.54	101	80-120	09/27/16
Nickel	42.26	66.43	114.6	109	80-120	09/28/16
Selenium	0.2134	66.43	74.33	112	80-120	09/27/16
Silver	0.1105	66.43	73.61	111	80-120	09/27/16
Thallium	0.08424	33.22	37.03	111	80-120	09/27/16
Vanadium	46.26	66.43	118.6	109	80-120	09/28/16
Zinc	52.38	66.43	131.7	119	80-120	09/29/16

b= See narrative

REPORTING SUMMARY FOR 281271 METALS Soil
Curtis & Tompkins Laboratories

Lab ID	Inst ID	Analyzed	IDF	SB	AS	BA	BE	CD	CR	CO	CU	PB	HG	MO	NI	SE	AG	TL	V	ZN
281271-001	MET44	09/22/16 16:07	1.0																	
281271-001	MET44	09/22/16 16:50	1.0										+							
281271-001	MET26	09/27/16 20:53	25.0	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
281271-001	MET16	09/28/16 16:43	25.0																	
281271-002	MET44	09/22/16 16:08	1.0																	
281271-002	MET44	09/22/16 16:51	1.0										+							
281271-002	MET26	09/27/16 20:58	25.0	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
281271-002	MET16	09/28/16 16:48	25.0																	
281271-003	MET44	09/22/16 16:09	1.0																	
281271-003	MET44	09/22/16 16:52	1.0										+							
281271-003	MET26	09/27/16 21:03	25.0	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
281271-003	MET16	09/28/16 16:53	25.0																	
281271-004	MET44	09/22/16 16:10	1.0																	
281271-004	MET44	09/22/16 16:56	1.0										+							
281271-004	MET26	09/27/16 21:22	25.0	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
281271-004	MET16	09/28/16 16:58	25.0																	
281271-005	MET44	09/22/16 16:14	1.0																	
281271-005	MET44	09/22/16 16:57	1.0										+							
281271-005	MET26	09/27/16 21:27	25.0	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
281271-005	MET16	09/28/16 17:18	25.0																	
281271-006	MET44	09/22/16 16:15	1.0																	
281271-006	MET44	09/22/16 16:58	1.0										+							
281271-006	MET26	09/27/16 21:32	25.0	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
281271-006	MET16	09/28/16 17:23	25.0																	
281271-007	MET44	09/22/16 16:16	1.0																	
281271-007	MET44	09/22/16 16:59	1.0										+							
281271-007	MET26	09/27/16 21:36	25.0	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
281271-007	MET16	09/28/16 17:28	25.0																	
281271-008	MET44	09/22/16 16:17	1.0																	
281271-008	MET44	09/22/16 17:00	1.0										+							
281271-008	MET26	09/27/16 21:41	25.0	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
281271-008	MET16	09/28/16 17:33	25.0																	
281271-009	MET44	09/22/16 16:18	1.0																	
281271-009	MET44	09/22/16 17:01	1.0										+							
281271-009	MET26	09/27/16 21:46	25.0	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
281271-009	MET16	09/28/16 17:38	25.0																	
281271-010	MET44	09/22/16 16:19	1.0																	
281271-010	MET44	09/22/16 17:02	1.0										+							
281271-010	MET26	09/27/16 21:51	25.0	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
281271-010	MET16	09/28/16 17:43	25.0																	
281271-011	MET44	09/22/16 16:20	1.0																	
281271-011	MET44	09/22/16 17:04	1.0										+							
281271-011	MET26	09/27/16 22:49	25.0	+	+	+	+					+		+	+	+	+	+	+	+

REPORTING SUMMARY FOR 281271 METALS Soil
Curtis & Tompkins Laboratories

Lab ID	Inst ID	Analyzed	IDF	SB	AS	BA	BE	CD	CR	CO	CU	PB	HG	MO	NI	SE	AG	TL	V	ZN
281271-011	MET26	09/28/16 14:42	25.0					+	+	+	+									
281271-012	MET44	09/22/16 16:22	1.0																	
281271-012	MET44	09/22/16 17:05	1.0										+							
281271-012	MET26	09/27/16 23:13	25.0	+	+	+	+					+		+	+	+	+	+	+	+
281271-012	MET26	09/28/16 15:06	25.0					+	+	+	+									
281271-013	MET44	09/22/16 16:23	1.0																	
281271-013	MET44	09/22/16 17:06	1.0										+							
281271-013	MET26	09/27/16 23:18	25.0	+	+	+	+	+				+		+	+		+	+	+	+
281271-013	MET26	09/28/16 15:11	25.0						+	+	+					+				
281271-014	MET44	09/22/16 16:24	1.0																	
281271-014	MET44	09/22/16 17:09	1.0										+							
281271-014	MET26	09/27/16 23:37	25.0	+	+	+	+			+		+		+	+	+	+	+	+	+
281271-014	MET26	09/28/16 15:30	25.0					+	+		+									
281271-015	MET44	09/22/16 16:27	1.0										+							
281271-015	MET44	09/22/16 17:10	1.0																	
281271-015	MET26	09/27/16 23:42	25.0	+	+	+	+	+	+	+		+		+	+	+	+	+	+	+
281271-015	MET26	09/28/16 15:35	25.0								+									
281271-016	MET44	09/22/16 16:28	1.0										+							
281271-016	MET44	09/22/16 17:12	1.0																	
281271-016	MET26	09/27/16 23:47	25.0	+	+	+	+	+	+	+		+		+	+	+	+	+	+	+
281271-016	MET26	09/28/16 15:40	25.0								+									
281271-017	MET44	09/22/16 16:30	1.0										+							
281271-017	MET44	09/22/16 17:13	1.0																	
281271-017	MET26	09/27/16 23:52	25.0	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
281271-017	MET26	09/28/16 15:44	25.0																	
281271-018	MET54	09/23/16 12:00	1.0																	
281271-018	MET44	09/23/16 15:54	1.0																	
281271-018	MET44	09/26/16 16:11	1.0										+							
281271-018	MET26	09/27/16 23:57	25.0	+	+	+	+	+	+	+	+	+		+	+		+	+	+	+
281271-018	MET26	09/28/16 15:49	25.0													+				
281271-019	MET54	09/23/16 12:05	1.0																	
281271-019	MET44	09/23/16 15:58	1.0																	
281271-019	MET44	09/26/16 16:12	1.0										+							
281271-019	MET26	09/28/16 00:01	25.0	+	+	+	+	+	+	+		+		+	+	+	+	+	+	+
281271-019	MET26	09/28/16 15:54	25.0								+									
281271-020	MET54	09/23/16 12:06	1.0																	
281271-020	MET44	09/23/16 15:59	1.0																	
281271-020	MET44	09/26/16 16:13	1.0										+							
281271-020	MET26	09/28/16 00:07	25.0	+	+	+	+	+	+	+		+		+	+	+	+	+	+	+
281271-020	MET26	09/28/16 15:59	25.0								+									
281271-021	MET54	09/23/16 12:07	1.0																	
281271-021	MET44	09/23/16 16:00	1.0																	
281271-021	MET44	09/26/16 16:17	1.0										+							

REPORTING SUMMARY FOR 281271 METALS Soil
Curtis & Tompkins Laboratories

Lab ID	Inst ID	Analyzed	IDF	SB	AS	BA	BE	CD	CR	CO	CU	PB	HG	MO	NI	SE	AG	TL	V	ZN
281271-021	MET26	09/28/16 00:12	25.0	+	+	+	+	+	+	+		+		+	+	+	+	+	+	+
281271-021	MET26	09/28/16 16:03	25.0								+									
281271-022	MET54	09/23/16 12:11	1.0																	
281271-022	MET44	09/23/16 16:04	1.0																	
281271-022	MET44	09/26/16 16:18	1.0										+							
281271-022	MET26	09/28/16 00:17	25.0	+	+	+	+	+	+	+		+		+	+	+	+	+	+	+
281271-022	MET26	09/28/16 16:08	25.0								+									
281271-023	MET54	09/23/16 12:12	1.0																	
281271-023	MET44	09/23/16 16:05	1.0																	
281271-023	MET44	09/26/16 16:19	1.0										+							
281271-023	MET26	09/28/16 00:21	25.0	+	+	+	+	+	+	+		+		+	+	+	+	+	+	+
281271-023	MET26	09/28/16 16:13	25.0								+									
281271-024	MET54	09/23/16 12:13	1.0																	
281271-024	MET44	09/23/16 16:06	1.0																	
281271-024	MET44	09/26/16 16:20	1.0										+							
281271-024	MET26	09/28/16 00:41	25.0	+	+	+	+	+	+	+		+			+	+	+	+	+	+
281271-024	MET26	09/28/16 16:32	25.0								+			+						
281271-025	MET54	09/23/16 12:15	1.0																	
281271-025	MET44	09/23/16 16:07	1.0																	
281271-025	MET44	09/26/16 16:21	1.0										+							
281271-025	MET26	09/28/16 00:46	25.0	+	+	+		+	+	+		+		+	+	+	+	+	+	+
281271-025	MET26	09/28/16 16:37	25.0				+				+									
281271-026	MET54	09/23/16 12:16	1.0																	
281271-026	MET44	09/23/16 16:08	1.0																	
281271-026	MET44	09/26/16 16:22	1.0										+							
281271-026	MET26	09/28/16 00:51	25.0	+	+	+		+	+	+		+			+		+	+	+	+
281271-026	MET26	09/28/16 16:42	25.0				+				+			+		+				
281271-027	MET54	09/23/16 12:17	1.0																	
281271-027	MET44	09/23/16 16:09	1.0																	
281271-027	MET44	09/26/16 16:23	1.0										+							
281271-027	MET26	09/28/16 00:55	25.0	+	+	+	+		+	+		+		+	+	+	+	+	+	+
281271-027	MET26	09/28/16 16:47	25.0					+			+									
QC852720	MET44	09/22/16 15:54	1.0																	
QC852720	MET44	09/22/16 17:47	1.0										+							
QC852721	MET44	09/22/16 15:56	1.0																	
QC852721	MET44	09/22/16 17:48	1.0										+							
QC852721	MET44	09/22/16 17:55	1.0																	
QC852722	MET44	09/22/16 15:57	1.0																	
QC852722	MET44	09/22/16 17:49	1.0										+							
QC852722	MET44	09/22/16 17:56	1.0																	
QC852723	MET44	09/22/16 16:01	1.0																	
QC852723	MET44	09/22/16 16:46	1.0										+							

REPORTING SUMMARY FOR 281271 METALS Soil
Curtis & Tompkins Laboratories

Lab ID	Inst ID	Analyzed	IDF	SB	AS	BA	BE	CD	CR	CO	CU	PB	HG	MO	NI	SE	AG	TL	V	ZN
QC852724	MET44	09/22/16 16:02	1.0																	
QC852724	MET44	09/22/16 16:47	1.0										+							
QC852725	MET44	09/22/16 16:03	5.0																	
QC852725	MET44	09/22/16 16:48	5.0										+							
QC852824	MET54	09/23/16 11:56	1.0																	
QC852824	MET44	09/23/16 15:50	1.0																	
QC852825	MET54	09/23/16 11:57	1.0																	
QC852825	MET44	09/23/16 15:51	1.0																	
QC852826	MET54	09/23/16 11:59	1.0																	
QC852826	MET44	09/23/16 15:53	1.0																	
QC852827	MET54	09/23/16 12:01	1.0																	
QC852827	MET54	09/23/16 12:33	1.0																	
QC852827	MET54	09/23/16 14:01	1.0																	
QC852827	MET54	09/23/16 14:19	1.0																	
QC852827	MET44	09/23/16 16:24	1.0																	
QC852827	MET44	09/23/16 16:26	1.0																	
QC852827	MET44	09/23/16 16:34	1.0																	
QC852828	MET54	09/23/16 12:02	1.0																	
QC852828	MET54	09/23/16 12:34	1.0																	
QC852828	MET54	09/23/16 14:02	1.0																	
QC852828	MET54	09/23/16 14:20	1.0																	
QC852828	MET44	09/23/16 16:25	1.0																	
QC852828	MET44	09/23/16 16:27	1.0																	
QC852828	MET44	09/23/16 16:35	1.0																	
QC852828	MET44	09/23/16 16:37	1.0																	
QC852829	MET54	09/23/16 12:04	5.0																	
QC852829	MET44	09/23/16 15:57	5.0																	
QC853072	MET44	09/26/16 16:03	1.0										+							
QC853073	MET44	09/26/16 16:04	1.0										+							
QC853074	MET44	09/26/16 16:05	1.0										+							
QC853075	MET44	09/26/16 16:07	1.0										+							
QC853076	MET44	09/26/16 16:09	1.0										+							
QC853077	MET44	09/26/16 16:10	5.0										+							
QC853199	MET26	09/27/16 16:21	25.0	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC853199	MET16	09/28/16 16:13	25.0																	
QC853199	MET26	09/28/16 17:35	25.0																	
QC853200	MET26	09/27/16 16:25	25.0	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC853200	MET16	09/28/16 16:18	25.0																	

REPORTING SUMMARY FOR 281271 METALS Soil
Curtis & Tompkins Laboratories

Lab ID	Inst ID	Analyzed	IDF	SB	AS	BA	BE	CD	CR	CO	CU	PB	HG	MO	NI	SE	AG	TL	V	ZN
QC853200	MET26	09/28/16 17:40	25.0																	
QC853201	MET26	09/27/16 16:30	25.0	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC853201	MET16	09/28/16 16:23	25.0																	
QC853201	MET26	09/28/16 17:45	25.0																	
QC853202	MET26	09/27/16 16:40	25.0	+	+	+	+	+		+	+	+			+	+	+	+		+
QC853202	MET16	09/28/16 16:33	25.0																	
QC853202	MET26	09/28/16 17:54	25.0																	
QC853203	MET26	09/27/16 16:44	25.0	+	+	+	+	+		+	+	+			+	+	+	+		+
QC853203	MET16	09/28/16 16:38	25.0																	
QC853203	MET26	09/28/16 17:59	25.0																	
QC853334	MET16	09/28/16 17:48	25.0																	
QC853290	MET26	09/27/16 22:35	25.0	+	+	+	+	+	+	+		+		+	+	+	+	+	+	+
QC853290	MET26	09/28/16 14:28	25.0								+									
QC853291	MET26	09/27/16 22:40	25.0	+	+	+	+	+				+		+	+	+		+	+	+
QC853291	MET26	09/28/16 14:32	25.0						+	+	+						+			
QC853292	MET26	09/27/16 22:45	25.0	+	+	+	+	+				+		+	+	+		+	+	+
QC853292	MET26	09/28/16 14:37	25.0						+	+	+						+			
QC853293	MET26	09/27/16 22:54	25.0	+	+	+	+					+		+	+	+	+	+	+	+
QC853293	MET26	09/28/16 14:47	25.0					+	+	+	+									
QC853294	MET26	09/27/16 22:59	25.0	+	+	+	+					+		+	+	+	+	+	+	+
QC853294	MET26	09/28/16 14:52	25.0					+	+	+	+									
QC853295	MET26	09/27/16 23:04	125.0	+	+		+	+				+		+	+	+	+	+	+	+
QC853295	MET26	09/28/16 14:56	125.0			+			+	+	+									
QC853296	MET26	09/27/16 23:08	25.0	+	+	+	+					+		+	+	+	+	+	+	+
QC853296	MET26	09/28/16 15:01	25.0					+	+	+	+									

ICPMS Data

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 1016390965

Instrument : MET26
Method : EPA 6020A

Begun : 09/27/16 12:05
SOP Version : icpms metals_rv10

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	16i27m00001	X	RINSE			09/27/16 12:05	1.0	1	
002	16i27m00002	TUN				09/27/16 12:10	1.0	2	
003	16i27m00003	X	RINSE			09/27/16 12:15	1.0	1	
004	16i27m00004	ICALBLK	CALBLANK			09/27/16 12:20	1.0	1	
005	16i27m00005	ICAL				09/27/16 12:24	1.0	3 1	
006	16i27m00006	ICAL				09/27/16 12:29	1.0	4 1	
007	16i27m00007	ICAL				09/27/16 12:34	1.0	5 1	
008	16i27m00008	ICAL				09/27/16 12:39	1.0	6 1	
009	16i27m00009	ICAL				09/27/16 12:43	1.0	7 1	
010	16i27m00010	ICAL				09/27/16 12:48	1.0	8 1	
011	16i27m00011	X	RINSE			09/27/16 13:00	1.0	1	
012	16i27m00012	ICV				09/27/16 13:05	1.0	9 1	
013	16i27m00013	ICV				09/27/16 13:10	1.0	9 1	
014	16i27m00014	ICV				09/27/16 13:15	1.0	9 1	1:U=1100
015	16i27m00015	CRI				09/27/16 13:19	1.0	10 1	
016	16i27m00016	CRI				09/27/16 13:24	1.0	10 1	
017	16i27m00017	ICV				09/27/16 13:29	1.0	9 1	1:U=1100
018	16i27m00018	ICB				09/27/16 13:34	1.0	1	
019	16i27m00019	ICB				09/27/16 13:39	1.0	1	
020	16i27m00020	ICB				09/27/16 13:44	1.0	1	
021	16i27m00021	CRI				09/27/16 13:48	1.0	10 1	
022	16i27m00022	ICSA				09/27/16 13:53	1.0	11 1	8:CA=270000
023	16i27m00023	ICSAB				09/27/16 13:58	1.0	12 1	13:CA=280000
024	16i27m00024	X	RINSE			09/27/16 14:03	1.0	1	
025	16i27m00025	X	RINSE			09/27/16 14:08	1.0	1	
026	16i27m00026	X	RINSE			09/27/16 14:13	1.0	1	
027	16i27m00027	X	RINSE			09/27/16 14:18	1.0	1	
028	16i27m00028	BLANK	QC853002	Water	239474	09/27/16 14:23	5.0	1	
029	16i27m00029	BS	QC853003	Water	239474	09/27/16 14:28	5.0	1	
030	16i27m00030	BSD	QC853004	Water	239474	09/27/16 14:32	5.0	1	
031	16i27m00031	SAMPLE	281352-001	Water	239474	09/27/16 14:37	5.0	1	1:NA=81000
032	16i27m00032	SAMPLE	281352-002	Water	239474	09/27/16 14:42	5.0	1	1:NA=82000
033	16i27m00033	SAMPLE	281352-003	Water	239474	09/27/16 14:47	5.0	1	1:NA=81000
034	16i27m00034	SAMPLE	281352-001	Water	239474	09/27/16 14:51	5.0	1	1:NA=80000
035	16i27m00035	SAMPLE	281352-004	Water	239474	09/27/16 14:56	5.0	1	2:NA=83000
036	16i27m00036	SAMPLE	281352-005	Water	239474	09/27/16 15:01	5.0	1	1:NA=82000
037	16i27m00037	SAMPLE	281352-006	Water	239474	09/27/16 15:06	5.0	1	2:NA=85000
038	16i27m00038	CCV				09/27/16 15:11	1.0	13 1	1:U=1100
039	16i27m00039	X	XCCB			09/27/16 15:16	1.0	1	
040	16i27m00040	CCB				09/27/16 15:20	1.0	1	
041	16i27m00041	SAMPLE	281352-007	Water	239474	09/27/16 15:25	5.0	1	1:NA=77000
042	16i27m00042	SAMPLE	281337-001	Water	239474	09/27/16 15:30	5.0	1	1:NA=150000
043	16i27m00043	CCV				09/27/16 15:37	1.0	13 1	1:U=1100
044	16i27m00044	X	XCCB			09/27/16 15:41	1.0	1	
045	16i27m00045	CCB				09/27/16 15:46	1.0	1	
046	16i27m00046	ICSA				09/27/16 15:51	1.0	11 1	8:CA=280000
047	16i27m00047	ICSAB				09/27/16 15:56	1.0	12 1	13:CA=280000
048	16i27m00048	X	RINSE			09/27/16 16:01	1.0	1	
049	16i27m00049	X	RINSE			09/27/16 16:06	1.0	1	
050	16i27m00050	X	RINSE			09/27/16 16:11	1.0	1	
051	16i27m00051	X	RINSE			09/27/16 16:16	1.0	1	
052	16i27m00052	BLANK	QC853199	Soil	239526	09/27/16 16:21	25.0	1	

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 1016390965

Instrument : MET26 Begun : 09/27/16 12:05
Method : EPA 6020A SOP Version : icpms metals_rv10

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	16i27m00053	BS	QC853200	Soil	239526	09/27/16 16:25	25.0	1	
054	16i27m00054	BSD	QC853201	Soil	239526	09/27/16 16:30	25.0	1	
055	16i27m00055	MSS	281441-001	Soil	239526	09/27/16 16:35	25.0	1	1:MN=240
056	16i27m00056	MS	QC853202	Soil	239526	09/27/16 16:40	25.0	1	
057	16i27m00057	MSD	QC853203	Soil	239526	09/27/16 16:44	25.0	1	1:CA=27000
058	16i27m00058	MSS	281260-001	Water	239474	09/27/16 16:49	5.0	1	2:NA=72000
059	16i27m00059	MS	QC853005	Water	239474	09/27/16 16:54	5.0	1	
060	16i27m00060	MSD	QC853006	Water	239474	09/27/16 16:59	5.0	1	
061	16i27m00061	SER	QC853007	Water	239474	09/27/16 17:04	25.0	1	
062	16i27m00062	CCV				09/27/16 17:08	1.0	13 1	1:U=1100
063	16i27m00063	X	XCCB			09/27/16 17:13	1.0	1	
064	16i27m00064	CCB				09/27/16 17:18	1.0	1	
065	16i27m00065	PDS	QC853008	Water	239474	09/27/16 17:23	5.0	1 14 15 16	3:NA=76000
066	16i27m00066	CCV				09/27/16 17:28	1.0	13 1	1:U=1100
067	16i27m00067	X	XCCB			09/27/16 17:33	1.0	1	
068	16i27m00068	CCB				09/27/16 17:38	1.0	1	
069	16i27m00069	ICSA				09/27/16 17:42	1.0	11 1	8:CA=280000
070	16i27m00070	ICSAB				09/27/16 17:47	1.0	12 1	12:CA=280000
071	16i27m00071	X	RINSE			09/27/16 17:53	1.0	1	
072	16i27m00072	X	RINSE			09/27/16 17:57	1.0	1	
073	16i27m00073	X	RINSE			09/27/16 18:02	1.0	1	
074	16i27m00074	X	RINSE			09/27/16 18:07	1.0	1	
075	16i27m00075	BLANK	QC852928	Filtrate	239453	09/27/16 18:12	5.0	1	
076	16i27m00076	BS	QC852929	Filtrate	239453	09/27/16 18:17	5.0	1	
077	16i27m00077	BSD	QC852930	Filtrate	239453	09/27/16 18:22	5.0	1	
078	16i27m00078	MSS	281187-003	Filtrate	239453	09/27/16 18:26	5.0	1	1:NA=38000
079	16i27m00079	MS	QC852931	Filtrate	239453	09/27/16 18:33	5.0	1	
080	16i27m00080	MSD	QC852932	Filtrate	239453	09/27/16 18:38	5.0	1	
081	16i27m00081	SER	QC852933	Filtrate	239453	09/27/16 18:42	25.0	1	
082	16i27m00082	PDS	QC852934	Filtrate	239453	09/27/16 18:47	5.0	14 15 16 1	
083	16i27m00083	SAMPLE	281263-001	Filtrate	239453	09/27/16 18:52	500.0	1	
084	16i27m00084	SAMPLE	281263-001	Filtrate	239453	09/27/16 18:57	5.0	1	4:NA=280000
085	16i27m00085	CCV				09/27/16 19:02	1.0	13 1	1:U=1100
086	16i27m00086	X	XCCB			09/27/16 19:06	1.0	1	
087	16i27m00087	CCB				09/27/16 19:11	1.0	1	
088	16i27m00088	SAMPLE	281187-004	Filtrate	239453	09/27/16 19:16	5.0	1	1:NA=36000
089	16i27m00089	PDS	QC852934	Filtrate	239453	09/27/16 19:21	5.0	14 15 16 1	
090	16i27m00090	CCV				09/27/16 19:26	1.0	13 1	1:U=1100
091	16i27m00091	X	XCCB			09/27/16 19:31	1.0	1	
092	16i27m00092	CCB				09/27/16 19:36	1.0	1	
093	16i27m00093	ICSA				09/27/16 19:40	1.0	11 1	8:CA=280000
094	16i27m00094	ICSAB				09/27/16 19:45	1.0	12 1	14:CA=280000
095	16i27m00095	X	RINSE			09/27/16 19:50	1.0	1	
096	16i27m00096	X	RINSE			09/27/16 19:55	1.0	1	
097	16i27m00097	X	RINSE			09/27/16 20:00	1.0	1	
098	16i27m00098	X	RINSE			09/27/16 20:05	1.0	1	
099	16i27m00099	SAMPLE	281397-002	Water	239474	09/27/16 20:10	5.0	1	1:NA=190000
100	16i27m00100	X	RINSE			09/27/16 20:15	1.0	1	
101	16i27m00101	SAMPLE	281352-003	Water	239474	09/27/16 20:20	5.0	1	
102	16i27m00102	SAMPLE	281352-002	Water	239474	09/27/16 20:24	5.0	1	
103	16i27m00103	SAMPLE	281352-004	Water	239474	09/27/16 20:29	5.0	1	
104	16i27m00104	SAMPLE	281352-005	Water	239474	09/27/16 20:34	5.0	1	

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 1016390965

Instrument : MET26 Begun : 09/27/16 12:05
Method : EPA 6020A SOP Version : icpms metals_rv10

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
105	16i27m00105	SAMPLE	281352-006	Water	239474	09/27/16 20:39	5.0	1	
106	16i27m00106	SAMPLE	281352-007	Water	239474	09/27/16 20:43	5.0	1	
107	16i27m00107	X	RINSE			09/27/16 20:48	1.0	1	
108	16i27m00108	SAMPLE	281271-001	Soil	239526	09/27/16 20:53	25.0	1	2:CA=25000
109	16i27m00109	SAMPLE	281271-002	Soil	239526	09/27/16 20:58	25.0	1	2:CA=26000
110	16i27m00110	SAMPLE	281271-003	Soil	239526	09/27/16 21:03	25.0	1	2:CA=27000
111	16i27m00111	CCV				09/27/16 21:08	1.0	13 1	1:U=1100
112	16i27m00112	X	XCCB			09/27/16 21:12	1.0	1	
113	16i27m00113	CCB				09/27/16 21:17	1.0	1	
114	16i27m00114	SAMPLE	281271-004	Soil	239526	09/27/16 21:22	25.0	1	2:CA=26000
115	16i27m00115	SAMPLE	281271-005	Soil	239526	09/27/16 21:27	25.0	1	2:CA=26000
116	16i27m00116	SAMPLE	281271-006	Soil	239526	09/27/16 21:32	25.0	1	2:CA=26000
117	16i27m00117	SAMPLE	281271-007	Soil	239526	09/27/16 21:36	25.0	1	2:CA=25000
118	16i27m00118	SAMPLE	281271-008	Soil	239526	09/27/16 21:41	25.0	1	2:CA=26000
119	16i27m00119	SAMPLE	281271-009	Soil	239526	09/27/16 21:46	25.0	1	2:CA=27000
120	16i27m00120	SAMPLE	281271-010	Soil	239526	09/27/16 21:51	25.0	1	2:CA=24000
121	16i27m00121	CCV				09/27/16 21:56	1.0	13 1	1:U=1100
122	16i27m00122	X	XCCB			09/27/16 22:00	1.0	1	
123	16i27m00123	CCB				09/27/16 22:05	1.0	1	
124	16i27m00124	ICSA				09/27/16 22:10	1.0	11 1	8:CA=280000
125	16i27m00125	ICSAB				09/27/16 22:15	1.0	12 1	14:CA=280000
126	16i27m00126	X	RINSE			09/27/16 22:20	1.0	1	
127	16i27m00127	X	RINSE			09/27/16 22:25	1.0	1	
128	16i27m00128	X	RINSE			09/27/16 22:30	1.0	1	
129	16i27m00129	BLANK	QC853290	Soil	239551	09/27/16 22:35	25.0	1	
130	16i27m00130	BS	QC853291	Soil	239551	09/27/16 22:40	25.0	1	
131	16i27m00131	BSD	QC853292	Soil	239551	09/27/16 22:45	25.0	1	
132	16i27m00132	MSS	281271-011	Soil	239551	09/27/16 22:49	25.0	1	2:CA=24000
133	16i27m00133	MS	QC853293	Soil	239551	09/27/16 22:54	25.0	1	2:CA=25000
134	16i27m00134	MSD	QC853294	Soil	239551	09/27/16 22:59	25.0	1	2:CA=26000
135	16i27m00135	SER	QC853295	Soil	239551	09/27/16 23:04	125.0	1	
136	16i27m00136	PDS	QC853296	Soil	239551	09/27/16 23:08	25.0	1 14 15 16	3:CA=27000
137	16i27m00137	SAMPLE	281271-012	Soil	239551	09/27/16 23:13	25.0	1	2:CA=27000
138	16i27m00138	SAMPLE	281271-013	Soil	239551	09/27/16 23:18	25.0	1	2:CA=28000
139	16i27m00139	CCV				09/27/16 23:23	1.0	13 1	1:U=1100
140	16i27m00140	X	XCCB			09/27/16 23:28	1.0	1	
141	16i27m00141	CCB				09/27/16 23:33	1.0	1	
142	16i27m00142	SAMPLE	281271-014	Soil	239551	09/27/16 23:37	25.0	1	2:CA=26000
143	16i27m00143	SAMPLE	281271-015	Soil	239551	09/27/16 23:42	25.0	1	2:CA=27000
144	16i27m00144	SAMPLE	281271-016	Soil	239551	09/27/16 23:47	25.0	1	2:CA=27000
145	16i27m00145	SAMPLE	281271-017	Soil	239551	09/27/16 23:52	25.0	1	2:CA=20000
146	16i27m00146	SAMPLE	281271-018	Soil	239551	09/27/16 23:57	25.0	1	2:CA=26000
147	16i27m00147	SAMPLE	281271-019	Soil	239551	09/28/16 00:01	25.0	1	2:CA=23000
148	16i27m00148	SAMPLE	281271-020	Soil	239551	09/28/16 00:07	25.0	1	2:CA=27000
149	16i27m00149	SAMPLE	281271-021	Soil	239551	09/28/16 00:12	25.0	1	2:CA=27000
150	16i27m00150	SAMPLE	281271-022	Soil	239551	09/28/16 00:17	25.0	1	2:CA=24000
151	16i27m00151	SAMPLE	281271-023	Soil	239551	09/28/16 00:21	25.0	1	2:CA=25000
152	16i27m00152	CCV				09/28/16 00:26	1.0	13 1	1:U=1100
153	16i27m00153	X	XCCB			09/28/16 00:31	1.0	1	
154	16i27m00154	CCB				09/28/16 00:36	1.0	1	
155	16i27m00155	SAMPLE	281271-024	Soil	239551	09/28/16 00:41	25.0	1	2:CA=29000
156	16i27m00156	SAMPLE	281271-025	Soil	239551	09/28/16 00:46	25.0	1	2:CA=29000

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 1016390965

Instrument : MET26 Begun : 09/27/16 12:05
Method : EPA 6020A SOP Version : icpms metals_rv10

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
157	16i27m00157	SAMPLE	281271-026	Soil	239551	09/28/16 00:51	25.0	1	2:CA=26000
158	16i27m00158	SAMPLE	281271-027	Soil	239551	09/28/16 00:55	25.0	1	2:CA=27000
159	16i27m00159	CCV				09/28/16 01:00	1.0	13 1	1:U=1100
160	16i27m00160	X	XCCB			09/28/16 01:05	1.0	1	
161	16i27m00161	CCB				09/28/16 01:10	1.0	1	
162	16i27m00162	ICSA				09/28/16 01:15	1.0	11 1	8:CA=280000
163	16i27m00163	ICSAB				09/28/16 01:20	1.0	12 1	14:CA=280000
164	16i27m00164	X	RINSE			09/28/16 01:25	1.0	1	
165	16i27m00165	X	RINSE			09/28/16 01:30	1.0	1	
166	16i27m00166	X	RINSE			09/28/16 01:35	1.0	1	
167	16i27m00167	X	RINSE			09/28/16 01:40	1.0	1	
168	16i27m00168	X	RINSE			09/28/16 01:45	1.0	1	
169	16i27m00169	X	RINSE			09/28/16 01:50	1.0	1	
170	16i27m00170	X	RINSE			09/28/16 01:54	1.0	1	
171	16i27m00171	CCV				09/28/16 01:59	1.0	13 1	1:U=1100
172	16i27m00172	X	XCCB			09/28/16 02:04	1.0	1	
173	16i27m00173	CCB				09/28/16 02:09	1.0	1	
174	16i27m00174	BLANK	QC853168	Water	236853	09/28/16 02:14	1.0	1	
175	16i27m00175	MDL	277784-001	Water	236853	09/28/16 02:19	1.0	1	
176	16i27m00176	MDL	277784-002	Water	236853	09/28/16 02:23	1.0	1	
177	16i27m00177	MDL	277784-003	Water	236853	09/28/16 02:28	1.0	1	
178	16i27m00178	MDL	277784-004	Water	236853	09/28/16 02:33	1.0	1	
179	16i27m00179	MDL	277784-005	Water	236853	09/28/16 02:38	1.0	1	
180	16i27m00180	MDL	277784-006	Water	236853	09/28/16 02:43	1.0	1	
181	16i27m00181	MDL	277784-007	Water	236853	09/28/16 02:47	1.0	1	
182	16i27m00182	MDL	277784-008	Water	236853	09/28/16 02:52	1.0	1	
183	16i27m00183	MDL	277784-009	Water	236853	09/28/16 02:57	1.0	1	
184	16i27m00184	CCV				09/28/16 03:02	1.0	13 1	1:U=1100
185	16i27m00185	X	XCCB			09/28/16 03:07	1.0	1	
186	16i27m00186	CCB				09/28/16 03:12	1.0	1	
187	16i27m00187	MDL	277784-010	Water	236853	09/28/16 03:17	1.0	1	
188	16i27m00188	MDL	277784-011	Water	236853	09/28/16 03:21	1.0	1	
189	16i27m00189	MDL	277784-012	Water	236853	09/28/16 03:26	1.0	1	
190	16i27m00190	MDL	277784-013	Water	236853	09/28/16 03:31	1.0	1	
191	16i27m00191	MDL	277784-014	Water	236853	09/28/16 03:36	1.0	1	
192	16i27m00192	MDL	277784-015	Water	236853	09/28/16 03:41	1.0	1	1:MN=240
193	16i27m00193	MDL	277784-016	Water	236853	09/28/16 03:45	1.0	1	
194	16i27m00194	MDL	277784-017	Water	236853	09/28/16 03:50	1.0	1	
195	16i27m00195	MDL	277784-018	Water	236853	09/28/16 03:55	1.0	1	
196	16i27m00196	MDL	277784-019	Water	236853	09/28/16 04:00	1.0	1	
197	16i27m00197	CCV				09/28/16 04:05	1.0	13 1	1:U=1100
198	16i27m00198	X	XCCB			09/28/16 04:10	1.0	1	
199	16i27m00199	CCB				09/28/16 04:14	1.0	1	
200	16i27m00200	MDL	277784-020	Water	236853	09/28/16 04:19	1.0	1	
201	16i27m00201	MDL	277784-021	Water	236853	09/28/16 04:24	1.0	1	
202	16i27m00202	MDL	277784-022	Water	236853	09/28/16 04:29	1.0	1	
203	16i27m00203	MDL	277784-023	Water	236853	09/28/16 04:34	1.0	1	
204	16i27m00204	MDL	277784-024	Water	236853	09/28/16 04:38	1.0	1	
205	16i27m00205	MDL	277784-025	Water	236853	09/28/16 04:43	1.0	1	
206	16i27m00206	MDL	277784-026	Water	236853	09/28/16 04:48	1.0	1	
207	16i27m00207	MDL	277784-027	Water	236853	09/28/16 04:53	1.0	1	
208	16i27m00208	MDL	277784-028	Water	236853	09/28/16 04:58	1.0	1	

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 1016390965

Instrument : MET26 Begun : 09/27/16 12:05
Method : EPA 6020A SOP Version : icpms metals_rv10

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
209	16i27m00209	SAMPLE	281187-004	Filtrate	239453	09/28/16 05:02	5.0	1	1:NA=35000
210	16i27m00210	CCV				09/28/16 05:07	1.0	13 1	1:U=1100
211	16i27m00211	X	XCCB			09/28/16 05:12	1.0	1	
212	16i27m00212	CCB				09/28/16 05:17	1.0	1	
213	16i27m00213	CCV				09/28/16 05:22	1.0	13 1	1:U=1100
214	16i27m00214	X	XCCB			09/28/16 05:27	1.0	1	
215	16i27m00215	CCB				09/28/16 05:32	1.0	1	
216	16i27m00216	CCV				09/28/16 05:37	1.0	13 1	1:U=1100
217	16i27m00217	X	XCCB			09/28/16 05:42	1.0	1	
218	16i27m00218	CCB				09/28/16 05:46	1.0	1	
219	16i27m00219	ICSA				09/28/16 05:51	1.0	17 1	8:CA=280000
220	16i27m00220	ICSAB				09/28/16 05:56	1.0	12 1	14:CA=280000
221	16i27m00221	X	RINSE			09/28/16 06:01	1.0	1	
222	16i27m00222	X	RINSE			09/28/16 06:06	1.0	1	
223	16i27m00223	X	RINSE			09/28/16 06:11	1.0	1	
224	16i27m00224	X	RINSE			09/28/16 06:16	1.0	1	
225	16i27m00225	X	RINSE			09/28/16 06:21	1.0	1	
226	16i27m00226	X	RINSE			09/28/16 06:26	1.0	1	
227	16i27m00227	X	RINSE			09/28/16 06:31	1.0	1	
228	16i27m00228	X	RINSE			09/28/16 06:36	1.0	1	
229	16i27m00229	X	RINSE			09/28/16 06:41	1.0	1	
230	16i27m00230	X	RINSE			09/28/16 06:46	1.0	1	

KER 09/27/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 47.

Standards used: 1=S30711 2=S30805 3=S30981 4=S30982 5=S30984 6=S30985 7=S30979 8=S30980 9=S30986 10=S30815 11=S31022 12=S30839 13=S30987 14=S29983 15=S29984 16=S30560 17=S30233

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 1016390965

Date : 09/27/16
Sequence : MET26 16i27m00

Reference : 16i27m00004
Analyzed : 09/27/16 12:20

#	Type	Sample ID	LI A	SC A	SC E	SC H	GE H	GE E	IN A	BI A	Y A	TB A
		IB+ICALBLK STD	242818	209974	27118	109671	25251	11746	274525	332799	263589	438153
		LOWER LIMIT	72845	62992	8135	32901	7575	3524	82358	99840	79077	131446
		UPPER LIMIT	291382	251969	32542	131605	30301	14095	329430	399359	316307	525784
018	ICB		245810	201325	27152	106778	24449	11523	261813	324513	250640	417631
019	ICB		244184	203132	27139	107313	24616	11750	267196	326473	254669	423799
020	ICB		245060	203221	27280	108427	24823	11796	265490	326632	253994	425406
022	ICSA		204113	178063	25274	104343	22715	11450	211923	270265	215218	365674
023	ICSAB		199771	173554	23902	99814	24026	11236	210574	269030	212815	362426
028	BLANK	QC853002	236795	201402	27154	105169	24850	11773	266123	325354	254043	423220
029	BS	QC853003	232149	202190	26801	105577	24978	11821	261336	320949	252803	423498
030	BSD	QC853004	233203	201979	27029	105914	25014	11879	262837	322227	254122	422311
038	CCV		227175	193274	26046	106429	23702	11246	243957	303602	238882	402963
040	CCB		251497	205257	28186	110123	25038	12100	266984	327509	254761	421477
042	SAMPLE	281337-001	216900	173491	27227	106849	24635	11776	229896	286556	227512	380249
043	CCV		239499	198754	27734	117785	24981	11864	248427	308798	245061	405743
045	CCB		245325	196846	27831	109029	24842	11951	257446	320306	246520	409270
046	ICSA		210252	176277	25647	106545	23894	11743	213577	273259	215593	366756
047	ICSAB		212718	180064	25421	104352	24813	11867	218657	277079	221030	374421
052	BLANK	QC853199	244702	207810	28062	109504	25364	12194	268715	329348	260801	431698
053	BS	QC853200	241797	208463	28849	112547	25844	12404	270738	331986	261578	432787
054	BSD	QC853201	241396	207503	28461	110687	25948	12339	270111	330995	259610	431792
055	MSS	281441-001	225512	190238	28453	111956	25235	12073	242678	311287	245688	399161
056	MS	QC853202	229559	201245	29777	108813	24591	12479	248642	315150	253725	410501
057	MSD	QC853203	232687	202295	27503	105888	25011	11845	256732	325726	259202	421026
059	MS	QC853005	223298	192440	26886	103357	24256	11652	241347	297217	239833	401169
060	MSD	QC853006	226338	192713	26713	105368	24670	11946	241063	296246	239171	399893
061	SER	QC853007	242381	202217	27849	108316	25598	12149	259853	314875	249580	416650
062	CCV		234400	197639	27192	110499	24798	11972	249393	309441	246219	409570
064	CCB		249805	210157	29343	117723	25488	12164	270675	333870	258045	429446
065	PDS	QC853008	227249	192858	27094	104154	24560	11888	242295	297641	240257	402977
066	CCV		230169	200604	28298	112851	23792	11822	249871	312280	247700	413887
068	CCB		238295	196038	27072	106448	24484	11857	260818	323003	248598	415255
069	ICSA		205030	172980	25373	102778	23477	11902	210646	269296	214118	363054
070	ICSAB		202775	174429	24714	101250	24058	11637	211715	269183	216132	364881
075	BLANK	QC852928	235156	197101	26939	105559	24653	11788	258550	319399	249852	414997
076	BS	QC852929	230935	201369	27849	108296	24809	11993	259736	320514	250293	419842

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 1016390965

Date : 09/27/16
Sequence : MET26 16i27m00

Reference : 16i27m00004
Analyzed : 09/27/16 12:20

#	Type	Sample ID	LI A	SC A	SC E	SC H	GE H	GE E	IN A	BI A	Y A	TB A
077	BSD	QC852930	228339	191492	26446	102936	24666	11563	251606	312939	241844	406947
078	MSS	281187-003	211528	187500	25939	99963	23896	11645	243857	302309	236909	402505
079	MS	QC852931	211688	182891	24733	102178	23453	11105	234384	292829	229722	390273
080	MSD	QC852932	212114	183200	25544	101272	23702	11327	234920	294481	231254	391999
081	SER	QC852933	215608	185262	25199	97126	23406	11024	245950	307915	234068	395543
082	PDS	QC852934	200139	179263	24603	97835	22718	10745	228765	286385	224644	383307
083	SAMPLE	281263-001	210177	179660	24480	94482	22404	10595	243312	305356	230237	392272
084	SAMPLE	281263-001	202186	175395	24487	94142	21982	10662	219361	273331	219146	370479
085	CCV		214836	184157	25780	104612	22703	10839	233297	294504	229262	387746
087	CCB		223383	183575	25083	98313	22782	11081	247607	308920	235414	395330
088	SAMPLE	281187-004	212295	184025	25613	100313	22989	11070	238593	297950	230562	393750
089	PDS	QC852934	208568	180326	24721	95791	23093	11052	232232	290956	229200	388951
090	CCV		203317	177076	24561	100128	22663	10747	230733	293372	227627	385592
092	CCB		214656	179078	24234	96068	22393	10671	243148	304808	230761	390917
093	ICSA		185956	160825	23447	93161	21179	10845	198687	254635	200762	342686
094	ICSAB		194967	167584	23922	96548	23206	11348	206216	261320	208295	354435
108	SAMPLE	281271-001	214931	188621	25672	102066	23475	11138	244478	312287	244138	398342
109	SAMPLE	281271-002	213181	188362	25469	100095	23300	11134	242535	310089	244511	396302
110	SAMPLE	281271-003	211094	184156	25113	98355	22864	10912	237540	305837	238782	392190
111	CCV		204436	179291	24102	97800	22617	10821	236236	298182	230039	392786
113	CCB		212995	181511	24610	98025	22876	10809	247631	311164	234376	397247
114	SAMPLE	281271-004	205799	183315	24831	97549	22353	10894	236793	307372	237356	390363
115	SAMPLE	281271-005	204744	184827	24945	96942	22634	10809	237880	307741	241196	392845
116	SAMPLE	281271-006	206011	185677	25145	98133	22479	10889	238627	308390	240369	393662
117	SAMPLE	281271-007	206448	186393	24747	96909	22499	10825	238584	306947	240776	393146
118	SAMPLE	281271-008	205539	185443	24872	97389	22608	10871	239431	308876	241969	395282
119	SAMPLE	281271-009	203876	185830	24883	97438	22686	10920	241081	309170	242568	395928
120	SAMPLE	281271-010	207552	197151	25039	97828	22871	10906	242146	309647	244196	399677
121	CCV		200586	176126	22928	97361	22689	10694	233260	296191	228481	388850
123	CCB		207613	181364	24329	96697	22479	10759	245796	309773	233880	396023
124	ICSA		183432	164190	23232	93554	21446	10827	203421	258886	205901	350670
125	ICSAB		186235	167032	23220	95478	23234	11039	208695	263334	210454	357713
129	BLANK	QC853290	215207	188094	25388	98438	23614	11276	252255	312050	242848	407066
130	BS	QC853291	214621	188000	25360	99640	23759	11272	252860	310137	242387	404006
131	BSD	QC853292	211578	187486	25186	97906	23394	11206	252163	312155	243134	405193
132	MSS	281271-011	208761	186829	25370	100544	22988	11234	242497	308896	245578	397129
133	MS	QC853293	207961	184136	24724	97139	22754	10849	237795	301262	237196	385506

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 1016390965

Date : 09/27/16
Sequence : MET26 16i27m00

Reference : 16i27m00004
Analyzed : 09/27/16 12:20

#	Type	Sample ID	LI A	SC A	SC E	SC H	GE H	GE E	IN A	BI A	Y A	TB A
134	MSD	QC853294	207520	182206	24270	94755	22130	10655	233514	298394	235823	384153
135	SER	QC853295	210568	179890	24552	93867	22124	10601	236668	300430	229508	382066
136	PDS	QC853296	202669	175792	24253	96053	22308	10583	221963	284374	227746	368013
137	SAMPLE	281271-012	206553	177752	24345	92906	21162	10579	228982	293752	232418	374910
138	SAMPLE	281271-013	206998	173349	24106	93621	21777	10500	221080	284263	224099	362674
139	CCV		199484	169628	23232	92311	21699	10431	222114	279991	218898	370191
141	CCB		209785	172804	23715	94112	21646	10303	233463	294730	223298	375835
142	SAMPLE	281271-014	205615	174861	23709	92314	21374	10327	223235	290397	225410	367364
143	SAMPLE	281271-015	203190	178668	23738	92524	21458	10270	231062	298169	231846	379332
144	SAMPLE	281271-016	202207	178984	24172	94555	22164	10672	229881	297311	232506	382709
145	SAMPLE	281271-017	205832	177854	24081	93795	22016	10597	231121	295825	231599	380031
146	SAMPLE	281271-018	206827	180938	23930	94777	21697	10439	232464	296129	231292	379221
147	SAMPLE	281271-019	203686	175412	23752	91743	21409	10318	225873	289097	227856	371921
148	SAMPLE	281271-020	204467	178578	24804	98728	21443	10591	228770	293831	231619	376845
149	SAMPLE	281271-021	204781	178200	24054	93592	21688	10457	228139	295086	230466	375188
150	SAMPLE	281271-022	205250	179727	24395	94587	21745	10563	230534	294614	229633	376956
151	SAMPLE	281271-023	208352	182146	24597	95195	21776	10414	232513	297079	234528	381102
152	CCV		199155	176718	24003	100634	22117	10321	225049	285351	221780	376094
154	CCB		205566	169995	22948	91891	20962	10046	230132	289898	219722	370501
155	SAMPLE	281271-024	197703	171228	23458	91480	21073	10146	222054	286325	223299	365130
156	SAMPLE	281271-025	200915	172989	23459	90549	21234	10272	222472	288186	224570	367606
157	SAMPLE	281271-026	201593	173461	23418	91688	21123	10278	222250	287240	224633	367034
158	SAMPLE	281271-027	203191	175563	23957	90914	21444	10395	226895	291388	228016	373057
159	CCV		194911	169532	23360	95798	21746	10451	221010	280880	217360	369552
161	CCB		206089	175328	23968	97865	21503	10299	234955	295949	221486	377095
162	ICSA		178450	153549	21560	88342	20577	10276	190738	243839	192190	328064
163	ICSAB		178628	156844	22236	91195	21827	10722	191609	244364	195846	332511
171	CCV		200895	169147	23402	97812	21667	10392	218700	277122	215518	361923
173	CCB		210042	169648	23332	94967	21639	10367	228766	284943	217852	363778
175	MDL	277784-001	235110	444852 *	61659 *	134520 *	38160 *	32583 *	888536 *	1476508 *	761181 *	1789593 *
176	MDL	277784-002	279478	444832 *	57281 *	183484 *	50215 *	31265 *	929882 *	1494337 *	799853 *	1841030 *
177	MDL	277784-003	240431	449734 *	58690 *	118545	34984 *	31834 *	888432 *	1496351 *	771976 *	1814372 *
178	MDL	277784-004	216436	406447 *	57892 *	159406 *	44580 *	31234 *	793074 *	1361619 *	707874 *	1650555 *
179	MDL	277784-005	232755	445904 *	61722 *	93774	26613	33271 *	913112 *	1501779 *	769068 *	1813268 *
180	MDL	277784-006	300199 *	536288 *	70782 *	98036	27947	38135 *	1036555 *	1670652 *	881051 *	2027741 *
181	MDL	277784-007	218304	407576 *	57733 *	96889	27751	29771 *	813392 *	1353260 *	706246 *	1648102 *
182	MDL	277784-008	246811	406036 *	58957 *	107218	29923	31218 *	789742 *	1273313 *	678343 *	1560766 *

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 1016390965

Date : 09/27/16
Sequence : MET26 16i27m00

Reference : 16i27m00004
Analyzed : 09/27/16 12:20

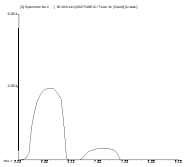
#	Type	Sample ID	LI A	SC A	SC E	SC H	GE H	GE E	IN A	BI A	Y A	TB A
183	MDL	277784-009	367070 *	559334 *	68853 *	193037 *	52843 *	35555 *	1027381 *	1604309 *	877398 *	1977290 *
184	CCV		201180	155129	22475	96876	20461	9770	199658	256444	195198	326974
186	CCB		207762	157731	22332	91905	20195	9779	211817	266925	201629	336956
187	MDL	277784-010	293457 *	476113 *	65526 *	151364 *	41429 *	34306 *	894254 *	1443545 *	776786 *	1769457 *
188	MDL	277784-011	301920 *	479473 *	55578 *	270971 *	66603 *	29392 *	894890 *	1444296 *	773270 *	1764533 *
189	MDL	277784-012	212674	160891	22755	89233	20447	10018	212396	268436	205003	339186
190	MDL	277784-013	208015	160000	22370	86096	20209	9859	209948	265335	201462	337859
191	MDL	277784-014	205687	158691	22364	86119	20276	9879	210991	264869	201710	338795
192	MDL	277784-015	200992	158808	22576	88307	20099	9768	201977	262907	203199	332376
193	MDL	277784-016	207553	161955	22473	85730	20287	9996	210607	274026	205914	343909
194	MDL	277784-017	255925	411900 *	57485 *	87271	25418	30003 *	795855 *	1299787 *	688203 *	1586611 *
195	MDL	277784-018	305304 *	480896 *	59475 *	128969	36037 *	31144 *	888591 *	1441651 *	776055 *	1766518 *
196	MDL	277784-019	247240	398938 *	71607 *	113184	30612 *	36873 *	746603 *	1225930 *	654015 *	1500981 *
197	CCV		200424	158557	22714	97532	20399	9978	201978	256043	199051	332504
199	CCB		208275	159884	22701	91884	20162	9861	213157	265513	202710	339771
200	MDL	277784-020	301507 *	503907 *	66987 *	104745	29473	34925 *	975198 *	1563696 *	824398 *	1909920 *
201	MDL	277784-021	285173	466487 *	59744 *	142713 *	39242 *	31652 *	876614 *	1427578 *	756018 *	1744258 *
202	MDL	277784-022	319951 *	509904 *	64895 *	149124 *	41637 *	33805 *	945135 *	1525134 *	818447 *	1868810 *
203	MDL	277784-023	325728 *	515042 *	68325 *	182681 *	49472 *	34983 *	967721 *	1532164 *	826585 *	1875831 *
204	MDL	277784-024	338713 *	534551 *	76108 *	191039 *	51102 *	37909 *	998323 *	1581469 *	850132 *	1938356 *
205	MDL	277784-025	293919 *	475252 *	70467 *	141808 *	38183 *	36517 *	879390 *	1414483 *	765043 *	1726774 *
206	MDL	277784-026	345325 *	534936 *	74836 *	160583 *	43139 *	38248 *	995188 *	1561455 *	847241 *	1925082 *
207	MDL	277784-027	330803 *	524873 *	67167 *	119576	32601 *	34678 *	980102 *	1551398 *	838604 *	1906188 *
208	MDL	277784-028	311601 *	491771 *	69462 *	154571 *	41541 *	33511 *	926811 *	1453205 *	787371 *	1798183 *
209	SAMPLE	281187-004	207465	164757	23094	91944	21125	10213	212848	267818	205168	345007
210	CCV		202249	158585	22594	97278	20391	9989	203545	258427	200836	335979
212	CCB		211556	162972	22654	97914	20838	10048	216577	272253	206963	345297
213	CCV		197709	156370	22499	95680	20381	9777	201043	253101	197159	331418
215	CCB		208036	160542	22517	95901	20474	9845	213270	269384	204397	341164
216	CCV		194903	155586	22506	97081	20195	9558	197832	249463	194719	327070
218	CCB		208824	159789	22583	99575	20960	9866	211838	267747	202752	340311
219	ICSA		166548	135861	19735	81171	18069	9370	165966	216371	168429	288841
220	ICSAB		169752	136928	19347	77311	18340	9411	169159	217238	171698	292810

MET26 QC Tune Report

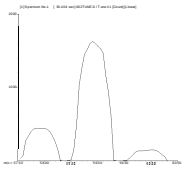
Data File: C:\ICPCHEM\1\DATA\16I27m00.B\002TUNE.D
Date Acquired: Sep 27 2016 12:10 pm
Acq. Method: TN6020F.M
Operator:
Sample Name: tun,s30805
Misc Info:
Vial Number: 1307
Current Method: C:\ICPCHEM\1\METHODS\TN6020F.M

RSD (%)

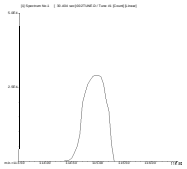
Element	Rep1	Rep2	Rep3	Rep4	Rep5	Actual	Required	Flag
7 Li	22374	22108	22083	21973	21867	0.88	5.00	
59 Co	9196	8936	8980	8929	8968	1.75	5.00	
115 In	150931	149176	148470	148082	147895	0.65	5.00	
205 Tl	11583	11531	11549	11395	11257	2.27	5.00	



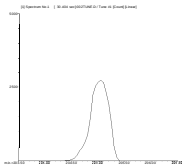
7 Li
Mass Calib.
Actual: 7.10
Required: 6.90 - 7.10
Flag:
Peak Width @ 5%
Actual: 0.65
Required: 0.75
Flag:



59 Co
Mass Calib.
Actual: 58.95
Required: 58.90 - 59.10
Flag:
Peak Width @ 5%
Actual: 0.65
Required: 0.75
Flag:



115 In
Mass Calib.
Actual: 114.95
Required: 114.90 - 115.10
Flag:
Peak Width @ 5%
Actual: 0.65
Required: 0.75
Flag:



205 Tl
Mass Calib.
Actual: 205.05
Required: 204.90 - 205.10
Flag:
Peak Width @ 5%
Actual: 0.70
Required: 0.75
Flag:

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 281271 METALS Soil: EPA 6020A

Inst : MET26
Calnum : 1016390965001
Units : ug/L

Date : 27-SEP-2016 12:20
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	16i27m00005	1016390965005		27-SEP-2016 12:24	S30981, S30711
L2	16i27m00006	1016390965006		27-SEP-2016 12:29	S30982, S30711
L3	16i27m00007	1016390965007		27-SEP-2016 12:34	S30984, S30711
L4	16i27m00008	1016390965008		27-SEP-2016 12:39	S30985, S30711
L5	16i27m00009	1016390965009		27-SEP-2016 12:43	S30979, S30711
L6	16i27m00010	1016390965010		27-SEP-2016 12:48	S30980, S30711

Analyte	Ch	L1	L2	L3	L4	L5	L6	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Antimony	A	0.0046	0.0036	0.0039	0.0037	0.0038	0.0038	BLNK	-0.0161	264.662		0.0039	1.000	0.995	
Barium	A	0.0014	8.1E-4	8.2E-4	7.4E-4	7.3E-4	7.2E-4	BLNK	-0.0246	1380.64		8.8E-4	1.000	0.995	
Beryllium	A	0.0066	0.0040	0.0040	0.0037	0.0037	0.0037	BLNK	-0.1059	272.336		0.0043	1.000	0.995	
Cadmium	A	9.3E-4	8.7E-4	8.8E-4	8.0E-4	8.0E-4	8.0E-4	BLNK	-0.0354	1247.09		8.5E-4	1.000	0.995	
Lead	A	0.0131	0.0103	0.0098	0.0097	0.0097	0.0096	BLNK	-0.0336	103.752		0.0104	1.000	0.995	
Molybdenum	A	0.0065	0.0028	0.0024	0.0021	0.0021	0.0021	BLNK	-0.1963	470.165		0.0030	1.000	0.995	
Silver	A	0.0038	0.0035	0.0036	0.0034	0.0034	0.0034	BLNK	-0.0153	290.414		0.0035	1.000	0.995	
Thallium	A	0.0074	0.0074	0.0072	0.0071	0.0071	0.0070	BLNK	-0.0181	142.539		0.0072	1.000	0.995	
Arsenic	E	0.0705	0.0208	0.0152	0.0090	0.0086	0.0084	BLNK	-0.6936	119.102		0.0221	1.000	0.995	
Chromium	E	0.4514	0.1057	0.0626	0.0216	0.0168	0.0161	BLNK	-2.5961	62.5941		0.1124	1.000	0.995	
Cobalt	E	0.0381	0.0263	0.0241	0.0225	0.0212	0.0204	BLNK	-0.0876	48.6409		0.0254	1.000	0.995	
Copper	E		0.2700	0.1384	0.0256	0.0149	0.0137	BLNK	-10.531	76.2094		0.0925	1.000	0.995	
Nickel	E	0.2637	0.0575	0.0302	0.0077	0.0056	0.0053	BLNK	-4.7831	192.339		0.0617	1.000	0.995	
Vanadium	E	0.1220	0.0357	0.0274	0.0161	0.0150	0.0144	BLNK	-0.6509	68.9402		0.0384	1.000	0.995	
Zinc	E		0.0181	0.0204	0.0089	0.0086	0.0083	BLNK	-0.5166	119.615		0.0129	1.000	0.995	
Selenium	H	0.0018	0.0013	0.0011	0.0012	0.0012	0.0012	BLNK	-0.0426	809.339		0.0013	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D
Antimony	A	0.1000	5	0.5000	-8	1.0000	2	10.000	-2	100.00	0	200.00	0
Barium	A	0.1000	**73**	0.5000	6	1.0000	11	10.000	2	100.00	1	200.00	0
Beryllium	A	0.1000	**-26**	0.5000	-13	1.0000	-1	10.000	-1	100.00	1	200.00	0
Cadmium	A	0.1000	-19	0.5000	2	1.0000	7	10.000	0	100.00	0	200.00	0
Lead	A	0.1000	2	0.5000	1	1.0000	-2	10.000	1	100.00	1	200.00	0
Molybdenum	A	0.1000	7	0.5000	-9	1.0000	-8	10.000	-2	100.00	0	200.00	0
Silver	A	0.1000	-3	0.5000	-2	1.0000	2	10.000	0	100.00	0	200.00	0
Thallium	A	0.0500	**-31**	0.2500	-1	0.5000	-1	5.0000	1	50.000	1	100.00	0
Arsenic	E	0.1000	**46**	0.5000	8	1.0000	11	10.000	0	100.00	1	200.00	0
Chromium	E	0.1000	**129**	0.5000	**42**	1.0000	**32**	10.000	10	100.00	3	200.00	-1
Cobalt	E	0.1000	-2	0.5000	11	1.0000	8	10.000	9	100.00	3	200.00	-1
Copper	E			0.5000	**-148**	1.0000	**-99**	10.000	-11	100.00	3	200.00	-1
Nickel	E	0.1000	**189**	0.5000	**49**	1.0000	3	10.000	0	100.00	3	200.00	-1
Vanadium	E	0.1000	**90**	0.5000	16	1.0000	**24**	10.000	4	100.00	3	200.00	-1
Zinc	E			0.5000	13	1.0000	**93**	10.000	1	100.00	2	200.00	-1
Selenium	H	0.1000	2	0.5000	-6	1.0000	-12	10.000	-1	100.00	0	200.00	0

Instrument amount = a0 + response * a1 + response^2 * a2; BLNK=Y=aX+[blank]

1016390965001

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 281271 METALS Soil
EPA 6020A

Inst : MET26
Calnum : 1016390965001 Cal Date : 27-SEP-2016

ICV 1016390965014 (16i27m00014 27-SEP-2016) stds: S30986, S30711

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	100.0	99.06	ug/L	-1	10	
Barium	A	100.0	99.65	ug/L	0	10	
Beryllium	A	100.0	97.55	ug/L	-2	10	
Cadmium	A	100.0	98.98	ug/L	-1	10	
Lead	A	100.0	99.15	ug/L	-1	10	
Molybdenum	A	100.0	99.19	ug/L	-1	10	
Silver	A	100.0	101.0	ug/L	1	10	
Thallium	A	50.00	49.46	ug/L	-1	10	
Arsenic	E	100.0	99.70	ug/L	0	10	
Chromium	E	100.0	102.5	ug/L	3	10	
Cobalt	E	100.0	103.3	ug/L	3	10	
Copper	E	100.0	100.2	ug/L	0	10	
Nickel	E	100.0	102.6	ug/L	3	10	
Vanadium	E	100.0	102.5	ug/L	3	10	
Zinc	E	100.0	99.22	ug/L	-1	10	
Selenium	H	100.0	99.67	ug/L	0	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 281271 METALS Soil
EPA 6020A

Inst : MET26 IDF : 1.0
Seqnum : 1016390965020.1 File : 16i27m00020 Time : 27-SEP-2016 13:44
Cal : 1016390965001 Caldate : 27-SEP-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	0.1000	0.05000	ug/L	
Barium	A	[0.05480]	0.1000	0.05000	ug/L	!ICB
Beryllium	A	ND	0.1000	0.1000	ug/L	
Cadmium	A	ND	0.1000	0.1000	ug/L	
Lead	A	ND	0.1000	0.1000	ug/L	
Molybdenum	A	ND	0.1000	0.2000	ug/L	
Silver	A	ND	0.1000	0.05000	ug/L	
Thallium	A	ND	0.05000	0.02500	ug/L	
Arsenic	E	0.1162	0.1000	0.2000	ug/L	ICB ***
Chromium	E	0.2958	0.1000	0.1000	ug/L	ICB ***
Cobalt	E	ND	0.1000	0.05000	ug/L	
Copper	E	ND	0.5000	0.1000	ug/L	
Nickel	E	ND	0.1000	0.05000	ug/L	
Vanadium	E	0.2299	0.1000	0.2000	ug/L	ICB ***
Zinc	E	ND	0.5000	1.000	ug/L	
Selenium	H	ND	0.1000	0.05000	ug/L	

ISTD (ICALBLK 16i27m00004)	Ch	ICALBLK Abund	Abund	%Drift
Lithium	A	242818	245060	0.92
Scandium	A	209974	203221	-3.22
Scandium	E	27118	27280	0.60
Scandium	H	109671	108427	-1.13
Germanium	H	25251	24823	-1.69
Germanium	E	11746	11796	0.43
Indium	A	274525	265490	-3.29
Bismuth	A	332799	326632	-1.85
Yttrium	A	263589	253994	-3.64
Terbium	A	438153	425406	-2.91

!=warning ICB=instrument blank

CURTIS & TOMPKINS LOW-LEVEL PERFORMANCE VERIFICATION STANDARD FOR 281271 METALS Soil
EPA 6020A

Inst : MET26 IDF : 1.0
Seqnum : 1016390965021.1 File : 16i27m00021 Time : 27-SEP-2016 13:48
Cal : 1016390965001 Caldate : 27-SEP-2016
Standards: S30815, S30711

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	1.000	0.9763	ug/L	-2	30	
Barium	A	1.000	1.046	ug/L	5	30	
Beryllium	A	1.000	1.103	ug/L	10	30	
Cadmium	A	1.000	1.025	ug/L	3	30	
Lead	A	1.000	1.019	ug/L	2	30	
Molybdenum	A	1.000	0.9502	ug/L	-5	30	
Silver	A	1.000	0.9590	ug/L	-4	30	
Thallium	A	0.5000	0.4857	ug/L	-3	30	
Arsenic	E	1.000	1.243	ug/L	**24**	30	!cri+
Chromium	E	1.000	1.384	ug/L	**38**	30	cri+ ***
Cobalt	E	1.000	1.164	ug/L	16	30	
Copper	E	1.000	-3.608	ug/L	**-461**	30	cri- ***
Nickel	E	1.000	-0.2057	ug/L	**-121**	30	cri- ***
Vanadium	E	1.000	1.489	ug/L	**49**	30	cri+ ***
Zinc	E	5.000	6.521	ug/L	**30**	30	!cri+
Selenium	H	1.000	0.9578	ug/L	-4	30	

ISTD (ICALBLK 16i27m00004)	Ch	ICALBLK Abund	Abund	%Drift
Lithium	A	242818	249138	2.60
Scandium	A	209974	208864	-0.53
Scandium	E	27118	27441	1.19
Scandium	H	109671	111835	1.97
Germanium	H	25251	24233	-4.03
Germanium	E	11746	11534	-1.80
Indium	A	274525	270702	-1.39
Bismuth	A	332799	332058	-0.22
Yttrium	A	263589	259458	-1.57
Terbium	A	438153	431128	-1.60

!=warning +=high bias -=low bias

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 281271 METALS Soil
EPA 6020A

Inst : MET26 IDF : 1.0
Seqnum : 1016390965043.3 File : 16i27m00043 Time : 27-SEP-2016 15:37
Cal : 1016390965001 Caldate : 27-SEP-2016
Standards: S30987, S30711

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	0.0039	0.0038	100.0	100.4	ug/L	0	10	
Barium	A	8.8E-4	7.4E-4	100.0	101.6	ug/L	2	10	
Beryllium	A	0.0043	0.0036	100.0	97.17	ug/L	-3	10	
Cadmium	A	8.5E-4	8.0E-4	100.0	99.97	ug/L	0	10	
Lead	A	0.0104	0.0097	100.0	100.6	ug/L	1	10	
Molybdenum	A	0.0030	0.0022	100.0	101.3	ug/L	1	10	
Silver	A	0.0035	0.0035	100.0	101.6	ug/L	2	10	
Thallium	A	0.0072	0.0070	50.00	49.97	ug/L	0	10	
Arsenic	E	0.0221	0.0085	100.0	100.4	ug/L	0	10	
Chromium	E	0.1124	0.0163	100.0	99.66	ug/L	0	10	
Cobalt	E	0.0254	0.0206	100.0	99.96	ug/L	0	10	
Copper	E	0.0925	0.0137	100.0	94.24	ug/L	-6	10	
Nickel	E	0.0617	0.0053	100.0	97.54	ug/L	-2	10	
Vanadium	E	0.0384	0.0147	100.0	100.9	ug/L	1	10	
Zinc	E	0.0129	0.0084	100.0	100.6	ug/L	1	10	
Selenium	H	0.0013	0.0012	100.0	98.50	ug/L	-1	10	

ISTD (ICALBLK 16i27m00004)	Ch	ICALBLK Abund	Abund	%Drift
Lithium	A	242818	239499	-1.37
Scandium	A	209974	198754	-5.34
Scandium	E	27118	27734	2.27
Scandium	H	109671	117785	7.40
Germanium	H	25251	24981	-1.07
Germanium	E	11746	11864	1.00
Indium	A	274525	248427	-9.51
Bismuth	A	332799	308798	-7.21
Yttrium	A	263589	245061	-7.03
Terbium	A	438153	405743	-7.40

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 281271 METALS Soil
EPA 6020A

Inst : MET26 IDF : 1.0
Seqnum : 1016390965045.3 File : 16i27m00045 Time : 27-SEP-2016 15:46
Cal : 1016390965001 Caldate : 27-SEP-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	0.1000	0.05000	ug/L	
Barium	A	ND	0.1000	0.05000	ug/L	
Beryllium	A	ND	0.1000	0.1000	ug/L	
Cadmium	A	ND	0.1000	0.1000	ug/L	
Lead	A	ND	0.1000	0.1000	ug/L	
Molybdenum	A	ND	0.1000	0.2000	ug/L	
Silver	A	ND	0.1000	0.05000	ug/L	
Thallium	A	ND	0.05000	0.02500	ug/L	
Arsenic	E	0.1060	0.1000	0.2000	ug/L	CCB ***
Chromium	E	0.2395	0.1000	0.1000	ug/L	CCB ***
Cobalt	E	ND	0.1000	0.05000	ug/L	
Copper	E	ND	0.5000	0.1000	ug/L	
Nickel	E	ND	0.1000	0.05000	ug/L	
Vanadium	E	0.3831	0.1000	0.2000	ug/L	CCB ***
Zinc	E	ND	0.5000	1.000	ug/L	
Selenium	H	ND	0.1000	0.05000	ug/L	

ISTD (ICALBLK 16i27m00004)	Ch	ICALBLK Abund	Abund	%Drift
Lithium	A	242818	245325	1.03
Scandium	A	209974	196846	-6.25
Scandium	E	27118	27831	2.63
Scandium	H	109671	109029	-0.59
Germanium	H	25251	24842	-1.62
Germanium	E	11746	11951	1.75
Indium	A	274525	257446	-6.22
Bismuth	A	332799	320306	-3.75
Yttrium	A	263589	246520	-6.48
Terbium	A	438153	409270	-6.59

CCB=instrument blank

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 281271 METALS Soil
EPA 6020A

Inst : MET26 IDF : 1.0
Seqnum : 1016390965046.3 File : 16i27m00046 Time : 27-SEP-2016 15:51
Cal : 1016390965001 Caldate : 27-SEP-2016
Standards: S31022, S30711

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	0.4218	0.1000	ug/L	
Barium	A	1.895	0.1000	ug/L	
Beryllium	A	[0.06970]	0.1000	ug/L	
Cadmium	A	1.392	0.1000	ug/L	
Lead	A	0.1916	0.1000	ug/L	
Silver	A	0.1811	0.1000	ug/L	
Thallium	A	[0.02540]	0.05000	ug/L	
Arsenic	E	0.6427	0.1000	ug/L	
Chromium	E	1.540	0.1000	ug/L	
Cobalt	E	1.451	0.1000	ug/L	
Copper	E	[-5.216]	0.5000	ug/L	
Nickel	E	1.014	0.1000	ug/L	
Vanadium	E	0.3236	0.1000	ug/L	
Zinc	E	2.678	0.5000	ug/L	
Selenium	H	0.1151	0.1000	ug/L	

Interferent	Ch	Spiked	Quant	Units	%Rec	Flags
Aluminum	A	100000	104100	ug/L	104	
Calcium	A	300000	280500	ug/L	94	
Magnesium	A	100000	104200	ug/L	104	
Molybdenum	A	2000	2047	ug/L	102	
Potassium	A	100000	104900	ug/L	105	
Sodium	E	250000	250700	ug/L	100	
Phosphorus	E	100000	108000	ug/L	108	
Iron	H	250000	240700	ug/L	96	

ISTD (ICALBLK 16i27m00004)	Ch	ICALBLK Abund	Abund	%Drift
Lithium	A	242818	210252	-13.41
Scandium	A	209974	176277	-16.05
Scandium	E	27118	25647	-5.42
Scandium	H	109671	106545	-2.85
Germanium	H	25251	23894	-5.37
Germanium	E	11746	11743	-0.03
Indium	A	274525	213577	-22.20
Bismuth	A	332799	273259	-17.89
Yttrium	A	263589	215593	-18.21
Terbium	A	438153	366756	-16.29

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 281271 METALS Soil
EPA 6020A

Inst : MET26 IDF : 1.0
Seqnum : 1016390965047.3 File : 16i27m00047 Time : 27-SEP-2016 15:56
Cal : 1016390965001 Caldate : 27-SEP-2016
Standards: S30839, S30711

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Cadmium	A	100.0	103.9	ug/L	4	20	
Molybdenum	A	2000	2015	ug/L	1		
Silver	A	50.00	52.64	ug/L	5	20	
Arsenic	E	100.0	96.91	ug/L	-3	20	
Chromium	E	200.0	203.6	ug/L	2	20	
Cobalt	E	200.0	202.7	ug/L	1	20	
Copper	E	200.0	197.6	ug/L	-1	20	
Nickel	E	200.0	202.6	ug/L	1	20	
Vanadium	E	200.0	206.0	ug/L	3	20	
Zinc	E	100.0	90.93	ug/L	-9	20	
Selenium	H	100.0	91.79	ug/L	-8	20	

ISTD (ICALBLK 16i27m00004)	Ch	ICALBLK Abund	Abund	%Drift
Scandium	H	109671	104352	-4.85
Scandium	A	209974	180064	-14.24
Scandium	E	27118	25421	-6.26
Germanium	H	25251	24813	-1.73
Germanium	E	11746	11867	1.03
Indium	A	274525	218657	-20.35
Yttrium	A	263589	221030	-16.15

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 281271 METALS Soil
EPA 6020A

Inst : MET26 IDF : 1.0
Seqnum : 1016390965062.1 File : 16i27m00062 Time : 27-SEP-2016 17:08
Cal : 1016390965001 Caldate : 27-SEP-2016
Standards: S30987, S30711

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	0.0039	0.0038	100.0	99.43	ug/L	-1	10	
Barium	A	8.8E-4	7.3E-4	100.0	101.1	ug/L	1	10	
Beryllium	A	0.0043	0.0035	100.0	96.47	ug/L	-4	10	
Cadmium	A	8.5E-4	7.8E-4	100.0	97.76	ug/L	-2	10	
Lead	A	0.0104	0.0095	100.0	99.03	ug/L	-1	10	
Molybdenum	A	0.0030	0.0021	100.0	99.12	ug/L	-1	10	
Silver	A	0.0035	0.0034	100.0	99.93	ug/L	0	10	
Thallium	A	0.0072	0.0069	50.00	49.16	ug/L	-2	10	
Arsenic	E	0.0221	0.0084	100.0	99.33	ug/L	-1	10	
Chromium	E	0.1124	0.0165	100.0	100.9	ug/L	1	10	
Cobalt	E	0.0254	0.0208	100.0	101.3	ug/L	1	10	
Copper	E	0.0925	0.0139	100.0	95.20	ug/L	-5	10	
Nickel	E	0.0617	0.0055	100.0	100.1	ug/L	0	10	
Vanadium	E	0.0384	0.0148	100.0	101.6	ug/L	2	10	
Zinc	E	0.0129	0.0082	100.0	97.89	ug/L	-2	10	
Selenium	H	0.0013	0.0012	100.0	96.74	ug/L	-3	10	

ISTD (ICALBLK 16i27m00004)	Ch	ICALBLK Abund	Abund	%Drift
Lithium	A	242818	234400	-3.47
Scandium	A	209974	197639	-5.87
Scandium	E	27118	27192	0.27
Scandium	H	109671	110499	0.75
Germanium	H	25251	24798	-1.79
Germanium	E	11746	11972	1.92
Indium	A	274525	249393	-9.15
Bismuth	A	332799	309441	-7.02
Yttrium	A	263589	246219	-6.59
Terbium	A	438153	409570	-6.52

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 281271 METALS Soil
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Inst : MET26 IDF : 1.0
Seqnum : 1016390965064.1 File : 16i27m00064 Time : 27-SEP-2016 17:18
Cal : 1016390965001 Caldate : 27-SEP-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	0.1000	0.05000	ug/L	
Barium	A	[0.08970]	0.1000	0.05000	ug/L	!CCB
Beryllium	A	ND	0.1000	0.1000	ug/L	
Cadmium	A	ND	0.1000	0.1000	ug/L	
Lead	A	ND	0.1000	0.1000	ug/L	
Molybdenum	A	ND	0.1000	0.2000	ug/L	
Silver	A	ND	0.1000	0.05000	ug/L	
Thallium	A	ND	0.05000	0.02500	ug/L	
Arsenic	E	0.1178	0.1000	0.2000	ug/L	CCB ***
Chromium	E	ND	0.1000	0.1000	ug/L	
Cobalt	E	ND	0.1000	0.05000	ug/L	
Copper	E	ND	0.5000	0.1000	ug/L	
Nickel	E	ND	0.1000	0.05000	ug/L	
Vanadium	E	0.3114	0.1000	0.2000	ug/L	CCB ***
Zinc	E	ND	0.5000	1.000	ug/L	
Selenium	H	[0.05630]	0.1000	0.05000	ug/L	!CCB

ISTD (ICALBLK 16i27m00004)	Ch	ICALBLK Abund	Abund	%Drift
Lithium	A	242818	249805	2.88
Scandium	A	209974	210157	0.09
Scandium	E	27118	29343	8.20
Scandium	H	109671	117723	7.34
Germanium	H	25251	25488	0.94
Germanium	E	11746	12164	3.56
Indium	A	274525	270675	-1.40
Bismuth	A	332799	333870	0.32
Yttrium	A	263589	258045	-2.10
Terbium	A	438153	429446	-1.99

!=warning CCB=instrument blank

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 281271 METALS Soil
EPA 6020A

Inst : MET26 IDF : 1.0
Seqnum : 1016390965069.1 File : 16i27m00069 Time : 27-SEP-2016 17:42
Cal : 1016390965001 Caldate : 27-SEP-2016
Standards: S31022, S30711

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	0.4096	0.1000	ug/L	
Barium	A	2.063	0.1000	ug/L	
Beryllium	A	[0.05790]	0.1000	ug/L	
Cadmium	A	1.418	0.1000	ug/L	
Lead	A	0.1744	0.1000	ug/L	
Silver	A	0.1734	0.1000	ug/L	
Thallium	A	[0.03120]	0.05000	ug/L	
Arsenic	E	0.7517	0.1000	ug/L	
Chromium	E	1.545	0.1000	ug/L	
Cobalt	E	1.426	0.1000	ug/L	
Copper	E	[-5.979]	0.5000	ug/L	
Nickel	E	[-0.6743]	0.1000	ug/L	
Vanadium	E	0.2973	0.1000	ug/L	
Zinc	E	2.269	0.5000	ug/L	
Selenium	H	[0.07230]	0.1000	ug/L	

Interferent	Ch	Spiked	Quant	Units	%Rec	Flags
Aluminum	A	100000	103100	ug/L	103	
Calcium	A	300000	278900	ug/L	93	
Magnesium	A	100000	103100	ug/L	103	
Molybdenum	A	2000	2022	ug/L	101	
Potassium	A	100000	104200	ug/L	104	
Sodium	E	250000	246300	ug/L	99	
Phosphorus	E	100000	106900	ug/L	107	
Iron	H	250000	243700	ug/L	97	

ISTD (ICALBLK 16i27m00004)	Ch	ICALBLK Abund	Abund	%Drift
Lithium	A	242818	205030	-15.56
Scandium	A	209974	172980	-17.62
Scandium	E	27118	25373	-6.43
Scandium	H	109671	102778	-6.29
Germanium	H	25251	23477	-7.03
Germanium	E	11746	11902	1.33
Indium	A	274525	210646	-23.27
Bismuth	A	332799	269296	-19.08
Yttrium	A	263589	214118	-18.77
Terbium	A	438153	363054	-17.14

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 281271 METALS Soil
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Inst : MET26 IDF : 1.0
Seqnum : 1016390965070.1 File : 16i27m00070 Time : 27-SEP-2016 17:47
Cal : 1016390965001 Caldate : 27-SEP-2016
Standards: S30839, S30711

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Cadmium	A	100.0	105.0	ug/L	5	20	
Molybdenum	A	2000	2028	ug/L	1		
Silver	A	50.00	52.76	ug/L	6	20	
Arsenic	E	100.0	96.33	ug/L	-4	20	
Chromium	E	200.0	204.1	ug/L	2	20	
Cobalt	E	200.0	204.0	ug/L	2	20	
Copper	E	200.0	198.3	ug/L	-1	20	
Nickel	E	200.0	199.1	ug/L	0	20	
Vanadium	E	200.0	207.7	ug/L	4	20	
Zinc	E	100.0	90.72	ug/L	-9	20	
Selenium	H	100.0	89.85	ug/L	-10	20	

ISTD (ICALBLK 16i27m00004)	Ch	ICALBLK Abund	Abund	%Drift
Scandium	H	109671	101250	-7.68
Scandium	A	209974	174429	-16.93
Scandium	E	27118	24714	-8.86
Germanium	H	25251	24058	-4.72
Germanium	E	11746	11637	-0.93
Indium	A	274525	211715	-22.88
Yttrium	A	263589	216132	-18.00

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 281271 METALS Soil
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Inst : MET26 IDF : 1.0
Seqnum : 1016390965090.1 File : 16i27m00090 Time : 27-SEP-2016 19:26
Cal : 1016390965001 Caldate : 27-SEP-2016
Standards: S30987, S30711

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	0.0039	0.0038	100.0	100.1	ug/L	0	10	
Barium	A	8.8E-4	7.1E-4	100.0	98.64	ug/L	-1	10	
Beryllium	A	0.0043	0.0036	100.0	96.97	ug/L	-3	10	
Cadmium	A	8.5E-4	7.8E-4	100.0	97.46	ug/L	-3	10	
Lead	A	0.0104	0.0096	100.0	99.56	ug/L	0	10	
Molybdenum	A	0.0030	0.0021	100.0	99.54	ug/L	0	10	
Silver	A	0.0035	0.0034	100.0	99.22	ug/L	-1	10	
Thallium	A	0.0072	0.0070	50.00	49.61	ug/L	-1	10	
Arsenic	E	0.0221	0.0084	100.0	99.35	ug/L	-1	10	
Chromium	E	0.1124	0.0166	100.0	101.1	ug/L	1	10	
Cobalt	E	0.0254	0.0208	100.0	101.1	ug/L	1	10	
Copper	E	0.0925	0.0139	100.0	95.62	ug/L	-4	10	
Nickel	E	0.0617	0.0053	100.0	97.52	ug/L	-2	10	
Vanadium	E	0.0384	0.0149	100.0	101.8	ug/L	2	10	
Zinc	E	0.0129	0.0083	100.0	99.27	ug/L	-1	10	
Selenium	H	0.0013	0.0012	100.0	97.82	ug/L	-2	10	

ISTD (ICALBLK 16i27m00004)	Ch	ICALBLK Abund	Abund	%Drift
Lithium	A	242818	203317	-16.27
Scandium	A	209974	177076	-15.67
Scandium	E	27118	24561	-9.43
Scandium	H	109671	100128	-8.70
Germanium	H	25251	22663	-10.25
Germanium	E	11746	10747	-8.51
Indium	A	274525	230733	-15.95
Bismuth	A	332799	293372	-11.85
Yttrium	A	263589	227627	-13.64
Terbium	A	438153	385592	-12.00

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 281271 METALS Soil
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Inst : MET26 IDF : 1.0
Seqnum : 1016390965092.1 File : 16i27m00092 Time : 27-SEP-2016 19:36
Cal : 1016390965001 Caldate : 27-SEP-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	[0.07230]	0.1000	0.05000	ug/L	!CCB
Barium	A	[0.06180]	0.1000	0.05000	ug/L	!CCB
Beryllium	A	ND	0.1000	0.1000	ug/L	
Cadmium	A	ND	0.1000	0.1000	ug/L	
Lead	A	ND	0.1000	0.1000	ug/L	
Molybdenum	A	ND	0.1000	0.2000	ug/L	
Silver	A	ND	0.1000	0.05000	ug/L	
Thallium	A	ND	0.05000	0.02500	ug/L	
Arsenic	E	0.1798	0.1000	0.2000	ug/L	CCB ***
Chromium	E	0.1661	0.1000	0.1000	ug/L	CCB ***
Cobalt	E	ND	0.1000	0.05000	ug/L	
Copper	E	ND	0.5000	0.1000	ug/L	
Nickel	E	ND	0.1000	0.05000	ug/L	
Vanadium	E	0.3217	0.1000	0.2000	ug/L	CCB ***
Zinc	E	ND	0.5000	1.000	ug/L	
Selenium	H	ND	0.1000	0.05000	ug/L	

ISTD (ICALBLK 16i27m00004)	Ch	ICALBLK Abund	Abund	%Drift
Lithium	A	242818	214656	-11.60
Scandium	A	209974	179078	-14.71
Scandium	E	27118	24234	-10.64
Scandium	H	109671	96068	-12.40
Germanium	H	25251	22393	-11.32
Germanium	E	11746	10671	-9.15
Indium	A	274525	243148	-11.43
Bismuth	A	332799	304808	-8.41
Yttrium	A	263589	230761	-12.45
Terbium	A	438153	390917	-10.78

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CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 281271 METALS Soil
EPA 6020A

Inst : MET26 IDF : 1.0
Seqnum : 1016390965093.1 File : 16i27m00093 Time : 27-SEP-2016 19:40
Cal : 1016390965001 Caldate : 27-SEP-2016
Standards: S31022, S30711

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	0.4727	0.1000	ug/L	
Barium	A	1.806	0.1000	ug/L	
Beryllium	A	[0.08110]	0.1000	ug/L	
Cadmium	A	1.373	0.1000	ug/L	
Lead	A	0.1910	0.1000	ug/L	
Silver	A	0.1864	0.1000	ug/L	
Thallium	A	[0.02480]	0.05000	ug/L	
Arsenic	E	0.6265	0.1000	ug/L	
Chromium	E	1.446	0.1000	ug/L	
Cobalt	E	1.327	0.1000	ug/L	
Copper	E	[-6.227]	0.5000	ug/L	
Nickel	E	[-1.587]	0.1000	ug/L	
Vanadium	E	0.2301	0.1000	ug/L	
Zinc	E	2.200	0.5000	ug/L	
Selenium	H	0.1271	0.1000	ug/L	

Interferent	Ch	Spiked	Quant	Units	%Rec	Flags
Aluminum	A	100000	102200	ug/L	102	
Calcium	A	300000	280100	ug/L	93	
Magnesium	A	100000	101900	ug/L	102	
Molybdenum	A	2000	2039	ug/L	102	
Potassium	A	100000	103700	ug/L	104	
Sodium	E	250000	243800	ug/L	98	
Phosphorus	E	100000	103700	ug/L	104	
Iron	H	250000	244200	ug/L	98	

ISTD (ICALBLK 16i27m00004)	Ch	ICALBLK Abund	Abund	%Drift
Lithium	A	242818	185956	-23.42
Scandium	A	209974	160825	-23.41
Scandium	E	27118	23447	-13.54
Scandium	H	109671	93161	-15.05
Germanium	H	25251	21179	-16.13
Germanium	E	11746	10845	-7.67
Indium	A	274525	198687	-27.63
Bismuth	A	332799	254635	-23.49
Yttrium	A	263589	200762	-23.84
Terbium	A	438153	342686	-21.79

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 281271 METALS Soil
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Inst : MET26 IDF : 1.0
Seqnum : 1016390965094.1 File : 16i27m00094 Time : 27-SEP-2016 19:45
Cal : 1016390965001 Caldate : 27-SEP-2016
Standards: S30839, S30711

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Cadmium	A	100.0	105.7	ug/L	6	20	
Molybdenum	A	2000	2057	ug/L	3		
Silver	A	50.00	53.33	ug/L	7	20	
Arsenic	E	100.0	96.95	ug/L	-3	20	
Chromium	E	200.0	206.3	ug/L	3	20	
Cobalt	E	200.0	206.1	ug/L	3	20	
Copper	E	200.0	200.4	ug/L	0	20	
Nickel	E	200.0	201.6	ug/L	1	20	
Vanadium	E	200.0	209.9	ug/L	5	20	
Zinc	E	100.0	90.49	ug/L	-10	20	
Selenium	H	100.0	89.96	ug/L	-10	20	

ISTD (ICALBLK 16i27m00004)	Ch	ICALBLK Abund	Abund	%Drift
Scandium	H	109671	96548	-11.97
Scandium	A	209974	167584	-20.19
Scandium	E	27118	23922	-11.79
Germanium	H	25251	23206	-8.10
Germanium	E	11746	11348	-3.39
Indium	A	274525	206216	-24.88
Yttrium	A	263589	208295	-20.98

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 281271 METALS Soil
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Inst : MET26 IDF : 1.0
Seqnum : 1016390965111.1 File : 16i27m00111 Time : 27-SEP-2016 21:08
Cal : 1016390965001 Caldate : 27-SEP-2016
Standards: S30987, S30711

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	0.0039	0.0038	100.0	100.2	ug/L	0	10	
Barium	A	8.8E-4	7.2E-4	100.0	99.69	ug/L	0	10	
Beryllium	A	0.0043	0.0036	100.0	96.90	ug/L	-3	10	
Cadmium	A	8.5E-4	8.0E-4	100.0	99.39	ug/L	-1	10	
Lead	A	0.0104	0.0097	100.0	100.8	ug/L	1	10	
Molybdenum	A	0.0030	0.0022	100.0	101.1	ug/L	1	10	
Silver	A	0.0035	0.0035	100.0	100.4	ug/L	0	10	
Thallium	A	0.0072	0.0071	50.00	50.25	ug/L	1	10	
Arsenic	E	0.0221	0.0084	100.0	99.90	ug/L	0	10	
Chromium	E	0.1124	0.0170	100.0	104.0	ug/L	4	10	
Cobalt	E	0.0254	0.0217	100.0	105.2	ug/L	5	10	
Copper	E	0.0925	0.0143	100.0	98.50	ug/L	-1	10	
Nickel	E	0.0617	0.0056	100.0	102.1	ug/L	2	10	
Vanadium	E	0.0384	0.0152	100.0	104.2	ug/L	4	10	
Zinc	E	0.0129	0.0083	100.0	99.29	ug/L	-1	10	
Selenium	H	0.0013	0.0012	100.0	97.77	ug/L	-2	10	

ISTD (ICALBLK 16i27m00004)	Ch	ICALBLK Abund	Abund	%Drift
Lithium	A	242818	204436	-15.81
Scandium	A	209974	179291	-14.61
Scandium	E	27118	24102	-11.12
Scandium	H	109671	97800	-10.82
Germanium	H	25251	22617	-10.43
Germanium	E	11746	10821	-7.88
Indium	A	274525	236236	-13.95
Bismuth	A	332799	298182	-10.40
Yttrium	A	263589	230039	-12.73
Terbium	A	438153	392786	-10.35

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 281271 METALS Soil
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Inst : MET26 IDF : 1.0
Seqnum : 1016390965113.1 File : 16i27m00113 Time : 27-SEP-2016 21:17
Cal : 1016390965001 Caldate : 27-SEP-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	0.1000	0.05000	ug/L	
Barium	A	[0.08360]	0.1000	0.05000	ug/L	!CCB
Beryllium	A	ND	0.1000	0.1000	ug/L	
Cadmium	A	ND	0.1000	0.1000	ug/L	
Lead	A	ND	0.1000	0.1000	ug/L	
Molybdenum	A	ND	0.1000	0.2000	ug/L	
Silver	A	ND	0.1000	0.05000	ug/L	
Thallium	A	ND	0.05000	0.02500	ug/L	
Arsenic	E	0.2337	0.1000	0.2000	ug/L	CCB ***
Chromium	E	ND	0.1000	0.1000	ug/L	
Cobalt	E	ND	0.1000	0.05000	ug/L	
Copper	E	ND	0.5000	0.1000	ug/L	
Nickel	E	ND	0.1000	0.05000	ug/L	
Vanadium	E	0.1771	0.1000	0.2000	ug/L	CCB ***
Zinc	E	ND	0.5000	1.000	ug/L	
Selenium	H	ND	0.1000	0.05000	ug/L	

ISTD (ICALBLK 16i27m00004)	Ch	ICALBLK Abund	Abund	%Drift
Lithium	A	242818	212995	-12.28
Scandium	A	209974	181511	-13.56
Scandium	E	27118	24610	-9.25
Scandium	H	109671	98025	-10.62
Germanium	H	25251	22876	-9.41
Germanium	E	11746	10809	-7.98
Indium	A	274525	247631	-9.80
Bismuth	A	332799	311164	-6.50
Yttrium	A	263589	234376	-11.08
Terbium	A	438153	397247	-9.34

!=warning CCB=instrument blank

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 281271 METALS Soil
EPA 6020A

Inst : MET26 IDF : 1.0
Seqnum : 1016390965121.1 File : 16i27m00121 Time : 27-SEP-2016 21:56
Cal : 1016390965001 Caldate : 27-SEP-2016
Standards: S30987, S30711

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	0.0039	0.0038	100.0	100.3	ug/L	0	10	
Barium	A	8.8E-4	7.3E-4	100.0	101.0	ug/L	1	10	
Beryllium	A	0.0043	0.0036	100.0	98.63	ug/L	-1	10	
Cadmium	A	8.5E-4	8.0E-4	100.0	99.47	ug/L	-1	10	
Lead	A	0.0104	0.0096	100.0	99.76	ug/L	0	10	
Molybdenum	A	0.0030	0.0022	100.0	101.8	ug/L	2	10	
Silver	A	0.0035	0.0035	100.0	101.5	ug/L	2	10	
Thallium	A	0.0072	0.0070	50.00	49.97	ug/L	0	10	
Arsenic	E	0.0221	0.0085	100.0	101.0	ug/L	1	10	
Chromium	E	0.1124	0.0180	100.0	109.9	ug/L	10	10	
Cobalt	E	0.0254	0.0227	100.0	110.5	ug/L	**11**	10	c+ ***
Copper	E	0.0925	0.0152	100.0	104.9	ug/L	5	10	
Nickel	E	0.0617	0.0058	100.0	107.1	ug/L	7	10	
Vanadium	E	0.0384	0.0161	100.0	110.1	ug/L	10	10	
Zinc	E	0.0129	0.0085	100.0	101.6	ug/L	2	10	
Selenium	H	0.0013	0.0012	100.0	97.56	ug/L	-2	10	

ISTD (ICALBLK 16i27m00004)	Ch	ICALBLK Abund	Abund	%Drift
Lithium	A	242818	200586	-17.39
Scandium	A	209974	176126	-16.12
Scandium	E	27118	22928	-15.45
Scandium	H	109671	97361	-11.22
Germanium	H	25251	22689	-10.15
Germanium	E	11746	10694	-8.96
Indium	A	274525	233260	-15.03
Bismuth	A	332799	296191	-11.00
Yttrium	A	263589	228481	-13.32
Terbium	A	438153	388850	-11.25

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CURTIS & TOMPKINS INSTRUMENT BLANK FOR 281271 METALS Soil
EPA 6020A

Inst : MET26 IDF : 1.0
Seqnum : 1016390965123.1 File : 16i27m00123 Time : 27-SEP-2016 22:05
Cal : 1016390965001 Caldate : 27-SEP-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	0.1000	0.05000	ug/L	
Barium	A	0.1342	0.1000	0.05000	ug/L	CCB ***
Beryllium	A	ND	0.1000	0.1000	ug/L	
Cadmium	A	ND	0.1000	0.1000	ug/L	
Lead	A	ND	0.1000	0.1000	ug/L	
Molybdenum	A	ND	0.1000	0.2000	ug/L	
Silver	A	ND	0.1000	0.05000	ug/L	
Thallium	A	ND	0.05000	0.02500	ug/L	
Arsenic	E	0.1153	0.1000	0.2000	ug/L	CCB ***
Chromium	E	ND	0.1000	0.1000	ug/L	
Cobalt	E	ND	0.1000	0.05000	ug/L	
Copper	E	ND	0.5000	0.1000	ug/L	
Nickel	E	ND	0.1000	0.05000	ug/L	
Vanadium	E	0.1300	0.1000	0.2000	ug/L	CCB ***
Zinc	E	ND	0.5000	1.000	ug/L	
Selenium	H	ND	0.1000	0.05000	ug/L	

ISTD (ICALBLK 16i27m00004)	Ch	ICALBLK Abund	Abund	%Drift
Lithium	A	242818	207613	-14.50
Scandium	A	209974	181364	-13.63
Scandium	E	27118	24329	-10.28
Scandium	H	109671	96697	-11.83
Germanium	H	25251	22479	-10.98
Germanium	E	11746	10759	-8.40
Indium	A	274525	245796	-10.46
Bismuth	A	332799	309773	-6.92
Yttrium	A	263589	233880	-11.27
Terbium	A	438153	396023	-9.62

CCB=instrument blank

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 281271 METALS Soil
EPA 6020A

Inst : MET26 IDF : 1.0
Seqnum : 1016390965124.1 File : 16i27m00124 Time : 27-SEP-2016 22:10
Cal : 1016390965001 Caldate : 27-SEP-2016
Standards: S31022, S30711

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	0.4162	0.1000	ug/L	
Barium	A	1.997	0.1000	ug/L	
Beryllium	A	[0.03930]	0.1000	ug/L	
Cadmium	A	1.293	0.1000	ug/L	
Lead	A	0.1797	0.1000	ug/L	
Silver	A	0.1733	0.1000	ug/L	
Thallium	A	[0.03630]	0.05000	ug/L	
Arsenic	E	0.6862	0.1000	ug/L	
Chromium	E	1.275	0.1000	ug/L	
Cobalt	E	1.342	0.1000	ug/L	
Copper	E	[-6.378]	0.5000	ug/L	
Nickel	E	[-2.063]	0.1000	ug/L	
Vanadium	E	0.1525	0.1000	ug/L	
Zinc	E	2.602	0.5000	ug/L	
Selenium	H	[0.05820]	0.1000	ug/L	

Interferent	Ch	Spiked	Quant	Units	%Rec	Flags
Aluminum	A	100000	100800	ug/L	101	
Calcium	A	300000	278500	ug/L	93	
Magnesium	A	100000	100600	ug/L	101	
Molybdenum	A	2000	2037	ug/L	102	
Potassium	A	100000	103000	ug/L	103	
Sodium	E	250000	241700	ug/L	97	
Phosphorus	E	100000	101800	ug/L	102	
Iron	H	250000	244700	ug/L	98	

ISTD (ICALBLK 16i27m00004)	Ch	ICALBLK Abund	Abund	%Drift
Lithium	A	242818	183432	-24.46
Scandium	A	209974	164190	-21.80
Scandium	E	27118	23232	-14.33
Scandium	H	109671	93554	-14.70
Germanium	H	25251	21446	-15.07
Germanium	E	11746	10827	-7.82
Indium	A	274525	203421	-25.90
Bismuth	A	332799	258886	-22.21
Yttrium	A	263589	205901	-21.89
Terbium	A	438153	350670	-19.97

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 281271 METALS Soil EPA 6020A

Inst : MET26 IDF : 1.0
Seqnum : 1016390965125.1 File : 16i27m00125 Time : 27-SEP-2016 22:15
Cal : 1016390965001 Caldate : 27-SEP-2016
Standards: S30839, S30711

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Cadmium	A	100.0	103.0	ug/L	3	20	
Molybdenum	A	2000	2046	ug/L	2		
Silver	A	50.00	52.41	ug/L	5	20	
Arsenic	E	100.0	97.11	ug/L	-3	20	
Chromium	E	200.0	205.9	ug/L	3	20	
Cobalt	E	200.0	207.1	ug/L	4	20	
Copper	E	200.0	201.7	ug/L	1	20	
Nickel	E	200.0	203.4	ug/L	2	20	
Vanadium	E	200.0	208.2	ug/L	4	20	
Zinc	E	100.0	90.46	ug/L	-10	20	
Selenium	H	100.0	88.09	ug/L	-12	20	

ISTD (ICALBLK 16i27m00004)	Ch	ICALBLK Abund	Abund	%Drift
Scandium	H	109671	95478	-12.94
Scandium	A	209974	167032	-20.45
Scandium	E	27118	23220	-14.37
Germanium	H	25251	23234	-7.99
Germanium	E	11746	11039	-6.02
Indium	A	274525	208695	-23.98
Yttrium	A	263589	210454	-20.16

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 281271 METALS Soil
EPA 6020A

Inst : MET26 IDF : 1.0
Seqnum : 1016390965139.1 File : 16i27m00139 Time : 27-SEP-2016 23:23
Cal : 1016390965001 Caldate : 27-SEP-2016
Standards: S30987, S30711

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	0.0039	0.0038	100.0	100.5	ug/L	1	10	
Barium	A	8.8E-4	7.4E-4	100.0	102.3	ug/L	2	10	
Beryllium	A	0.0043	0.0036	100.0	97.00	ug/L	-3	10	
Cadmium	A	8.5E-4	8.0E-4	100.0	100.0	ug/L	0	10	
Lead	A	0.0104	0.0098	100.0	101.2	ug/L	1	10	
Molybdenum	A	0.0030	0.0021	100.0	100.1	ug/L	0	10	
Silver	A	0.0035	0.0035	100.0	101.1	ug/L	1	10	
Thallium	A	0.0072	0.0071	50.00	50.71	ug/L	1	10	
Arsenic	E	0.0221	0.0085	100.0	100.4	ug/L	0	10	
Chromium	E	0.1124	0.0171	100.0	104.3	ug/L	4	10	
Cobalt	E	0.0254	0.0217	100.0	105.7	ug/L	6	10	
Copper	E	0.0925	0.0143	100.0	98.78	ug/L	-1	10	
Nickel	E	0.0617	0.0056	100.0	103.0	ug/L	3	10	
Vanadium	E	0.0384	0.0153	100.0	104.6	ug/L	5	10	
Zinc	E	0.0129	0.0084	100.0	99.67	ug/L	0	10	
Selenium	H	0.0013	0.0012	100.0	97.23	ug/L	-3	10	

ISTD (ICALBLK 16i27m00004)	Ch	ICALBLK Abund	Abund	%Drift
Lithium	A	242818	199484	-17.85
Scandium	A	209974	169628	-19.21
Scandium	E	27118	23232	-14.33
Scandium	H	109671	92311	-15.83
Germanium	H	25251	21699	-14.07
Germanium	E	11746	10431	-11.20
Indium	A	274525	222114	-19.09
Bismuth	A	332799	279991	-15.87
Yttrium	A	263589	218898	-16.95
Terbium	A	438153	370191	-15.51

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Inst : MET26 IDF : 1.0
Seqnum : 1016390965141.1 File : 16i27m00141 Time : 27-SEP-2016 23:33
Cal : 1016390965001 Caldate : 27-SEP-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	0.1000	0.05000	ug/L	
Barium	A	[0.05310]	0.1000	0.05000	ug/L	!CCB
Beryllium	A	ND	0.1000	0.1000	ug/L	
Cadmium	A	ND	0.1000	0.1000	ug/L	
Lead	A	ND	0.1000	0.1000	ug/L	
Molybdenum	A	ND	0.1000	0.2000	ug/L	
Silver	A	ND	0.1000	0.05000	ug/L	
Thallium	A	ND	0.05000	0.02500	ug/L	
Arsenic	E	0.1621	0.1000	0.2000	ug/L	CCB ***
Chromium	E	ND	0.1000	0.1000	ug/L	
Cobalt	E	ND	0.1000	0.05000	ug/L	
Copper	E	ND	0.5000	0.1000	ug/L	
Nickel	E	ND	0.1000	0.05000	ug/L	
Vanadium	E	0.2297	0.1000	0.2000	ug/L	CCB ***
Zinc	E	ND	0.5000	1.000	ug/L	
Selenium	H	ND	0.1000	0.05000	ug/L	

ISTD (ICALBLK 16i27m00004)	Ch	ICALBLK Abund	Abund	%Drift
Lithium	A	242818	209785	-13.60
Scandium	A	209974	172804	-17.70
Scandium	E	27118	23715	-12.55
Scandium	H	109671	94112	-14.19
Germanium	H	25251	21646	-14.28
Germanium	E	11746	10303	-12.29
Indium	A	274525	233463	-14.96
Bismuth	A	332799	294730	-11.44
Yttrium	A	263589	223298	-15.29
Terbium	A	438153	375835	-14.22

!=warning CCB=instrument blank

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 281271 METALS Soil
EPA 6020A

Inst : MET26 IDF : 1.0
Seqnum : 1016390965152.1 File : 16i27m00152 Time : 28-SEP-2016 00:26
Cal : 1016390965001 Caldate : 27-SEP-2016
Standards: S30987, S30711

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	0.0039	0.0037	100.0	98.06	ug/L	-2	10	
Barium	A	8.8E-4	7.0E-4	100.0	96.89	ug/L	-3	10	
Beryllium	A	0.0043	0.0035	100.0	95.40	ug/L	-5	10	
Cadmium	A	8.5E-4	7.8E-4	100.0	96.62	ug/L	-3	10	
Lead	A	0.0104	0.0094	100.0	97.98	ug/L	-2	10	
Molybdenum	A	0.0030	0.0021	100.0	99.25	ug/L	-1	10	
Silver	A	0.0035	0.0034	100.0	98.93	ug/L	-1	10	
Thallium	A	0.0072	0.0069	50.00	49.13	ug/L	-2	10	
Arsenic	E	0.0221	0.0085	100.0	100.1	ug/L	0	10	
Chromium	E	0.1124	0.0163	100.0	99.55	ug/L	0	10	
Cobalt	E	0.0254	0.0208	100.0	100.9	ug/L	1	10	
Copper	E	0.0925	0.0137	100.0	94.09	ug/L	-6	10	
Nickel	E	0.0617	0.0053	100.0	97.15	ug/L	-3	10	
Vanadium	E	0.0384	0.0146	100.0	100.0	ug/L	0	10	
Zinc	E	0.0129	0.0084	100.0	99.47	ug/L	-1	10	
Selenium	H	0.0013	0.0012	100.0	95.04	ug/L	-5	10	

ISTD (ICALBLK 16i27m00004)	Ch	ICALBLK Abund	Abund	%Drift
Lithium	A	242818	199155	-17.98
Scandium	A	209974	176718	-15.84
Scandium	E	27118	24003	-11.49
Scandium	H	109671	100634	-8.24
Germanium	H	25251	22117	-12.41
Germanium	E	11746	10321	-12.13
Indium	A	274525	225049	-18.02
Bismuth	A	332799	285351	-14.26
Yttrium	A	263589	221780	-15.86
Terbium	A	438153	376094	-14.16

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EPA 6020A

Inst : MET26 IDF : 1.0
Seqnum : 1016390965154.1 File : 16i27m00154 Time : 28-SEP-2016 00:36
Cal : 1016390965001 Caldate : 27-SEP-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	0.1000	0.05000	ug/L	
Barium	A	[0.09980]	0.1000	0.05000	ug/L	!CCB
Beryllium	A	ND	0.1000	0.1000	ug/L	
Cadmium	A	ND	0.1000	0.1000	ug/L	
Lead	A	ND	0.1000	0.1000	ug/L	
Molybdenum	A	ND	0.1000	0.2000	ug/L	
Silver	A	ND	0.1000	0.05000	ug/L	
Thallium	A	ND	0.05000	0.02500	ug/L	
Arsenic	E	0.1327	0.1000	0.2000	ug/L	CCB ***
Chromium	E	ND	0.1000	0.1000	ug/L	
Cobalt	E	ND	0.1000	0.05000	ug/L	
Copper	E	ND	0.5000	0.1000	ug/L	
Nickel	E	ND	0.1000	0.05000	ug/L	
Vanadium	E	0.2292	0.1000	0.2000	ug/L	CCB ***
Zinc	E	ND	0.5000	1.000	ug/L	
Selenium	H	ND	0.1000	0.05000	ug/L	

ISTD (ICALBLK 16i27m00004)	Ch	ICALBLK Abund	Abund	%Drift
Lithium	A	242818	205566	-15.34
Scandium	A	209974	169995	-19.04
Scandium	E	27118	22948	-15.38
Scandium	H	109671	91891	-16.21
Germanium	H	25251	20962	-16.99
Germanium	E	11746	10046	-14.47
Indium	A	274525	230132	-16.17
Bismuth	A	332799	289898	-12.89
Yttrium	A	263589	219722	-16.64
Terbium	A	438153	370501	-15.44

!=warning CCB=instrument blank

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 281271 METALS Soil
EPA 6020A

Inst : MET26 IDF : 1.0
Seqnum : 1016390965159.1 File : 16i27m00159 Time : 28-SEP-2016 01:00
Cal : 1016390965001 Caldate : 27-SEP-2016
Standards: S30987, S30711

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	0.0039	0.0038	100.0	99.89	ug/L	0	10	
Barium	A	8.8E-4	7.3E-4	100.0	100.1	ug/L	0	10	
Beryllium	A	0.0043	0.0036	100.0	96.69	ug/L	-3	10	
Cadmium	A	8.5E-4	8.0E-4	100.0	100.3	ug/L	0	10	
Lead	A	0.0104	0.0096	100.0	99.36	ug/L	-1	10	
Molybdenum	A	0.0030	0.0022	100.0	101.2	ug/L	1	10	
Silver	A	0.0035	0.0035	100.0	100.6	ug/L	1	10	
Thallium	A	0.0072	0.0070	50.00	50.02	ug/L	0	10	
Arsenic	E	0.0221	0.0084	100.0	99.00	ug/L	-1	10	
Chromium	E	0.1124	0.0168	100.0	102.4	ug/L	2	10	
Cobalt	E	0.0254	0.0215	100.0	104.3	ug/L	4	10	
Copper	E	0.0925	0.0141	100.0	96.97	ug/L	-3	10	
Nickel	E	0.0617	0.0055	100.0	100.9	ug/L	1	10	
Vanadium	E	0.0384	0.0150	100.0	103.0	ug/L	3	10	
Zinc	E	0.0129	0.0083	100.0	98.94	ug/L	-1	10	
Selenium	H	0.0013	0.0012	100.0	96.63	ug/L	-3	10	

ISTD (ICALBLK 16i27m00004)	Ch	ICALBLK Abund	Abund	%Drift
Lithium	A	242818	194911	-19.73
Scandium	A	209974	169532	-19.26
Scandium	E	27118	23360	-13.86
Scandium	H	109671	95798	-12.65
Germanium	H	25251	21746	-13.88
Germanium	E	11746	10451	-11.03
Indium	A	274525	221010	-19.49
Bismuth	A	332799	280880	-15.60
Yttrium	A	263589	217360	-17.54
Terbium	A	438153	369552	-15.66

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EPA 6020A

Inst : MET26 IDF : 1.0
Seqnum : 1016390965161.1 File : 16i27m00161 Time : 28-SEP-2016 01:10
Cal : 1016390965001 Caldate : 27-SEP-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	0.1000	0.05000	ug/L	
Barium	A	0.1098	0.1000	0.05000	ug/L	CCB ***
Beryllium	A	ND	0.1000	0.1000	ug/L	
Cadmium	A	ND	0.1000	0.1000	ug/L	
Lead	A	ND	0.1000	0.1000	ug/L	
Molybdenum	A	ND	0.1000	0.2000	ug/L	
Silver	A	ND	0.1000	0.05000	ug/L	
Thallium	A	ND	0.05000	0.02500	ug/L	
Arsenic	E	0.1518	0.1000	0.2000	ug/L	CCB ***
Chromium	E	ND	0.1000	0.1000	ug/L	
Cobalt	E	ND	0.1000	0.05000	ug/L	
Copper	E	ND	0.5000	0.1000	ug/L	
Nickel	E	ND	0.1000	0.05000	ug/L	
Vanadium	E	0.1504	0.1000	0.2000	ug/L	CCB ***
Zinc	E	ND	0.5000	1.000	ug/L	
Selenium	H	ND	0.1000	0.05000	ug/L	

ISTD (ICALBLK 16i27m00004)	Ch	ICALBLK Abund	Abund	%Drift
Lithium	A	242818	206089	-15.13
Scandium	A	209974	175328	-16.50
Scandium	E	27118	23968	-11.62
Scandium	H	109671	97865	-10.76
Germanium	H	25251	21503	-14.84
Germanium	E	11746	10299	-12.32
Indium	A	274525	234955	-14.41
Bismuth	A	332799	295949	-11.07
Yttrium	A	263589	221486	-15.97
Terbium	A	438153	377095	-13.94

CCB=instrument blank

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 281271 METALS Soil
EPA 6020A

Inst : MET26 IDF : 1.0
Seqnum : 1016390965162.1 File : 16i27m00162 Time : 28-SEP-2016 01:15
Cal : 1016390965001 Caldate : 27-SEP-2016
Standards: S31022, S30711

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	0.4696	0.1000	ug/L	
Barium	A	2.034	0.1000	ug/L	
Beryllium	A	[0.004200]	0.1000	ug/L	
Cadmium	A	1.512	0.1000	ug/L	
Lead	A	0.1958	0.1000	ug/L	
Silver	A	0.1844	0.1000	ug/L	
Thallium	A	[0.02220]	0.05000	ug/L	
Arsenic	E	0.6147	0.1000	ug/L	
Chromium	E	1.253	0.1000	ug/L	
Cobalt	E	1.411	0.1000	ug/L	
Copper	E	[-6.447]	0.5000	ug/L	
Nickel	E	[-2.107]	0.1000	ug/L	
Vanadium	E	0.2008	0.1000	ug/L	
Zinc	E	2.472	0.5000	ug/L	
Selenium	H	[0.05340]	0.1000	ug/L	

Interferent	Ch	Spiked	Quant	Units	%Rec	Flags
Aluminum	A	100000	101100	ug/L	101	
Calcium	A	300000	277300	ug/L	92	
Magnesium	A	100000	101200	ug/L	101	
Molybdenum	A	2000	2033	ug/L	102	
Potassium	A	100000	103000	ug/L	103	
Sodium	E	250000	241800	ug/L	97	
Phosphorus	E	100000	102900	ug/L	103	
Iron	H	250000	242100	ug/L	97	

ISTD (ICALBLK 16i27m00004)	Ch	ICALBLK Abund	Abund	%Drift
Lithium	A	242818	178450	-26.51
Scandium	A	209974	153549	-26.87
Scandium	E	27118	21560	-20.50
Scandium	H	109671	88342	-19.45
Germanium	H	25251	20577	-18.51
Germanium	E	11746	10276	-12.51
Indium	A	274525	190738	-30.52
Bismuth	A	332799	243839	-26.73
Yttrium	A	263589	192190	-27.09
Terbium	A	438153	328064	-25.13

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 281271 METALS Soil
EPA 6020A

Inst : MET26 IDF : 1.0
Seqnum : 1016390965163.1 File : 16i27m00163 Time : 28-SEP-2016 01:20
Cal : 1016390965001 Caldate : 27-SEP-2016
Standards: S30839, S30711

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Cadmium	A	100.0	105.7	ug/L	6	20	
Molybdenum	A	2000	2074	ug/L	4		
Silver	A	50.00	53.93	ug/L	8	20	
Arsenic	E	100.0	95.33	ug/L	-5	20	
Chromium	E	200.0	204.3	ug/L	2	20	
Cobalt	E	200.0	206.2	ug/L	3	20	
Copper	E	200.0	201.9	ug/L	1	20	
Nickel	E	200.0	200.4	ug/L	0	20	
Vanadium	E	200.0	209.0	ug/L	5	20	
Zinc	E	100.0	88.89	ug/L	-11	20	
Selenium	H	100.0	89.20	ug/L	-11	20	

ISTD (ICALBLK 16i27m00004)	Ch	ICALBLK Abund	Abund	%Drift
Scandium	H	109671	91195	-16.85
Scandium	A	209974	156844	-25.30
Scandium	E	27118	22236	-18.00
Germanium	H	25251	21827	-13.56
Germanium	E	11746	10722	-8.72
Indium	A	274525	191609	-30.20
Yttrium	A	263589	195846	-25.70

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 1016392366

Instrument : MET26 Begun : 09/28/16 11:26
Method : EPA 6020A SOP Version : icpms metals_rv10

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	16i28l00001	X	RINSE			09/28/16 11:26	1.0	1	
002	16i28l00002	TUN				09/28/16 11:31	1.0	2	
003	16i28l00003	X	RINSE			09/28/16 11:36	1.0	1	
004	16i28l00004	ICALBLK	CALBLANK			09/28/16 11:40	1.0	1	
005	16i28l00005	ICAL				09/28/16 11:45	1.0	3 1	
006	16i28l00006	ICAL				09/28/16 11:50	1.0	4 1	
007	16i28l00007	ICAL				09/28/16 11:55	1.0	5 1	
008	16i28l00008	ICAL				09/28/16 11:59	1.0	6 1	
009	16i28l00009	ICAL				09/28/16 12:04	1.0	7 1	
010	16i28l00010	ICAL				09/28/16 12:09	1.0	8 1	
011	16i28l00011	X	RINSE			09/28/16 12:14	1.0	1	
012	16i28l00012	ICV				09/28/16 12:19	1.0	9 1	1:U=1100
013	16i28l00013	CRI				09/28/16 12:26	1.0	10 1	
014	16i28l00014	CRI				09/28/16 12:31	1.0	10 1	
015	16i28l00015	ICB				09/28/16 12:36	1.0	1	
016	16i28l00016	ICB				09/28/16 12:41	1.0	1	
017	16i28l00017	ICB				09/28/16 12:45	1.0	1	
018	16i28l00018	CRI				09/28/16 12:50	1.0	10 1	
019	16i28l00019	ICSA				09/28/16 12:55	1.0	11 1	8:CA=270000
020	16i28l00020	ICSAB				09/28/16 13:00	1.0	12 1	13:CA=270000
021	16i28l00021	X	RINSE			09/28/16 13:05	1.0	1	
022	16i28l00022	X	RINSE			09/28/16 13:10	1.0	1	
023	16i28l00023	X	RINSE			09/28/16 13:15	1.0	1	
024	16i28l00024	X	RINSE			09/28/16 13:20	1.0	1	
025	16i28l00025	BLANK	QC852990	Water	239472	09/28/16 13:25	10.0	1	
026	16i28l00026	BS	QC852991	Water	239472	09/28/16 13:29	10.0	1	
027	16i28l00027	BSD	QC852992	Water	239472	09/28/16 13:34	10.0	1	
028	16i28l00028	MSS	281298-001	Water	239472	09/28/16 13:39	10.0	1	4:NA=840000
029	16i28l00029	CCV				09/28/16 13:44	1.0	13 1	1:U=1100
030	16i28l00030	X	XCCB			09/28/16 13:49	1.0	1	
031	16i28l00031	CCB				09/28/16 13:53	1.0	1	
032	16i28l00032	ICSA				09/28/16 13:58	1.0	11 1	8:CA=270000
033	16i28l00033	ICSAB				09/28/16 14:03	1.0	12 1	11:CA=270000
034	16i28l00034	X	RINSE			09/28/16 14:08	1.0	1	
035	16i28l00035	X	RINSE			09/28/16 14:13	1.0	1	
036	16i28l00036	X	RINSE			09/28/16 14:18	1.0	1	
037	16i28l00037	X	RINSE			09/28/16 14:23	1.0	1	
038	16i28l00038	BLANK	QC853290	Soil	239551	09/28/16 14:28	25.0	1	
039	16i28l00039	BS	QC853291	Soil	239551	09/28/16 14:32	25.0	1	
040	16i28l00040	BSD	QC853292	Soil	239551	09/28/16 14:37	25.0	1	
041	16i28l00041	MSS	281271-011	Soil	239551	09/28/16 14:42	25.0	1	2:CA=23000
042	16i28l00042	MS	QC853293	Soil	239551	09/28/16 14:47	25.0	1	2:CA=25000
043	16i28l00043	MSD	QC853294	Soil	239551	09/28/16 14:52	25.0	1	2:CA=25000
044	16i28l00044	SER	QC853295	Soil	239551	09/28/16 14:56	125.0	1	
045	16i28l00045	PDS	QC853296	Soil	239551	09/28/16 15:01	25.0	1 14 15 16	2:CA=29000
046	16i28l00046	SAMPLE	281271-012	Soil	239551	09/28/16 15:06	25.0	1	2:CA=27000
047	16i28l00047	SAMPLE	281271-013	Soil	239551	09/28/16 15:11	25.0	1	2:CA=32000
048	16i28l00048	CCV				09/28/16 15:15	1.0	13 1	1:U=1100
049	16i28l00049	X	XCCB			09/28/16 15:20	1.0	1	
050	16i28l00050	CCB				09/28/16 15:25	1.0	1	
051	16i28l00051	SAMPLE	281271-014	Soil	239551	09/28/16 15:30	25.0	1	2:CA=25000
052	16i28l00052	SAMPLE	281271-015	Soil	239551	09/28/16 15:35	25.0	1	2:CA=26000

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 1016392366

Instrument : MET26 Begun : 09/28/16 11:26
Method : EPA 6020A SOP Version : icpms metals_rv10

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	16i28l00053	SAMPLE	281271-016	Soil	239551	09/28/16 15:40	25.0	1	2:CA=26000
054	16i28l00054	SAMPLE	281271-017	Soil	239551	09/28/16 15:44	25.0	1	2:CA=20000
055	16i28l00055	SAMPLE	281271-018	Soil	239551	09/28/16 15:49	25.0	1	2:CA=25000
056	16i28l00056	SAMPLE	281271-019	Soil	239551	09/28/16 15:54	25.0	1	2:CA=23000
057	16i28l00057	SAMPLE	281271-020	Soil	239551	09/28/16 15:59	25.0	1	2:CA=26000
058	16i28l00058	SAMPLE	281271-021	Soil	239551	09/28/16 16:03	25.0	1	2:CA=27000
059	16i28l00059	SAMPLE	281271-022	Soil	239551	09/28/16 16:08	25.0	1	2:CA=24000
060	16i28l00060	SAMPLE	281271-023	Soil	239551	09/28/16 16:13	25.0	1	2:CA=28000
061	16i28l00061	CCV				09/28/16 16:18	1.0	13 1	1:U=1100
062	16i28l00062	X	XCCB			09/28/16 16:23	1.0	1	
063	16i28l00063	CCB				09/28/16 16:28	1.0	1	
064	16i28l00064	SAMPLE	281271-024	Soil	239551	09/28/16 16:32	25.0	1	2:CA=28000
065	16i28l00065	SAMPLE	281271-025	Soil	239551	09/28/16 16:37	25.0	1	2:CA=30000
066	16i28l00066	SAMPLE	281271-026	Soil	239551	09/28/16 16:42	25.0	1	2:CA=24000
067	16i28l00067	SAMPLE	281271-027	Soil	239551	09/28/16 16:47	25.0	1	2:CA=27000
068	16i28l00068	CCV				09/28/16 16:52	1.0	13 1	1:U=1100
069	16i28l00069	X	XCCB			09/28/16 16:56	1.0	1	
070	16i28l00070	CCB				09/28/16 17:01	1.0	1	
071	16i28l00071	ICSA				09/28/16 17:06	1.0	11 1	8:CA=260000
072	16i28l00072	ICSAB				09/28/16 17:11	1.0	12 1	8:CA=260000
073	16i28l00073	X	RINSE			09/28/16 17:16	1.0	1	
074	16i28l00074	X	RINSE			09/28/16 17:21	1.0	1	
075	16i28l00075	X	RINSE			09/28/16 17:26	1.0	1	
076	16i28l00076	X	RINSE			09/28/16 17:31	1.0	1	
077	16i28l00077	BLANK	QC853199	Soil	239526	09/28/16 17:35	25.0	1	
078	16i28l00078	BS	QC853200	Soil	239526	09/28/16 17:40	25.0	1	
079	16i28l00079	BSD	QC853201	Soil	239526	09/28/16 17:45	25.0	1	
080	16i28l00080	MSS	281441-001	Soil	239526	09/28/16 17:50	25.0	1	
081	16i28l00081	MS	QC853202	Soil	239526	09/28/16 17:54	25.0	1	
082	16i28l00082	MSD	QC853203	Soil	239526	09/28/16 17:59	25.0	1	
083	16i28l00083	CCV				09/28/16 18:04	1.0	13 1	1:U=1100
084	16i28l00084	X	XCCB			09/28/16 18:09	1.0	1	
085	16i28l00085	CCB				09/28/16 18:14	1.0	1	
086	16i28l00086	X	RINSE			09/28/16 18:19	1.0	1	
087	16i28l00087	BS	QC853003	Water	239474	09/28/16 18:24	5.0	1	
088	16i28l00088	BSD	QC853004	Water	239474	09/28/16 18:28	5.0	1	
089	16i28l00089	CCV				09/28/16 18:33	1.0	13 1	1:U=1100

Standards used: 1=S30711 2=S30805 3=S30981 4=S30982 5=S30984 6=S30985 7=S30979 8=S30980 9=S30986 10=S30815 11=S31022 12=S30839 13=S30987 14=S29983 15=S29884 16=S30560

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 1016392366

Date : 09/28/16
Sequence : MET26 16i28l00

Reference : 16i28l00004
Analyzed : 09/28/16 11:40

#	Type	Sample ID	LI A	SC A	SC E	SC H	GE H	GE E	IN A	BI A	Y A	TB A
		IB+ICALBLK STD	232380	193479	25362	98857	23767	11643	257923	273091	249843	389106
		LOWER LIMIT	69714	58044	7609	29657	7130	3493	77377	81927	74953	116732
		UPPER LIMIT	278856	232175	30434	118628	28520	13972	309508	327709	299812	466927
015	ICB		212611	166419	22476	86516	20226	10070	216172	234137	210701	331573
016	ICB		210396	163295	22106	85949	20250	10174	214523	232106	207753	325953
017	ICB		210226	161947	21819	86180	19974	9886	212262	230956	204864	322022
019	ICSA		162042	134936	19820	84494	18506	9451	161432	182122	164388	266016
020	ICSAB		161841	131779	18436	73381	17104	9135	158064	179273	160535	261883
025	BLANK	QC852990	196728	147398	20205	77234	18274	9256	191268	210533	184928	296468
026	BS	QC852991	194164	146436	19860	76237	18420	9344	188730	208136	183441	290848
027	BSD	QC852992	196741	146784	20070	77255	18876	9487	191228	213239	187085	298937
028	MSS	281298-001	158961	129480	17998	71202	16804	8070	158180	174040	158356	254595
029	CCV		179007	136498	18576	71643	16760	8619	175887	195828	174334	280505
031	CCB		194654	143654	19615	75177	17856	8942	189475	212775	183036	294003
032	ICSA		155865	126609	18614	76658	17248	9076	152513	174524	156139	253549
033	ICSAB		158809	127166	17856	73671	17742	8777	153792	176349	156575	255059
038	BLANK	QC853290	187676	145411	19168	74501	17390	8712	186211	209206	181082	291719
039	BS	QC853291	188729	143885	19102	74287	17554	8812	187716	209400	182469	293260
040	BSD	QC853292	189101	144467	19384	73570	17236	8786	188319	211007	182412	291745
041	MSS	281271-011	186390	147317	19751	77756	17327	8779	182623	211043	187581	291602
042	MS	QC853293	183217	142451	18866	74503	17032	8585	179498	208339	185012	288521
043	MSD	QC853294	184343	145313	19245	75009	17109	8608	180233	208016	183011	285464
044	SER	QC853295	186340	143401	19236	73932	17404	8716	184749	214689	180423	290184
045	PDS	QC853296	176854	140690	18572	69190	16297	8564	173067	200830	178983	279176
046	SAMPLE	281271-012	180929	142013	18821	72809	16778	8391	177047	204662	181181	282232
047	SAMPLE	281271-013	168517	123241	18589	71545	16569	8455	157653	186232	163574	252121
048	CCV		171527	131229	17567	67387	16213	8156	167397	191063	166168	269820
050	CCB		180741	134678	17968	69401	16347	8164	177553	201212	171955	277461
051	SAMPLE	281271-014	177886	138772	18784	71969	16455	8332	174660	202436	176301	276073
052	SAMPLE	281271-015	179343	140320	18459	70810	16209	8315	174852	204113	178783	278663
053	SAMPLE	281271-016	179205	142244	18846	72229	16585	8393	173782	203985	178942	281306
054	SAMPLE	281271-017	179757	136441	17428	72373	16430	7949	172938	203632	176528	277211
055	SAMPLE	281271-018	177393	137081	18345	70352	16472	8252	172252	201587	174495	274143
056	SAMPLE	281271-019	178361	136344	18321	67124	15768	8288	171856	199473	174043	275029
057	SAMPLE	281271-020	177839	136309	18270	70031	16305	8157	171016	199657	175735	274755
058	SAMPLE	281271-021	179080	138587	18502	70941	16447	8278	172578	200648	176808	276005

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 1016392366

Date : 09/28/16
Sequence : MET26 16i28l00

Reference : 16i28l00004
Analyzed : 09/28/16 11:40

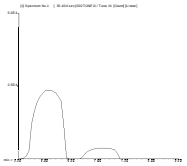
#	Type	Sample ID	LI A	SC A	SC E	SC H	GE H	GE E	IN A	BI A	Y A	TB A
059	SAMPLE	281271-022	178424	138313	18356	64083	15456	8264	173276	201980	176112	276299
060	SAMPLE	281271-023	177756	139268	18551	70890	16517	8290	172257	201290	176453	275118
061	CCV		174008	134486	18141	69741	16499	8425	169500	192501	169816	273071
063	CCB		179573	134534	17844	69293	16225	8092	176715	199297	170367	276748
064	SAMPLE	281271-024	177222	138683	18344	70724	16144	8267	172173	201662	177990	276263
065	SAMPLE	281271-025	176762	140123	17115	74344	16666	8190	172768	202106	176433	276002
066	SAMPLE	281271-026	176573	135737	18063	69326	16050	8135	170426	199200	174449	273041
067	SAMPLE	281271-027	176125	134931	18138	68983	16060	8233	170039	199730	172996	271839
068	CCV		170649	135310	17895	70190	16048	8033	165225	189979	164645	267687
070	CCB		181793	136676	18316	71024	16339	8130	176657	202879	170570	275536
071	ICSA		140961	113418	15844	64808	14961	7700	135674	159720	139821	228195
072	ICSAB		140449	110673	15420	63208	15020	7619	132547	156691	135725	224628
077	BLANK	QC853199	520525 *	586683 *	80178 *	113599	29013 *	38471 *	929941 *	1291651 *	832591 *	1687293 *
078	BS	QC853200	537447 *	601840 *	79921 *	104555	26248	38097 *	951338 *	1323255 *	849461 *	1724715 *
079	BSD	QC853201	509995 *	594940 *	78353 *	154668 *	39196 *	37837 *	915735 *	1314412 *	847317 *	1712255 *
080	MSS	281441-001	520588 *	606750 *	76294 *	182948 *	46330 *	36530 *	952002 *	1341751 *	863749 *	1747503 *
081	MS	QC853202	617995 *	696697 *	94891 *	115889	29020 *	45005 *	1094943 *	1510230 *	975713 *	1974065 *
082	MSD	QC853203	552855 *	623481 *	73334 *	163157 *	41936 *	35296 *	987465 *	1366754 *	883674 *	1785712 *
083	CCV		178388	133721	18451	73884	16477	8312	165715	191927	165256	267391
085	CCB		187245	136904	18339	71799	16714	8533	180751	203710	174222	277601
087	BS	QC853003	177971	131642	17898	69416	16312	8176	168394	190807	164990	265654
088	BSD	QC853004	180322	133130	18079	69448	16556	8313	172011	194191	166863	270324
089	CCV		173145	133863	18224	71633	16372	8172	166692	191297	167456	269279

MET26 QC Tune Report

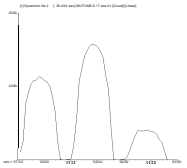
Data File: C:\ICPCHEM\1\DATA\16I28l00.B\002TUNE.D
Date Acquired: Sep 28 2016 11:31 am
Acq. Method: TN6020F.M
Operator:
Sample Name: tun,s30805
Misc Info:
Vial Number: 1307
Current Method: C:\ICPCHEM\1\METHODS\TN6020F.M

RSD (%)

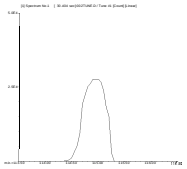
Element	Rep1	Rep2	Rep3	Rep4	Rep5	Actual	Required	Flag
7 Li	21430	21099	21079	20895	20823	1.05	5.00	
59 Co	9034	8949	8690	8764	8716	1.70	5.00	
115 In	141823	139286	139931	137679	139897	1.21	5.00	
205 Tl	9665	9292	9458	9323	9289	1.17	5.00	



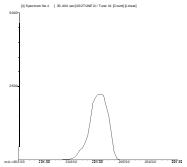
7 Li
Mass Calib.
Actual: 7.10
Required: 6.90 - 7.10
Flag:
Peak Width @ 5%
Actual: 0.65
Required: 0.75
Flag:



59 Co
Mass Calib.
Actual: 58.90
Required: 58.90 - 59.10
Flag:
Peak Width @ 5%
Actual: 0.70
Required: 0.75
Flag:



115 In
Mass Calib.
Actual: 114.95
Required: 114.90 - 115.10
Flag:
Peak Width @ 5%
Actual: 0.65
Required: 0.75
Flag:



205 Tl
Mass Calib.
Actual: 205.00
Required: 204.90 - 205.10
Flag:
Peak Width @ 5%
Actual: 0.70
Required: 0.75
Flag:

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 281271 METALS Soil: EPA 6020A

Inst : MET26
Calnum : 1016392366001
Units : ug/L

Date : 28-SEP-2016 11:40
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	16i28l00005	1016392366005		28-SEP-2016 11:45	S30981, S30711
L2	16i28l00006	1016392366006		28-SEP-2016 11:50	S30982, S30711
L3	16i28l00007	1016392366007		28-SEP-2016 11:55	S30984, S30711
L4	16i28l00008	1016392366008		28-SEP-2016 11:59	S30985, S30711
L5	16i28l00009	1016392366009		28-SEP-2016 12:04	S30979, S30711
L6	16i28l00010	1016392366010		28-SEP-2016 12:09	S30980, S30711

Analyte	Ch	L1	L2	L3	L4	L5	L6	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Antimony	A	0.0053	0.0038	0.0036	0.0036	0.0037	0.0038	BLNK	-0.0183	265.967		0.0040	1.000	0.995	
Barium	A	0.0015	9.9E-4	8.4E-4	7.8E-4	7.8E-4	7.7E-4	BLNK	-0.1773	1290.39		9.4E-4	1.000	0.995	
Beryllium	A	0.0078	0.0039	0.0038	0.0034	0.0034	0.0035	BLNK	-0.1221	287.168		0.0043	1.000	0.995	
Cadmium	A	9.5E-4	8.8E-4	8.9E-4	7.6E-4	7.8E-4	8.0E-4	BLNK	-0.0437	1260.19		8.4E-4	1.000	0.995	
Lead	A	0.0134	0.0106	0.0101	0.0097	0.0097	0.0097	BLNK	-0.0336	103.365		0.0105	1.000	0.995	
Molybdenum	A	0.0042	0.0026	0.0023	0.0021	0.0021	0.0021	BLNK	-0.1291	468.309		0.0026	1.000	0.995	
Silver	A	0.0041	0.0033	0.0035	0.0035	0.0034	0.0035	BLNK	-0.0137	290.130		0.0035	1.000	0.995	
Thallium	A	0.0089	0.0079	0.0069	0.0070	0.0071	0.0071	BLNK	-0.0155	141.135		0.0075	1.000	0.995	
Arsenic	E	0.0784	0.0228	0.0158	0.0093	0.0084	0.0085	BLNK	-0.7758	118.220		0.0238	1.000	0.995	
Chromium	E	0.3942	0.0907	0.0577	0.0207	0.0166	0.0163	BLNK	-2.2416	61.9093		0.0994	1.000	0.995	
Cobalt	E	0.0714	0.0320	0.0283	0.0228	0.0213	0.0210	BLNK	-0.2068	47.4997		0.0328	1.000	0.995	
Copper	E	0.3465	0.0851	0.0513	0.0176	0.0139	0.0136	BLNK	-2.4485	74.1744		0.0880	1.000	0.995	
Vanadium	E	0.1127	0.0331	0.0256	0.0163	0.0150	0.0149	BLNK	-0.5857	67.0520		0.0363	1.000	0.995	
Zinc	E		0.0211	0.0224	0.0089	0.0081	0.0079	BLNK	-0.3505	126.679		0.0137	1.000	0.995	
Selenium	H	0.0019	0.0018	0.0011	0.0013	0.0012	0.0012	BLNK	-0.0845	821.474		0.0014	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D
Antimony	A	0.1000	**23**	0.5000	-2	1.0000	-6	10.000	-4	100.00	-1	200.00	0
Barium	A	0.1000	**-86**	0.5000	-8	1.0000	-9	10.000	-1	100.00	0	200.00	0
Beryllium	A	0.1000	1	0.5000	-13	1.0000	-2	10.000	-2	100.00	-1	200.00	0
Cadmium	A	0.1000	**-24**	0.5000	2	1.0000	8	10.000	-5	100.00	-2	200.00	0
Lead	A	0.1000	5	0.5000	3	1.0000	1	10.000	0	100.00	0	200.00	0
Molybdenum	A	0.1000	**-33**	0.5000	-2	1.0000	-7	10.000	-1	100.00	-1	200.00	0
Silver	A	0.1000	4	0.5000	-8	1.0000	1	10.000	1	100.00	-1	200.00	0
Thallium	A	0.0500	-5	0.2500	5	0.5000	-5	5.0000	-1	50.000	0	100.00	0
Arsenic	E	0.1000	**51**	0.5000	14	1.0000	9	10.000	2	100.00	-2	200.00	0
Chromium	E	0.1000	**99**	0.5000	13	1.0000	**33**	10.000	6	100.00	1	200.00	0
Cobalt	E	0.1000	**32**	0.5000	10	1.0000	14	10.000	6	100.00	1	200.00	0
Copper	E	0.1000	**21**	0.5000	**41**	1.0000	**36**	10.000	6	100.00	1	200.00	0
Vanadium	E	0.1000	**70**	0.5000	5	1.0000	13	10.000	3	100.00	0	200.00	0
Zinc	E			0.5000	**97**	1.0000	**149**	10.000	9	100.00	2	200.00	0
Selenium	H	0.1000	**-32**	0.5000	**30**	1.0000	-19	10.000	4	100.00	0	200.00	0

Instrument amount = a0 + response * a1 + response^2 * a2; BLNK=Y=aX+[blank]

1016392366001

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 281271 METALS Soil
EPA 6020A

Inst : MET26
Calnum : 1016392366001 Cal Date : 28-SEP-2016

ICV 1016392366012 (16i28l00012 28-SEP-2016) stds: S30986, S30711

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	100.0	98.05	ug/L	-2	10	
Barium	A	100.0	99.18	ug/L	-1	10	
Beryllium	A	100.0	96.58	ug/L	-3	10	
Cadmium	A	100.0	97.12	ug/L	-3	10	
Lead	A	100.0	98.57	ug/L	-1	10	
Molybdenum	A	100.0	99.63	ug/L	0	10	
Silver	A	100.0	99.15	ug/L	-1	10	
Thallium	A	50.00	49.41	ug/L	-1	10	
Arsenic	E	100.0	97.71	ug/L	-2	10	
Chromium	E	100.0	99.23	ug/L	-1	10	
Cobalt	E	100.0	99.40	ug/L	-1	10	
Copper	E	100.0	100.2	ug/L	0	10	
Vanadium	E	100.0	100.0	ug/L	0	10	
Zinc	E	100.0	100.6	ug/L	1	10	
Selenium	H	100.0	98.53	ug/L	-1	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 281271 METALS Soil
EPA 6020A

Inst : MET26 IDF : 1.0
Seqnum : 1016392366017.1 File : 16i28l00017 Time : 28-SEP-2016 12:45
Cal : 1016392366001 Caldate : 28-SEP-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	0.1000	0.05000	ug/L	
Barium	A	ND	0.1000	0.05000	ug/L	
Beryllium	A	ND	0.1000	0.1000	ug/L	
Cadmium	A	ND	0.1000	0.1000	ug/L	
Lead	A	ND	0.1000	0.1000	ug/L	
Molybdenum	A	ND	0.1000	0.2000	ug/L	
Silver	A	ND	0.1000	0.05000	ug/L	
Thallium	A	ND	0.05000	0.02500	ug/L	
Arsenic	E	ND	0.1000	0.2000	ug/L	
Chromium	E	0.2499	0.1000	0.1000	ug/L	ICB ***
Cobalt	E	ND	0.1000	0.05000	ug/L	
Copper	E	ND	0.1000	0.1000	ug/L	
Vanadium	E	0.2032	0.1000	0.2000	ug/L	ICB ***
Zinc	E	ND	0.5000	1.000	ug/L	
Selenium	H	ND	0.1000	0.05000	ug/L	

ISTD (ICALBLK 16i28l00004)	Ch	ICALBLK Abund	Abund	%Drift
Lithium	A	232380	210226	-9.53
Scandium	A	193479	161947	-16.30
Scandium	E	25362	21819	-13.97
Scandium	H	98857	86180	-12.82
Germanium	H	23767	19974	-15.96
Germanium	E	11643	9886	-15.09
Indium	A	257923	212262	-17.70
Bismuth	A	273091	230956	-15.43
Yttrium	A	249843	204864	-18.00
Terbium	A	389106	322022	-17.24

ICB=instrument blank

CURTIS & TOMPKINS LOW-LEVEL PERFORMANCE VERIFICATION STANDARD FOR 281271 METALS Soil
EPA 6020A

Inst : MET26 IDF : 1.0
Seqnum : 1016392366018.1 File : 16i28l00018 Time : 28-SEP-2016 12:50
Cal : 1016392366001 Caldate : 28-SEP-2016
Standards: S30815, S30711

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	1.000	1.002	ug/L	0	30	
Barium	A	1.000	1.054	ug/L	5	30	
Beryllium	A	1.000	1.071	ug/L	7	30	
Cadmium	A	1.000	1.209	ug/L	**21**	30	!cri+
Lead	A	1.000	1.080	ug/L	8	30	
Molybdenum	A	1.000	1.032	ug/L	3	30	
Silver	A	1.000	0.9482	ug/L	-5	30	
Thallium	A	0.5000	0.5363	ug/L	7	30	
Arsenic	E	1.000	1.187	ug/L	19	30	
Chromium	E	1.000	1.359	ug/L	**36**	30	cri+ ***
Cobalt	E	1.000	1.114	ug/L	11	30	
Copper	E	1.000	0.6155	ug/L	**-38**	30	cri- ***
Vanadium	E	1.000	1.314	ug/L	**31**	30	cri+ ***
Zinc	E	5.000	6.627	ug/L	**33**	30	cri+ ***
Selenium	H	1.000	0.8918	ug/L	-11	30	

ISTD (ICALBLK 16i28l00004)	Ch	ICALBLK Abund	Abund	%Drift
Lithium	A	232380	211172	-9.13
Scandium	A	193479	165631	-14.39
Scandium	E	25362	22270	-12.19
Scandium	H	98857	84687	-14.33
Germanium	H	23767	19991	-15.89
Germanium	E	11643	9905	-14.93
Indium	A	257923	214698	-16.76
Bismuth	A	273091	233047	-14.66
Yttrium	A	249843	206276	-17.44
Terbium	A	389106	326339	-16.13

!=warning +=high bias -=low bias

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 281271 METALS Soil
EPA 6020A

Inst : MET26 IDF : 1.0
Seqnum : 1016392366029.1 File : 16i28l00029 Time : 28-SEP-2016 13:44
Cal : 1016392366001 Caldate : 28-SEP-2016
Standards: S30987, S30711

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	0.0040	0.0037	100.0	98.03	ug/L	-2	10	
Barium	A	9.4E-4	7.5E-4	100.0	97.16	ug/L	-3	10	
Beryllium	A	0.0043	0.0033	100.0	94.08	ug/L	-6	10	
Cadmium	A	8.4E-4	7.7E-4	100.0	96.88	ug/L	-3	10	
Lead	A	0.0105	0.0096	100.0	99.04	ug/L	-1	10	
Molybdenum	A	0.0026	0.0021	100.0	98.09	ug/L	-2	10	
Silver	A	0.0035	0.0034	100.0	99.03	ug/L	-1	10	
Thallium	A	0.0075	0.0070	50.00	49.44	ug/L	-1	10	
Arsenic	E	0.0238	0.0083	100.0	97.90	ug/L	-2	10	
Chromium	E	0.0994	0.0167	100.0	100.8	ug/L	1	10	
Cobalt	E	0.0328	0.0213	100.0	100.8	ug/L	1	10	
Copper	E	0.0880	0.0140	100.0	101.1	ug/L	1	10	
Vanadium	E	0.0363	0.0151	100.0	100.4	ug/L	0	10	
Zinc	E	0.0137	0.0080	100.0	100.7	ug/L	1	10	
Selenium	H	0.0014	0.0012	100.0	96.76	ug/L	-3	10	

ISTD (ICALBLK 16i28l00004)	Ch	ICALBLK Abund	Abund	%Drift
Lithium	A	232380	179007	-22.97
Scandium	A	193479	136498	-29.45
Scandium	E	25362	18576	-26.76
Scandium	H	98857	71643	-27.53
Germanium	H	23767	16760	-29.48
Germanium	E	11643	8619	-25.97
Indium	A	257923	175887	-31.81
Bismuth	A	273091	195828	-28.29
Yttrium	A	249843	174334	-30.22
Terbium	A	389106	280505	-27.91

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 281271 METALS Soil
EPA 6020A

Inst : MET26 IDF : 1.0
Seqnum : 1016392366031.1 File : 16i28l00031 Time : 28-SEP-2016 13:53
Cal : 1016392366001 Caldate : 28-SEP-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	0.1000	0.05000	ug/L	
Barium	A	ND	0.1000	0.05000	ug/L	
Beryllium	A	ND	0.1000	0.1000	ug/L	
Cadmium	A	ND	0.1000	0.1000	ug/L	
Lead	A	ND	0.1000	0.1000	ug/L	
Molybdenum	A	ND	0.1000	0.2000	ug/L	
Silver	A	ND	0.1000	0.05000	ug/L	
Thallium	A	ND	0.05000	0.02500	ug/L	
Arsenic	E	ND	0.1000	0.2000	ug/L	
Chromium	E	0.2880	0.1000	0.1000	ug/L	CCB ***
Cobalt	E	ND	0.1000	0.05000	ug/L	
Copper	E	ND	0.1000	0.1000	ug/L	
Vanadium	E	0.1879	0.1000	0.2000	ug/L	CCB ***
Zinc	E	ND	0.5000	1.000	ug/L	
Selenium	H	ND	0.1000	0.05000	ug/L	

ISTD (ICALBLK 16i28l00004)	Ch	ICALBLK Abund	Abund	%Drift
Lithium	A	232380	194654	-16.23
Scandium	A	193479	143654	-25.75
Scandium	E	25362	19615	-22.66
Scandium	H	98857	75177	-23.95
Germanium	H	23767	17856	-24.87
Germanium	E	11643	8942	-23.20
Indium	A	257923	189475	-26.54
Bismuth	A	273091	212775	-22.09
Yttrium	A	249843	183036	-26.74
Terbium	A	389106	294003	-24.44

CCB=instrument blank

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 281271 METALS Soil
EPA 6020A

Inst : MET26 IDF : 1.0
Seqnum : 1016392366032.1 File : 16i28l00032 Time : 28-SEP-2016 13:58
Cal : 1016392366001 Caldate : 28-SEP-2016
Standards: S31022, S30711

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	0.4548	0.1000	ug/L	
Barium	A	1.950	0.1000	ug/L	
Beryllium	A	[0.04000]	0.1000	ug/L	
Cadmium	A	1.765	0.1000	ug/L	
Lead	A	0.1861	0.1000	ug/L	
Silver	A	0.2189	0.1000	ug/L	
Thallium	A	[0.02060]	0.05000	ug/L	
Arsenic	E	0.4680	0.1000	ug/L	
Chromium	E	1.692	0.1000	ug/L	
Cobalt	E	1.358	0.1000	ug/L	
Copper	E	0.3007	0.1000	ug/L	
Vanadium	E	0.2790	0.1000	ug/L	
Zinc	E	2.557	0.5000	ug/L	
Selenium	H	[0.04280]	0.1000	ug/L	

Interferent	Ch	Spiked	Quant	Units	%Rec	Flags
Aluminum	A	100000	101000	ug/L	101	
Calcium	A	300000	270800	ug/L	90	
Magnesium	A	100000	101100	ug/L	101	
Molybdenum	A	2000	2047	ug/L	102	
Potassium	A	100000	100900	ug/L	101	
Sodium	E	250000	238500	ug/L	95	
Phosphorus	E	100000	98300	ug/L	98	
Iron	H	250000	220900	ug/L	88	

ISTD (ICALBLK 16i28l00004)	Ch	ICALBLK Abund	Abund	%Drift
Lithium	A	232380	155865	-32.93
Scandium	A	193479	126609	-34.56
Scandium	E	25362	18614	-26.61
Scandium	H	98857	76658	-22.46
Germanium	H	23767	17248	-27.43
Germanium	E	11643	9076	-22.05
Indium	A	257923	152513	-40.87
Bismuth	A	273091	174524	-36.09
Yttrium	A	249843	156139	-37.51
Terbium	A	389106	253549	-34.84

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 281271 METALS Soil
EPA 6020A

Inst : MET26 IDF : 1.0
Seqnum : 1016392366033.1 File : 16i28l00033 Time : 28-SEP-2016 14:03
Cal : 1016392366001 Caldate : 28-SEP-2016
Standards: S30839, S30711

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Cadmium	A	100.0	105.0	ug/L	5	20	
Molybdenum	A	2000	2038	ug/L	2		
Silver	A	50.00	52.59	ug/L	5	20	
Arsenic	E	100.0	93.45	ug/L	-7	20	
Chromium	E	200.0	200.3	ug/L	0	20	
Cobalt	E	200.0	199.4	ug/L	0	20	
Copper	E	200.0	198.2	ug/L	-1	20	
Vanadium	E	200.0	200.9	ug/L	0	20	
Zinc	E	100.0	91.97	ug/L	-8	20	
Selenium	H	100.0	86.52	ug/L	-13	20	

ISTD (ICALBLK 16i28l00004)	Ch	ICALBLK Abund	Abund	%Drift
Scandium	H	98857	73671	-25.48
Scandium	A	193479	127166	-34.27
Scandium	E	25362	17856	-29.60
Germanium	H	23767	17742	-25.35
Germanium	E	11643	8777	-24.62
Indium	A	257923	153792	-40.37
Yttrium	A	249843	156575	-37.33

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 281271 METALS Soil
EPA 6020A

Inst : MET26 IDF : 1.0
Seqnum : 1016392366048.1 File : 16i28l00048 Time : 28-SEP-2016 15:15
Cal : 1016392366001 Caldate : 28-SEP-2016
Standards: S30987, S30711

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	0.0040	0.0037	100.0	99.13	ug/L	-1	10	
Barium	A	9.4E-4	7.5E-4	100.0	96.83	ug/L	-3	10	
Beryllium	A	0.0043	0.0033	100.0	94.38	ug/L	-6	10	
Cadmium	A	8.4E-4	7.7E-4	100.0	96.94	ug/L	-3	10	
Lead	A	0.0105	0.0095	100.0	98.61	ug/L	-1	10	
Molybdenum	A	0.0026	0.0021	100.0	99.98	ug/L	0	10	
Silver	A	0.0035	0.0035	100.0	100.2	ug/L	0	10	
Thallium	A	0.0075	0.0070	50.00	49.49	ug/L	-1	10	
Arsenic	E	0.0238	0.0081	100.0	95.10	ug/L	-5	10	
Chromium	E	0.0994	0.0168	100.0	102.0	ug/L	2	10	
Cobalt	E	0.0328	0.0215	100.0	102.0	ug/L	2	10	
Copper	E	0.0880	0.0141	100.0	102.4	ug/L	2	10	
Vanadium	E	0.0363	0.0151	100.0	100.8	ug/L	1	10	
Zinc	E	0.0137	0.0081	100.0	101.8	ug/L	2	10	
Selenium	H	0.0014	0.0012	100.0	96.23	ug/L	-4	10	

ISTD (ICALBLK 16i28l00004)	Ch	ICALBLK Abund	Abund	%Drift
Lithium	A	232380	171527	-26.19
Scandium	A	193479	131229	-32.17
Scandium	E	25362	17567	-30.73
Scandium	H	98857	67387	-31.83
Germanium	H	23767	16213	-31.78
Germanium	E	11643	8156	-29.95
Indium	A	257923	167397	-35.10
Bismuth	A	273091	191063	-30.04
Yttrium	A	249843	166168	-33.49
Terbium	A	389106	269820	-30.66

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 281271 METALS Soil
EPA 6020A

Inst : MET26 IDF : 1.0
Seqnum : 1016392366050.1 File : 16i28l00050 Time : 28-SEP-2016 15:25
Cal : 1016392366001 Caldate : 28-SEP-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	0.1000	0.05000	ug/L	
Barium	A	ND	0.1000	0.05000	ug/L	
Beryllium	A	ND	0.1000	0.1000	ug/L	
Cadmium	A	ND	0.1000	0.1000	ug/L	
Lead	A	ND	0.1000	0.1000	ug/L	
Molybdenum	A	0.1221	0.1000	0.2000	ug/L	CCB ***
Silver	A	ND	0.1000	0.05000	ug/L	
Thallium	A	ND	0.05000	0.02500	ug/L	
Arsenic	E	ND	0.1000	0.2000	ug/L	
Chromium	E	ND	0.1000	0.1000	ug/L	
Cobalt	E	ND	0.1000	0.05000	ug/L	
Copper	E	ND	0.1000	0.1000	ug/L	
Vanadium	E	0.1069	0.1000	0.2000	ug/L	CCB ***
Zinc	E	ND	0.5000	1.000	ug/L	
Selenium	H	ND	0.1000	0.05000	ug/L	

ISTD (ICALBLK 16i28l00004)	Ch	ICALBLK Abund	Abund	%Drift
Lithium	A	232380	180741	-22.22
Scandium	A	193479	134678	-30.39
Scandium	E	25362	17968	-29.15
Scandium	H	98857	69401	-29.80
Germanium	H	23767	16347	-31.22
Germanium	E	11643	8164	-29.88
Indium	A	257923	177553	-31.16
Bismuth	A	273091	201212	-26.32
Yttrium	A	249843	171955	-31.17
Terbium	A	389106	277461	-28.69

CCB=instrument blank

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 281271 METALS Soil
EPA 6020A

Inst : MET26 IDF : 1.0
Seqnum : 1016392366061.1 File : 16i28l00061 Time : 28-SEP-2016 16:18
Cal : 1016392366001 Caldate : 28-SEP-2016
Standards: S30987, S30711

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	0.0040	0.0037	100.0	98.94	ug/L	-1	10	
Barium	A	9.4E-4	7.5E-4	100.0	96.42	ug/L	-4	10	
Beryllium	A	0.0043	0.0033	100.0	93.58	ug/L	-6	10	
Cadmium	A	8.4E-4	7.8E-4	100.0	98.72	ug/L	-1	10	
Lead	A	0.0105	0.0096	100.0	99.56	ug/L	0	10	
Molybdenum	A	0.0026	0.0021	100.0	98.63	ug/L	-1	10	
Silver	A	0.0035	0.0034	100.0	99.82	ug/L	0	10	
Thallium	A	0.0075	0.0071	50.00	49.80	ug/L	0	10	
Arsenic	E	0.0238	0.0081	100.0	95.15	ug/L	-5	10	
Chromium	E	0.0994	0.0164	100.0	99.47	ug/L	-1	10	
Cobalt	E	0.0328	0.0211	100.0	99.92	ug/L	0	10	
Copper	E	0.0880	0.0138	100.0	99.77	ug/L	0	10	
Vanadium	E	0.0363	0.0149	100.0	99.59	ug/L	0	10	
Zinc	E	0.0137	0.0080	100.0	100.9	ug/L	1	10	
Selenium	H	0.0014	0.0012	100.0	96.03	ug/L	-4	10	

ISTD (ICALBLK 16i28l00004)	Ch	ICALBLK Abund	Abund	%Drift
Lithium	A	232380	174008	-25.12
Scandium	A	193479	134486	-30.49
Scandium	E	25362	18141	-28.47
Scandium	H	98857	69741	-29.45
Germanium	H	23767	16499	-30.58
Germanium	E	11643	8425	-27.64
Indium	A	257923	169500	-34.28
Bismuth	A	273091	192501	-29.51
Yttrium	A	249843	169816	-32.03
Terbium	A	389106	273071	-29.82

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 281271 METALS Soil
EPA 6020A

Inst : MET26 IDF : 1.0
Seqnum : 1016392366063.1 File : 16i28l00063 Time : 28-SEP-2016 16:28
Cal : 1016392366001 Caldate : 28-SEP-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	0.1000	0.05000	ug/L	
Barium	A	ND	0.1000	0.05000	ug/L	
Beryllium	A	ND	0.1000	0.1000	ug/L	
Cadmium	A	ND	0.1000	0.1000	ug/L	
Lead	A	ND	0.1000	0.1000	ug/L	
Molybdenum	A	ND	0.1000	0.2000	ug/L	
Silver	A	ND	0.1000	0.05000	ug/L	
Thallium	A	ND	0.05000	0.02500	ug/L	
Arsenic	E	ND	0.1000	0.2000	ug/L	
Chromium	E	0.1524	0.1000	0.1000	ug/L	CCB ***
Cobalt	E	ND	0.1000	0.05000	ug/L	
Copper	E	ND	0.1000	0.1000	ug/L	
Vanadium	E	ND	0.1000	0.2000	ug/L	
Zinc	E	ND	0.5000	1.000	ug/L	
Selenium	H	ND	0.1000	0.05000	ug/L	

ISTD (ICALBLK 16i28l00004)	Ch	ICALBLK Abund	Abund	%Drift
Lithium	A	232380	179573	-22.72
Scandium	A	193479	134534	-30.47
Scandium	E	25362	17844	-29.64
Scandium	H	98857	69293	-29.91
Germanium	H	23767	16225	-31.73
Germanium	E	11643	8092	-30.50
Indium	A	257923	176715	-31.49
Bismuth	A	273091	199297	-27.02
Yttrium	A	249843	170367	-31.81
Terbium	A	389106	276748	-28.88

CCB=instrument blank

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 281271 METALS Soil
EPA 6020A

Inst : MET26 IDF : 1.0
Seqnum : 1016392366068.1 File : 16i28l00068 Time : 28-SEP-2016 16:52
Cal : 1016392366001 Caldate : 28-SEP-2016
Standards: S30987, S30711

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	0.0040	0.0038	100.0	101.0	ug/L	1	10	
Barium	A	9.4E-4	7.7E-4	100.0	98.64	ug/L	-1	10	
Beryllium	A	0.0043	0.0033	100.0	95.05	ug/L	-5	10	
Cadmium	A	8.4E-4	8.1E-4	100.0	101.7	ug/L	2	10	
Lead	A	0.0105	0.0098	100.0	101.2	ug/L	1	10	
Molybdenum	A	0.0026	0.0022	100.0	101.3	ug/L	1	10	
Silver	A	0.0035	0.0035	100.0	101.2	ug/L	1	10	
Thallium	A	0.0075	0.0072	50.00	50.67	ug/L	1	10	
Arsenic	E	0.0238	0.0081	100.0	95.19	ug/L	-5	10	
Chromium	E	0.0994	0.0162	100.0	97.87	ug/L	-2	10	
Cobalt	E	0.0328	0.0207	100.0	97.99	ug/L	-2	10	
Copper	E	0.0880	0.0135	100.0	97.32	ug/L	-3	10	
Vanadium	E	0.0363	0.0148	100.0	98.63	ug/L	-1	10	
Zinc	E	0.0137	0.0082	100.0	103.0	ug/L	3	10	calc
Selenium	H	0.0014	0.0012	100.0	95.94	ug/L	-4	10	

ISTD (ICALBLK 16i28l00004)	Ch	ICALBLK Abund	Abund	%Drift
Lithium	A	232380	170649	-26.56
Scandium	A	193479	135310	-30.06
Scandium	E	25362	17895	-29.44
Scandium	H	98857	70190	-29.00
Germanium	H	23767	16048	-32.48
Germanium	E	11643	8033	-31.01
Indium	A	257923	165225	-35.94
Bismuth	A	273091	189979	-30.43
Yttrium	A	249843	164645	-34.10
Terbium	A	389106	267687	-31.20

calc=check quantitation

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 281271 METALS Soil
EPA 6020A

Inst : MET26 IDF : 1.0
Seqnum : 1016392366070.1 File : 16i28l00070 Time : 28-SEP-2016 17:01
Cal : 1016392366001 Caldate : 28-SEP-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	0.1000	0.05000	ug/L	
Barium	A	ND	0.1000	0.05000	ug/L	
Beryllium	A	ND	0.1000	0.1000	ug/L	
Cadmium	A	ND	0.1000	0.1000	ug/L	
Lead	A	ND	0.1000	0.1000	ug/L	
Molybdenum	A	ND	0.1000	0.2000	ug/L	
Silver	A	ND	0.1000	0.05000	ug/L	
Thallium	A	ND	0.05000	0.02500	ug/L	
Arsenic	E	ND	0.1000	0.2000	ug/L	
Chromium	E	ND	0.1000	0.1000	ug/L	
Cobalt	E	ND	0.1000	0.05000	ug/L	
Copper	E	ND	0.1000	0.1000	ug/L	
Vanadium	E	ND	0.1000	0.2000	ug/L	
Zinc	E	ND	0.5000	1.000	ug/L	
Selenium	H	ND	0.1000	0.05000	ug/L	

ISTD (ICALBLK 16i28l00004)	Ch	ICALBLK Abund	Abund	%Drift
Lithium	A	232380	181793	-21.77
Scandium	A	193479	136676	-29.36
Scandium	E	25362	18316	-27.78
Scandium	H	98857	71024	-28.15
Germanium	H	23767	16339	-31.25
Germanium	E	11643	8130	-30.17
Indium	A	257923	176657	-31.51
Bismuth	A	273091	202879	-25.71
Yttrium	A	249843	170570	-31.73
Terbium	A	389106	275536	-29.19

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 281271 METALS Soil
EPA 6020A

Inst : MET26 IDF : 1.0
Seqnum : 1016392366071.1 File : 16i28l00071 Time : 28-SEP-2016 17:06
Cal : 1016392366001 Caldate : 28-SEP-2016
Standards: S31022, S30711

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	0.3649	0.1000	ug/L	
Barium	A	1.657	0.1000	ug/L	
Beryllium	A	[0.01380]	0.1000	ug/L	
Cadmium	A	1.515	0.1000	ug/L	
Lead	A	0.2159	0.1000	ug/L	
Silver	A	0.1737	0.1000	ug/L	
Thallium	A	[0.02670]	0.05000	ug/L	
Arsenic	E	0.5621	0.1000	ug/L	
Chromium	E	1.359	0.1000	ug/L	
Cobalt	E	1.292	0.1000	ug/L	
Copper	E	0.1886	0.1000	ug/L	
Vanadium	E	0.1276	0.1000	ug/L	
Zinc	E	2.473	0.5000	ug/L	
Selenium	H	[0.03720]	0.1000	ug/L	

Interferent	Ch	Spiked	Quant	Units	%Rec	Flags
Aluminum	A	100000	97620	ug/L	98	
Calcium	A	300000	261400	ug/L	87	
Magnesium	A	100000	97970	ug/L	98	
Molybdenum	A	2000	1947	ug/L	97	
Potassium	A	100000	97100	ug/L	97	
Sodium	E	250000	238900	ug/L	96	
Phosphorus	E	100000	94550	ug/L	95	
Iron	H	250000	222700	ug/L	89	

ISTD (ICALBLK 16i28l00004)	Ch	ICALBLK Abund	Abund	%Drift
Lithium	A	232380	140961	-39.34
Scandium	A	193479	113418	-41.38
Scandium	E	25362	15844	-37.53
Scandium	H	98857	64808	-34.44
Germanium	H	23767	14961	-37.05
Germanium	E	11643	7700	-33.87
Indium	A	257923	135674	-47.40
Bismuth	A	273091	159720	-41.51
Yttrium	A	249843	139821	-44.04
Terbium	A	389106	228195	-41.35

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 281271 METALS Soil
EPA 6020A

Inst : MET26 IDF : 1.0
Seqnum : 1016392366072.1 File : 16i28l00072 Time : 28-SEP-2016 17:11
Cal : 1016392366001 Caldate : 28-SEP-2016
Standards: S30839, S30711

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Cadmium	A	100.0	99.57	ug/L	0	20	
Molybdenum	A	2000	1974	ug/L	-1		
Silver	A	50.00	51.05	ug/L	2	20	
Arsenic	E	100.0	87.62	ug/L	-12	20	
Chromium	E	200.0	195.0	ug/L	-2	20	
Cobalt	E	200.0	192.4	ug/L	-4	20	
Copper	E	200.0	191.5	ug/L	-4	20	
Vanadium	E	200.0	196.5	ug/L	-2	20	
Zinc	E	100.0	88.50	ug/L	-11	20	
Selenium	H	100.0	87.90	ug/L	-12	20	

ISTD (ICALBLK 16i28l00004)	Ch	ICALBLK Abund	Abund	%Drift
Scandium	H	98857	63208	-36.06
Scandium	A	193479	110673	-42.80
Scandium	E	25362	15420	-39.20
Germanium	H	23767	15020	-36.80
Germanium	E	11643	7619	-34.56
Indium	A	257923	132547	-48.61
Yttrium	A	249843	135725	-45.68

SAMPLE PREPARATION SUMMARY

Batch # : 239526 Analysis : ICPMS
Started By : VV Prep Date : 27-SEP-2016 02:00 Finished By : VV
Method : 3050B Units : g
Spike #1 ID : S30443 Spike #2 ID : S30742 Spike #3 ID : S30743

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
281271-001		Soil	.92	50	1	54.35						6020	
281271-002		Soil	1.01	50	1	49.50						6020	
281271-003		Soil	.97	50	1	51.55						6020	
281271-004		Soil	.93	50	1	53.76						6020	
281271-005		Soil	1.04	50	1	48.08						6020	
281271-006		Soil	1.04	50	1	48.08						6020	
281271-007		Soil	1.01	50	1	49.50						6020	
281271-008		Soil	1.02	50	1	49.02						6020	
281271-009		Soil	1.08	50	1	46.30						6020	
281271-010		Soil	.94	50	1	53.19						6020	
281441-001		Soil	.99	50	1	50.51						6020	
QC853199	BLANK	Soil	1.08	50	1	46.30							
QC853200	BS	Soil	1.03	50	1	48.54		.25	.25	.25			
QC853201	BSD	Soil	1.04	50	1	48.08		.25	.25	.25			
QC853202	MS	Soil	1.01	50	1	49.50		.25	.25	.25			
QC853203	MSD	Soil	.98	50	1	51.02		.25	.25	.25			
QC853333	SER	Soil	.99	50	1	50.51							
QC853334	PDS	Soil	.99	50	1	50.51							

PRW 09/28/16 : Weights reviewed.

Analyst: _____ Date: _____ Reviewer: _____ Date: _____

Soil Digestion for ICP & ICP-MS Curtis & Tompkins, Ltd. Version 11, Dec.2015

LIMS Batch #: 239526 Digestion Method: Time ON: 02:00 **BK3940**

Date Digested: 9-27-16 ☒ EPA 3050b Time OFF: 06:02 Page 16

Digested by: VV ☐ _____

	Sample #	Container ID	Weight of Sample (g)	Final Volume (mL)	Filtered? (y/n)	ID ✓	Comments
	BIK# 853199		1.08	☒50 ☐___	Yes	✓	
*	BS 853200		1.03	☒50 ☐___	Yes	✓	
*	BSD 853201		1.04	☒50 ☐___	Yes	✓	
*	281441-001 MS		1.01	☒50 ☐___	Yes	✓	
5 *	↓ 001 MSD		0.98	☒50 ☐___	Yes	✓	
	281271-001	A	0.92	☒50 ☐___	Yes	✓	
	-002		1.01	☒50 ☐___	Yes	✓	
	-003		0.97	☒50 ☐___	Yes	✓	
	-004		0.93	☒50 ☐___	Yes	✓	
10	-005		1.04	☒50 ☐___	Yes	✓	
	-006		1.04	☒50 ☐___	Yes	✓	
	-007		1.01	☒50 ☐___	Yes	✓	
	-008		1.02	☒50 ☐___	Yes	✓	
	-009		1.08	☒50 ☐___	Yes	✓	
15	↓ -010	↓	0.94	☒50 ☐___	Yes	✓	
	281441-001	B	0.99	☒50 ☐___	Yes	✓	
				☐50 ☐___			
				☐50 ☐___			
				☐50 ☐___			
20				☐50 ☐___			
				☐50 ☐___			
				☐50 ☐___			
				☐50 ☐___			
				☐50 ☐___			
				☐50 ☐___			

Balance ID: METALS PREP calibration has been checked? ☒ Yes ☐ No

	Reagent ID or LIMS #		Initials / Date
SCP Digestion tubes / ESS Watch glass, lot#	235516656O	1512329-6449-NO	VV 9-27-16
Blank 'matrix' lot#	5941-6H017		
0.25 mL of spike solution (Std1) was added to all spikes	530443 *		
0.25 mL of spike solution (Std2) was added to all spikes	530742 *		
0.25 mL of spike solution (Std3) was added to all spikes	530743 *		
Digestion Block ID, Probe Location	RAINIER	44	
Temperature (°C), Thermometer ID	95°C	SN L91279	
1:1 HNO3 Reagent ID	140712-092716		
concentrated HNO3 lot#	140712-JTB		
3mL 30% hydrogen peroxide lot#	161509-Fisher		
concentrated HCl lot#	134218-JTB		
☒ filtered thru' Whatman 541, lot#	9738694		
Relinquished to ICP group	ICP MS		

Pipettes

Vol.(mL)	ID
0.5	N271501
5	2016708
1-5	2016708

9-27-16

Digestion Chemist / Date

Continued from page Ø

Continued on page _____

Reviewed Online/ See LIMS

SAMPLE PREPARATION SUMMARY

Batch # : 239551 Analysis : ICPMS
Started By : RLG Prep Date : 27-SEP-2016 13:00 Finished By : RLG
Method : 3050B Units : g
Spike #1 ID : S30743 Spike #2 ID : S30742 Spike #3 ID : S30443

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
281271-011		Soil	.96	50	1	52.08						6020	
281271-012		Soil	1.04	50	1	48.08						6020	
281271-013		Soil	1.04	50	1	48.08						6020	
281271-014		Soil	1	50	1	50.0						6020	
281271-015		Soil	.92	50	1	54.35						6020	
281271-016		Soil	1.02	50	1	49.02						6020	
281271-017		Soil	.95	50	1	52.63						6020	
281271-018		Soil	.92	50	1	54.35						6020	
281271-019		Soil	1.04	50	1	48.08						6020	
281271-020		Soil	1.03	50	1	48.54						6020	
281271-021		Soil	.99	50	1	50.51						6020	
281271-022		Soil	.97	50	1	51.55						6020	
281271-023		Soil	1.06	50	1	47.17						6020	
281271-024		Soil	1.08	50	1	46.30						6020	
281271-025		Soil	1.04	50	1	48.08						6020	
281271-026		Soil	1.05	50	1	47.62						6020	
281271-027		Soil	1	50	1	50.0						6020	
QC853290	BLANK	Soil	1.05	50	1	47.62							
QC853291	BS	Soil	1.04	50	1	48.08		.25	.25	.25			
QC853292	BSD	Soil	1.01	50	1	49.50		.25	.25	.25			
QC853293	MS	Soil	1	50	1	50.0		.25	.25	.25			
QC853294	MSD	Soil	.95	50	1	52.63		.25	.25	.25			
QC853295	SER	Soil	.96	50	1	52.08							
QC853296	PDS	Soil	.96	50	1	52.08							

PRW 09/28/16 : Weights verified.

Analyst: KER Date: 09/28/16 Reviewer: PRW Date: 09/28/16

Soil Digestion for ICP & ICP-MS Curtis & Tompkins, Ltd. Version 11, Dec.2015

LIMS Batch #: 239551 Digestion Method: Time ON: 13:00 BK3940

Date Digested: 9/27/16 ☒ EPA 3050b Time OFF: 15:35 Page 17

Digested by: RLG ☐ _____

	Sample #	Container ID	Weight of Sample (g)	Final Volume (mL) (y/n)	Filtered? ID ✓	Comments
	BLANK		1.05	☒50 ☐___	Y ✓	QC853290
	BS		1.04	☒50 ☐___	✓	1
	BSD		1.01	☒50 ☐___	✓	2
	MS		1.00	☒50 ☐___	✓	3
5	MSD		.95	☒50 ☐___	✓	4
	281271-011	A	.96	☒50 ☐___	✓	MSS
	-012		1.04	☒50 ☐___	✓	
	-013		1.04	☒50 ☐___	✓	
	-014		1.00	☒50 ☐___	✓	
10	-015		.92	☒50 ☐___	✓	
	-016		1.02	☒50 ☐___	✓	
	-017		.95	☒50 ☐___	✓	
	-018		.92	☒50 ☐___	✓	
	-019		1.04	☒50 ☐___	✓	
15	-020		1.03	☒50 ☐___	✓	
	-021		.99	☒50 ☐___	✓	
	-022		.97	☒50 ☐___	✓	
	-023		1.06	☒50 ☐___	✓	
	-024		1.08	☒50 ☐___	✓	
20	-025		1.04	☒50 ☐___	✓	
	-026		1.05	☒50 ☐___	✓	
	-027		1.00	☒50 ☐___	✓	
				☐ 50 ☐___		
				☐ 50 ☐___		
				☐ 50 ☐___		

Balance ID: Metals Prep calibration has been checked? ☒Yes ☐No

	Reagent ID or LIMS #		Initials / Date
SCP Digestion tubes / ESS Watch glass, lot#	235516 6560	151232 9-6149-NQ	RLG 9/27/16
Blank 'matrix' lot#	5941-6H017		
.25 mL of spike solution (Std1) was added to all spikes	530743		
.25 mL of spike solution (Std2) was added to all spikes	530742		
.25 mL of spike solution (Std3) was added to all spikes	530443		
Digestion Block ID, Probe Location	TETON	45	
Temperature (°C), Thermometer ID	96°	SN4153837	
1:1 HNO3 Reagent ID	JTB 140712		
concentrated HNO3 lot#	JTB 140712		
3mL 30% hydrogen peroxide lot#	FS 161509		
concentrated HCl lot#	JTB 140285		
☒ filtered thru' Whatman 541, lot#	9738694		
Relinquished to ICP group	ICPMS		

Pipettes

Vol.(mL)	ID
.25	N27450D
5	2016708
1	2016708
1.5	2016708

9/27/16
Digestion Chemist / Date

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Reviewed Online/ See LIMS

Mercury Data

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 1066383948

Instrument : MET44
Method : EPA 7471B

Begun : 09/22/16 15:08
SOP Version : hg_water_rv19

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met44	ICALBLK				09/22/16 15:08	1.0		
002	met44	ICAL	ICAL1			09/22/16 15:09	1.0	1	
003	met44	ICAL	ICAL2			09/22/16 15:10	1.0	1	
004	met44	ICAL	ICAL3			09/22/16 15:11	1.0	1	
005	met44	ICAL	ICAL4			09/22/16 15:13	1.0	1	
006	met44	ICAL	ICAL5			09/22/16 15:14	1.0	1	
007	met44	ICV				09/22/16 15:15	1.0	2	
008	met44	ICB				09/22/16 15:16	1.0		
009	met44	BLANK	QC852715	Soil	239403	09/22/16 15:17	1.0		
010	met44	BS	QC852716	Soil	239403	09/22/16 15:18	1.0		
011	met44	BSD	QC852717	Soil	239403	09/22/16 15:19	1.0		
012	met44	MSS	281095-011	Soil	239403	09/22/16 15:21	1.0		
013	met44	MS	QC852718	Soil	239403	09/22/16 15:22	1.0		
014	met44	MSD	QC852719	Soil	239403	09/22/16 15:23	1.0		
015	met44	SAMPLE	281273-001	Soil	239403	09/22/16 15:24	1.0		
016	met44	SAMPLE	281273-002	Soil	239403	09/22/16 15:25	1.0		
017	met44	SAMPLE	281095-012	Soil	239403	09/22/16 15:26	1.0		
018	met44	SAMPLE	281095-013	Soil	239403	09/22/16 15:27	1.0		
019	met44	CCV				09/22/16 15:28	1.0	3	
020	met44	CCB				09/22/16 15:30	1.0		
021	met44	SAMPLE	281095-014	Soil	239403	09/22/16 15:31	1.0		
022	met44	SAMPLE	281095-015	Soil	239403	09/22/16 15:32	1.0		
023	met44	SAMPLE	281095-016	Soil	239403	09/22/16 15:33	1.0		
024	met44	SAMPLE	281095-017	Soil	239403	09/22/16 15:34	1.0		
025	met44	SAMPLE	281095-018	Soil	239403	09/22/16 15:35	1.0		
026	met44	SAMPLE	281095-019	Soil	239403	09/22/16 15:36	1.0		
027	met44	SAMPLE	281095-020	Soil	239403	09/22/16 15:37	1.0		
028	met44	SAMPLE	281227-001	Soil	239403	09/22/16 15:39	1.0		1:HG=130
029	met44	SAMPLE	281227-002	Soil	239403	09/22/16 15:40	1.0		1:HG=150
030	met44	SAMPLE	281227-003	Soil	239403	09/22/16 15:41	1.0		1:HG=140
031	met44	CCV				09/22/16 15:43	1.0	3	
032	met44	CCB				09/22/16 15:44	1.0		
033	met44	SAMPLE	281227-004	Soil	239403	09/22/16 15:45	1.0		1:HG=120
034	met44	SAMPLE	281227-005	Soil	239403	09/22/16 15:47	1.0		1:HG=72
035	met44	SAMPLE	281227-006	Soil	239403	09/22/16 15:48	1.0		
036	met44	SAMPLE	281227-007	Soil	239403	09/22/16 15:49	1.0		1:HG=78
037	met44	SAMPLE	281227-008	Soil	239403	09/22/16 15:51	1.0		1:HG=66
038	met44	BLANK	QC852720	Soil	239404	09/22/16 15:54	1.0		
039	met44	BS	QC852721	Soil	239404	09/22/16 15:56	1.0		
040	met44	BSD	QC852722	Soil	239404	09/22/16 15:57	1.0		
041	met44	CCV				09/22/16 15:58	1.0	3	
042	met44	CCB				09/22/16 15:59	1.0		
043	met44	MSS	281256-001	Soil	239404	09/22/16 16:00	1.0		
044	met44	MS	QC852723	Soil	239404	09/22/16 16:01	1.0		
045	met44	MSD	QC852724	Soil	239404	09/22/16 16:02	1.0		
046	met44	SER	QC852725	Soil	239404	09/22/16 16:03	5.0		
047	met44	SAMPLE	281257-005	Soil	239404	09/22/16 16:05	1.0		
048	met44	SAMPLE	281276-001	Soil	239404	09/22/16 16:06	1.0		
049	met44	SAMPLE	281271-001	Soil	239404	09/22/16 16:07	1.0		
050	met44	SAMPLE	281271-002	Soil	239404	09/22/16 16:08	1.0		
051	met44	SAMPLE	281271-003	Soil	239404	09/22/16 16:09	1.0		
052	met44	SAMPLE	281271-004	Soil	239404	09/22/16 16:10	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 1066383948

Instrument : MET44 Begun : 09/22/16 15:08
Method : EPA 7471B SOP Version : hg_water_rv19

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met44	CCV				09/22/16 16:11	1.0	3	
054	met44	CCB				09/22/16 16:13	1.0		
055	met44	SAMPLE	281271-005	Soil	239404	09/22/16 16:14	1.0		
056	met44	SAMPLE	281271-006	Soil	239404	09/22/16 16:15	1.0		
057	met44	SAMPLE	281271-007	Soil	239404	09/22/16 16:16	1.0		
058	met44	SAMPLE	281271-008	Soil	239404	09/22/16 16:17	1.0		
059	met44	SAMPLE	281271-009	Soil	239404	09/22/16 16:18	1.0		
060	met44	SAMPLE	281271-010	Soil	239404	09/22/16 16:19	1.0		
061	met44	SAMPLE	281271-011	Soil	239404	09/22/16 16:20	1.0		
062	met44	SAMPLE	281271-012	Soil	239404	09/22/16 16:22	1.0		
063	met44	SAMPLE	281271-013	Soil	239404	09/22/16 16:23	1.0		
064	met44	SAMPLE	281271-014	Soil	239404	09/22/16 16:24	1.0		
065	met44	CCV				09/22/16 16:25	1.0	3	
066	met44	CCB				09/22/16 16:26	1.0		
067	met44	SAMPLE	281271-015	Soil	239404	09/22/16 16:27	1.0		
068	met44	SAMPLE	281271-016	Soil	239404	09/22/16 16:28	1.0		
069	met44	SAMPLE	281271-017	Soil	239404	09/22/16 16:30	1.0		
070	met44	SAMPLE	281227-001	Soil	239403	09/22/16 16:31	20.0		1:HG=35
071	met44	SAMPLE	281227-002	Soil	239403	09/22/16 16:32	20.0		1:HG=89
072	met44	SAMPLE	281227-003	Soil	239403	09/22/16 16:34	20.0		1:HG=59
073	met44	SAMPLE	281227-004	Soil	239403	09/22/16 16:35	20.0		1:HG=31
074	met44	SAMPLE	281227-005	Soil	239403	09/22/16 16:37	20.0		
075	met44	X	RINSE			09/22/16 16:38	1.0		
076	met44	SAMPLE	281227-006	Soil	239403	09/22/16 16:39	1.0		
077	met44	CCV				09/22/16 16:40	1.0	3	
078	met44	CCB				09/22/16 16:41	1.0		
079	met44	SAMPLE	281227-007	Soil	239403	09/22/16 16:42	20.0		
080	met44	SAMPLE	281227-008	Soil	239403	09/22/16 16:43	20.0		
081	met44	MSS	281256-001	Soil	239404	09/22/16 16:44	1.0		
082	met44	MS	QC852723	Soil	239404	09/22/16 16:46	1.0		
083	met44	MSD	QC852724	Soil	239404	09/22/16 16:47	1.0		
084	met44	SER	QC852725	Soil	239404	09/22/16 16:48	5.0		
085	met44	X	RINSE			09/22/16 16:49	1.0		
086	met44	SAMPLE	281271-001	Soil	239404	09/22/16 16:50	1.0		
087	met44	SAMPLE	281271-002	Soil	239404	09/22/16 16:51	1.0		
088	met44	SAMPLE	281271-003	Soil	239404	09/22/16 16:52	1.0		
089	met44	CCV				09/22/16 16:53	1.0	3	
090	met44	CCB				09/22/16 16:55	1.0		
091	met44	SAMPLE	281271-004	Soil	239404	09/22/16 16:56	1.0		
092	met44	SAMPLE	281271-005	Soil	239404	09/22/16 16:57	1.0		
093	met44	SAMPLE	281271-006	Soil	239404	09/22/16 16:58	1.0		
094	met44	SAMPLE	281271-007	Soil	239404	09/22/16 16:59	1.0		
095	met44	SAMPLE	281271-008	Soil	239404	09/22/16 17:00	1.0		
096	met44	SAMPLE	281271-009	Soil	239404	09/22/16 17:01	1.0		
097	met44	SAMPLE	281271-010	Soil	239404	09/22/16 17:02	1.0		
098	met44	SAMPLE	281271-011	Soil	239404	09/22/16 17:04	1.0		
099	met44	SAMPLE	281271-012	Soil	239404	09/22/16 17:05	1.0		
100	met44	SAMPLE	281271-013	Soil	239404	09/22/16 17:06	1.0		
101	met44	CCV				09/22/16 17:07	1.0	3	
102	met44	CCB				09/22/16 17:08	1.0		
103	met44	SAMPLE	281271-014	Soil	239404	09/22/16 17:09	1.0		
104	met44	SAMPLE	281271-015	Soil	239404	09/22/16 17:10	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 1066383948

Instrument : MET44 Begun : 09/22/16 15:08
Method : EPA 7471B SOP Version : hg_water_rv19

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
105	met44	SAMPLE	281271-016	Soil	239404	09/22/16 17:12	1.0		
106	met44	SAMPLE	281271-017	Soil	239404	09/22/16 17:13	1.0		
107	met44	MSS	281256-001	Soil	239404	09/22/16 17:14	1.0		
108	met44	SAMPLE	281227-005	Soil	239403	09/22/16 17:15	20.0		
109	met44	SAMPLE	281227-001	Soil	239403	09/22/16 17:16	100.0		
110	met44	SAMPLE	281227-002	Soil	239403	09/22/16 17:17	100.0		1:HG=26
111	met44	SAMPLE	281227-003	Soil	239403	09/22/16 17:19	100.0		1:HG=15
112	met44	SAMPLE	281227-004	Soil	239403	09/22/16 17:20	100.0		
113	met44	CCV				09/22/16 17:21	1.0	3	
114	met44	CCB				09/22/16 17:22	1.0		
115	met44	SAMPLE	281227-002	Soil	239403	09/22/16 17:26	500.0		
116	met44	SAMPLE	281227-003	Soil	239403	09/22/16 17:27	500.0		
117	met44	X	RINSE			09/22/16 17:28	1.0		
118	met44	SAMPLE	281227-004	Soil	239403	09/22/16 17:29	100.0		
119	met44	CCV				09/22/16 17:30	1.0	3	
120	met44	CCB				09/22/16 17:31	1.0		
121	met44	BLANK	QC852720	Soil	239404	09/22/16 17:47	1.0		
122	met44	BS	QC852721	Soil	239404	09/22/16 17:48	1.0		
123	met44	BSD	QC852722	Soil	239404	09/22/16 17:49	1.0		
124	met44	CCV				09/22/16 17:50	1.0	3	
125	met44	CCB				09/22/16 17:51	1.0		
126	met44	BS	QC852721	Soil	239404	09/22/16 17:55	1.0		
127	met44	BSD	QC852722	Soil	239404	09/22/16 17:56	1.0		
128	met44	CCV				09/22/16 17:57	1.0	3	
129	met44	CCB				09/22/16 17:59	1.0		

LCS 09/23/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 129.

Standards used: 1=S30975 2=S30977 3=S30978

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 281271 METALS Soil: EPA 7471B

Inst : MET44
Calnum : 1066383948001
Units : ug/L

Date : 22-SEP-2016 15:08
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met44	1066383948002	ICAL1	22-SEP-2016 15:09	S30975 (500X)
L2	met44	1066383948003	ICAL2	22-SEP-2016 15:10	S30975 (200X)
L3	met44	1066383948004	ICAL3	22-SEP-2016 15:11	S30975 (50X)
L4	met44	1066383948005	ICAL4	22-SEP-2016 15:13	S30975 (20X)
L5	met44	1066383948006	ICAL5	22-SEP-2016 15:14	S30975 (10X)

Analyte	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Mercury	0.0095	0.0098	0.0102	0.0102	0.0099	LIN0	-0.0223	100.928		0.0099	1.000	.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Mercury	0.2000	-15	0.5000	-6	2.0000	1	5.0000	2	10.000	-1

Instrument amount = a0 + response * a1 + response^2 * a2; LIN0=Linear regression including 0,0 point

1066383948001

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 281271 METALS Soil
EPA 7471B

Inst : MET44
Calnum : 1066383948001 Cal Date : 22-SEP-2016

ICV 1066383948007 (22-SEP-2016) stds: S30977

Analyte	Spiked	Quant	Units	%D	Max	Flags
Mercury	5.000	4.923	ug/L	-2	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 281271 METALS Soil
EPA 7471B

Inst : MET44 IDF : 1.0
Seqnum : 1066383948008.1 File : met44 Time : 22-SEP-2016 15:16
Cal : 1066383948001 Caldate : 22-SEP-2016

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 281271 METALS Soil
EPA 7471B

Inst : MET44 IDF : 1.0
Seqnum : 1066383948065.1 File : met44 Time : 22-SEP-2016 16:25
Cal : 1066383948001 Caldate : 22-SEP-2016
Standards: S30978

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0099	0.0092	5.000	4.630	ug/L	-7	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 281271 METALS Soil
EPA 7471B

Inst : MET44 IDF : 1.0
Seqnum : 1066383948066.1 File : met44 Time : 22-SEP-2016 16:26
Cal : 1066383948001 Caldate : 22-SEP-2016

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 281271 METALS Soil
EPA 7471B

Inst : MET44 IDF : 1.0
Seqnum : 1066383948077.1 File : met44 Time : 22-SEP-2016 16:40
Cal : 1066383948001 Caldate : 22-SEP-2016
Standards: S30978

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0099	0.0094	5.000	4.711	ug/L	-6	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 281271 METALS Soil
EPA 7471B

Inst : MET44 IDF : 1.0
Seqnum : 1066383948078.1 File : met44 Time : 22-SEP-2016 16:41
Cal : 1066383948001 Caldate : 22-SEP-2016

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 281271 METALS Soil
EPA 7471B

Inst : MET44 IDF : 1.0
Seqnum : 1066383948089.1 File : met44 Time : 22-SEP-2016 16:53
Cal : 1066383948001 Caldate : 22-SEP-2016
Standards: S30978

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0099	0.0093	5.000	4.651	ug/L	-7	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 281271 METALS Soil
EPA 7471B

Inst : MET44 IDF : 1.0
Seqnum : 1066383948090.1 File : met44 Time : 22-SEP-2016 16:55
Cal : 1066383948001 Caldate : 22-SEP-2016

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 281271 METALS Soil
EPA 7471B

Inst : MET44 IDF : 1.0
Seqnum : 1066383948101.1 File : met44 Time : 22-SEP-2016 17:07
Cal : 1066383948001 Caldate : 22-SEP-2016
Standards: S30978

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0099	0.0093	5.000	4.681	ug/L	-6	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 281271 METALS Soil
EPA 7471B

Inst : MET44 IDF : 1.0
Seqnum : 1066383948102.1 File : met44 Time : 22-SEP-2016 17:08
Cal : 1066383948001 Caldate : 22-SEP-2016

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 281271 METALS Soil
EPA 7471B

Inst : MET44 IDF : 1.0
Seqnum : 1066383948113.1 File : met44 Time : 22-SEP-2016 17:21
Cal : 1066383948001 Caldate : 22-SEP-2016
Standards: S30978

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0099	0.0094	5.000	4.701	ug/L	-6	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 281271 METALS Soil
EPA 7471B

Inst : MET44 IDF : 1.0
Seqnum : 1066383948114.1 File : met44 Time : 22-SEP-2016 17:22
Cal : 1066383948001 Caldate : 22-SEP-2016

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 281271 METALS Soil
EPA 7471B

Inst : MET44 IDF : 1.0
Seqnum : 1066383948119.1 File : met44 Time : 22-SEP-2016 17:30
Cal : 1066383948001 Caldate : 22-SEP-2016
Standards: S30978

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0099	0.0095	5.000	4.762	ug/L	-5	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 281271 METALS Soil
EPA 7471B

Inst : MET44 IDF : 1.0
Seqnum : 1066383948120.1 File : met44 Time : 22-SEP-2016 17:31
Cal : 1066383948001 Caldate : 22-SEP-2016

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 281271 METALS Soil
EPA 7471B

Inst : MET44 IDF : 1.0
Seqnum : 1066383948124.1 File : met44 Time : 22-SEP-2016 17:50
Cal : 1066383948001 Caldate : 22-SEP-2016
Standards: S30978

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0099	0.0095	5.000	4.792	ug/L	-4	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 281271 METALS Soil
EPA 7471B

Inst : MET44 IDF : 1.0
Seqnum : 1066383948125.1 File : met44 Time : 22-SEP-2016 17:51
Cal : 1066383948001 Caldate : 22-SEP-2016

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 1066389754

Instrument : MET44 Begun : 09/26/16 15:54
Method : EPA 7471B SOP Version : hg_water_rv19

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met44	ICALBLK				09/26/16 15:54	1.0		
002	met44	ICAL	ICAL1			09/26/16 15:55	1.0	1	
003	met44	ICAL	ICAL2			09/26/16 15:56	1.0	1	
004	met44	ICAL	ICAL3			09/26/16 15:57	1.0	1	
005	met44	ICAL	ICAL4			09/26/16 15:58	1.0	1	
006	met44	ICAL	ICAL5			09/26/16 15:59	1.0	1	
007	met44	ICV				09/26/16 16:00	1.0	2	
008	met44	ICB				09/26/16 16:01	1.0		
009	met44	BLANK	QC853072	Soil	239490	09/26/16 16:03	1.0		
010	met44	BS	QC853073	Soil	239490	09/26/16 16:04	1.0		
011	met44	BSD	QC853074	Soil	239490	09/26/16 16:05	1.0		
012	met44	MSS	281256-001	Soil	239490	09/26/16 16:06	1.0		1:HG=13
013	met44	MS	QC853075	Soil	239490	09/26/16 16:07	1.0		
014	met44	MSD	QC853076	Soil	239490	09/26/16 16:09	1.0		
015	met44	SER	QC853077	Soil	239490	09/26/16 16:10	5.0		
016	met44	SAMPLE	281271-018	Soil	239490	09/26/16 16:11	1.0		
017	met44	SAMPLE	281271-019	Soil	239490	09/26/16 16:12	1.0		
018	met44	SAMPLE	281271-020	Soil	239490	09/26/16 16:13	1.0		
019	met44	CCV				09/26/16 16:14	1.0	3	
020	met44	CCB				09/26/16 16:15	1.0		
021	met44	SAMPLE	281271-021	Soil	239490	09/26/16 16:17	1.0		
022	met44	SAMPLE	281271-022	Soil	239490	09/26/16 16:18	1.0		
023	met44	SAMPLE	281271-023	Soil	239490	09/26/16 16:19	1.0		
024	met44	SAMPLE	281271-024	Soil	239490	09/26/16 16:20	1.0		
025	met44	SAMPLE	281271-025	Soil	239490	09/26/16 16:21	1.0		
026	met44	SAMPLE	281271-026	Soil	239490	09/26/16 16:22	1.0		
027	met44	SAMPLE	281271-027	Soil	239490	09/26/16 16:23	1.0		
028	met44	SAMPLE	281319-001	Soil	239490	09/26/16 16:24	1.0		
029	met44	SAMPLE	281319-002	Soil	239490	09/26/16 16:25	1.0		
030	met44	SAMPLE	281323-001	Miscell.	239490	09/26/16 16:27	1.0		
031	met44	CCV				09/26/16 16:28	1.0	3	
032	met44	CCB				09/26/16 16:29	1.0		
033	met44	SAMPLE	281340-001	Miscell.	239490	09/26/16 16:30	1.0		
034	met44	SAMPLE	281341-001	Soil	239490	09/26/16 16:31	1.0		
035	met44	SAMPLE	281348-001	Miscell.	239490	09/26/16 16:32	1.0		
036	met44	SAMPLE	281350-001	Miscell.	239490	09/26/16 16:33	1.0		
037	met44	SAMPLE	281356-001	Miscell.	239490	09/26/16 16:35	1.0		
038	met44	SAMPLE	281357-001	Miscell.	239490	09/26/16 16:36	1.0		
039	met44	MSS	281256-001	Soil	239490	09/26/16 16:37	2.0		
040	met44	X	RINSE			09/26/16 16:38	1.0		
041	met44	CCV				09/26/16 16:39	1.0	3	
042	met44	CCB				09/26/16 16:40	1.0		

LCS 09/26/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 42.

Standards used: 1=S31002 2=S31004 3=S31005

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 281271 METALS Soil: EPA 7471B

Inst : MET44
Calnum : 1066389754001
Units : ug/L

Date : 26-SEP-2016 15:54
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met44	1066389754002	ICAL1	26-SEP-2016 15:55	S31002 (500X)
L2	met44	1066389754003	ICAL2	26-SEP-2016 15:56	S31002 (200X)
L3	met44	1066389754004	ICAL3	26-SEP-2016 15:57	S31002 (50X)
L4	met44	1066389754005	ICAL4	26-SEP-2016 15:58	S31002 (20X)
L5	met44	1066389754006	ICAL5	26-SEP-2016 15:59	S31002 (10X)

Analyte	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Mercury	0.0130	0.0132	0.0139	0.0138	0.0135	LIN0	-0.0192	74.1077		0.0135	1.000	.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Mercury	0.2000	-13	0.5000	-6	2.0000	2	5.0000	2	10.000	-1

Instrument amount = a0 + response * a1 + response^2 * a2; LIN0=Linear regression including 0,0 point

1066389754001

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 281271 METALS Soil
EPA 7471B

Inst : MET44
Calnum : 1066389754001 Cal Date : 26-SEP-2016

ICV 1066389754007 (26-SEP-2016) stds: S31004

Analyte	Spiked	Quant	Units	%D	Max	Flags
Mercury	5.000	5.139	ug/L	3	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 281271 METALS Soil
EPA 7471B

Inst : MET44 IDF : 1.0
Seqnum : 1066389754008.1 File : met44 Time : 26-SEP-2016 16:01
Cal : 1066389754001 Caldate : 26-SEP-2016

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 281271 METALS Soil
EPA 7471B

Inst : MET44 IDF : 1.0
Seqnum : 1066389754019.1 File : met44 Time : 26-SEP-2016 16:14
Cal : 1066389754001 Caldate : 26-SEP-2016
Standards: S31005

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0135	0.0139	5.000	5.131	ug/L	3	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 281271 METALS Soil
EPA 7471B

Inst : MET44 IDF : 1.0
Seqnum : 1066389754020.1 File : met44 Time : 26-SEP-2016 16:15
Cal : 1066389754001 Caldate : 26-SEP-2016

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 281271 METALS Soil
EPA 7471B

Inst : MET44 IDF : 1.0
Seqnum : 1066389754031.1 File : met44 Time : 26-SEP-2016 16:28
Cal : 1066389754001 Caldate : 26-SEP-2016
Standards: S31005

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0135	0.0140	5.000	5.183	ug/L	4	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 281271 METALS Soil
EPA 7471B

Inst : MET44 IDF : 1.0
Seqnum : 1066389754032.1 File : met44 Time : 26-SEP-2016 16:29
Cal : 1066389754001 Caldate : 26-SEP-2016

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

SAMPLE PREPARATION SUMMARY

Batch # : 239404
Started By : LCS
Method : METHOD
Spike #1 ID : S30975

Prep Date : 22-SEP-2016 12:20

Analysis : HG
Finished By : LCS
Units : g

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
281256-001		Soil	.65	50	1	76.92						(rebatched)	
281257-005		Soil	.62	50	1	80.65						T22/HG	
281271-001		Soil	.63	50	1	79.37						T22/HG	
281271-002		Soil	.62	50	1	80.65						T22/HG	
281271-003		Soil	.65	50	1	76.92						T22/HG	
281271-004		Soil	.61	50	1	81.97						T22/HG	
281271-005		Soil	.64	50	1	78.13						T22/HG	
281271-006		Soil	.62	50	1	80.65						T22/HG	
281271-007		Soil	.55	50	1	90.91						T22/HG	
281271-008		Soil	.57	50	1	87.72						T22/HG	
281271-009		Soil	.57	50	1	87.72						T22/HG	
281271-010		Soil	.61	50	1	81.97						T22/HG	
281271-011		Soil	.58	50	1	86.21						T22/HG	
281271-012		Soil	.62	50	1	80.65						T22/HG	
281271-013		Soil	.6	50	1	83.33						T22/HG	
281271-014		Soil	.65	50	1	76.92						T22/HG	
281271-015		Soil	.59	50	1	84.75						T22/HG	
281271-016		Soil	.64	50	1	78.13						T22/HG	
281271-017		Soil	.6	50	1	83.33						T22/HG	
281276-001		Soil	.6	50	1	83.33						T22/HG	
QC852720	BLANK	Soil	.58	50	1	86.21							
QC852721	BS	Soil	.58	50	1	86.21		1.25					
QC852722	BSD	Soil	.63	50	1	79.37		1.25					
QC852723	MS	Soil	.56	50	1	89.29		1.25					
QC852724	MSD	Soil	.61	50	1	81.97		1.25					
QC852725	SER	Soil	.65	50	1	76.92							

LCS 09/23/16 : Sending MSS for redo

PRW 09/23/16 : Matrix spikes QC852723,QC852724 (batch 239404) were not reported because the parent sample was reextracted in another batch.

Analyst: LCS Date: 09/22/16 Reviewer: PRW Date: 09/23/16

Soil Digestion for Mercury

Curtis & Tompkins, Ltd.

LIMS Batch #: 239404 Digestion Method: ☒ EPA 7471A/ 7471B

BK3932

Date Digested: 9/22/16 ☐ _____

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Sample #	container ID	Sample Weight (g)	Final Volume (mL)	Filtered? (y/n)	Comments
MB		.58	☑ 50 ☐	y	
BS		.58	☑ 50 ☐		
BSD		.63	☑ 50 ☐		
MS		.56	☑ 50 ☐		
MSD		.61	☑ 50 ☐		
281256-001	B	.65	☑ 50 ☐		MSS
281257-005		.62	☑ 50 ☐		C: 1-4@ 50 g.ea
281276-001	B	.6	☑ 50 ☐		
281271-001	A	.63	☑ 50 ☐		
-002		.62	☑ 50 ☐		
-003		.65	☑ 50 ☐		
-004		.61	☑ 50 ☐		
-005		.64	☑ 50 ☐		
-006		.62	☑ 50 ☐		
-007		.55	☑ 50 ☐		
-008		.57	☑ 50 ☐		
-009		.57	☑ 50 ☐		
-010		.61	☑ 50 ☐		
-011		.58	☑ 50 ☐		
-012		.62	☑ 50 ☐		
-013		.6	☑ 50 ☐		
-014		.65	☑ 50 ☐		
-015		.59	☑ 50 ☐		
-016		.64	☑ 50 ☐		
-017		.6	☑ 50 ☐		

Balance ID: Hg calibration has been checked? ☒ Yes ☐ No

	Reagent ID/ LIMS# / Time	Initials / Date
Digestion Tubes, Lot #	EK16244	YJ 9/22
Blank/LCS 'matrix' ID	D1069103 LJ 9/22	
1.25 mL of spike standard was added to all spikes	S30975	
☒ **CAL digested with this batch? ICAL Std S#**	S30976	
ICV / CCV LIMS S#	S30977 / S30978	
Digestion Temperature (°C), and Probe Location	94 / 16	
Digestion block ID	Denali	
Thermometer #	L91303	
Digestion Started at (time)	12:20	
Aqua Regia (HNO3+ HCl) Reagent ID	09.22.16	
5% $KMnO_4$ reagent ID	09.12.16	
NaCl.hydroxylamine hydrochloride Reagent ID	09.12.16	
Stannous Chloride Reagent ID	09.22.16	
Digestion Completd at (time)	12:50	
☒ filtered thru' 0.45 um syringe filter (lot #)	VWR 12850079	

Pipettes

Vol.(mL)	ID
.1	J28153D
.25-1	G156936
1.25-5	L34078D
6-10	R22910D

LCS 9/22/16

Prep Chemist / Date

Continued from page _____

Continued on page _____

Reviewed Online / See LIMS

Version 7, Dec.2015

SAMPLE PREPARATION SUMMARY

Batch # : 239490
Started By : LCS
Method : METHOD
Spike #1 ID : S31002

Prep Date : 26-SEP-2016 12:10

Analysis : HG
Finished By : LCS
Units : g

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
281256-001		Soil	.6	50	1	83.33						T22/HG	
281271-018		Soil	.61	50	1	81.97						T22/HG	
281271-019		Soil	.64	50	1	78.13						T22/HG	
281271-020		Soil	.6	50	1	83.33						T22/HG	
281271-021		Soil	.6	50	1	83.33						T22/HG	
281271-022		Soil	.59	50	1	84.75						T22/HG	
281271-023		Soil	.58	50	1	86.21						T22/HG	
281271-024		Soil	.57	50	1	87.72						T22/HG	
281271-025		Soil	.65	50	1	76.92						T22/HG	
281271-026		Soil	.62	50	1	80.65						T22/HG	
281271-027		Soil	.64	50	1	78.13						T22/HG	
281319-001		Soil	.6	50	1	83.33						T22/HG	
281319-002		Soil	.56	50	1	89.29						T22/HG	
281323-001		Miscell.	.64	50	1	78.13						T22/HG	
281340-001		Miscell.	.55	50	1	90.91						T22/HG	
281341-001		Soil	.58	50	1	86.21						T22/HG	
281348-001		Miscell.	.6	50	1	83.33						T22/HG	
281350-001		Miscell.	.65	50	1	76.92						T22/HG	
281356-001		Miscell.	.63	50	1	79.37						T22/HG	
281357-001		Miscell.	.61	50	1	81.97						T22/HG	
QC853072	BLANK	Soil	.64	50	1	78.13							
QC853073	BS	Soil	.6	50	1	83.33		1.25					
QC853074	BSD	Soil	.65	50	1	76.92		1.25					
QC853075	MS	Soil	.61	50	1	81.97		1.25					
QC853076	MSD	Soil	.62	50	1	80.65		1.25					
QC853077	SER	Soil	.6	50	1	83.33							

Analyst: LCS Date: 09/26/16 Reviewer: PRW Date: 09/26/16

Soil Digestion for Mercury

Curtis & Tompkins, Ltd.

LIMS Batch #: 239490 Digestion Method: ☒ EPA 7471A/ 7471B

BK3932

Date Digested: 9/26/16 ☐ _____

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Sample #	container ID	Sample Weight (g)	Final Volume (mL)	Filtered? (y/n)	Comments
MB		.64	☒ 50 ☐	y	
BS		.60 SS 9/26	☒ 50 ☐		
BSD		.65	☒ 50 ☐		
MS		.61	☒ 50 ☐		
MSD		.62	☒ 50 ☐		
281256-001	B	.6	☒ 50 ☐		MSS
281271-018	A	.61	☒ 50 ☐		
-019		.64	☒ 50 ☐		
-020		.6	☒ 50 ☐		
-021		.6	☒ 50 ☐		
-022		.59	☒ 50 ☐		
-023		.58	☒ 50 ☐		
-024		.57	☒ 50 ☐		
-025		.65	☒ 50 ☐		
-026		.62	☒ 50 ☐		
-027		.64	☒ 50 ☐		
281319-001	G	.6	☒ 50 ☐		
-002	G	.56	☒ 50 ☐		
281323-001	C	.64	☒ 50 ☐		
281340-001	B	.55	☒ 50 ☐		Oil Sample
281341-001	B	.58	☒ 50 ☐		
281348-001	A	.6	☒ 50 ☐		
281350-001	C	.65	☒ 50 ☐		
281356-001	A	.63	☒ 50 ☐		
281357-001	A	.61	☒ 50 ☐		

Balance ID: Hg calibration has been checked? ☒ Yes ☐ No

Reagent ID/ LIMS# / Time	Initials / Date
Digestion Tubes, Lot #	EK16244
Blank/LCS 'matrix' ID	D160910-3
1.25 mL of spike standard was added to all spikes	S31002
☒ CAL digested with this batch? ICAL Std S#	S31003
ICV / CCV LIMS S#	S3100A/S3100S
Digestion Temperature (°C), and Probe Location	97 / 18
Digestion block ID	Denali
Thermometer #	L91308
Digestion Started at (time)	12:10
Aqua Regia (HNO3+ HCl) Reagent ID	09.26.16
5% $KMnO_4$ reagent ID	09.23.16
NaCl.hydroxylamine hydrochloride Reagent ID	09.12.16
Stannous Chloride Reagent ID	09.26.16
Digestion Completd at (time)	12:45
☒ filtered thru' 0.45 um syringe filter (lot #)	SS60079103

Pipettes

Vol.(mL)	ID
.1	J28153D
.25-1	G156936
1.25-5	L340786D
6-10	R229101D

9/26/16

Prep Chemist / Date

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Reviewed Online / See LIMS

Version 7, Dec.2015

Dilutions for 281271 METALS Soil
Curtis & Tompkins Laboratories

Type	Sample ID	IDFs
SAMPLE	281271-001	1X, 25X
SAMPLE	281271-002	1X, 25X
SAMPLE	281271-003	1X, 25X
SAMPLE	281271-004	1X, 25X
SAMPLE	281271-005	1X, 25X
SAMPLE	281271-006	1X, 25X
SAMPLE	281271-007	1X, 25X
SAMPLE	281271-008	1X, 25X
SAMPLE	281271-009	1X, 25X
SAMPLE	281271-010	1X, 25X
SAMPLE	281271-011	1X, 25X
SAMPLE	281271-012	1X, 25X
SAMPLE	281271-013	1X, 25X
SAMPLE	281271-014	1X, 25X
SAMPLE	281271-015	1X, 25X
SAMPLE	281271-016	1X, 25X
SAMPLE	281271-017	1X, 25X
SAMPLE	281271-018	1X, 25X
SAMPLE	281271-019	1X, 25X
SAMPLE	281271-020	1X, 25X
SAMPLE	281271-021	1X, 25X
SAMPLE	281271-022	1X, 25X
SAMPLE	281271-023	1X, 25X
SAMPLE	281271-024	1X, 25X
SAMPLE	281271-025	1X, 25X
SAMPLE	281271-026	1X, 25X
SAMPLE	281271-027	1X, 25X

Type	Sample ID	IDFs
SER	QC852725	5X
SER	QC853077	5X
BLANK	QC853199	25X
BS	QC853200	25X
BSD	QC853201	25X
MS	QC853202	25X
MSD	QC853203	25X
BLANK	QC853290	25X
BS	QC853291	25X
BSD	QC853292	25X
MS	QC853293	25X
MSD	QC853294	25X
SER	QC853295	125X
PDS	QC853296	25X

CAS Registry Numbers for 281271 METALS Soil
Curtis & Tompkins Laboratories

Analyte	CAS RN
Antimony	7440-36-0
Arsenic	7440-38-2
Barium	7440-39-3
Beryllium	7440-41-7
Cadmium	7440-43-9
Chromium	7440-47-3
Cobalt	7440-48-4
Copper	7440-50-8
Lead	7439-92-1
Mercury	7439-97-6
Molybdenum	7439-98-7
Nickel	7440-02-0
Selenium	7782-49-2
Silver	7440-22-4
Thallium	7440-28-0
Vanadium	7440-62-2
Zinc	7440-66-6

Laboratory Job Number 281271

ANALYTICAL REPORT

Wet Chemistry

Matrix: Soil

Percent Moisture Summary Report

Batch: 239466
Date: 09/25/16
Method: CLP SOW 390
Analyst: MFV

Sample	Tare (g)	Wet (g)	Dry (g)	Percent Solids	Percent Moisture
281271-001	11.3200	18.0182	17.7833	96	4
281271-002	11.3796	17.7491	17.5092	96	4
281271-003	11.0631	17.8447	17.5946	96	4
281271-004	11.3271	18.0740	17.7888	96	4
281271-005	11.0604	17.6109	17.3548	96	4
281271-006	11.0246	17.1714	16.9322	96	4
281271-007	11.2685	17.0643	16.8590	96	4
281271-008	11.6404	18.0623	17.8126	96	4
281271-009	11.3216	17.4565	17.2619	97	3
281271-010	11.4175	17.8251	17.6009	97	3
281271-011	11.1585	17.7483	17.6328	98	2
281271-012	11.3587	18.0081	17.7914	97	3
281271-013	11.2458	16.7610	16.6631	98	2
281271-014	11.1497	17.7477	17.5081	96	4
281271-015	10.9688	16.5557	16.4532	98	2
281271-016	11.0368	18.0962	17.8048	96	4
281271-017	11.0414	17.6257	17.3999	97	3
281271-018	11.0327	17.2761	17.0643	97	3
281271-019	11.0170	17.2736	17.0361	96	4
281271-020	11.3719	17.3104	17.0917	96	4
QC852972	11.3676	16.8567	16.6444	96	4
of 281271-020			RPD:	0.2%	4.9%

Percent Moisture Summary Report

Batch: 239466
Date: 09/25/16
Method: CLP SOW 390
Analyst: MFV

Sample	Tare (g)	Wet (g)	Dry (g)	Percent Solids	Percent Moisture
281271-001	11.3200	18.0182	17.7833	96	4
281271-002	11.3796	17.7491	17.5092	96	4
281271-003	11.0631	17.8447	17.5946	96	4
281271-004	11.3271	18.0740	17.7888	96	4
281271-005	11.0604	17.6109	17.3548	96	4
281271-006	11.0246	17.1714	16.9322	96	4
281271-007	11.2685	17.0643	16.8590	96	4
281271-008	11.6404	18.0623	17.8126	96	4
281271-009	11.3216	17.4565	17.2619	97	3
281271-010	11.4175	17.8251	17.6009	97	3
281271-011	11.1585	17.7483	17.6328	98	2
281271-012	11.3587	18.0081	17.7914	97	3
281271-013	11.2458	16.7610	16.6631	98	2
281271-014	11.1497	17.7477	17.5081	96	4
281271-015	10.9688	16.5557	16.4532	98	2
281271-016	11.0368	18.0962	17.8048	96	4
281271-017	11.0414	17.6257	17.3999	97	3
281271-018	11.0327	17.2761	17.0643	97	3
281271-019	11.0170	17.2736	17.0361	96	4
281271-020	11.3719	17.3104	17.0917	96	4
QC852972	11.3676	16.8567	16.6444	96	4
of 281271-020			RPD:	0.2%	4.9%

Moisture LOG **Curtis & Tompkins, Ltd.**

LIMS Batch #: 239466
Date: 9-25-16

Page: **85**
Benchbook#: **BK 3889**
Scale Used
☑ Leachates Analytical
☐ _____

Sample # / Letter	Dish #	Dish Weight (g)	Sample + Dish Wt (g)	Final Weight (g)	*Comments
BLK	27	11.2730	∅	11.2730	
281271-001 A	57	11.3200	18.0182	17.7833	
-002	16	11.3796	17.7491	17.5092	
-003	60	11.0631	17.8447	17.5946	
-004	36	11.3271	18.0740	17.7888	
-005	28	11.0604	17.6109	17.3548	
-006	34	11.0246	17.1714	16.9322	
-007	52	11.2685	17.0643	16.8590	
-008	15	11.6404	18.0623	17.8126	
-009	26	11.3216	17.4565	17.2619	
-010	11	11.4175	17.8251	17.6009	
-011	47	11.1585	17.7483	17.6328	
-012	56	11.3587	18.0081	17.7914	
-013	59	11.2458	16.7610	16.6631	
-014	48	11.1497	17.7477	17.5081	
-015	7	10.9688	16.5557	16.4532	
-016	49	11.0368	18.0962	17.8048	
-017	64	11.0414	17.6257	17.3999	
-018	73	11.0327	17.2761	17.0643	
-019	23	11.0170	17.2736	17.0361	
-020	41	11.3719	17.3104	17.0917	
SRM -020	93	11.3676	16.8567	16.6444	

Date/ Time IN: 9-25-16 0345
Temp (C) IN: 104
Date/ Time OUT: 9-25-16 23:45
Temp (C) OUT: 104°C

9-25-16
Extraction Chemist **Date**

Reviewed Online / See LIMS

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PROJECT AE163 METTLER

Notebook No. BK2394

Continued From Page

DATE	ANALYST	0.2000	100.0000	LEVEL	SET#
8-25-16	MN	0.2000	99.9999	✓	9907
8-26-16	MN	0.2000	99.9998	✓	9907
8-30-16	MN	0.2000	100.0001	✓	9907
8-31-16	MN	0.2000	100.0001	✓	9907
9-3-16	MN	0.2000	100.0000	✓	9907
9-12-16	VV	0.2002	99.9993	✓	9907
9-13-16	VV	0.2000	99.9998	✓	9907
9-14-16	VV	0.2000	99.9997	✓	9907
9-19-16	VV	0.2001	100.0001	✓	9907
9-20-16	MN	0.2001	100.0010	✓	9907
9-21-16	MN	0.2000	99.9997	✓	9907
9-22-16	MN	0.2000	99.9998	✓	9907
9-25-16	MN	0.2000	100.0000	✓	9907

Continued on Page

Read and Understood By

Signed Date Signed Date

Percent Moisture Summary Report

Batch: 239465
Date: 09/25/16
Method: CLP SOW 390
Analyst: MFV

Sample	Tare (g)	Wet (g)	Dry (g)	Percent Solids	Percent Moisture
280503-004	11.2201	17.6872	17.5593	98	2
280503-005	11.2051	17.3611	16.9908	94	6
280503-006	11.3190	18.4630	18.4091	99	1
280503-007	11.0594	16.5859	16.5574	99	1
280503-024	11.2533	17.7589	17.5996	98	2
280503-025	11.3698	18.7927	18.5415	97	3
280503-026	11.3626	18.3006	15.9620	66	34
280503-027	11.3568	17.6796	16.5255	82	18
280503-028	11.3220	18.2902	18.2487	99	1
280503-029	11.1811	18.1709	18.0628	98	2
280503-030	11.3621	17.9001	17.7531	98	2
280503-031	11.6396	16.8353	16.6233	96	4
281271-021	11.3717	17.8998	17.6831	97	3
281271-022	11.0769	17.0733	16.9687	98	2
281271-023	10.8919	17.3582	17.2379	98	2
281271-024	11.4260	19.0967	18.9630	98	2
281271-025	10.9990	18.2143	18.0867	98	2
281271-026	10.8939	16.8145	16.6104	97	3
281271-027	11.3289	17.6762	17.5670	98	2
QC852971	11.3157	17.2835	17.1371	98	2
of 280503-004			RPD:	0.5%	21.5%

Moisture LOG **Curtis & Tompkins, Ltd.**

LIMS Batch #: 239465
Date: 9-25-16

Page: **84**
Benchbook#: **BK 3889**
Scale Used
☑ Leachates Analytical
☐ _____

Sample # / Letter	Dish #	Dish Weight (g)	Sample + Dish Wt (g)	Final Weight (g)	*Comments
BLK	22	11.2629	Ø	11.2630	
280503-004 A	69	11.2201	17.6872	17.5593	
-005	85	11.2051	17.3611	16.9908	
-006	54	11.3190	18.4630	18.4091	
-007	14	11.0594	16.5859	16.5574	
-024	4	11.2533	17.7589	17.5996	
-025	94	11.3698	18.7927	18.5415	
-026	37	11.3626	18.3006	15.9620	
-027	45	11.3568	17.6796	16.5255	
-028	9	11.3220	18.2902	18.2487	
-029	1	11.1811	18.1709	18.0628	
-030	81	11.3621	17.9001	17.7531	
-031	31	11.6396	16.8353	16.6233	
281271-021	30	11.3717	17.8998	17.6831	
-022	55	11.0769	17.0733	16.9687	
-023	33	10.8919	17.3582	17.2379	
-024	29	11.4260	19.0967	18.9630	
-025	53	10.9990	18.2143	18.0867	
-026	42	10.8939	16.8145	16.6104	
-027	91	11.3289	17.6762	17.5670	
280503-004	32	11.3157	17.2835	17.1371	SDUP

Date/ Time IN: 9-25-16 0315
Temp (C) IN: 104
Date/ Time OUT: 9-25-16 2345
Temp (C) OUT: 104°C

9-25-16
Extraction Chemist **Date**

Reviewed Online / See LIMS

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PROJECT AE163 METTLER

Notebook No. BK2394

Continued From Page

DATE	ANALYST	0.2000	100.0000	LEVEL	SET#
8-25-16	MN	0.2000	99.9999	✓	9907
8-26-16	MN	0.2000	99.9998	✓	9907
8-30-16	MN	0.2000	100.0001	✓	9907
8-31-16	MN	0.2000	100.0001	✓	9907
9-3-16	MN	0.2000	100.0000	✓	9907
9-12-16	VV	0.2002	99.9993	✓	9907
9-13-16	VV	0.2000	99.9998	✓	9907
9-14-16	VV	0.2000	99.9997	✓	9907
9-19-16	VV	0.2001	100.0001	✓	9907
9-20-16	MN	0.2001	100.0010	✓	9907
9-21-16	MN	0.2000	99.9997	✓	9907
9-22-16	MN	0.2000	99.9998	✓	9907
9-25-16	MN	0.2000	100.0000	✓	9907

Continued on Page

Read and Understood By

Signed Date Signed Date

(b) (4)

(b) (4)

(b) (4)

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 283597
ANALYTICAL REPORT

CB&I
4005 Port Chicago Highway
Concord, CA 94520-1120

Project : 149831
Location : HPNS Parcel D-1
Level : III

Sample ID	Lab ID
BS-DULTRA-01-112116	283597-001
BS-DULTRA-02-112116	283597-002
BS-DULTRA-03-112116	283597-003
BS-DULTRA-04-112116	283597-004
BS-DULTRA-05-112116	283597-005
BS-DULTRA-06-112116	283597-006
BS-DULTRA-07-112116	283597-007
BS-DULTRA-08-112116	283597-008
BS-DULTRA-09-112116	283597-009
BS-DULTRA-10-112116	283597-010
BS-DULTRA-11-112116	283597-011
BS-DULTRA-12-112116	283597-012
BS-DULTRA-13-112116	283597-013
BS-DULTRA-14-112116	283597-014
BS-DULTRA-15-112116	283597-015
BS-DULTRA-16-112116	283597-016
BS-DULTRA-17-112116	283597-017
BS-DULTRA-18-112116	283597-018
BS-DULTRA-19-112116	283597-019
BS-DULTRA-20-112116	283597-020

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: _____ Date: 12/22/2016

Mike Dahlquist
Project Manager
mike.dahlquist@ctberk.com
(510) 204-2225 Ext 13101

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**283597**
Client:	**CB&I**
Project:	**149831**
Location:	**HPNS Parcel D-1**
Request Date:	**11/21/16**
Samples Received:	**11/21/16**

This data package contains sample and QC results for twenty soil samples, requested for the above referenced project on 11/21/16. See attached cooler receipt form for any sample receipt problems or discrepancies.

Radiation Chemistry (Ingrowth) (DOE HASL 300 4.5.2.3):
No analytical problems were encountered.

Chain of Custody

283597

CHAIN OF CUSTODY

Ref. Document # 149831-021

Page 1 of 2

4005 Port Chicago Hwy
Concord, CA 94520

Project Manager: *Lisa Bersich*
(Name & phone #)

Send Report To: *Eddie Kalombo*
Phone/Fax Number: *415-987-0760*
Address: *4005 Port Chicago Hwy*
City: *Concord, CA, 94520*

Project Number: 149831
Project Name: HPNS - Parcel D-1
Project Location: HPNS
Purchase Order #: 202570
Shipment/Pickup Date: 11/21/2016
Waybill Number:
Lab Destination: Curtis & Tompkins, 2323 5th Street, Berkeley, CA 94710
Lab Contact Name / ph. #: Mike Dahlquist 510.204.2225

Sampler's Name(s): Eddie Kalombo

Sample ID	Location ID	Collection Information: Date	Time	Method	Matrix	# of containers	Preservative	Container Type: Beginning Depth	Ending depth	Analyses Requested: Radium 226 (EPA 901.1 MOD/DOE EML HASL 300 Method GA-01-R)									Cooler Temperature
							ice			ice	ice	ice	ice	ice	ice	ice	ice		
							16 oz Jar												
BS-DUTRA-01-112116	Dutra Group	11/21/16	0800	G	SO	1	3	6	X										
BS-DUTRA-02-112116	Dutra Group	11/21/16	0810	G	SO	1	3	6	X										
BS-DUTRA-03-112116	Dutra Group	11/21/16	0815	G	SO	1	3	6	X										
BS-DUTRA-04-112116	Dutra Group	11/21/16	0822	G	SO	1	3	6	X										
BS-DUTRA-05-112116	Dutra Group	11/21/16	0830	G	SO	1	3	6	X										
BS-DUTRA-06-112116	Dutra Group	11/21/16	0835	G	SO	1	3	6	X										
BS-DUTRA-07-112116	Dutra Group	11/21/16	0840	G	SO	1	3	6	X										
BS-DUTRA-08-112116	Dutra Group	11/21/16	0850	G	SO	1	3	6	X										
BS-DUTRA-09-112116	Dutra Group	11/21/16	0855	G	SO	1	3	6	X										
BS-DUTRA-10-112116	Dutra Group	11/21/16	0900	G	SO	1	3	6	X										
Temp Blank																			X

Special Instructions: Report on Dry Weight Basis.

Turnaround Time: ☐ 24-hr ☐ 48-hr
Standard TAT -5-day ☐ 72-hr ☐ 5-day

Level of QC Required: II **III** IV / Project Specific:

Relinquished By: Date: 11.21.16 Time: 1435
Received By: Date: 11/21/16 Time: 1435
Relinquished By: Date: Time:
Received By: Date: Time:

Method Codes
LF= low flow
G = Grab

Matrix Codes
DW = Drinking Water
SO =Soil
GW = Ground Water
BW= Blank Water
WW = Waste Water
WP=Waste Product

CBI

4005 Port Chicago Hwy
Concord, CA 94520

283597

CHAIN OF CUSTODY

Ref. Document # 149831-021

Page 2 of 2

Project Manager: *Lisa Bersich*

(Name & phone #)

Send Report To: *Eddie Kalombo*
Phone/Fax Number: *415-987-0760*
Address: *4005 Port Chicago Hwy*
City: *Concord, CA, 94520*

Project Number: 149831
Project Name: HPNS - Parcel D-1
Project Location: HPNS
Purchase Order #: 202570
Shipment/Pickup Date: 11/21/2016
Waybill Number:
Lab Destination: Curtis & Tompkins, 2323 5th Street, Berkeley, CA 94710
Lab Contact Name / ph. #: Mike Dahlquist 510.204.2225

Sampler's Name(s): Eddie Kalombo

Sample ID	Location ID	Collection Information: Date	Time	Method	Matrix	# of containers	Preservative	Container Type: Beginning Depth	Ending depth	Analyses Requested: Radium 226 (EPA 901.1 MOD/DOE EML HASL 300 Method GA-01-R)									Cooler Temperature
							ice				ice	ice	ice	ice	ice	ice	ice	ice	
							16 oz Jar												
BS-DUTRA-11-112116	Dutra Group	11/21/16	0910	G	SO	1	3	6	X										
BS-DUTRA-12-112116	Dutra Group	11/21/16	0915	G	SO	1	3	6	X										
BS-DUTRA-13-112116	Dutra Group	11/21/16	0918	G	SO	1	3	6	X										
BS-DUTRA-14-112116	Dutra Group	11/21/16	0925	G	SO	1	3	6	X										
BS-DUTRA-15-112116	Dutra Group	11/21/16	0930	G	SO	1	3	6	X										
BS-DUTRA-16-112116	Dutra Group	11/21/16	0935	G	SO	1	3	6	X										
BS-DUTRA-17-112116	Dutra Group	11/21/16	0940	G	SO	1	3	6	X										
BS-DUTRA-18-112116	Dutra Group	11/21/16	0945	G	SO	1	3	6	X										
BS-DUTRA-19-112116	Dutra Group	11/21/16	0948	G	SO	1	3	6	X										
BS-DUTRA-20-112116	Dutra Group	11/21/16	0950	G	SO	1	3	6	X										
Temp Blank																			X

Special Instructions: Report on Dry Weight Basis.

Turnaround Time: ☐ 24-hr ☐ 48-hr
Standard TAT -5-day ☐ 72-hr ☐ 5-day

Level of QC Required: II III IV Project Specific:

Relinquished By: Date: 11.21.16 Time: 1435
Received By: Date: 11/21/16 Time: 1435

Relinquished By: Date: Time:
Received By: Date: Time:

Method Codes
LF= low flow
G = Grab

Matrix Codes
DW = Drinking Water
GW = Ground Water
WW = Waste Water
SO =Soil
BW= Blank Water
WP=Waste Product

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 283597 Date Received 11/21/16 Number of coolers 2
Client CBI Project HPNS

Date Opened 11/21/16 By (print) CB (sign) [signature]
Date Logged in ↓ By (print) DTN (sign) [signature]
Date Labeled ↓ By (print) CB (sign) [signature]

1. Did cooler come with a shipping slip (airbill, etc)_____ YES (NO)
Shipping info_____

2A. Were custody seals present? .... ☐ YES (circle) on cooler on samples ☒ NO
How many _____ Name_____ Date_____
2B. Were custody seals intact upon arrival? _____ YES NO (N/A)
3. Were custody papers dry and intact when received?_____ (YES) NO
4. Were custody papers filled out properly (ink, signed, etc)? _____ (YES) NO
5. Is the project identifiable from custody papers? (If so fill out top of form)___ (YES) NO
6. Indicate the packing in cooler: (if other, describe)_____

☐ Bubble Wrap ☐ Foam blocks ☒ Bags ☐ None
☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation: * Notify PM if temperature exceeds 6°C

Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C)_____

☐ Temperature blank(s) included? ☐ Thermometer#_____ ☐ IR Gun#_____

☒ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present?_____ YES (NO)
If YES, what time were they transferred to freezer?_____
9. Did all bottles arrive unbroken/unopened?_____ (YES) NO
10. Are there any missing / extra samples? _____ YES (NO)
11. Are samples in the appropriate containers for indicated tests? _____ (YES) NO
12. Are sample labels present, in good condition and complete? _____ (YES) NO
13. Do the sample labels agree with custody papers? _____ (YES) NO
14. Was sufficient amount of sample sent for tests requested? _____ (YES) NO
15. Are the samples appropriately preserved? _____ YES NO (N/A)
16. Did you check preservatives for all bottles for each sample? _____ YES NO (N/A)
17. Did you document your preservative check? (pH strip lot#_____) YES NO (N/A)
18. Did you change the hold time in LIMS for unpreserved VOAs? _____ YES NO (N/A)
19. Did you change the hold time in LIMS for preserved terracores? _____ YES NO (N/A)
20. Are bubbles > 6mm absent in VOA samples? _____ YES NO (N/A)
21. Was the client contacted concerning this sample delivery? _____ YES (NO)
If YES, Who was called?_____ By_____ Date:_____

COMMENTS

_____

_____

_____

_____

_____

_____

Curtis & Tompkins, Ltd.

Detections Summary for 283597

Results for any subcontracted analyses are not included in this summary.

Client : CB&I
Project : 149831
Location : HPNS Parcel D-1

Client Sample ID : BS-DULTRA-01-112116 Laboratory Sample ID : 283597-001

No Detections

Client Sample ID : BS-DULTRA-02-112116 Laboratory Sample ID : 283597-002

No Detections

Client Sample ID : BS-DULTRA-03-112116 Laboratory Sample ID : 283597-003

No Detections

Client Sample ID : BS-DULTRA-04-112116 Laboratory Sample ID : 283597-004

No Detections

Client Sample ID : BS-DULTRA-05-112116 Laboratory Sample ID : 283597-005

No Detections

Client Sample ID : BS-DULTRA-06-112116 Laboratory Sample ID : 283597-006

No Detections

Client Sample ID : BS-DULTRA-07-112116 Laboratory Sample ID : 283597-007

No Detections

Client Sample ID : BS-DULTRA-08-112116 Laboratory Sample ID : 283597-008

No Detections

Client Sample ID : BS-DULTRA-09-112116 Laboratory Sample ID : 283597-009

No Detections

Curtis & Tompkins, Ltd.

Client Sample ID : BS-DULTRA-10-112116 Laboratory Sample ID : 283597-010

No Detections

Client Sample ID : BS-DULTRA-11-112116 Laboratory Sample ID : 283597-011

No Detections

Client Sample ID : BS-DULTRA-12-112116 Laboratory Sample ID : 283597-012

No Detections

Client Sample ID : BS-DULTRA-13-112116 Laboratory Sample ID : 283597-013

No Detections

Client Sample ID : BS-DULTRA-14-112116 Laboratory Sample ID : 283597-014

No Detections

Client Sample ID : BS-DULTRA-15-112116 Laboratory Sample ID : 283597-015

No Detections

Client Sample ID : BS-DULTRA-16-112116 Laboratory Sample ID : 283597-016

No Detections

Client Sample ID : BS-DULTRA-17-112116 Laboratory Sample ID : 283597-017

No Detections

Client Sample ID : BS-DULTRA-18-112116 Laboratory Sample ID : 283597-018

No Detections

Client Sample ID : BS-DULTRA-19-112116 Laboratory Sample ID : 283597-019

No Detections

Curtis & Tompkins, Ltd.

Client Sample ID : BS-DULTRA-20-112116 Laboratory Sample ID : 283597-020

No Detections

Laboratory Job Number 283597

ANALYTICAL REPORT

Radiation Chemistry (Ingrowth)

Matrix: Soil

Laboratory Job Number 283597

Subcontracted Products

General Engineering Labs

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171
F 843.766.1178

gel.com

Packing Slip:

Curtis & Tompkins, Ltd.
Hunter's Point Project Number:
SDG: 411335
Attn:John Goyette

Table of Contents

DODQSM Cover Sheet.....1

Case Narrative.....3

Chain of Custody and Supporting Documentation.....6

Laboratory Certifications.....10

Radiological Analysis.....12

- Case Narrative.....13
- Sample Data Summary.....20
- Quality Control Summary.....41

DODQSM Cover Sheet

DOD-QSM Cover Sheet

Hunter's Point Project Number:

December 19, 2016

GEL Laboratories, LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Project Manager: Valerie Davis
Phone Extension: 4485
Email: Valerie.Davis@gel.com

Contract Purchase Order: GELP14- 283597

Work Order: 411335 **SDG:** 411335

Client Contact:
John Goyette
Curtis & Tompkins, Ltd.
2323 5th Street
Berkeley, California 94710

Project Identification: Hunter's Point Project Number:

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

GEL appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on November 23, 2016. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures. If you have any questions, please do not hesitate to contact me at the phone number or e-mail address listed above.

Sincerely,

Linda Pullano for
Valerie Davis
Project Manager

Case Narrative

DODQSM Case Narrative
for
Curtis & Tompkins, Ltd.
SDG: 411335

December 19, 2016

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary

Sample Receipt The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on November 23, 2016 for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. There are no additional comments concerning sample receipt.

Sample Identification The laboratory received the following samples:

Laboratory ID	Client ID
411335001	BS-DULTRA-01-112116
411335002	BS-DULTRA-02-112116
411335003	BS-DULTRA-03-112116
411335004	BS-DULTRA-04-112116
411335005	BS-DULTRA-05-112116
411335006	BS-DULTRA-06-112116
411335007	BS-DULTRA-07-112116
411335008	BS-DULTRA-08-112116
411335009	BS-DULTRA-09-112116
411335010	BS-DULTRA-10-112116
411335011	BS-DULTRA-11-112116
411335012	BS-DULTRA-12-112116
411335013	BS-DULTRA-13-112116
411335014	BS-DULTRA-14-112116
411335015	BS-DULTRA-15-112116
411335016	BS-DULTRA-16-112116
411335017	BS-DULTRA-17-112116
411335018	BS-DULTRA-18-112116
411335019	BS-DULTRA-19-112116
411335020	BS-DULTRA-20-112116

The enclosed data package contains the following sections: General Narrative, Chain of Custody and Supporting Documentation, and data from the following fractions: Radiochemistry.

Linda Pullano for
Valerie Davis
Project Manager

Chain of Custody and Supporting Documentation

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878
2323 Fifth Street
Berkeley, CA 94710
(510) 486-0900
(510) 486-0532

Project Number: 283597
Site: HPNS Parcel D-1

4/1335

Subcontract Laboratory:
General Engineering Labs
2040 Savage Road
Charleston, SC 29407
(843) 556-8171
ATTN: Valerie Davis

Results due: Report Level: III

Please send report to: Mike Dahlquist (mike.dahlquist@ctberk.com)
*** Please report using Sample ID rather than C&T Lab #.

Sample ID	Sampled	Matrix	Analysis	C&T Lab #	Comments
BS-DULTRA-01-112116	11/21 08:00	Soil	RA226	283597-001	
BS-DULTRA-02-112116	11/21 08:10	Soil	RA226	283597-002	
BS-DULTRA-03-112116	11/21 08:15	Soil	RA226	283597-003	
BS-DULTRA-04-112116	11/21 08:22	Soil	RA226	283597-004	
BS-DULTRA-05-112116	11/21 08:30	Soil	RA226	283597-005	
BS-DULTRA-06-112116	11/21 08:35	Soil	RA226	283597-006	
BS-DULTRA-07-112116	11/21 08:40	Soil	RA226	283597-007	
BS-DULTRA-08-112116	11/21 08:50	Soil	RA226	283597-008	
BS-DULTRA-09-112116	11/21 08:55	Soil	RA226	283597-009	
BS-DULTRA-10-112116	11/21 09:00	Soil	RA226	283597-010	
BS-DULTRA-11-112116	11/21 09:10	Soil	RA226	283597-011	
BS-DULTRA-12-112116	11/21 09:15	Soil	RA226	283597-012	
BS-DULTRA-13-112116	11/21 09:18	Soil	RA226	283597-013	
BS-DULTRA-14-112116	11/21 09:25	Soil	RA226	283597-014	
BS-DULTRA-15-112116	11/21 09:30	Soil	RA226	283597-015	
BS-DULTRA-16-112116	11/21 09:35	Soil	RA226	283597-016	
BS-DULTRA-17-112116	11/21 09:40	Soil	RA226	283597-017	
BS-DULTRA-18-112116	11/21 09:45	Soil	RA226	283597-018	
BS-DULTRA-19-112116	11/21 09:48	Soil	RA226	283597-019	
BS-DULTRA-20-112116	11/21 09:50	Soil	RA226	283597-020	

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878
2323 Fifth Street
Berkeley, CA 94710
(510) 486-0900
(510) 486-0532

Notes:	Relinquished By:	Received By:
	dmgayer	Stacy Brown
	Date/Time: 11/22/16 @ 16:10	Date/Time: 11/23/16 9:30
	Date/Time:	Date/Time:

Signature on this form constitutes a firm Purchase Order for the services requested above.

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: CRTL	**SDG/AR/COC/Work Order:** 411335
Received By: SB	**Date Received:** 11-23-16

Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0 CPM
Classified Radioactive II or III by RSO?		✓	If yes, Were swipes taken of sample containers < action levels?
COC/Samples marked containing PCBs?		✓	
Package, COC, and/or Samples marked as beryllium or asbestos containing?		✓	If yes, samples are to be segregated as Safety Controlled Samples, and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		✓	

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*		✓		Preservation Method: Ice bags Blue ice Dry ice None Other (describe) *all temperatures are recorded in Celsius 19°C
2a	Daily check performed and passed on IR temperature gun?	✓			Temperature Device Serial #: Secondary Temperature Device Serial # (If Applicable): E5102009188
3	Chain of custody documents included with shipment?	✓			
4	Sample containers intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiring chemical preservation at proper pH?		✓		Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6	Do Low Level Perchlorate samples have headspace as required?		✓		Sample ID's and containers affected:
7	VOA vials contain acid preservation?		✓		(If unknown, select No)
8	VOA vials free of headspace (defined as < 6mm bubble)?		✓		Sample ID's and containers affected:
9	Are Encore containers present?			✓	(If yes, immediately deliver to Volatiles laboratory)
10	Samples received within holding time?	✓			ID's and tests affected:
11	Sample ID's on COC match ID's on bottles?	✓			Sample ID's and containers affected:
12	Date & time on COC match date & time on bottles?	✓			Sample ID's affected:
13	Number of containers received match number indicated on COC?	✓			Sample ID's affected:
14	Are sample containers identifiable as GEL provided?			✓	
15	COC form is properly signed in relinquished/received sections?	✓			
16	Carrier and tracking number.				Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other 7777 8018 3061

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials AOP Date 11/23/16 Page 1 of 1

GL-CHL-SR-001 Rev 3

Laboratory Certifications

List of current GEL Certifications as of 19 December 2016

State	Certification
Alaska	UST−0110
Arkansas	88−0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH−0169
Delaware	SC00012
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330−15−00283, P330−15−00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho Chemistry	SC00012
Idaho Radiochemistry	SC00012
Illinois NELAP	200029
Indiana	C−SC−01
Kansas NELAP	E−10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA170010
Maryland	270
Massachusetts	M−SC012
Michigan	9976
Mississippi	SC00012
Nebraska	NE−OS−26−13
Nevada	SC000122016−1
New Hampshire NELAP	205415
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R−158
Oklahoma	9904
Pennsylvania NELAP	68−00485
S.Carolina Radchem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235−16−11
Utah NELAP	SC000122016−21
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
West Virginia	997404

Radiological Analysis

Case Narrative

Radiochemistry
Technical Case Narrative
Curtis & Tompkins, Ltd. (CRTL)
SDG #: 411335

Method/Analysis Information

Product:	**Gammaspec, Solid Ra226**
Analytical Method:	DOE HASL 300, 4.5.2.3/Ga-01-R
Prep Method:	Dry Soil Prep
Analytical Batch Number:	1619515
Prep Batch Number:	1619322

Sample ID	Client ID
411335001	BS-DULTRA-01-112116
411335002	BS-DULTRA-02-112116
411335003	BS-DULTRA-03-112116
411335004	BS-DULTRA-04-112116
411335005	BS-DULTRA-05-112116
411335006	BS-DULTRA-06-112116
411335007	BS-DULTRA-07-112116
411335008	BS-DULTRA-08-112116
411335009	BS-DULTRA-09-112116
411335010	BS-DULTRA-10-112116
411335011	BS-DULTRA-11-112116
411335012	BS-DULTRA-12-112116
411335013	BS-DULTRA-13-112116
411335014	BS-DULTRA-14-112116
411335015	BS-DULTRA-15-112116
411335016	BS-DULTRA-16-112116
411335017	BS-DULTRA-17-112116
411335018	BS-DULTRA-18-112116
411335019	BS-DULTRA-19-112116
411335020	BS-DULTRA-20-112116
1203678315	Method Blank (MB)
1203678317	Laboratory Control Sample (LCS)
1203678316	411335001(BS-DULTRA-01-112116) Sample Duplicate (DUP)

The samples in this SDG were analyzed on a "dry weight" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-013 REV# 25.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met.

Standards Information
Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volume in this batch.

QC Information
All of the QC samples meet the required acceptance limits with the following exceptions: The sample and the duplicate,1203678316 (BS-DULTRA-01-112116DUP) and 411335001 (BS-DULTRA-01-112116), did not meet the relative percent difference requirement for Ra-226; however, they do meet the relative error ratio requirement with a value of 1.12

Designated QC
The following sample was used for QC: 411335001 (BS-DULTRA-01-112116).

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Recounts
Sample 411335018 (BS-DULTRA-18-112116) was recounted due to a detector lock out condition. The recount is reported.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Sample-Specific MDA/MDC
The MDA/MDC reported on the certificate of analysis is a sample-specific MDA/MDC.

Additional Comments
Additional comments were not required for this sample set.

Qualifier Information

Manual qualifiers were not required.

Method/Analysis Information

Product:	**Gamma, Ra226, Solid**
Analytical Method:	DOE HASL 300, 4.5.2.3/Ga-01-R
Prep Method:	Dry Soil Prep
Analytical Batch Number:	1620302
Prep Batch Number:	1619322

Sample ID	Client ID
411335001	BS-DULTRA-01-112116
411335002	BS-DULTRA-02-112116
411335003	BS-DULTRA-03-112116
411335004	BS-DULTRA-04-112116
411335005	BS-DULTRA-05-112116
411335006	BS-DULTRA-06-112116
411335007	BS-DULTRA-07-112116
411335008	BS-DULTRA-08-112116
411335009	BS-DULTRA-09-112116
411335010	BS-DULTRA-10-112116
411335011	BS-DULTRA-11-112116
411335012	BS-DULTRA-12-112116
411335013	BS-DULTRA-13-112116
411335014	BS-DULTRA-14-112116
411335015	BS-DULTRA-15-112116
411335016	BS-DULTRA-16-112116
411335017	BS-DULTRA-17-112116
411335018	BS-DULTRA-18-112116
411335019	BS-DULTRA-19-112116
411335020	BS-DULTRA-20-112116
1203680571	Method Blank (MB)
1203680573	Laboratory Control Sample (LCS)
1203680572	411335001(BS-DULTRA-01-112116) Sample Duplicate (DUP)

The samples in this SDG were analyzed on a "dry weight" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-013 REV# 25.

Calibration Information:

Calibration Information
All initial and continuing calibration requirements have been met.

Standards Information

Standard solutions for these analysis are NIST traceable or verified with a NIST traceable standard and used before the expiration dates.

Sample Geometry
All counting sources were prepared in the same geometry as the calibration standards.

Quality Control (QC) Information:

Blank Information
The blank volume is representative of the sample volume in this batch.

QC Information
All of the QC samples meet the required acceptance limits with the following exceptions: The sample and the duplicate,1203680572 (BS-DULTRA-01-112116DUP) and 411335001 (BS-DULTRA-01-112116) , did not meet the relative percent difference requirement for Ra-226; however, they do meet the relative error ratio requirement with a value of 1.90

Designated QC
The following sample was used for QC: 411335001 (BS-DULTRA-01-112116).

Technical Information:

Holding Time
All sample procedures for this sample set were performed within the required holding time.

Sample Re-prep/Re-analysis
None of the samples in this sample set required reprep or reanalysis.

Recounts
None of the samples in this sample set were recounted.

Miscellaneous Information:

Data Exception (DER) Documentation
Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

Sample-Specific MDA/MDC
The MDA/MDC reported on the certificate of analysis is a sample-specific MDA/MDC.

Additional Comments
Additional comments were not required for this sample set.

Qualifier Information

Qualifier	Reason	Analyte	Sample	Client Sample
UI	Data rejected due to low abundance.	Radium-226	411335002	BS-DULTRA-02-112116

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

CRTL001 Curtis & Tompkins, Ltd.

Client SDG: 411335 GEL Work Order: 411335

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
** Analyte is a Tracer compound
M Result above MDC and less than RDL
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
UI Gamma Spectroscopy--Uncertain identification

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Heather McCarty **Name: Heather McCarty**

Date: 20 DEC 2016 **Title: Analyst II**

Sample Data Summary

GEL LABORATORIES LLC
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Certificate of Analysis

Company : Curtis and Tompkins Laboratories
Address : 2323 5th Street
Berkeley, California 94710
Report Date: December 20, 2016
Contact: Mr. John Goyette
Project: Hunter's Point Project Number:283597

Client Sample ID: BS-DULTRA-01-112116
Sample ID: 411335001
Matrix: Soil
Collect Date: 21-NOV-16
Receive Date: 23-NOV-16
Collector: Client
Moisture: 1.87%

Project: CRTL00101
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
Gamma, Ra226, Solid "Dry Weight Corrected"														
Radium-226	M	0.682	+/-0.204	0.139	+/-0.206	1.00	pCi/g			MXR1	12/01/16	1436	1620302	1
Gammaspec, Solid Ra226 "Dry Weight Corrected"														
Radium-226		0.662	+/-0.182	0.108	+/-0.184		pCi/g			MXR1	12/19/16	0652	1619515	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	11/25/16	0723	1619322

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

GEL LABORATORIES LLC

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Certificate of Analysis

Company : Curtis and Tompkins Laboratories
Address : 2323 5th Street

Berkeley, California 94710

Report Date: December 20, 2016

Contact: Mr. John Goyette

Project: Hunter's Point Project Number:283597

Client Sample ID: BS-DULTRA-02-112116
Sample ID: 411335002
Matrix: Soil
Collect Date: 21-NOV-16
Receive Date: 23-NOV-16
Collector: Client
Moisture: 1.98%

Project: CRTL00101
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
Gamma, Ra226, Solid "Dry Weight Corrected"														
Radium-226	UI	0.00	+/-0.141	0.285	+/-0.308	1.00	pCi/g			MXR1	12/01/16	1437	1620302	1
Gammaspec, Solid Ra226 "Dry Weight Corrected"														
Radium-226		0.792	+/-0.178	0.132	+/-0.181		pCi/g			MXR1	12/19/16	0653	1619515	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	11/25/16	0723	1619322

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Certificate of Analysis

Company : Curtis and Tompkins Laboratories
Address : 2323 5th Street

Berkeley, California 94710

Report Date: December 20, 2016

Contact: Mr. John Goyette

Project: Hunter's Point Project Number:283597

Client Sample ID: BS-DULTRA-03-112116
Sample ID: 411335003
Matrix: Soil
Collect Date: 21-NOV-16
Receive Date: 23-NOV-16
Collector: Client
Moisture: 1.95%

Project: CRTL00101
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
Gamma, Ra226, Solid "Dry Weight Corrected"														
Radium-226	M	0.762	+/-0.171	0.103	+/-0.174	1.00	pCi/g			MXR1	12/01/16	1438	1620302	1
Gammaspec, Solid Ra226 "Dry Weight Corrected"														
Radium-226		0.725	+/-0.182	0.119	+/-0.193		pCi/g			MXR1	12/19/16	0742	1619515	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	11/25/16	0723	1619322

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Certificate of Analysis

Company : Curtis and Tompkins Laboratories
Address : 2323 5th Street
Berkeley, California 94710
Report Date: December 20, 2016
Contact: Mr. John Goyette
Project: Hunter's Point Project Number:283597

Client Sample ID: BS-DULTRA-04-112116
Sample ID: 411335004
Matrix: Soil
Collect Date: 21-NOV-16
Receive Date: 23-NOV-16
Collector: Client
Moisture: 1.88%

Project: CRTL00101
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
Gamma, Ra226, Solid "Dry Weight Corrected"														
Radium-226	M	0.526	+/-0.154	0.113	+/-0.156	1.00	pCi/g			MXR1	12/01/16	1438	1620302	1
Gammaspec, Solid Ra226 "Dry Weight Corrected"														
Radium-226		0.904	+/-0.218	0.175	+/-0.222		pCi/g			MXR1	12/19/16	0742	1619515	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	11/25/16	0723	1619322

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Certificate of Analysis

Company : Curtis and Tompkins Laboratories
Address : 2323 5th Street

Berkeley, California 94710 Report Date: December 20, 2016

Contact: Mr. John Goyette
Project: Hunter's Point Project Number:283597

Client Sample ID: BS-DULTRA-05-112116
Sample ID: 411335005
Matrix: Soil
Collect Date: 21-NOV-16
Receive Date: 23-NOV-16
Collector: Client
Moisture: 1.94%

Project: CRTL00101
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
Gamma, Ra226, Solid "Dry Weight Corrected"														
Radium-226	M	0.761	+/-0.198	0.124	+/-0.200	1.00	pCi/g			MXR1	12/01/16	1438	1620302	1
Gammaspec, Solid Ra226 "Dry Weight Corrected"														
Radium-226		0.829	+/-0.150	0.101	+/-0.154		pCi/g			MXR1	12/19/16	0800	1619515	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	11/25/16	0723	1619322

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Certificate of Analysis

Company : Curtis and Tompkins Laboratories
Address : 2323 5th Street
Berkeley, California 94710
Report Date: December 20, 2016
Contact: Mr. John Goyette
Project: Hunter's Point Project Number:283597

Client Sample ID: BS-DULTRA-06-112116
Sample ID: 411335006
Matrix: Soil
Collect Date: 21-NOV-16
Receive Date: 23-NOV-16
Collector: Client
Moisture: 2%

Project: CRTL00101
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
Gamma, Ra226, Solid "Dry Weight Corrected"														
Radium-226	M	0.675	+/-0.145	0.111	+/-0.147	1.00	pCi/g			MXR1	12/01/16	1445	1620302	1
Gammaspec, Solid Ra226 "Dry Weight Corrected"														
Radium-226		0.820	+/-0.177	0.130	+/-0.181		pCi/g			MXR1	12/19/16	0800	1619515	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	11/25/16	0723	1619322

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Certificate of Analysis

Company : Curtis and Tompkins Laboratories
Address : 2323 5th Street
Berkeley, California 94710
Report Date: December 20, 2016
Contact: Mr. John Goyette
Project: Hunter's Point Project Number:283597

Client Sample ID: BS-DULTRA-07-112116
Sample ID: 411335007
Matrix: Soil
Collect Date: 21-NOV-16
Receive Date: 23-NOV-16
Collector: Client
Moisture: 2.1%

Project: CRTL00101
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
Gamma, Ra226, Solid "Dry Weight Corrected"														
Radium-226	M	0.429	+/-0.173	0.116	+/-0.174	1.00	pCi/g			MXR1	12/01/16	1446	1620302	1
Gammaspec, Solid Ra226 "Dry Weight Corrected"														
Radium-226		0.767	+/-0.159	0.115	+/-0.163		pCi/g			MXR1	12/19/16	0801	1619515	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	11/25/16	0723	1619322

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Certificate of Analysis

Company : Curtis and Tompkins Laboratories
Address : 2323 5th Street
Berkeley, California 94710
Report Date: December 20, 2016
Contact: Mr. John Goyette
Project: Hunter's Point Project Number:283597

Client Sample ID: BS-DULTRA-08-112116
Sample ID: 411335008
Matrix: Soil
Collect Date: 21-NOV-16
Receive Date: 23-NOV-16
Collector: Client
Moisture: 2.03%

Project: CRTL00101
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
Gamma, Ra226, Solid "Dry Weight Corrected"														
Radium-226	M	0.656	+/-0.184	0.113	+/-0.186	1.00	pCi/g			MXR1	12/01/16	1446	1620302	1
Gammaspec, Solid Ra226 "Dry Weight Corrected"														
Radium-226		0.759	+/-0.169	0.132	+/-0.173		pCi/g			MXR1	12/19/16	0801	1619515	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	11/25/16	0723	1619322

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Berkeley, California 94710
Report Date: December 20, 2016
Contact: Mr. John Goyette
Project: Hunter's Point Project Number:283597

Client Sample ID: BS-DULTRA-09-112116
Sample ID: 411335009
Matrix: Soil
Collect Date: 21-NOV-16
Receive Date: 23-NOV-16
Collector: Client
Moisture: 2.07%

Project: CRTL00101
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
Gamma, Ra226, Solid "Dry Weight Corrected"														
Radium-226	M	0.798	+/-0.172	0.122	+/-0.175	1.00	pCi/g			MXR1	12/01/16	1447	1620302	1
Gammaspec, Solid Ra226 "Dry Weight Corrected"														
Radium-226		0.737	+/-0.188	0.142	+/-0.191		pCi/g			MXR1	12/19/16	0802	1619515	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	11/25/16	0723	1619322

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Report Date: December 20, 2016

Contact: Mr. John Goyette

Project: Hunter's Point Project Number:283597

Client Sample ID: BS-DULTRA-10-112116
Sample ID: 411335010
Matrix: Soil
Collect Date: 21-NOV-16
Receive Date: 23-NOV-16
Collector: Client
Moisture: 2.05%

Project: CRTL00101
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
Gamma, Ra226, Solid "Dry Weight Corrected"														
Radium-226	M	0.733	+/-0.203	0.135	+/-0.205	1.00	pCi/g			MXR1	12/01/16	1624	1620302	1
Gammaspec, Solid Ra226 "Dry Weight Corrected"														
Radium-226		0.780	+/-0.226	0.129	+/-0.228		pCi/g			MXR1	12/19/16	0808	1619515	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	11/25/16	0723	1619322

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Contact: Mr. John Goyette
Project: Hunter's Point Project Number:283597

Client Sample ID: BS-DULTRA-11-112116
Sample ID: 411335011
Matrix: Soil
Collect Date: 21-NOV-16
Receive Date: 23-NOV-16
Collector: Client
Moisture: 2.01%

Project: CRTL00101
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
Gamma, Ra226, Solid "Dry Weight Corrected"														
Radium-226	M	0.800	+/-0.240	0.128	+/-0.242	1.00	pCi/g			MXR1	12/02/16	0659	1620302	1
Gammaspec, Solid Ra226 "Dry Weight Corrected"														
Radium-226		0.741	+/-0.154	0.114	+/-0.157		pCi/g			MXR1	12/19/16	0808	1619515	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	11/25/16	0723	1619322

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Contact: Mr. John Goyette
Project: Hunter's Point Project Number:283597

Client Sample ID: BS-DULTRA-12-112116
Sample ID: 411335012
Matrix: Soil
Collect Date: 21-NOV-16
Receive Date: 23-NOV-16
Collector: Client
Moisture: 2.04%

Project: CRTL00101
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
Gamma, Ra226, Solid "Dry Weight Corrected"														
Radium-226	M	0.574	+/-0.194	0.135	+/-0.195	1.00	pCi/g			MXR1	12/02/16	0739	1620302	1
Gammaspec, Solid Ra226 "Dry Weight Corrected"														
Radium-226		0.783	+/-0.195	0.136	+/-0.198		pCi/g			MXR1	12/19/16	0808	1619515	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	11/25/16	0723	1619322

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:
The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:
DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Project: Hunter's Point Project Number:283597

Client Sample ID: BS-DULTRA-13-112116
Sample ID: 411335013
Matrix: Soil
Collect Date: 21-NOV-16
Receive Date: 23-NOV-16
Collector: Client
Moisture: 2%

Project: CRTL00101
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
Gamma, Ra226, Solid "Dry Weight Corrected"														
Radium-226	M	0.630	+/-0.160	0.140	+/-0.163	1.00	pCi/g			MXR1	12/02/16	0753	1620302	1
Gammaspec, Solid Ra226 "Dry Weight Corrected"														
Radium-226		0.688	+/-0.203	0.110	+/-0.205		pCi/g			MXR1	12/19/16	0809	1619515	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	11/25/16	0723	1619322

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Report Date: December 20, 2016
Contact: Mr. John Goyette
Project: Hunter's Point Project Number:283597

Client Sample ID: BS-DULTRA-14-112116
Sample ID: 411335014
Matrix: Soil
Collect Date: 21-NOV-16
Receive Date: 23-NOV-16
Collector: Client
Moisture: 1.89%

Project: CRTL00101
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
Gamma, Ra226, Solid "Dry Weight Corrected"														
Radium-226	M	0.626	+/-0.151	0.107	+/-0.154	1.00	pCi/g			MXR1	12/02/16	0753	1620302	1
Gammaspec, Solid Ra226 "Dry Weight Corrected"														
Radium-226		0.739	+/-0.159	0.105	+/-0.163		pCi/g			MXR1	12/19/16	0809	1619515	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	11/25/16	0723	1619322

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Contact: Mr. John Goyette
Project: Hunter's Point Project Number:283597

Client Sample ID: BS-DULTRA-15-112116
Sample ID: 411335015
Matrix: Soil
Collect Date: 21-NOV-16
Receive Date: 23-NOV-16
Collector: Client
Moisture: 1.78%

Project: CRTL00101
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
Gamma, Ra226, Solid "Dry Weight Corrected"														
Radium-226	M	0.667	+/-0.168	0.114	+/-0.170	1.00	pCi/g			MXR1	12/02/16	0758	1620302	1
Gammaspec, Solid Ra226 "Dry Weight Corrected"														
Radium-226		0.741	+/-0.231	0.144	+/-0.233		pCi/g			MXR1	12/19/16	0810	1619515	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	11/25/16	0723	1619322

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Project: Hunter's Point Project Number:283597

Client Sample ID: BS-DULTRA-16-112116
Sample ID: 411335016
Matrix: Soil
Collect Date: 21-NOV-16
Receive Date: 23-NOV-16
Collector: Client
Moisture: 1.82%

Project: CRTL00101
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
Gamma, Ra226, Solid "Dry Weight Corrected"														
Radium-226	M	0.777	+/-0.179	0.127	+/-0.182	1.00	pCi/g			MXR1	12/02/16	0951	1620302	1
Gammaspec, Solid Ra226 "Dry Weight Corrected"														
Radium-226		0.652	+/-0.144	0.114	+/-0.147		pCi/g			MXR1	12/19/16	0810	1619515	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	11/25/16	0723	1619322

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Client Sample ID: BS-DULTRA-17-112116
Sample ID: 411335017
Matrix: Soil
Collect Date: 21-NOV-16
Receive Date: 23-NOV-16
Collector: Client
Moisture: 1.96%

Project: CRTL00101
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
Gamma, Ra226, Solid "Dry Weight Corrected"														
Radium-226	M	0.722	+/-0.160	0.112	+/-0.163	1.00	pCi/g			MXR1	12/02/16	0952	1620302	1
Gammaspec, Solid Ra226 "Dry Weight Corrected"														
Radium-226		0.780	+/-0.197	0.140	+/-0.199		pCi/g			MXR1	12/19/16	0834	1619515	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	11/25/16	0723	1619322

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Project: Hunter's Point Project Number:283597

Client Sample ID: BS-DULTRA-18-112116
Sample ID: 411335018
Matrix: Soil
Collect Date: 21-NOV-16
Receive Date: 23-NOV-16
Collector: Client
Moisture: 1.77%

Project: CRTL00101
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
Gamma, Ra226, Solid "Dry Weight Corrected"														
Radium-226	M	0.728	+/-0.152	0.102	+/-0.156	1.00	pCi/g			MXR1	12/02/16	0952	1620302	1
Gammaspec, Solid Ra226 "Dry Weight Corrected"														
Radium-226		0.647	+/-0.227	0.155	+/-0.229		pCi/g			MXR1	12/19/16	1226	1619515	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	11/25/16	0723	1619322

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:
The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:
DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Project: Hunter's Point Project Number:283597

Client Sample ID: BS-DULTRA-19-112116
Sample ID: 411335019
Matrix: Soil
Collect Date: 21-NOV-16
Receive Date: 23-NOV-16
Collector: Client
Moisture: 2.09%

Project: CRTL00101
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
Gamma, Ra226, Solid "Dry Weight Corrected"														
Radium-226	M	0.503	+/-0.136	0.119	+/-0.137	1.00	pCi/g			MXR1	12/02/16	0952	1620302	1
Gammaspec, Solid Ra226 "Dry Weight Corrected"														
Radium-226		0.622	+/-0.148	0.113	+/-0.150		pCi/g			MXR1	12/19/16	0835	1619515	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	11/25/16	0723	1619322

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

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Report Date: December 20, 2016

Contact: Mr. John Goyette

Project: Hunter's Point Project Number:283597

Client Sample ID: BS-DULTRA-20-112116
Sample ID: 411335020
Matrix: Soil
Collect Date: 21-NOV-16
Receive Date: 23-NOV-16
Collector: Client
Moisture: 2.02%

Project: CRTL00101
Client ID: CRTL001

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gamma Spec Analysis														
Gamma, Ra226, Solid "Dry Weight Corrected"														
Radium-226	M	0.708	+/-0.131	0.0954	+/-0.134	1.00	pCi/g			MXR1	12/02/16	0953	1620302	1
Gammaspec, Solid Ra226 "Dry Weight Corrected"														
Radium-226		0.821	+/-0.147	0.0881	+/-0.151		pCi/g			MXR1	12/19/16	0836	1619515	2

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
Dry Soil Prep	Dry Soil Prep GL-RAD-A-021	LYT1	11/25/16	0723	1619322

The following Analytical Methods were performed

Method	Description
1	DOE HASL 300, 4.5.2.3/Ga-01-R
2	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

Quality Control Summary

QC Summary

Client : **Curtis and Tompkins Laboratories**
2323 5th Street
Berkeley, California
Contact: **Mr. John Goyette**
Workorder: **411335**

Report Date: December 20, 2016

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gamma Spec										
Batch 1619515										
QC1203678316 411335001 DUP										
Radium-226		0.662		0.515	pCi/g	24.9*		(0%-20%)	MXR1	12/19/1608:37
	Uncert:	+/-0.182		+/-0.172						
	TPU:	+/-0.184		+/-0.177						
QC1203678317 LCS										
Americium-241	489			535	pCi/g		109	(75%-125%)	MXR1	12/19/1607:34
	Uncert:			+/-14.0						
	TPU:			+/-42.5						
Cesium-137	178			181	pCi/g		101	(75%-125%)		
	Uncert:			+/-3.73						
	TPU:			+/-8.62						
Cobalt-60	157			148	pCi/g		94.3	(75%-125%)		
	Uncert:			+/-3.89						
	TPU:			+/-6.71						
Radium-226			U	-0.172	pCi/g					
	Uncert:			+/-1.27						
	TPU:			+/-1.27						
QC1203678315 MB										
Radium-226			U	0.0163	pCi/g				MXR1	12/19/1608:37
	Uncert:			+/-0.0364						
	TPU:			+/-0.0371						
Batch 1620302										
QC1203680572 411335001 DUP										
Radium-226	M	0.682	M	0.993	pCi/g	37.1*		(0%-20%)	MXR1	12/02/1609:53
	Uncert:	+/-0.204		+/-0.244						
	TPU:	+/-0.206		+/-0.248						
QC1203680573 LCS										
Americium-241	489			497	pCi/g		102	(75%-125%)	MXR1	12/02/1609:54
	Uncert:			+/-11.2						
	TPU:			+/-39.0						
Cesium-137	178			187	pCi/g		105	(75%-125%)		
	Uncert:			+/-3.47						
	TPU:			+/-8.75						
Cobalt-60	157			152	pCi/g		96.4	(75%-125%)		
	Uncert:			+/-3.54						
	TPU:			+/-6.61						
Radium-226			U	0.822	pCi/g					
	Uncert:			+/-1.13						
	TPU:			+/-1.19						
QC1203680571 MB										
Radium-226			U	0.00707	pCi/g				MXR1	12/02/1607:13

QC Summary

Workorder: **411335**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch 1620302											
				Uncert:		+/-0.0647					
				TPU:		+/-0.0648					

Notes:

TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

The Qualifiers in this report are defined as follows:

**	Analyte is a Tracer compound
<	Result is less than value reported
>	Result is greater than value reported
BD	Results are either below the MDC or tracer recovery is low
FA	Failed analysis.
H	Analytical holding time was exceeded
J	Value is estimated
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
M	Result above MDC and less than RDL
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	Other specific qualifiers were required to properly define the results. Consult case narrative.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
** Indicates analyte is a surrogate/tracer compound.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 283598
ANALYTICAL REPORT

CB&I	Project : 149831
4005 Port Chicago Highway	Location : HPNS Parcel D-1
Concord, CA 94520-1120	Level : III

Sample ID	Lab ID
BS-DUTRA-01-112116	283598-001
BS-DUTRA-02-112116	283598-002
BS-DUTRA-03-112116	283598-003
BS-DUTRA-04-112116	283598-004
BS-DUTRA-05-112116	283598-005
BS-DUTRA-06-112116	283598-006
BS-DUTRA-07-112116	283598-007
BS-DUTRA-08-112116	283598-008
BS-DUTRA-09-112116	283598-009
BS-DUTRA-10-112116	283598-010
BS-DUTRA-11-112116	283598-011
BS-DUTRA-12-112116	283598-012
BS-DUTRA-13-112116	283598-013
BS-DUTRA-14-112116	283598-014
BS-DUTRA-15-112116	283598-015
BS-DUTRA-16-112116	283598-016
BS-DUTRA-17-112116	283598-017
BS-DUTRA-18-112116	283598-018
BS-DUTRA-19-112116	283598-019
BS-DUTRA-20-112116	283598-020

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: _____ Date: 11/30/2016

Mike Dahlquist
Project Manager
mike.dahlquist@ctberk.com

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**283598**
Client:	**CB&I**
Project:	**149831**
Location:	**HPNS Parcel D-1**
Request Date:	**11/21/16**
Samples Received:	**11/21/16**

This data package contains sample and QC results for twenty soil samples, requested for the above referenced project on 11/21/16. See attached cooler receipt form for any sample receipt problems or discrepancies.

CARB 435 Asbestos (CARB 435):
Forensic Analytical in Hayward, CA performed the analysis (not NELAP certified). Please see the Forensic Analytical case narrative.

Chain of Custody

4005 Port Chicago Hwy
Concord, CA 94520

CHAIN OF CUSTODY 283598

Ref. Document # 149831-021

Project Manager: *Lisa Bersich*
(Name & phone #)

Send Report To: *Eddie Kalombo*
Phone/Fax Number: *415-987-0760*
Address: *4005 Port Chicago Hwy*
City: *Concord, CA, 94520*

Project Number: 149831
Project Name: HPNS - Parcel D-1
Project Location: HPNS
Purchase Order #: 202570
Shipment/Pickup Date: 11/21/2016
Waybill Number:
Lab Destination: Curtis & Tompkins, 2323 5th Street, Berkeley, CA 94710
Lab Contact Name / ph. #: Mike Dahlquist 510.204.2225

Sampler's Name(s): Eddie Kalombo

Sample ID	Location ID	Collection Information: Date	Time	Method	Matrix	# of containers	Preservative	Container Type	Beginning Depth	Ending depth	Analyses Requested: Asbestos CARB 435									Cooler Temperature
											ice	ice	ice	ice	ice	ice	ice	ice		
											16 oz Jar									
BS-DUTRA-01-112116	Dutra Group	11/21/16	0800	G	SO	1			3	6	X									
BS-DUTRA-02-112116	Dutra Group	11/21/16	0810	G	SO	1			3	6	X									
BS-DUTRA-03-112116	Dutra Group	11/21/16	0815	G	SO	1			3	6	X									
BS-DUTRA-04-112116	Dutra Group	11/21/16	0822	G	SO	1			3	6	X									
BS-DUTRA-05-112116	Dutra Group	11/21/16	0830	G	SO	1			3	6	X									
BS-DUTRA-06-112116	Dutra Group	11/21/16	0835	G	SO	1			3	6	X									
BS-DUTRA-07-112116	Dutra Group	11/21/16	0840	G	SO	1			3	6	X									
BS-DUTRA-08-112116	Dutra Group	11/21/16	0850	G	SO	1			3	6	X									
BS-DUTRA-09-112116	Dutra Group	11/21/16	0855	G	SO	1			3	6	X									
BS-DUTRA-10-112116	Dutra Group	11/21/16	0900	G	SO	1			3	6	X									
Temp Blank																				X

Special Instructions: Report on Dry Weight Basis.

Turnaround Time: ☐ 24-hr ☐ 48-hr
Standard TAT -5-day ☐ 72-hr ☐ 5-day

Level of QC Required: II **III** IV Project Specific:

Relinquished By: Date: 11.21.16 Time: 1435
Received By: Date: 11/21/16 Time: 1435
Relinquished By: Date: Time:
Received By: Date: Time:

Method Codes
LF= low flow
G = Grab

Matrix Codes
DW = Drinking Water
SO =Soil
GW = Ground Water
BW= Blank Water
WW = Waste Water
WP=Waste Product

4005 Port Chicago Hwy
Concord, CA 94520

CHAIN OF CUSTODY 283598

Ref. Document # 149831-021

Project Manager: *Lisa Bersich*
(Name & phone #)

Send Report To: *Eddie Kalombo*
Phone/Fax Number: *415-987-0760*
Address: *4005 Port Chicago Hwy*
City: *Concord, CA, 94520*

Project Number: 149831
Project Name: HPNS - Parcel D-1
Project Location: HPNS
Purchase Order #: 202570
Shipment/Pickup Date: 11/21/2016
Waybill Number:
Lab Destination: Curtis & Tompkins, 2323 5th Street, Berkeley, CA 94710
Lab Contact Name / ph. #: Mike Dahlquist 510.204.2225

Sampler's Name(s): Eddie Kalombo

Sample ID	Location ID	Collection Information: Date	Time	Method	Matrix	# of containers	Preservative	Container Type	Beginning Depth	Ending depth	Analyses Requested: Asbestos CARB 435									Cooler Temperature
											ice	ice	ice	ice	ice	ice	ice	ice		
											16 oz Jar									
BS-DUTRA-11-112116	Dutra Group	11/21/16	0910	G	SO	1			3	6	X									
BS-DUTRA-12-112116	Dutra Group	11/21/16	0915	G	SO	1			3	6	X									
BS-DUTRA-13-112116	Dutra Group	11/21/16	0918	G	SO	1			3	6	X									
BS-DUTRA-14-112116	Dutra Group	11/21/16	0925	G	SO	1			3	6	X									
BS-DUTRA-15-112116	Dutra Group	11/21/16	0930	G	SO	1			3	6	X									
BS-DUTRA-16-112116	Dutra Group	11/21/16	0935	G	SO	1			3	6	X									
BS-DUTRA-17-112116	Dutra Group	11/21/16	0940	G	SO	1			3	6	X									
BS-DUTRA-18-112116	Dutra Group	11/21/16	0945	G	SO	1			3	6	X									
BS-DUTRA-19-112116	Dutra Group	11/21/16	0948	G	SO	1			3	6	X									
BS-DUTRA-20-112116	Dutra Group	11/21/16	0950	G	SO	1			3	6	X									
Temp Blank																				X

Special Instructions: Report on Dry Weight Basis.

Turnaround Time: ☐ 24-hr ☐ 48-hr
Standard TAT -5-day ☐ 72-hr ☐ 5-day

Level of QC Required: II **III** IV Project Specific:

Relinquished By: Date: 11.21.16 Time: 1435
Received By: Date: 11/21/16 Time: 1435
Relinquished By: Date: Time:
Received By: Date: Time:

Method Codes
LF= low flow
G = Grab

Matrix Codes
DW = Drinking Water
SO =Soil
GW = Ground Water
BW= Blank Water
WW = Waste Water
WP=Waste Product

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 283598 Date Received 11/21/16 Number of coolers 2
Client CBI Project HPNS

Date Opened 11/21/16 By (print) CB (sign) [signature]
Date Logged in ↓ By (print) DTN (sign) [signature]
Date Labeled ↓ By (print) CB (sign) [signature]

1. Did cooler come with a shipping slip (airbill, etc) ____ YES (NO)
   Shipping info ____
2A. Were custody seals present? .... ☐ YES (circle) on cooler on samples ☒ NO
   How many ____ Name ____ Date ____
2B. Were custody seals intact upon arrival? ____ YES NO (N/A)
3. Were custody papers dry and intact when received? ____ (YES) NO
4. Were custody papers filled out properly (ink, signed, etc)? ____ (YES) NO
5. Is the project identifiable from custody papers? (If so fill out top of form) ____ (YES) NO
6. Indicate the packing in cooler: (if other, describe) ____

☐ Bubble Wrap ☐ Foam blocks ☒ Bags ☐ None
☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation: * Notify PM if temperature exceeds 6°C

Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C) ____

☐ Temperature blank(s) included? ☐ Thermometer# ____ ☐ IR Gun# ____

☒ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? ____ YES (NO)
   If YES, what time were they transferred to freezer? ____
9. Did all bottles arrive unbroken/unopened? ____ (YES) NO
10. Are there any missing / extra samples? ____ YES (NO)
11. Are samples in the appropriate containers for indicated tests? ____ (YES) NO
12. Are sample labels present, in good condition and complete? ____ (YES) NO
13. Do the sample labels agree with custody papers? ____ (YES) NO
14. Was sufficient amount of sample sent for tests requested? ____ (YES) NO
15. Are the samples appropriately preserved? ____ YES NO (N/A)
16. Did you check preservatives for all bottles for each sample? ____ YES NO (N/A)
17. Did you document your preservative check? (pH strip lot# ____) YES NO (N/A)
18. Did you change the hold time in LIMS for unpreserved VOAs? ____ YES NO (N/A)
19. Did you change the hold time in LIMS for preserved terracores? ____ YES NO (N/A)
20. Are bubbles > 6mm absent in VOA samples? ____ YES NO (N/A)
21. Was the client contacted concerning this sample delivery? ____ YES (NO)
   If YES, Who was called? ____ By ____ Date: ____

COMMENTS

Curtis & Tompkins, Ltd.

Detections Summary for 283598

Results for any subcontracted analyses are not included in this summary.

Client : CB&I
Project : 149831
Location : HPNS Parcel D-1

Client Sample ID : BS-DUTRA-01-112116 Laboratory Sample ID : 283598-001

No Detections

Client Sample ID : BS-DUTRA-02-112116 Laboratory Sample ID : 283598-002

No Detections

Client Sample ID : BS-DUTRA-03-112116 Laboratory Sample ID : 283598-003

No Detections

Client Sample ID : BS-DUTRA-04-112116 Laboratory Sample ID : 283598-004

No Detections

Client Sample ID : BS-DUTRA-05-112116 Laboratory Sample ID : 283598-005

No Detections

Client Sample ID : BS-DUTRA-06-112116 Laboratory Sample ID : 283598-006

No Detections

Client Sample ID : BS-DUTRA-07-112116 Laboratory Sample ID : 283598-007

No Detections

Client Sample ID : BS-DUTRA-08-112116 Laboratory Sample ID : 283598-008

No Detections

Client Sample ID : BS-DUTRA-09-112116 Laboratory Sample ID : 283598-009

No Detections

Curtis & Tompkins, Ltd.

Client Sample ID : BS-DUTRA-10-112116 Laboratory Sample ID : 283598-010

No Detections

Client Sample ID : BS-DUTRA-11-112116 Laboratory Sample ID : 283598-011

No Detections

Client Sample ID : BS-DUTRA-12-112116 Laboratory Sample ID : 283598-012

No Detections

Client Sample ID : BS-DUTRA-13-112116 Laboratory Sample ID : 283598-013

No Detections

Client Sample ID : BS-DUTRA-14-112116 Laboratory Sample ID : 283598-014

No Detections

Client Sample ID : BS-DUTRA-15-112116 Laboratory Sample ID : 283598-015

No Detections

Client Sample ID : BS-DUTRA-16-112116 Laboratory Sample ID : 283598-016

No Detections

Client Sample ID : BS-DUTRA-17-112116 Laboratory Sample ID : 283598-017

No Detections

Client Sample ID : BS-DUTRA-18-112116 Laboratory Sample ID : 283598-018

No Detections

Client Sample ID : BS-DUTRA-19-112116 Laboratory Sample ID : 283598-019

No Detections

Curtis & Tompkins, Ltd.

Client Sample ID : BS-DUTRA-20-112116 Laboratory Sample ID : 283598-020

No Detections

Laboratory Job Number 283598

ANALYTICAL REPORT

Subcontracted Products

Laboratory Job Number 283598

Subcontracted Products

Forensic Analytical

Forensic Analytical LABORATORIES

Final Report

Bulk Asbestos Material Analysis

(Air Resources Board Method 435, June 6, 1991)

Curtis & Tompkins Ltd
Project Manager
2323 Fifth St.

Berkeley, CA 94710

Client ID: 1137
Report Number: N008855
Date Received: 11/22/16
Date Analyzed: 11/30/16
Date Printed: 11/30/16

Job ID/Site: 283598 - HPNS Parcel D-1

PLM Report Number: N/A

FALI Job ID: 1137
Total Samples Submitted: 20
Total Samples Analyzed: 20

Sample Preparation and Analysis:

Samples were analyzed by the Air Resources Board's Method 435, Determination of Asbestos Content of Serpentine Aggregate. Samples were ground to 200 particle size in the laboratory. Approximately 1 pint was retained for analysis. Samples were prepared for observation according to the guidelines of Exception I and Exception II as defined by the 435 Method. Samples which contained less than 10% asbestos were prepared for observation according to the point count technique as defined by the 435 Method. This analysis was performed with a standard cross-hair reticle.

Sample ID	Lab Number	Layer Description
BS-DUTRA-01-112116	11833225	**Grey Soil**

Visual Estimation Results:

Matrix percentage of entire 100
Visual estimation percentage: **None Detected**
Asbestos type(s) detected: None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
BS-DUTRA-02-112116	11833226	**Grey Soil**

Visual Estimation Results:

Matrix percentage of entire 100
Visual estimation percentage: **None Detected**
Asbestos type(s) detected: None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
BS-DUTRA-03-112116	11833227	**Grey Soil**

Visual Estimation Results:

Matrix percentage of entire 100
Visual estimation percentage: **None Detected**
Asbestos type(s) detected: None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
BS-DUTRA-04-112116	11833228	**Grey Soil**

Visual Estimation Results:

Matrix percentage of entire 100
Visual estimation percentage: **None Detected**
Asbestos type(s) detected: None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

3777 Depot Road, Suite 409, Hayward, CA 94545 / Telephone: (510) 887-8828 (800) 827-FASI / Fax: (510) 887-4218

Bulk Asbestos Material Analysis

(Air Resources Board Method 435, June 6, 1991)

Curtis & Tompkins Ltd
Project Manager
2323 Fifth St.

Berkeley, CA 94710

Client ID: 1137
Report Number: N008855
Date Received: 11/22/16
Date Analyzed: 11/30/16
Date Printed: 11/30/16

Job ID/Site: 283598 - HPNS Parcel D-1

PLM Report Number: N/A

FALI Job ID: 1137
Total Samples Submitted: 20
Total Samples Analyzed: 20

Sample Preparation and Analysis:

Samples were analyzed by the Air Resources Board's Method 435, Determination of Asbestos Content of Serpentine Aggregate. Samples were ground to 200 particle size in the laboratory. Approximately 1 pint was retained for analysis. Samples were prepared for observation according to the guidelines of Exception I and Exception II as defined by the 435 Method. Samples which contained less than 10% asbestos were prepared for observation according to the point count technique as defined by the 435 Method. This analysis was performed with a standard cross-hair reticle.

Sample ID	Lab Number	Layer Description
BS-DUTRA-05-112116	11833229	**Grey Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
BS-DUTRA-06-112116	11833230	**Grey Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
BS-DUTRA-07-112116	11833231	**Grey Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
BS-DUTRA-08-112116	11833232	**Grey Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Bulk Asbestos Material Analysis

(Air Resources Board Method 435, June 6, 1991)

Curtis & Tompkins Ltd
Project Manager
2323 Fifth St.

Berkeley, CA 94710

Client ID: 1137
Report Number: N008855
Date Received: 11/22/16
Date Analyzed: 11/30/16
Date Printed: 11/30/16

Job ID/Site: 283598 - HPNS Parcel D-1

FALI Job ID: 1137
Total Samples Submitted: 20
Total Samples Analyzed: 20

PLM Report Number: N/A

Sample Preparation and Analysis:

Samples were analyzed by the Air Resources Board's Method 435, Determination of Asbestos Content of Serpentine Aggregate. Samples were ground to 200 particle size in the laboratory. Approximately 1 pint was retained for analysis. Samples were prepared for observation according to the guidelines of Exception I and Exception II as defined by the 435 Method. Samples which contained less than 10% asbestos were prepared for observation according to the point count technique as defined by the 435 Method. This analysis was performed with a standard cross-hair reticle.

Sample ID	Lab Number	Layer Description
BS-DUTRA-09-112116	11833233	**Grey Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
BS-DUTRA-10-112116	11833234	**Grey Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
BS-DUTRA-11-112116	11833235	**Grey Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
BS-DUTRA-12-112116	11833236	**Grey Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

3777 Depot Road, Suite 409, Hayward, CA 94545 / Telephone: (510) 887-8828 (800) 827-FASI / Fax: (510) 887-4218

Bulk Asbestos Material Analysis

(Air Resources Board Method 435, June 6, 1991)

Curtis & Tompkins Ltd
Project Manager
2323 Fifth St.

Berkeley, CA 94710

Client ID: 1137
Report Number: N008855
Date Received: 11/22/16
Date Analyzed: 11/30/16
Date Printed: 11/30/16

Job ID/Site: 283598 - HPNS Parcel D-1

FALI Job ID: 1137
Total Samples Submitted: 20
Total Samples Analyzed: 20

PLM Report Number: N/A

Sample Preparation and Analysis:

Samples were analyzed by the Air Resources Board's Method 435, Determination of Asbestos Content of Serpentine Aggregate. Samples were ground to 200 particle size in the laboratory. Approximately 1 pint was retained for analysis. Samples were prepared for observation according to the guidelines of Exception I and Exception II as defined by the 435 Method. Samples which contained less than 10% asbestos were prepared for observation according to the point count technique as defined by the 435 Method. This analysis was performed with a standard cross-hair reticle.

Sample ID	Lab Number	Layer Description
BS-DUTRA-13-112116	11833237	**Grey Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
BS-DUTRA-14-112116	11833238	**Grey Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
BS-DUTRA-15-112116	11833239	**Grey Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
BS-DUTRA-16-112116	11833240	**Grey Soil**

Visual Estimation Results:

Matrix percentage of entire	100
Visual estimation percentage:	**None Detected**
Asbestos type(s) detected:	None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

3777 Depot Road, Suite 409, Hayward, CA 94545 / Telephone: (510) 887-8828 (800) 827-FASI / Fax: (510) 887-4218

Bulk Asbestos Material Analysis

(Air Resources Board Method 435, June 6, 1991)

Curtis & Tompkins Ltd
Project Manager
2323 Fifth St.

Berkeley, CA 94710

Client ID: 1137
Report Number: N008855
Date Received: 11/22/16
Date Analyzed: 11/30/16
Date Printed: 11/30/16

Job ID/Site: 283598 - HPNS Parcel D-1

PLM Report Number: N/A

FALI Job ID: 1137
Total Samples Submitted: 20
Total Samples Analyzed: 20

Sample Preparation and Analysis:

Samples were analyzed by the Air Resources Board's Method 435, Determination of Asbestos Content of Serpentine Aggregate. Samples were ground to 200 particle size in the laboratory. Approximately 1 pint was retained for analysis. Samples were prepared for observation according to the guidelines of Exception I and Exception II as defined by the 435 Method. Samples which contained less than 10% asbestos were prepared for observation according to the point count technique as defined by the 435 Method. This analysis was performed with a standard cross-hair reticle.

Sample ID	Lab Number	Layer Description
BS-DUTRA-17-112116	11833241	**Grey Soil**

Visual Estimation Results:

Matrix percentage of entire 100
Visual estimation percentage: **None Detected**
Asbestos type(s) detected: None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
BS-DUTRA-18-112116	11833242	**Grey Soil**

Visual Estimation Results:

Matrix percentage of entire 100
Visual estimation percentage: **None Detected**
Asbestos type(s) detected: None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
BS-DUTRA-19-112116	11833243	**Grey Soil**

Visual Estimation Results:

Matrix percentage of entire 100
Visual estimation percentage: **None Detected**
Asbestos type(s) detected: None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

Sample ID	Lab Number	Layer Description
BS-DUTRA-20-112116	11833244	**Grey Soil**

Visual Estimation Results:

Matrix percentage of entire 100
Visual estimation percentage: **None Detected**
Asbestos type(s) detected: None Detected

Comment: This result meets the requirements of Exception I as defined by the 435 Method.

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Forensic Analytical LABORATORIES

Final Report

Bulk Asbestos Material Analysis

(Air Resources Board Method 435, June 6, 1991)

Curtis & Tompkins Ltd
Project Manager
2323 Fifth St.

Berkeley, CA 94710

Client ID: 1137
Report Number: N008855
Date Received: 11/22/16
Date Analyzed: 11/30/16
Date Printed: 11/30/16

Job ID/Site: 283598 - HPNS Parcel D-1

PLM Report Number: N/A

FALI Job ID: 1137
Total Samples Submitted: 20
Total Samples Analyzed: 20

Sample Preparation and Analysis:

Samples were analyzed by the Air Resources Board's Method 435, Determination of Asbestos Content of Serpentine Aggregate. Samples were ground to 200 particle size in the laboratory. Approximately 1 pint was retained for analysis. Samples were prepared for observation according to the guidelines of Exception I and Exception II as defined by the 435 Method. Samples which contained less than 10% asbestos were prepared for observation according to the point count technique as defined by the 435 Method. This analysis was performed with a standard cross-hair reticle.

Sample ID	Lab Number	Layer Description

Tad Thrower

Tad Thrower, Laboratory Supervisor, Hayward Laboratory

Note: Limit of Quantification (LOQ) = 0.25%. Trace denotes the presence of asbestos below the LOQ. ND = None Detected.

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Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 283600
ANALYTICAL REPORT

CB&I
4005 Port Chicago Highway
Concord, CA 94520-1120

Project : 149831
Location : HPNS Parcel D-1
Level : III

Sample ID	Lab ID
BS-DUTRA-01-112116	283600-001
BS-DUTRA-02-112116	283600-002
BS-DUTRA-03-112116	283600-003
BS-DUTRA-04-112116	283600-004
BS-DUTRA-05-112116	283600-005
BS-DUTRA-06-112116	283600-006
BS-DUTRA-07-112116	283600-007
BS-DUTRA-08-112116	283600-008
BS-DUTRA-09-112116	283600-009
BS-DUTRA-10-112116	283600-010
BS-DUTRA-11-112116	283600-011
BS-DUTRA-12-112116	283600-012
BS-DUTRA-13-112116	283600-013
BS-DUTRA-14-112116	283600-014
BS-DUTRA-15-112116	283600-015
BS-DUTRA-16-112116	283600-016
BS-DUTRA-17-112116	283600-017
BS-DUTRA-18-112116	283600-018
BS-DUTRA-19-112116	283600-019
BS-DUTRA-20-112116	283600-020

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: _____ Date: 01/12/2017

Mike Dahlquist
Project Manager
mike.dahlquist@ctberk.com
(510) 204-2225 Ext 13101

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**283600**
Client:	**CB&I**
Project:	**149831**
Location:	**HPNS Parcel D-1**
Request Date:	**11/21/16**
Samples Received:	**11/21/16**

This data package contains sample and QC results for twenty soil samples, requested for the above referenced project on 11/21/16. See attached cooler receipt form for any sample receipt problems or discrepancies.

Metals (EPA 6010C and EPA 7471B):

Low recoveries were observed for antimony in the MS/MSD for batch 242066; the parent sample was not a project sample, the BS/BSD were within limits, and the associated RPD was within limits. High recoveries were observed for barium, chromium, and vanadium; the BS/BSD were within limits, and the associated RPDs were within limits.

Low recoveries were observed for lead and thallium in the post digest spike for batch 242066; the parent sample was not a project sample, and the BS/BSD were within limits.

Low recoveries were observed for silver and antimony in the MS/MSD of BS-DUTRA-01-112116 (lab # 283600-001); the BS/BSD were within limits, and the associated RPDs were within limits. High recoveries were observed for barium; the BS/BSD were within limits, and the associated RPD was within limits.

Low recoveries were observed for silver and antimony in the post digest spike of BS-DUTRA-01-112116 (lab # 283600-001); the BS/BSD were within limits.

Responses exceeding the instrument's linear range were observed for iron, mercury, and manganese in the MS/MSD for batch 242066 and the MS/MSD of BS-DUTRA-01-112116 (lab # 283600-001).

Chromium, iron, and zinc were detected above half the RL in the method blank for batch 242066; these analytes were detected in the sample at a level at least 10 times that of the blank.

Iron was detected above half the RL in the method blank for batch 241980; this analyte was detected in samples at a level at least 10 times that of the blank. Chromium and zinc were detected between the MDL and half the RL in the method blank for batch 241980; these analytes were detected in samples at a level at least 10 times that of the blank.

No other analytical problems were encountered.

Moisture (ASTM D2216/CLP):

No analytical problems were encountered.

Chain of Custody

CBI

4005 Port Chicago Hwy
Concord, CA 94520

283600 **CHAIN OF CUSTODY**

Ref. Document # 149831-021

Page 1 of 2

Project Manager: *Lisa Bersich*

(Name & phone #)

Send Report To: *Eddie Kalombo*
Phone/Fax Number: *415-987-0760*
Address: *4005 Port Chicago Hwy*
City: *Concord, CA, 94520*

Project Number: 149831
Project Name: HPNS - Parcel D-1
Project Location: HPNS
Purchase Order #: 202570
Shipment/Pickup Date: 11/21/2016
Waybill Number:
Lab Destination: Curtis & Tompkins, 2323 5th Street, Berkeley, CA 94710
Lab Contact Name / ph. #: Mike Dahlquist 510.204.2225

Sampler's Name(s): Eddie Kalombo

Sample ID	Location ID	Collection Information: Date	Time	Method	Matrix	# of containers	Preservative	Container Type: Beginning Depth	Ending depth	Analyses Requested: Title 22 Metals 6010B/7471B + Fe & Mn									Cooler Temperature
										ice	ice	ice	ice	ice	ice	ice	ice		
										16 oz Jar									
BS-DUTRA-01-112116	Dutra Group	11/21/16	0800	G	SO	1		3	6	X									
BS-DUTRA-02-112116	Dutra Group	11/21/16	0810	G	SO	1		3	6	X									
BS-DUTRA-03-112116	Dutra Group	11/21/16	0815	G	SO	1		3	6	X									
BS-DUTRA-04-112116	Dutra Group	11/21/16	0822	G	SO	1		3	6	X									
BS-DUTRA-05-112116	Dutra Group	11/21/16	0830	G	SO	1		3	6	X									
BS-DUTRA-06-112116	Dutra Group	11/21/16	0835	G	SO	1		3	6	X									
BS-DUTRA-07-112116	Dutra Group	11/21/16	0840	G	SO	1		3	6	X									
BS-DUTRA-08-112116	Dutra Group	11/21/16	0850	G	SO	1		3	6	X									
BS-DUTRA-09-112116	Dutra Group	11/21/16	0855	G	SO	1		3	6	X									
BS-DUTRA-10-112116	Dutra Group	11/21/16	0900	G	SO	1		3	6	X									
Temp Blank																			X

Special Instructions: Report on Dry Weight Basis.

Turnaround Time: ☐ 24-hr ☐ 48-hr
Standard TAT -5-day ☐ 72-hr ☐ 5-day

Level of QC Required: II **III** IV Project Specific:

Relinquished By: Date: 11.21.16 Time: 1435
Received By: Date: 11/21/16 Time: 1435
Relinquished By: Date: Time:
Received By: Date: Time:

Method Codes
LF= low flow G = Grab

Matrix Codes
DW = Drinking Water SO =Soil
GW = Ground Water BW= Blank Water
WW = Waste Water WP=Waste Product

283602 CHAIN OF CUSTODY

Ref. Document # 149831-021

Page 2 of 2

4005 Port Chicago Hwy
Concord, CA 94520

Project Manager: *Lisa Bersich*

(Name & phone #)

Send Report To: *Eddie Kalombo*
Phone/Fax Number: *415-987-0760*
Address: *4005 Port Chicago Hwy*
City: *Concord, CA, 94520*

Project Number: 149831
Project Name: HPNS - Parcel D-1
Project Location: HPNS
Purchase Order #: 202570
Shipment/Pickup Date: 11/21/2016
Waybill Number:
Lab Destination: Curtis & Tompkins, 2323 5th Street, Berkeley, CA 94710
Lab Contact Name / ph. #: Mike Dahlquist 510.204.2225

Sampler's Name(s): Eddie Kalombo

Sample ID	Location ID	Collection Information: Date	Time	Method	Matrix	# of containers	Preservative	Container Type: Beginning Depth	Ending depth	Analyses Requested: Title 22 Metals 6010B/7471B + Fe & Mn									Cooler Temperature
							ice	ice	ice	ice	ice	ice	ice	ice	ice	ice			
							16 oz Jar												
BS-DUTRA-11-112116	Dutra Group	11/21/16	0910	G	SO	1	3	6	X										
BS-DUTRA-12-112116	Dutra Group	11/21/16	0915	G	SO	1	3	6	X										
BS-DUTRA-13-112116	Dutra Group	11/21/16	0918	G	SO	1	3	6	X										
BS-DUTRA-14-112116	Dutra Group	11/21/16	0925	G	SO	1	3	6	X										
BS-DUTRA-15-112116	Dutra Group	11/21/16	0930	G	SO	1	3	6	X										
BS-DUTRA-16-112116	Dutra Group	11/21/16	0935	G	SO	1	3	6	X										
BS-DUTRA-17-112116	Dutra Group	11/21/16	0940	G	SO	1	3	6	X										
BS-DUTRA-18-112116	Dutra Group	11/21/16	0945	G	SO	1	3	6	X										
BS-DUTRA-19-112116	Dutra Group	11/21/16	0948	G	SO	1	3	6	X										
BS-DUTRA-20-112116	Dutra Group	11/21/16	0950	G	SO	1	3	6	X										
Temp Blank																			X

Special Instructions: Report on Dry Weight Basis.

Turnaround Time: ☐ 24-hr ☐ 48-hr
Standard TAT -5-day ☐ 72-hr ☐ 5-day

Level of QC Required: II **III** IV Project Specific:

Relinquished By: Date: 11.21.16 Time: 1435
Received By: Date: 11/21/16 Time: 1435

Relinquished By: Date: Time:
Received By: Date: Time:

Method Codes
LF= low flow G = Grab

Matrix Codes
DW = Drinking Water SO =Soil
GW = Ground Water BW= Blank Water
WW = Waste Water WP=Waste Product

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 283607 Date Received 11/21/16 Number of coolers 2
Client CBI Project HPNS

Date Opened 11/21/16 By (print) CB (sign) [signature]
Date Logged in ↓ By (print) DTN (sign) [signature]
Date Labeled ↓ By (print) CB (sign) [signature]

1. Did cooler come with a shipping slip (airbill, etc) ____ YES (NO)
Shipping info ____

2A. Were custody seals present? .... ☐ YES (circle) on cooler on samples ☒ NO
How many ____ Name ____ Date ____
2B. Were custody seals intact upon arrival? ____ YES NO (N/A)
3. Were custody papers dry and intact when received? ____ (YES) NO
4. Were custody papers filled out properly (ink, signed, etc)? ____ (YES) NO
5. Is the project identifiable from custody papers? (If so fill out top of form) ____ (YES) NO
6. Indicate the packing in cooler: (if other, describe) ____

☐ Bubble Wrap ☐ Foam blocks ☒ Bags ☐ None
☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation: * Notify PM if temperature exceeds 6°C

Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C) ____

☐ Temperature blank(s) included? ☐ Thermometer# ____ ☐ IR Gun# ____

☒ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? ____ YES (NO)
If YES, what time were they transferred to freezer? ____
9. Did all bottles arrive unbroken/unopened? ____ (YES) NO
10. Are there any missing / extra samples? ____ YES (NO)
11. Are samples in the appropriate containers for indicated tests? ____ (YES) NO
12. Are sample labels present, in good condition and complete? ____ (YES) NO
13. Do the sample labels agree with custody papers? ____ (YES) NO
14. Was sufficient amount of sample sent for tests requested? ____ (YES) NO
15. Are the samples appropriately preserved? ____ YES NO (N/A)
16. Did you check preservatives for all bottles for each sample? ____ YES NO (N/A)
17. Did you document your preservative check? (pH strip lot# ____) YES NO (N/A)
18. Did you change the hold time in LIMS for unpreserved VOAs? ____ YES NO (N/A)
19. Did you change the hold time in LIMS for preserved terracores? ____ YES NO (N/A)
20. Are bubbles > 6mm absent in VOA samples? ____ YES NO (N/A)
21. Was the client contacted concerning this sample delivery? ____ YES (NO)
If YES, Who was called? ____ By ____ Date: ____

COMMENTS
16. Did not receive container for sample -019. Splitted 160g from 283598-019.

Curtis & Tompkins, Ltd.

Detections Summary for 283600

Results for any subcontracted analyses are not included in this summary.

Client : CB&I
Project : 149831
Location : HPNS Parcel D-1

Client Sample ID : BS-DUTRA-01-112116 Laboratory Sample ID : 283600-001

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Iron	13,000		560	180	mg/Kg	Dry	100.0	EPA 6010C	EPA 3050B
Manganese	250		0.28	0.057	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Arsenic	2.6		0.28	0.081	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Barium	87		0.28	0.060	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Beryllium	0.55		0.11	0.014	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cadmium	0.42		0.28	0.029	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Chromium	8.4		0.28	0.071	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cobalt	5.7		0.28	0.034	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Copper	5.3		0.28	0.093	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Lead	7.0		0.28	0.078	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Mercury	1.5		0.084	0.025	mg/Kg	Dry	5.000	EPA 7471B	METHOD
Molybdenum	0.33		0.28	0.055	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Nickel	13		0.28	0.074	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Vanadium	13		0.28	0.064	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Zinc	33		1.1	0.22	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B

Client Sample ID : BS-DUTRA-02-112116 Laboratory Sample ID : 283600-002

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Iron	13,000		520	160	mg/Kg	Dry	100.0	EPA 6010C	EPA 3050B
Manganese	260		0.26	0.053	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Arsenic	1.4		0.26	0.076	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Barium	95		0.26	0.056	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Beryllium	0.67		0.10	0.013	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cadmium	0.41		0.26	0.027	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Chromium	8.4		0.26	0.066	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cobalt	5.1		0.26	0.031	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Copper	4.8		0.26	0.087	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Lead	7.1		0.26	0.073	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Mercury	1.6		0.086	0.026	mg/Kg	Dry	5.000	EPA 7471B	METHOD
Molybdenum	0.23	J	0.26	0.051	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Nickel	12		0.26	0.069	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Vanadium	13		0.26	0.059	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Zinc	32		1.0	0.21	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B

Curtis & Tompkins, Ltd.

Client Sample ID : BS-DUTRA-03-112116 Laboratory Sample ID : 283600-003

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Iron	11,000		490	160	mg/Kg	Dry	100.0	EPA 6010C	EPA 3050B
Manganese	230		0.25	0.050	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Arsenic	1.3		0.25	0.071	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Barium	79		0.25	0.053	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Beryllium	0.49		0.098	0.012	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cadmium	0.40		0.25	0.025	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Chromium	8.5		0.25	0.062	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cobalt	4.9		0.25	0.029	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Copper	4.4		0.25	0.082	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Lead	6.5		0.25	0.068	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Mercury	1.8		0.081	0.024	mg/Kg	Dry	5.000	EPA 7471B	METHOD
Molybdenum	0.20	J	0.25	0.048	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Nickel	11		0.25	0.065	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Vanadium	13		0.25	0.056	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Zinc	31		0.98	0.20	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B

Client Sample ID : BS-DUTRA-04-112116 Laboratory Sample ID : 283600-004

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Iron	12,000		500	160	mg/Kg	Dry	100.0	EPA 6010C	EPA 3050B
Manganese	270		0.25	0.051	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Arsenic	1.6		0.25	0.072	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Barium	100		0.25	0.053	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Beryllium	0.52		0.099	0.012	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cadmium	0.43		0.25	0.025	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Chromium	9.2		0.25	0.062	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cobalt	5.3		0.25	0.030	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Copper	4.7		0.25	0.083	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Lead	6.9		0.25	0.069	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Mercury	0.56		0.018	0.0055	mg/Kg	Dry	1.000	EPA 7471B	METHOD
Molybdenum	0.34		0.25	0.048	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Nickel	12		0.25	0.065	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Vanadium	14		0.25	0.056	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Zinc	32		0.99	0.20	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B

Curtis & Tompkins, Ltd.

Client Sample ID : BS-DUTRA-05-112116 Laboratory Sample ID : 283600-005

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Iron	13,000		550	180	mg/Kg	Dry	100.0	EPA 6010C	EPA 3050B
Manganese	250		0.28	0.057	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Arsenic	1.5		0.28	0.081	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Barium	89		0.28	0.060	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Beryllium	0.53		0.11	0.014	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cadmium	0.42		0.28	0.028	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Chromium	8.1		0.28	0.070	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cobalt	5.3		0.28	0.033	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Copper	6.8		0.28	0.092	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Lead	6.9		0.28	0.077	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Mercury	2.4		0.084	0.025	mg/Kg	Dry	5.000	EPA 7471B	METHOD
Molybdenum	0.24	J	0.28	0.054	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Nickel	12		0.28	0.073	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Vanadium	13		0.28	0.063	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Zinc	33		1.1	0.22	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B

Client Sample ID : BS-DUTRA-06-112116 Laboratory Sample ID : 283600-006

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Iron	12,000		530	170	mg/Kg	Dry	100.0	EPA 6010C	EPA 3050B
Manganese	240		0.26	0.054	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Arsenic	2.0		0.26	0.076	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Barium	80		0.26	0.056	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Beryllium	0.53		0.11	0.013	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cadmium	0.41		0.26	0.027	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Chromium	8.2		0.26	0.066	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cobalt	5.2		0.26	0.032	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Copper	6.6		0.26	0.088	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Lead	6.1		0.26	0.073	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Mercury	1.6		0.086	0.026	mg/Kg	Dry	5.000	EPA 7471B	METHOD
Molybdenum	0.21	J	0.26	0.051	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Nickel	13		0.26	0.069	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Selenium	0.42	J	0.53	0.17	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Thallium	0.22	J	0.53	0.15	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Vanadium	13		0.26	0.060	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Zinc	32		1.1	0.21	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B

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Client Sample ID : BS-DUTRA-07-112116 Laboratory Sample ID : 283600-007

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Iron	13,000		550	180	mg/Kg	Dry	100.0	EPA 6010C	EPA 3050B
Manganese	250		0.28	0.057	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Arsenic	1.7		0.28	0.081	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Barium	100		0.28	0.060	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Beryllium	0.55		0.11	0.014	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cadmium	0.44		0.28	0.028	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Chromium	9.5		0.28	0.070	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cobalt	5.8		0.28	0.033	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Copper	5.8		0.28	0.092	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Lead	6.6		0.28	0.077	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Mercury	5.1		0.16	0.049	mg/Kg	Dry	10.00	EPA 7471B	METHOD
Molybdenum	0.26	J	0.28	0.054	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Nickel	13		0.28	0.073	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Selenium	0.45	J	0.55	0.18	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Vanadium	15		0.28	0.063	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Zinc	35		1.1	0.22	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B

Client Sample ID : BS-DUTRA-08-112116 Laboratory Sample ID : 283600-008

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Iron	12,000		530	170	mg/Kg	Dry	100.0	EPA 6010C	EPA 3050B
Manganese	240		0.26	0.054	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Arsenic	1.7		0.26	0.076	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Barium	79		0.26	0.056	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Beryllium	0.51		0.11	0.013	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cadmium	0.39		0.26	0.027	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Chromium	7.2		0.26	0.066	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cobalt	5.0		0.26	0.032	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Copper	5.3		0.26	0.088	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Lead	6.4		0.26	0.073	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Mercury	1.5		0.086	0.026	mg/Kg	Dry	5.000	EPA 7471B	METHOD
Molybdenum	0.24	J	0.26	0.051	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Nickel	11		0.26	0.069	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Vanadium	12		0.26	0.060	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Zinc	31		1.1	0.21	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B

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Client Sample ID : BS-DUTRA-09-112116 Laboratory Sample ID : 283600-009

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Iron	11,000		500	160	mg/Kg	Dry	100.0	EPA 6010C	EPA 3050B
Manganese	230		0.25	0.051	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Arsenic	2.0		0.25	0.072	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Barium	96		0.25	0.053	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Beryllium	0.53		0.099	0.012	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cadmium	0.40		0.25	0.025	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Chromium	7.7		0.25	0.062	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cobalt	5.4		0.25	0.030	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Copper	4.8		0.25	0.083	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Lead	7.0		0.25	0.069	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Mercury	0.47		0.016	0.0047	mg/Kg	Dry	1.000	EPA 7471B	METHOD
Molybdenum	0.18	J	0.25	0.048	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Nickel	12		0.25	0.065	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Vanadium	13		0.25	0.056	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Zinc	29		0.99	0.20	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B

Client Sample ID : BS-DUTRA-10-112116 Laboratory Sample ID : 283600-010

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Iron	12,000		530	170	mg/Kg	Dry	100.0	EPA 6010C	EPA 3050B
Manganese	240		0.27	0.054	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Arsenic	1.5		0.27	0.077	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Barium	82		0.27	0.057	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Beryllium	0.50		0.11	0.013	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cadmium	0.41		0.27	0.027	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Chromium	8.8		0.27	0.067	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cobalt	5.5		0.27	0.032	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Copper	5.5		0.27	0.089	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Lead	7.9		0.27	0.074	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Mercury	1.6		0.082	0.025	mg/Kg	Dry	5.000	EPA 7471B	METHOD
Molybdenum	0.30		0.27	0.052	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Nickel	12		0.27	0.070	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Vanadium	14		0.27	0.061	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Zinc	31		1.1	0.21	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B

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Client Sample ID : BS-DUTRA-11-112116 Laboratory Sample ID : 283600-011

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Iron	12,000		550	170	mg/Kg	Dry	100.0	EPA 6010C	EPA 3050B
Manganese	240		0.27	0.056	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Arsenic	1.9		0.27	0.080	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Barium	110		0.27	0.059	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Beryllium	0.54		0.11	0.014	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cadmium	0.39		0.27	0.028	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Chromium	8.2		0.27	0.069	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cobalt	5.0		0.27	0.033	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Copper	4.9		0.27	0.091	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Lead	7.2		0.27	0.076	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Mercury	1.9		0.091	0.027	mg/Kg	Dry	5.000	EPA 7471B	METHOD
Molybdenum	0.22	J	0.27	0.054	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Nickel	12		0.27	0.072	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Selenium	0.45	J	0.55	0.18	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Vanadium	13		0.27	0.063	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Zinc	30		1.1	0.22	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B

Client Sample ID : BS-DUTRA-12-112116 Laboratory Sample ID : 283600-012

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Iron	12,000		480	150	mg/Kg	Dry	100.0	EPA 6010C	EPA 3050B
Manganese	260		0.24	0.049	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Antimony	0.96		0.48	0.14	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Arsenic	2.1		0.24	0.070	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Barium	98		0.24	0.052	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Beryllium	0.66		0.096	0.012	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cadmium	0.32		0.24	0.025	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Chromium	8.3		0.24	0.061	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cobalt	5.0		0.24	0.029	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Copper	5.4		0.24	0.080	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Lead	6.6		0.24	0.067	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Mercury	0.66		0.017	0.0050	mg/Kg	Dry	1.000	EPA 7471B	METHOD
Molybdenum	0.40		0.24	0.047	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Nickel	11		0.24	0.063	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Vanadium	13		0.24	0.055	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Zinc	29		0.96	0.19	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B

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Client Sample ID : BS-DUTRA-13-112116 Laboratory Sample ID : 283600-013

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Iron	14,000		550	180	mg/Kg	Dry	100.0	EPA 6010C	EPA 3050B
Manganese	280		0.28	0.057	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Arsenic	2.3		0.28	0.081	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Barium	100		0.28	0.060	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Beryllium	0.61		0.11	0.014	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cadmium	0.46		0.28	0.028	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Chromium	9.3		0.28	0.070	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cobalt	6.0		0.28	0.033	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Copper	6.2		0.28	0.092	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Lead	8.4		0.28	0.077	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Mercury	1.4		0.037	0.011	mg/Kg	Dry	2.000	EPA 7471B	METHOD
Molybdenum	0.30		0.28	0.054	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Nickel	14		0.28	0.073	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Vanadium	15		0.28	0.063	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Zinc	37		1.1	0.22	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B

Client Sample ID : BS-DUTRA-14-112116 Laboratory Sample ID : 283600-014

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Iron	11,000		540	170	mg/Kg	Dry	100.0	EPA 6010C	EPA 3050B
Manganese	220		0.27	0.056	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Arsenic	1.0		0.27	0.079	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Barium	74		0.27	0.058	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Beryllium	0.49		0.11	0.013	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cadmium	0.35		0.27	0.028	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Chromium	7.1		0.27	0.068	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cobalt	4.5		0.27	0.033	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Copper	4.1		0.27	0.090	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Lead	5.4		0.27	0.076	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Mercury	1.6		0.085	0.026	mg/Kg	Dry	5.000	EPA 7471B	METHOD
Molybdenum	0.18	J	0.27	0.053	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Nickel	10		0.27	0.071	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Vanadium	12		0.27	0.062	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Zinc	28		1.1	0.22	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B

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Client Sample ID : BS-DUTRA-15-112116 Laboratory Sample ID : 283600-015

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Iron	13,000		550	180	mg/Kg	Dry	100.0	EPA 6010C	EPA 3050B
Manganese	260		0.28	0.057	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Arsenic	1.8		0.28	0.081	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Barium	94		0.28	0.060	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Beryllium	0.56		0.11	0.014	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cadmium	0.44		0.28	0.028	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Chromium	8.6		0.28	0.070	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cobalt	5.6		0.28	0.033	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Copper	4.9		0.28	0.092	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Lead	7.2		0.28	0.077	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Mercury	0.61		0.017	0.0052	mg/Kg	Dry	1.000	EPA 7471B	METHOD
Molybdenum	0.35		0.28	0.054	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Nickel	13		0.28	0.073	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Vanadium	14		0.28	0.063	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Zinc	34		1.1	0.22	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B

Client Sample ID : BS-DUTRA-16-112116 Laboratory Sample ID : 283600-016

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Iron	11,000		490	150	mg/Kg	Dry	100.0	EPA 6010C	EPA 3050B
Manganese	230		0.24	0.050	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Arsenic	1.4		0.24	0.071	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Barium	75		0.24	0.052	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Beryllium	0.48		0.097	0.012	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cadmium	0.37		0.24	0.025	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Chromium	7.1		0.24	0.061	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cobalt	4.5		0.24	0.029	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Copper	5.3		0.24	0.081	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Lead	5.4		0.24	0.068	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Mercury	1.9		0.081	0.024	mg/Kg	Dry	5.000	EPA 7471B	METHOD
Molybdenum	0.20	J	0.24	0.047	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Nickel	11		0.24	0.064	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Vanadium	12		0.24	0.055	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Zinc	30		0.97	0.19	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B

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Client Sample ID : BS-DUTRA-17-112116 Laboratory Sample ID : 283600-017

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Iron	13,000		540	170	mg/Kg	Dry	100.0	EPA 6010C	EPA 3050B
Manganese	270		0.27	0.056	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Arsenic	1.8		0.27	0.079	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Barium	90		0.27	0.058	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Beryllium	0.59		0.11	0.013	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cadmium	0.46		0.27	0.028	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Chromium	8.8		0.27	0.068	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cobalt	6.0		0.27	0.033	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Copper	6.2		0.27	0.090	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Lead	7.1		0.27	0.076	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Mercury	1.9		0.078	0.024	mg/Kg	Dry	5.000	EPA 7471B	METHOD
Molybdenum	0.24	J	0.27	0.053	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Nickel	14		0.27	0.071	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Selenium	0.39	J	0.54	0.17	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Vanadium	15		0.27	0.062	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Zinc	36		1.1	0.22	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B

Client Sample ID : BS-DUTRA-18-112116 Laboratory Sample ID : 283600-018

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Iron	11,000		530	170	mg/Kg	Dry	100.0	EPA 6010C	EPA 3050B
Manganese	230		0.27	0.054	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Arsenic	1.1		0.27	0.077	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Barium	100		0.27	0.057	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Beryllium	0.55		0.11	0.013	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cadmium	0.39		0.27	0.027	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Chromium	8.4		0.27	0.067	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cobalt	4.7		0.27	0.032	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Copper	5.4		0.27	0.089	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Lead	5.6		0.27	0.074	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Mercury	0.74		0.016	0.0047	mg/Kg	Dry	1.000	EPA 7471B	METHOD
Molybdenum	0.22	J	0.27	0.052	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Nickel	11		0.27	0.070	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Selenium	0.20	J	0.53	0.17	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Vanadium	13		0.27	0.061	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Zinc	29		1.1	0.21	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B

Curtis & Tompkins, Ltd.

Client Sample ID : BS-DUTRA-19-112116 Laboratory Sample ID : 283600-019

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Iron	13,000		540	170	mg/Kg	Dry	100.0	EPA 6010C	EPA 3050B
Manganese	260		0.27	0.055	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Arsenic	1.7		0.27	0.078	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Barium	110		0.27	0.058	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Beryllium	0.56		0.11	0.013	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cadmium	0.43		0.27	0.027	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Chromium	9.1		0.27	0.068	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cobalt	5.7		0.27	0.032	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Copper	5.1		0.27	0.090	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Lead	7.2		0.27	0.075	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Mercury	1.4		0.085	0.026	mg/Kg	Dry	5.000	EPA 7471B	METHOD
Molybdenum	0.27		0.27	0.052	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Nickel	13		0.27	0.071	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Selenium	0.35	J	0.54	0.17	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Vanadium	15		0.27	0.061	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Zinc	33		1.1	0.21	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B

Client Sample ID : BS-DUTRA-20-112116 Laboratory Sample ID : 283600-020

Analyte	Result	Flags	LOQ	DL	Units	Basis	IDF	Method	Prep Method
Iron	13,000		540	170	mg/Kg	Dry	100.0	EPA 6010C	EPA 3050B
Manganese	280		0.27	0.056	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Arsenic	1.6		0.27	0.079	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Barium	98		0.27	0.058	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Beryllium	0.62		0.11	0.013	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cadmium	0.40		0.27	0.028	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Chromium	9.3		0.27	0.068	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Cobalt	5.5		0.27	0.033	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Copper	5.2		0.27	0.090	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Lead	6.6		0.27	0.076	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Mercury	3.0		0.085	0.026	mg/Kg	Dry	5.000	EPA 7471B	METHOD
Molybdenum	0.44		0.27	0.053	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Nickel	13		0.27	0.071	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Vanadium	14		0.27	0.062	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B
Zinc	32		1.1	0.22	mg/Kg	Dry	1.000	EPA 6010C	EPA 3050B

J = Estimated value

Laboratory Job Number 283600

ANALYTICAL REPORT

Metals

Matrix: Soil

Iron

Lab #:	283600	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3050B
Project#:	149831	Analysis:	EPA 6010C
Analyte:	Iron	Basis:	dry
Matrix:	Soil	Sampled:	11/21/16
Units:	mg/Kg	Received:	11/21/16

Field ID	Type	Lab ID	Result	LOQ	DL	Moisture	Diln Fac	Batch#	Prepared	Analyzed
BS-DUTRA-01-112116	SAMPLE	283600-001	13,000	560	180	2%	100.0	241980	12/02/16	01/12/17
BS-DUTRA-02-112116	SAMPLE	283600-002	13,000	520	160	2%	100.0	241980	12/02/16	01/12/17
BS-DUTRA-03-112116	SAMPLE	283600-003	11,000	490	160	2%	100.0	241980	12/02/16	01/12/17
BS-DUTRA-04-112116	SAMPLE	283600-004	12,000	500	160	2%	100.0	241980	12/02/16	01/12/17
BS-DUTRA-05-112116	SAMPLE	283600-005	13,000	550	180	2%	100.0	241980	12/02/16	01/12/17
BS-DUTRA-06-112116	SAMPLE	283600-006	12,000	530	170	2%	100.0	241980	12/02/16	01/12/17
BS-DUTRA-07-112116	SAMPLE	283600-007	13,000	550	180	2%	100.0	241980	12/02/16	01/12/17
BS-DUTRA-08-112116	SAMPLE	283600-008	12,000	530	170	2%	100.0	241980	12/02/16	01/12/17
BS-DUTRA-09-112116	SAMPLE	283600-009	11,000	500	160	2%	100.0	241980	12/02/16	01/12/17
BS-DUTRA-10-112116	SAMPLE	283600-010	12,000	530	170	2%	100.0	241980	12/02/16	01/12/17
BS-DUTRA-11-112116	SAMPLE	283600-011	12,000	550	170	2%	100.0	241980	12/02/16	01/12/17
BS-DUTRA-12-112116	SAMPLE	283600-012	12,000	480	150	2%	100.0	242066	12/05/16	01/04/17
BS-DUTRA-13-112116	SAMPLE	283600-013	14,000	550	180	2%	100.0	241980	12/02/16	01/12/17
BS-DUTRA-14-112116	SAMPLE	283600-014	11,000	540	170	2%	100.0	241980	12/02/16	01/12/17
BS-DUTRA-15-112116	SAMPLE	283600-015	13,000	550	180	2%	100.0	241980	12/02/16	01/12/17
BS-DUTRA-16-112116	SAMPLE	283600-016	11,000	490	150	2%	100.0	241980	12/02/16	01/12/17
BS-DUTRA-17-112116	SAMPLE	283600-017	13,000	540	170	2%	100.0	241980	12/02/16	01/12/17
BS-DUTRA-18-112116	SAMPLE	283600-018	11,000	530	170	2%	100.0	241980	12/02/16	01/12/17
BS-DUTRA-19-112116	SAMPLE	283600-019	13,000	540	170	2%	100.0	241980	12/02/16	01/12/17
BS-DUTRA-20-112116	SAMPLE	283600-020	13,000	540	170	2%	100.0	241980	12/02/16	01/12/17
	BLANK	QC862977	2.9 J	5.0	1.6		1.000	241980	12/02/16	01/05/17
	BLANK	QC863326	3.6 J	4.7	1.5		1.000	242066	12/05/16	12/06/16

J= Estimated value
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Manganese

Lab #:	283600	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3050B
Project#:	149831	Analysis:	EPA 6010C
Analyte:	Manganese	Diln Fac:	1.000
Matrix:	Soil	Sampled:	11/21/16
Units:	mg/Kg	Received:	11/21/16
Basis:	dry		

Field ID	Type	Lab ID	Result	LOQ	DL	Moisture	Batch#	Prepared	Analyzed
BS-DUTRA-01-112116	SAMPLE	283600-001	250	0.28	0.057	2%	241980	12/02/16	01/05/17
BS-DUTRA-02-112116	SAMPLE	283600-002	260	0.26	0.053	2%	241980	12/02/16	01/05/17
BS-DUTRA-03-112116	SAMPLE	283600-003	230	0.25	0.050	2%	241980	12/02/16	01/05/17
BS-DUTRA-04-112116	SAMPLE	283600-004	270	0.25	0.051	2%	241980	12/02/16	01/06/17
BS-DUTRA-05-112116	SAMPLE	283600-005	250	0.28	0.057	2%	241980	12/02/16	01/06/17
BS-DUTRA-06-112116	SAMPLE	283600-006	240	0.26	0.054	2%	241980	12/02/16	01/06/17
BS-DUTRA-07-112116	SAMPLE	283600-007	250	0.28	0.057	2%	241980	12/02/16	01/06/17
BS-DUTRA-08-112116	SAMPLE	283600-008	240	0.26	0.054	2%	241980	12/02/16	01/06/17
BS-DUTRA-09-112116	SAMPLE	283600-009	230	0.25	0.051	2%	241980	12/02/16	01/06/17
BS-DUTRA-10-112116	SAMPLE	283600-010	240	0.27	0.054	2%	241980	12/02/16	01/06/17
BS-DUTRA-11-112116	SAMPLE	283600-011	240	0.27	0.056	2%	241980	12/02/16	01/06/17
BS-DUTRA-12-112116	SAMPLE	283600-012	260	0.24	0.049	2%	242066	12/05/16	12/06/16
BS-DUTRA-13-112116	SAMPLE	283600-013	280	0.28	0.057	2%	241980	12/02/16	01/06/17
BS-DUTRA-14-112116	SAMPLE	283600-014	220	0.27	0.056	2%	241980	12/02/16	01/06/17
BS-DUTRA-15-112116	SAMPLE	283600-015	260	0.28	0.057	2%	241980	12/02/16	01/06/17
BS-DUTRA-16-112116	SAMPLE	283600-016	230	0.24	0.050	2%	241980	12/02/16	01/06/17
BS-DUTRA-17-112116	SAMPLE	283600-017	270	0.27	0.056	2%	241980	12/02/16	01/06/17
BS-DUTRA-18-112116	SAMPLE	283600-018	230	0.27	0.054	2%	241980	12/02/16	01/06/17
BS-DUTRA-19-112116	SAMPLE	283600-019	260	0.27	0.055	2%	241980	12/02/16	01/06/17
BS-DUTRA-20-112116	SAMPLE	283600-020	280	0.27	0.056	2%	241980	12/02/16	01/11/17
	BLANK	QC862977	0.13 U	0.25	0.051		241980	12/02/16	01/05/17
	BLANK	QC863326	0.12 U	0.23	0.048		242066	12/05/16	12/06/16

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	283600	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	BS-DUTRA-01-112116	Basis:	dry
Lab ID:	283600-001	Sampled:	11/21/16
Matrix:	Soil	Received:	11/21/16
Units:	mg/Kg		

Moisture: 2%

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	0.45 U	0.56	0.17	1.000	241980	12/02/16	01/05/17	EPA 3050B	EPA 6010C
Arsenic	2.6	0.28	0.081	1.000	241980	12/02/16	01/05/17	EPA 3050B	EPA 6010C
Barium	87	0.28	0.060	1.000	241980	12/02/16	01/05/17	EPA 3050B	EPA 6010C
Beryllium	0.55	0.11	0.014	1.000	241980	12/02/16	01/05/17	EPA 3050B	EPA 6010C
Cadmium	0.42	0.28	0.029	1.000	241980	12/02/16	01/05/17	EPA 3050B	EPA 6010C
Chromium	8.4	0.28	0.071	1.000	241980	12/02/16	01/05/17	EPA 3050B	EPA 6010C
Cobalt	5.7	0.28	0.034	1.000	241980	12/02/16	01/05/17	EPA 3050B	EPA 6010C
Copper	5.3	0.28	0.093	1.000	241980	12/02/16	01/05/17	EPA 3050B	EPA 6010C
Lead	7.0	0.28	0.078	1.000	241980	12/02/16	01/05/17	EPA 3050B	EPA 6010C
Mercury	1.5	0.084	0.025	5.000	242384	12/14/16	12/14/16	METHOD	EPA 7471B
Molybdenum	0.33	0.28	0.055	1.000	241980	12/02/16	01/05/17	EPA 3050B	EPA 6010C
Nickel	13	0.28	0.074	1.000	241980	12/02/16	01/05/17	EPA 3050B	EPA 6010C
Selenium	0.45 U	0.56	0.18	1.000	241980	12/02/16	01/11/17	EPA 3050B	EPA 6010C
Silver	0.14 U	0.28	0.045	1.000	241980	12/02/16	01/05/17	EPA 3050B	EPA 6010C
Thallium	0.45 U	0.56	0.16	1.000	241980	12/02/16	01/05/17	EPA 3050B	EPA 6010C
Vanadium	13	0.28	0.064	1.000	241980	12/02/16	01/05/17	EPA 3050B	EPA 6010C
Zinc	33	1.1	0.22	1.000	241980	12/02/16	01/11/17	EPA 3050B	EPA 6010C

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	283600	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	BS-DUTRA-02-112116	Basis:	dry
Lab ID:	283600-002	Sampled:	11/21/16
Matrix:	Soil	Received:	11/21/16
Units:	mg/Kg		

Moisture: 2%

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	0.42 U	0.52	0.16	1.000	241980	12/02/16	01/05/17	EPA 3050B	EPA 6010C
Arsenic	1.4	0.26	0.076	1.000	241980	12/02/16	01/05/17	EPA 3050B	EPA 6010C
Barium	95	0.26	0.056	1.000	241980	12/02/16	01/05/17	EPA 3050B	EPA 6010C
Beryllium	0.67	0.10	0.013	1.000	241980	12/02/16	01/05/17	EPA 3050B	EPA 6010C
Cadmium	0.41	0.26	0.027	1.000	241980	12/02/16	01/05/17	EPA 3050B	EPA 6010C
Chromium	8.4	0.26	0.066	1.000	241980	12/02/16	01/05/17	EPA 3050B	EPA 6010C
Cobalt	5.1	0.26	0.031	1.000	241980	12/02/16	01/05/17	EPA 3050B	EPA 6010C
Copper	4.8	0.26	0.087	1.000	241980	12/02/16	01/05/17	EPA 3050B	EPA 6010C
Lead	7.1	0.26	0.073	1.000	241980	12/02/16	01/05/17	EPA 3050B	EPA 6010C
Mercury	1.6	0.086	0.026	5.000	242384	12/14/16	12/14/16	METHOD	EPA 7471B
Molybdenum	0.23 J	0.26	0.051	1.000	241980	12/02/16	01/05/17	EPA 3050B	EPA 6010C
Nickel	12	0.26	0.069	1.000	241980	12/02/16	01/05/17	EPA 3050B	EPA 6010C
Selenium	0.42 U	0.52	0.17	1.000	241980	12/02/16	01/11/17	EPA 3050B	EPA 6010C
Silver	0.13 U	0.26	0.042	1.000	241980	12/02/16	01/05/17	EPA 3050B	EPA 6010C
Thallium	0.42 U	0.52	0.15	1.000	241980	12/02/16	01/05/17	EPA 3050B	EPA 6010C
Vanadium	13	0.26	0.059	1.000	241980	12/02/16	01/05/17	EPA 3050B	EPA 6010C
Zinc	32	1.0	0.21	1.000	241980	12/02/16	01/11/17	EPA 3050B	EPA 6010C

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	283600	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	BS-DUTRA-03-112116	Basis:	dry
Lab ID:	283600-003	Sampled:	11/21/16
Matrix:	Soil	Received:	11/21/16
Units:	mg/Kg		

Moisture: 2%

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	0.39 U	0.49	0.15	1.000	241980	12/02/16	01/05/17	EPA 3050B	EPA 6010C
Arsenic	1.3	0.25	0.071	1.000	241980	12/02/16	01/11/17	EPA 3050B	EPA 6010C
Barium	79	0.25	0.053	1.000	241980	12/02/16	01/05/17	EPA 3050B	EPA 6010C
Beryllium	0.49	0.098	0.012	1.000	241980	12/02/16	01/05/17	EPA 3050B	EPA 6010C
Cadmium	0.40	0.25	0.025	1.000	241980	12/02/16	01/05/17	EPA 3050B	EPA 6010C
Chromium	8.5	0.25	0.062	1.000	241980	12/02/16	01/05/17	EPA 3050B	EPA 6010C
Cobalt	4.9	0.25	0.029	1.000	241980	12/02/16	01/05/17	EPA 3050B	EPA 6010C
Copper	4.4	0.25	0.082	1.000	241980	12/02/16	01/05/17	EPA 3050B	EPA 6010C
Lead	6.5	0.25	0.068	1.000	241980	12/02/16	01/05/17	EPA 3050B	EPA 6010C
Mercury	1.8	0.081	0.024	5.000	242384	12/14/16	12/14/16	METHOD	EPA 7471B
Molybdenum	0.20 J	0.25	0.048	1.000	241980	12/02/16	01/05/17	EPA 3050B	EPA 6010C
Nickel	11	0.25	0.065	1.000	241980	12/02/16	01/05/17	EPA 3050B	EPA 6010C
Selenium	0.39 U	0.49	0.16	1.000	241980	12/02/16	01/12/17	EPA 3050B	EPA 6010C
Silver	0.12 U	0.25	0.039	1.000	241980	12/02/16	01/05/17	EPA 3050B	EPA 6010C
Thallium	0.39 U	0.49	0.14	1.000	241980	12/02/16	01/05/17	EPA 3050B	EPA 6010C
Vanadium	13	0.25	0.056	1.000	241980	12/02/16	01/05/17	EPA 3050B	EPA 6010C
Zinc	31	0.98	0.20	1.000	241980	12/02/16	01/11/17	EPA 3050B	EPA 6010C

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	283600	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	BS-DUTRA-04-112116	Basis:	dry
Lab ID:	283600-004	Diln Fac:	1.000
Matrix:	Soil	Sampled:	11/21/16
Units:	mg/Kg	Received:	11/21/16

Moisture: 2%

Analyte	Result	LOQ	DL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	0.40 U	0.50	0.15	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Arsenic	1.6	0.25	0.072	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Barium	100	0.25	0.053	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Beryllium	0.52	0.099	0.012	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Cadmium	0.43	0.25	0.025	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Chromium	9.2	0.25	0.062	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Cobalt	5.3	0.25	0.030	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Copper	4.7	0.25	0.083	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Lead	6.9	0.25	0.069	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Mercury	0.56	0.018	0.0055	242384	12/14/16	12/14/16	METHOD	EPA 7471B
Molybdenum	0.34	0.25	0.048	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Nickel	12	0.25	0.065	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Selenium	0.40 U	0.50	0.16	241980	12/02/16	01/12/17	EPA 3050B	EPA 6010C
Silver	0.12 U	0.25	0.039	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Thallium	0.40 U	0.50	0.14	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Vanadium	14	0.25	0.056	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Zinc	32	0.99	0.20	241980	12/02/16	01/11/17	EPA 3050B	EPA 6010C

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	283600	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	BS-DUTRA-05-112116	Basis:	dry
Lab ID:	283600-005	Sampled:	11/21/16
Matrix:	Soil	Received:	11/21/16
Units:	mg/Kg		

Moisture: 2%

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	0.44 U	0.55	0.17	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Arsenic	1.5	0.28	0.081	1.000	241980	12/02/16	01/11/17	EPA 3050B	EPA 6010C
Barium	89	0.28	0.060	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Beryllium	0.53	0.11	0.014	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Cadmium	0.42	0.28	0.028	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Chromium	8.1	0.28	0.070	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Cobalt	5.3	0.28	0.033	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Copper	6.8	0.28	0.092	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Lead	6.9	0.28	0.077	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Mercury	2.4	0.084	0.025	5.000	242384	12/14/16	12/14/16	METHOD	EPA 7471B
Molybdenum	0.24 J	0.28	0.054	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Nickel	12	0.28	0.073	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Selenium	0.44 U	0.55	0.18	1.000	241980	12/02/16	01/12/17	EPA 3050B	EPA 6010C
Silver	0.14 U	0.28	0.044	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Thallium	0.44 U	0.55	0.16	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Vanadium	13	0.28	0.063	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Zinc	33	1.1	0.22	1.000	241980	12/02/16	01/11/17	EPA 3050B	EPA 6010C

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	283600	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	BS-DUTRA-06-112116	Basis:	dry
Lab ID:	283600-006	Sampled:	11/21/16
Matrix:	Soil	Received:	11/21/16
Units:	mg/Kg		

Moisture: 2%

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	0.42 U	0.53	0.16	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Arsenic	2.0	0.26	0.076	1.000	241980	12/02/16	01/11/17	EPA 3050B	EPA 6010C
Barium	80	0.26	0.056	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Beryllium	0.53	0.11	0.013	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Cadmium	0.41	0.26	0.027	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Chromium	8.2	0.26	0.066	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Cobalt	5.2	0.26	0.032	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Copper	6.6	0.26	0.088	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Lead	6.1	0.26	0.073	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Mercury	1.6	0.086	0.026	5.000	242384	12/14/16	12/14/16	METHOD	EPA 7471B
Molybdenum	0.21 J	0.26	0.051	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Nickel	13	0.26	0.069	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Selenium	0.42 J	0.53	0.17	1.000	241980	12/02/16	01/12/17	EPA 3050B	EPA 6010C
Silver	0.13 U	0.26	0.042	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Thallium	0.22 J	0.53	0.15	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Vanadium	13	0.26	0.060	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Zinc	32	1.1	0.21	1.000	241980	12/02/16	01/11/17	EPA 3050B	EPA 6010C

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	283600	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	BS-DUTRA-07-112116	Basis:	dry
Lab ID:	283600-007	Sampled:	11/21/16
Matrix:	Soil	Received:	11/21/16
Units:	mg/Kg		

Moisture: 2%

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	0.44 U	0.55	0.17	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Arsenic	1.7	0.28	0.081	1.000	241980	12/02/16	01/11/17	EPA 3050B	EPA 6010C
Barium	100	0.28	0.060	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Beryllium	0.55	0.11	0.014	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Cadmium	0.44	0.28	0.028	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Chromium	9.5	0.28	0.070	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Cobalt	5.8	0.28	0.033	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Copper	5.8	0.28	0.092	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Lead	6.6	0.28	0.077	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Mercury	5.1	0.16	0.049	10.00	242384	12/14/16	12/14/16	METHOD	EPA 7471B
Molybdenum	0.26 J	0.28	0.054	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Nickel	13	0.28	0.073	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Selenium	0.45 J	0.55	0.18	1.000	241980	12/02/16	01/12/17	EPA 3050B	EPA 6010C
Silver	0.14 U	0.28	0.044	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Thallium	0.44 U	0.55	0.16	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Vanadium	15	0.28	0.063	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Zinc	35	1.1	0.22	1.000	241980	12/02/16	01/11/17	EPA 3050B	EPA 6010C

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	283600	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	BS-DUTRA-08-112116	Basis:	dry
Lab ID:	283600-008	Sampled:	11/21/16
Matrix:	Soil	Received:	11/21/16
Units:	mg/Kg		

Moisture: 2%

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	0.42 U	0.53	0.16	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Arsenic	1.7	0.26	0.076	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Barium	79	0.26	0.056	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Beryllium	0.51	0.11	0.013	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Cadmium	0.39	0.26	0.027	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Chromium	7.2	0.26	0.066	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Cobalt	5.0	0.26	0.032	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Copper	5.3	0.26	0.088	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Lead	6.4	0.26	0.073	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Mercury	1.5	0.086	0.026	5.000	242384	12/14/16	12/14/16	METHOD	EPA 7471B
Molybdenum	0.24 J	0.26	0.051	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Nickel	11	0.26	0.069	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Selenium	0.42 U	0.53	0.17	1.000	241980	12/02/16	01/12/17	EPA 3050B	EPA 6010C
Silver	0.13 U	0.26	0.042	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Thallium	0.42 U	0.53	0.15	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Vanadium	12	0.26	0.060	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Zinc	31	1.1	0.21	1.000	241980	12/02/16	01/11/17	EPA 3050B	EPA 6010C

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	283600	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	BS-DUTRA-09-112116	Basis:	dry
Lab ID:	283600-009	Diln Fac:	1.000
Matrix:	Soil	Sampled:	11/21/16
Units:	mg/Kg	Received:	11/21/16

Moisture: 2%

Analyte	Result	LOQ	DL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	0.40 U	0.50	0.15	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Arsenic	2.0	0.25	0.072	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Barium	96	0.25	0.053	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Beryllium	0.53	0.099	0.012	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Cadmium	0.40	0.25	0.025	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Chromium	7.7	0.25	0.062	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Cobalt	5.4	0.25	0.030	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Copper	4.8	0.25	0.083	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Lead	7.0	0.25	0.069	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Mercury	0.47	0.016	0.0047	242384	12/14/16	12/14/16	METHOD	EPA 7471B
Molybdenum	0.18 J	0.25	0.048	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Nickel	12	0.25	0.065	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Selenium	0.40 U	0.50	0.16	241980	12/02/16	01/12/17	EPA 3050B	EPA 6010C
Silver	0.12 U	0.25	0.039	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Thallium	0.40 U	0.50	0.14	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Vanadium	13	0.25	0.056	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Zinc	29	0.99	0.20	241980	12/02/16	01/11/17	EPA 3050B	EPA 6010C

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	283600	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	BS-DUTRA-10-112116	Basis:	dry
Lab ID:	283600-010	Sampled:	11/21/16
Matrix:	Soil	Received:	11/21/16
Units:	mg/Kg		

Moisture: 2%

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	0.43 U	0.53	0.16	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Arsenic	1.5	0.27	0.077	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Barium	82	0.27	0.057	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Beryllium	0.50	0.11	0.013	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Cadmium	0.41	0.27	0.027	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Chromium	8.8	0.27	0.067	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Cobalt	5.5	0.27	0.032	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Copper	5.5	0.27	0.089	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Lead	7.9	0.27	0.074	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Mercury	1.6	0.082	0.025	5.000	242384	12/14/16	12/14/16	METHOD	EPA 7471B
Molybdenum	0.30	0.27	0.052	1.000	241980	12/02/16	01/11/17	EPA 3050B	EPA 6010C
Nickel	12	0.27	0.070	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Selenium	0.43 U	0.53	0.17	1.000	241980	12/02/16	01/12/17	EPA 3050B	EPA 6010C
Silver	0.13 U	0.27	0.042	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Thallium	0.43 U	0.53	0.15	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Vanadium	14	0.27	0.061	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Zinc	31	1.1	0.21	1.000	241980	12/02/16	01/11/17	EPA 3050B	EPA 6010C

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	283600	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	BS-DUTRA-11-112116	Basis:	dry
Lab ID:	283600-011	Sampled:	11/21/16
Matrix:	Soil	Received:	11/21/16
Units:	mg/Kg		

Moisture: 2%

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	0.44 U	0.55	0.16	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Arsenic	1.9	0.27	0.080	1.000	241980	12/02/16	01/11/17	EPA 3050B	EPA 6010C
Barium	110	0.27	0.059	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Beryllium	0.54	0.11	0.014	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Cadmium	0.39	0.27	0.028	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Chromium	8.2	0.27	0.069	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Cobalt	5.0	0.27	0.033	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Copper	4.9	0.27	0.091	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Lead	7.2	0.27	0.076	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Mercury	1.9	0.091	0.027	5.000	242384	12/14/16	12/14/16	METHOD	EPA 7471B
Molybdenum	0.22 J	0.27	0.054	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Nickel	12	0.27	0.072	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Selenium	0.45 J	0.55	0.18	1.000	241980	12/02/16	01/12/17	EPA 3050B	EPA 6010C
Silver	0.14 U	0.27	0.044	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Thallium	0.44 U	0.55	0.15	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Vanadium	13	0.27	0.063	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Zinc	30	1.1	0.22	1.000	241980	12/02/16	01/11/17	EPA 3050B	EPA 6010C

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	283600	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	BS-DUTRA-12-112116	Basis:	dry
Lab ID:	283600-012	Diln Fac:	1.000
Matrix:	Soil	Sampled:	11/21/16
Units:	mg/Kg	Received:	11/21/16

Moisture: 2%

Analyte	Result	LOQ	DL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	0.96	0.48	0.14	242066	12/05/16	12/06/16	EPA 3050B	EPA 6010C
Arsenic	2.1	0.24	0.070	242066	12/05/16	12/06/16	EPA 3050B	EPA 6010C
Barium	98	0.24	0.052	242066	12/05/16	12/06/16	EPA 3050B	EPA 6010C
Beryllium	0.66	0.096	0.012	242066	12/05/16	12/06/16	EPA 3050B	EPA 6010C
Cadmium	0.32	0.24	0.025	242066	12/05/16	12/06/16	EPA 3050B	EPA 6010C
Chromium	8.3	0.24	0.061	242066	12/05/16	12/06/16	EPA 3050B	EPA 6010C
Cobalt	5.0	0.24	0.029	242066	12/05/16	12/06/16	EPA 3050B	EPA 6010C
Copper	5.4	0.24	0.080	242066	12/05/16	12/06/16	EPA 3050B	EPA 6010C
Lead	6.6	0.24	0.067	242066	12/05/16	12/06/16	EPA 3050B	EPA 6010C
Mercury	0.66	0.017	0.0050	242384	12/14/16	12/14/16	METHOD	EPA 7471B
Molybdenum	0.40	0.24	0.047	242066	12/05/16	12/06/16	EPA 3050B	EPA 6010C
Nickel	11	0.24	0.063	242066	12/05/16	12/06/16	EPA 3050B	EPA 6010C
Selenium	0.39 U	0.48	0.15	242066	12/05/16	12/06/16	EPA 3050B	EPA 6010C
Silver	0.12 U	0.24	0.038	242066	12/05/16	12/06/16	EPA 3050B	EPA 6010C
Thallium	0.39 U	0.48	0.14	242066	12/05/16	01/04/17	EPA 3050B	EPA 6010C
Vanadium	13	0.24	0.055	242066	12/05/16	12/06/16	EPA 3050B	EPA 6010C
Zinc	29	0.96	0.19	242066	12/05/16	12/06/16	EPA 3050B	EPA 6010C

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	283600	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	BS-DUTRA-13-112116	Basis:	dry
Lab ID:	283600-013	Sampled:	11/21/16
Matrix:	Soil	Received:	11/21/16
Units:	mg/Kg		

Moisture: 2%

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	0.44 U	0.55	0.17	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Arsenic	2.3	0.28	0.081	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Barium	100	0.28	0.060	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Beryllium	0.61	0.11	0.014	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Cadmium	0.46	0.28	0.028	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Chromium	9.3	0.28	0.070	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Cobalt	6.0	0.28	0.033	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Copper	6.2	0.28	0.092	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Lead	8.4	0.28	0.077	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Mercury	1.4	0.037	0.011	2.000	242384	12/14/16	12/14/16	METHOD	EPA 7471B
Molybdenum	0.30	0.28	0.054	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Nickel	14	0.28	0.073	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Selenium	0.44 U	0.55	0.18	1.000	241980	12/02/16	01/12/17	EPA 3050B	EPA 6010C
Silver	0.14 U	0.28	0.044	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Thallium	0.44 U	0.55	0.16	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Vanadium	15	0.28	0.063	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Zinc	37	1.1	0.22	1.000	241980	12/02/16	01/11/17	EPA 3050B	EPA 6010C

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	283600	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	BS-DUTRA-14-112116	Basis:	dry
Lab ID:	283600-014	Sampled:	11/21/16
Matrix:	Soil	Received:	11/21/16
Units:	mg/Kg		

Moisture: 2%

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	0.43 U	0.54	0.16	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Arsenic	1.0	0.27	0.079	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Barium	74	0.27	0.058	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Beryllium	0.49	0.11	0.013	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Cadmium	0.35	0.27	0.028	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Chromium	7.1	0.27	0.068	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Cobalt	4.5	0.27	0.033	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Copper	4.1	0.27	0.090	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Lead	5.4	0.27	0.076	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Mercury	1.6	0.085	0.026	5.000	242384	12/14/16	12/14/16	METHOD	EPA 7471B
Molybdenum	0.18 J	0.27	0.053	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Nickel	10	0.27	0.071	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Selenium	0.43 U	0.54	0.17	1.000	241980	12/02/16	01/12/17	EPA 3050B	EPA 6010C
Silver	0.14 U	0.27	0.043	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Thallium	0.43 U	0.54	0.15	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Vanadium	12	0.27	0.062	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Zinc	28	1.1	0.22	1.000	241980	12/02/16	01/11/17	EPA 3050B	EPA 6010C

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	283600	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	BS-DUTRA-15-112116	Basis:	dry
Lab ID:	283600-015	Diln Fac:	1.000
Matrix:	Soil	Sampled:	11/21/16
Units:	mg/Kg	Received:	11/21/16

Moisture: 2%

Analyte	Result	LOQ	DL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	0.44 U	0.55	0.17	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Arsenic	1.8	0.28	0.081	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Barium	94	0.28	0.060	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Beryllium	0.56	0.11	0.014	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Cadmium	0.44	0.28	0.028	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Chromium	8.6	0.28	0.070	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Cobalt	5.6	0.28	0.033	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Copper	4.9	0.28	0.092	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Lead	7.2	0.28	0.077	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Mercury	0.61	0.017	0.0052	242384	12/14/16	12/14/16	METHOD	EPA 7471B
Molybdenum	0.35	0.28	0.054	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Nickel	13	0.28	0.073	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Selenium	0.44 U	0.55	0.18	241980	12/02/16	01/12/17	EPA 3050B	EPA 6010C
Silver	0.14 U	0.28	0.044	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Thallium	0.44 U	0.55	0.16	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Vanadium	14	0.28	0.063	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Zinc	34	1.1	0.22	241980	12/02/16	01/11/17	EPA 3050B	EPA 6010C

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	283600	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	BS-DUTRA-16-112116	Basis:	dry
Lab ID:	283600-016	Sampled:	11/21/16
Matrix:	Soil	Received:	11/21/16
Units:	mg/Kg		

Moisture: 2%

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	0.39 U	0.49	0.15	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Arsenic	1.4	0.24	0.071	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Barium	75	0.24	0.052	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Beryllium	0.48	0.097	0.012	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Cadmium	0.37	0.24	0.025	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Chromium	7.1	0.24	0.061	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Cobalt	4.5	0.24	0.029	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Copper	5.3	0.24	0.081	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Lead	5.4	0.24	0.068	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Mercury	1.9	0.081	0.024	5.000	242384	12/14/16	12/14/16	METHOD	EPA 7471B
Molybdenum	0.20 J	0.24	0.047	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Nickel	11	0.24	0.064	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Selenium	0.39 U	0.49	0.16	1.000	241980	12/02/16	01/12/17	EPA 3050B	EPA 6010C
Silver	0.12 U	0.24	0.039	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Thallium	0.39 U	0.49	0.14	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Vanadium	12	0.24	0.055	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Zinc	30	0.97	0.19	1.000	241980	12/02/16	01/11/17	EPA 3050B	EPA 6010C

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	283600	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	BS-DUTRA-17-112116	Basis:	dry
Lab ID:	283600-017	Sampled:	11/21/16
Matrix:	Soil	Received:	11/21/16
Units:	mg/Kg		

Moisture: 2%

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	0.43 U	0.54	0.16	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Arsenic	1.8	0.27	0.079	1.000	241980	12/02/16	01/11/17	EPA 3050B	EPA 6010C
Barium	90	0.27	0.058	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Beryllium	0.59	0.11	0.013	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Cadmium	0.46	0.27	0.028	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Chromium	8.8	0.27	0.068	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Cobalt	6.0	0.27	0.033	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Copper	6.2	0.27	0.090	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Lead	7.1	0.27	0.076	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Mercury	1.9	0.078	0.024	5.000	242384	12/14/16	12/14/16	METHOD	EPA 7471B
Molybdenum	0.24 J	0.27	0.053	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Nickel	14	0.27	0.071	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Selenium	0.39 J	0.54	0.17	1.000	241980	12/02/16	01/12/17	EPA 3050B	EPA 6010C
Silver	0.14 U	0.27	0.043	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Thallium	0.43 U	0.54	0.15	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Vanadium	15	0.27	0.062	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Zinc	36	1.1	0.22	1.000	241980	12/02/16	01/11/17	EPA 3050B	EPA 6010C

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	283600	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	BS-DUTRA-18-112116	Basis:	dry
Lab ID:	283600-018	Diln Fac:	1.000
Matrix:	Soil	Sampled:	11/21/16
Units:	mg/Kg	Received:	11/21/16

Moisture: 2%

Analyte	Result	LOQ	DL	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	0.43 U	0.53	0.16	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Arsenic	1.1	0.27	0.077	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Barium	100	0.27	0.057	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Beryllium	0.55	0.11	0.013	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Cadmium	0.39	0.27	0.027	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Chromium	8.4	0.27	0.067	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Cobalt	4.7	0.27	0.032	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Copper	5.4	0.27	0.089	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Lead	5.6	0.27	0.074	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Mercury	0.74	0.016	0.0047	242384	12/14/16	12/14/16	METHOD	EPA 7471B
Molybdenum	0.22 J	0.27	0.052	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Nickel	11	0.27	0.070	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Selenium	0.20 J	0.53	0.17	241980	12/02/16	01/12/17	EPA 3050B	EPA 6010C
Silver	0.13 U	0.27	0.042	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Thallium	0.43 U	0.53	0.15	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Vanadium	13	0.27	0.061	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Zinc	29	1.1	0.21	241980	12/02/16	01/11/17	EPA 3050B	EPA 6010C

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	283600	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	BS-DUTRA-19-112116	Basis:	dry
Lab ID:	283600-019	Sampled:	11/21/16
Matrix:	Soil	Received:	11/21/16
Units:	mg/Kg		

Moisture: 2%

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	0.43 U	0.54	0.16	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Arsenic	1.7	0.27	0.078	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Barium	110	0.27	0.058	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Beryllium	0.56	0.11	0.013	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Cadmium	0.43	0.27	0.027	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Chromium	9.1	0.27	0.068	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Cobalt	5.7	0.27	0.032	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Copper	5.1	0.27	0.090	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Lead	7.2	0.27	0.075	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Mercury	1.4	0.085	0.026	5.000	242384	12/14/16	12/14/16	METHOD	EPA 7471B
Molybdenum	0.27	0.27	0.052	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Nickel	13	0.27	0.071	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Selenium	0.35 J	0.54	0.17	1.000	241980	12/02/16	01/12/17	EPA 3050B	EPA 6010C
Silver	0.13 U	0.27	0.043	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Thallium	0.43 U	0.54	0.15	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Vanadium	15	0.27	0.061	1.000	241980	12/02/16	01/06/17	EPA 3050B	EPA 6010C
Zinc	33	1.1	0.21	1.000	241980	12/02/16	01/11/17	EPA 3050B	EPA 6010C

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

California Title 22 Metals

Lab #:	283600	Project#:	149831
Client:	CB&I	Location:	HPNS Parcel D-1
Field ID:	BS-DUTRA-20-112116	Basis:	dry
Lab ID:	283600-020	Sampled:	11/21/16
Matrix:	Soil	Received:	11/21/16
Units:	mg/Kg		

Moisture: 2%

Analyte	Result	LOQ	DL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Antimony	0.43 U	0.54	0.16	1.000	241980	12/02/16	01/11/17	EPA 3050B	EPA 6010C
Arsenic	1.6	0.27	0.079	1.000	241980	12/02/16	01/11/17	EPA 3050B	EPA 6010C
Barium	98	0.27	0.058	1.000	241980	12/02/16	01/11/17	EPA 3050B	EPA 6010C
Beryllium	0.62	0.11	0.013	1.000	241980	12/02/16	01/11/17	EPA 3050B	EPA 6010C
Cadmium	0.40	0.27	0.028	1.000	241980	12/02/16	01/11/17	EPA 3050B	EPA 6010C
Chromium	9.3	0.27	0.068	1.000	241980	12/02/16	01/11/17	EPA 3050B	EPA 6010C
Cobalt	5.5	0.27	0.033	1.000	241980	12/02/16	01/11/17	EPA 3050B	EPA 6010C
Copper	5.2	0.27	0.090	1.000	241980	12/02/16	01/12/17	EPA 3050B	EPA 6010C
Lead	6.6	0.27	0.076	1.000	241980	12/02/16	01/11/17	EPA 3050B	EPA 6010C
Mercury	3.0	0.085	0.026	5.000	242384	12/14/16	12/14/16	METHOD	EPA 7471B
Molybdenum	0.44	0.27	0.053	1.000	241980	12/02/16	01/11/17	EPA 3050B	EPA 6010C
Nickel	13	0.27	0.071	1.000	241980	12/02/16	01/11/17	EPA 3050B	EPA 6010C
Selenium	0.43 U	0.54	0.17	1.000	241980	12/02/16	01/12/17	EPA 3050B	EPA 6010C
Silver	0.14 U	0.27	0.043	1.000	241980	12/02/16	01/11/17	EPA 3050B	EPA 6010C
Thallium	0.43 U	0.54	0.15	1.000	241980	12/02/16	01/11/17	EPA 3050B	EPA 6010C
Vanadium	14	0.27	0.062	1.000	241980	12/02/16	01/11/17	EPA 3050B	EPA 6010C
Zinc	32	1.1	0.22	1.000	241980	12/02/16	01/11/17	EPA 3050B	EPA 6010C

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	283600	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3050B
Project#:	149831	Analysis:	EPA 6010C
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC862977	Batch#:	241980
Matrix:	Soil	Prepared:	12/02/16
Units:	mg/Kg		

Analyte	Result	LOQ	DL	Analyzed
Antimony	0.40 U	0.50	0.15	01/05/17
Arsenic	0.20 U	0.25	0.073	01/05/17
Barium	0.13 U	0.25	0.054	01/05/17
Beryllium	0.025 U	0.10	0.012	01/05/17
Cadmium	0.063 U	0.25	0.026	01/05/17
Chromium	0.076 J	0.25	0.063	01/05/17
Cobalt	0.063 U	0.25	0.030	01/05/17
Copper	0.20 U	0.25	0.083	01/05/17
Lead	0.13 U	0.25	0.070	01/05/17
Molybdenum	0.13 U	0.25	0.049	01/05/17
Nickel	0.13 U	0.25	0.066	01/05/17
Selenium	0.40 U	0.50	0.16	01/11/17
Silver	0.13 U	0.25	0.040	01/05/17
Thallium	0.40 U	0.50	0.14	01/05/17
Vanadium	0.13 U	0.25	0.057	01/05/17
Zinc	0.27 J	1.0	0.20	01/11/17

J= Estimated value
U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Batch QC Report

Iron

Lab #:	283600	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3050B
Project#:	149831	Analysis:	EPA 6010C
Analyte:	Iron	Units:	mg/Kg
Matrix:	Soil		

Field ID	Type	MSS Lab ID	Lab ID	MSS Result	Spiked	Result	%REC	Limits	Basis	Moisture	RPD	Lim	Diln Fac	Batch#	Sampled	Received	Prepared	Analyzed
	BS		QC862978		515.5	531.5	103	81-118					1.000	241980			12/02/16	01/05/17
	BSD		QC862979		549.5	590.5	107	81-118			4	20	1.000	241980			12/02/16	01/05/17
BS-DUTRA-01-112116	MS	283600-001	QC862980	12,790	526.0	13,360	107 NM	81-118	dry	2%			100.0	241980	11/21/16	11/21/16	12/02/16	01/12/17
BS-DUTRA-01-112116	MSD	283600-001	QC862981		490.6	13,430	129 NM	81-118	dry	2%	1	20	100.0	241980	11/21/16	11/21/16	12/02/16	01/12/17
	BS		QC863327		515.5	577.8	112	81-118					1.000	242066			12/05/16	12/06/16
	BSD		QC863328		495.0	578.8	117	81-118			4	20	1.000	242066			12/05/16	12/06/16
ZZZZZZZZZZ	MS	283790-070	QC863329	35,990	520.8	32,930 >LR	-588 NM	81-118	as received				1.000	242066	11/29/16	11/29/16	12/05/16	01/05/17
ZZZZZZZZZZ	MSD	283790-070	QC863330		526.3	32,930 >LR	-582 NM	81-118	as received		NC	20	1.000	242066	11/29/16	11/29/16	12/05/16	01/05/17

NC= Not Calculated
NM= Not Meaningful: Sample concentration > 4X spike concentration
>LR= Response exceeds instrument's linear range
RPD= Relative Percent Difference

Batch QC Report

Manganese

Lab #:	283600	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3050B
Project#:	149831	Analysis:	EPA 6010C
Analyte:	Manganese	Units:	mg/Kg
Matrix:	Soil	Diln Fac:	1.000

Field ID	Type	MSS Lab ID	Lab ID	MSS Result	Spiked	Result	%REC	Limits	Basis	Moisture	RPD	Lim	Batch#	Sampled	Received	Prepared	Analyzed
	BS		QC862978		51.55	55.51	108	84-114					241980			12/02/16	01/05/17
	BSD		QC862979		54.95	57.78	105	84-114			2	20	241980			12/02/16	01/05/17
BS-DUTRA-01-112116	MS	283600-001	QC862980	252.0	52.60	315.4	121 NM	84-114	dry	2%			241980	11/21/16	11/21/16	12/02/16	01/05/17
BS-DUTRA-01-112116	MSD	283600-001	QC862981		49.06	334.4	168 NM	84-114	dry	2%	7	20	241980	11/21/16	11/21/16	12/02/16	01/05/17
	BS		QC863327		51.55	56.07	109	84-114					242066			12/05/16	12/06/16
	BSD		QC863328		49.50	53.41	108	84-114			1	20	242066			12/05/16	12/06/16
ZZZZZZZZZZ	MS	283790-070	QC863329	579.2	52.08	656.0 >LR	147 NM	84-114	as received				242066	11/29/16	11/29/16	12/05/16	12/06/16
ZZZZZZZZZZ	MSD	283790-070	QC863330		52.63	668.7 >LR	170 NM	84-114	as received		NC	20	242066	11/29/16	11/29/16	12/05/16	12/06/16

NC= Not Calculated
NM= Not Meaningful: Sample concentration > 4X spike concentration
>LR= Response exceeds instrument's linear range
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	283600	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3050B
Project#:	149831	Analysis:	EPA 6010C
Matrix:	Soil	Batch#:	241980
Units:	mg/Kg	Prepared:	12/02/16
Diln Fac:	1.000		

Type: BS Lab ID: QC862978

Analyte	Spiked	Result	%REC	Limits	Analyzed
Antimony	51.55	49.72	96	79-114	01/05/17
Arsenic	51.55	50.12	97	82-111	01/05/17
Barium	51.55	55.46	108	83-113	01/05/17
Beryllium	25.77	27.37	106	83-113	01/05/17
Cadmium	51.55	54.61	106	82-113	01/05/17
Chromium	51.55	55.49	108	85-113	01/05/17
Cobalt	51.55	52.91	103	85-112	01/05/17
Copper	51.55	53.23	103	81-117	01/05/17
Lead	51.55	52.39	102	81-112	01/05/17
Molybdenum	51.55	52.15	101	82-116	01/05/17
Nickel	51.55	54.05	105	83-113	01/05/17
Selenium	51.55	52.23	101	78-111	01/11/17
Silver	5.155	5.192	101	82-112	01/05/17
Thallium	51.55	50.93	99	83-111	01/05/17
Vanadium	51.55	54.61	106	82-114	01/05/17
Zinc	51.55	55.04	107	82-113	01/11/17

Type: BSD Lab ID: QC862979

Analyte	Spiked	Result	%REC	Limits	RPD	Lim	Analyzed
Antimony	54.95	52.02	95	79-114	2	20	01/05/17
Arsenic	54.95	52.45	95	82-111	2	20	01/05/17
Barium	54.95	57.80	105	83-113	2	20	01/05/17
Beryllium	27.47	28.55	104	83-113	2	20	01/05/17
Cadmium	54.95	56.68	103	82-113	3	20	01/05/17
Chromium	54.95	57.77	105	85-113	2	20	01/05/17
Cobalt	54.95	54.73	100	85-112	3	20	01/05/17
Copper	54.95	55.41	101	81-117	2	20	01/05/17
Lead	54.95	54.64	99	81-112	2	20	01/05/17
Molybdenum	54.95	54.22	99	82-116	2	20	01/05/17
Nickel	54.95	56.27	102	83-113	2	20	01/05/17
Selenium	54.95	54.55	99	78-111	2	20	01/11/17
Silver	5.495	5.445	99	82-112	2	20	01/05/17
Thallium	54.95	53.11	97	83-111	2	20	01/05/17
Vanadium	54.95	56.81	103	82-114	2	20	01/05/17
Zinc	54.95	56.71	103	82-113	3	20	01/11/17

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	283600	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3050B
Project#:	149831	Analysis:	EPA 6010C
Field ID:	BS-DUTRA-01-112116	Dil'n Fac:	1.000
MSS Lab ID:	283600-001	Batch#:	241980
Matrix:	Soil	Sampled:	11/21/16
Units:	mg/Kg	Received:	11/21/16
Basis:	dry	Prepared:	12/02/16

Type: MS Moisture: 2%
Lab ID: QC862980

Analyte	MSS Result	Spiked	Result	%REC	Limits	Analyzed
Antimony	<0.1676	52.60	17.87	34 *	79-114	01/05/17
Arsenic	2.639	52.60	52.54	95	82-111	01/05/17
Barium	87.33	52.60	147.1	114 *	83-113	01/05/17
Beryllium	0.5534	26.30	27.34	102	83-113	01/05/17
Cadmium	0.4166	52.60	51.90	98	82-113	01/05/17
Chromium	8.442	52.60	61.53	101	85-113	01/05/17
Cobalt	5.668	52.60	55.23	94	85-112	01/05/17
Copper	5.339	52.60	58.12	100	81-117	01/05/17
Lead	6.960	52.60	55.28	92	81-112	01/05/17
Molybdenum	0.3290	52.60	48.74	92	82-116	01/05/17
Nickel	12.66	52.60	62.66	95	83-113	01/05/17
Selenium	<0.1791	52.60	51.68	98	78-111	01/11/17
Silver	<0.04471	5.260	3.926	75 *	82-112	01/05/17
Thallium	<0.1575	52.60	47.32	90	83-111	01/05/17
Vanadium	13.42	52.60	66.51	101	82-114	01/05/17
Zinc	32.71	52.60	85.88	101	82-113	01/11/17

Type: MSD Moisture: 2%
Lab ID: QC862981

Analyte	Spiked	Result	%REC	Limits	RPD	Lim	Analyzed
Antimony	49.06	14.26	29 *	79-114	16	20	01/05/17
Arsenic	49.06	48.06	93	82-111	2	20	01/05/17
Barium	49.06	146.5	121 *	83-113	2	20	01/05/17
Beryllium	24.53	25.94	104	83-113	2	20	01/05/17
Cadmium	49.06	48.05	97	82-113	1	20	01/05/17
Chromium	49.06	58.07	101	85-113	0	20	01/05/17
Cobalt	49.06	51.11	93	85-112	1	20	01/05/17
Copper	49.06	54.84	101	81-117	0	20	01/05/17
Lead	49.06	50.93	90	81-112	2	20	01/05/17
Molybdenum	49.06	44.48	90	82-116	2	20	01/05/17
Nickel	49.06	59.38	95	83-113	0	20	01/05/17
Selenium	49.06	48.03	98	78-111	0	20	01/11/17
Silver	4.906	3.426	70 *	82-112	7	20	01/05/17
Thallium	49.06	42.05	86	83-111	5	20	01/05/17
Vanadium	49.06	63.48	102	82-114	1	20	01/05/17
Zinc	49.06	85.08	107	82-113	3	20	01/11/17

*= Value outside of QC limits; see narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Iron

Lab #:	283600	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3050B
Project#:	149831	Analysis:	EPA 6010C
Analyte:	Iron	Basis:	dry
Field ID:	BS-DUTRA-01-112116	Diln Fac:	500.0
Type:	Serial Dilution	Batch#:	241980
MSS Lab ID:	283600-001	Sampled:	11/21/16
Lab ID:	QC862982	Received:	11/21/16
Matrix:	Soil	Analyzed:	01/12/17
Units:	mg/Kg		

MSS Result	MSS LOQ	Result	LOQ	Moisture %	Diff	Lim
12,790	560.7	12,290	2,803	2%	4	10

LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Manganese

Lab #:	283600	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3050B
Project#:	149831	Analysis:	EPA 6010C
Analyte:	Manganese	Basis:	dry
Field ID:	BS-DUTRA-01-112116	Diln Fac:	5.000
Type:	Serial Dilution	Batch#:	241980
MSS Lab ID:	283600-001	Sampled:	11/21/16
Lab ID:	QC862982	Received:	11/21/16
Matrix:	Soil	Analyzed:	01/05/17
Units:	mg/Kg		

MSS Result	MSS LOQ	Result	LOQ	Moisture %	Diff Lim
252.0	0.2803	263.5	1.402	2%	5 10

LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	283600	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3050B
Project#:	149831	Analysis:	EPA 6010C
Field ID:	BS-DUTRA-01-112116	Basis:	dry
Type:	Serial Dilution	Diln Fac:	5.000
MSS Lab ID:	283600-001	Batch#:	241980
Lab ID:	QC862982	Sampled:	11/21/16
Matrix:	Soil	Received:	11/21/16
Units:	mg/Kg		

Moisture: 2%

Analyte	MSS Result	MSS LOQ	Result	LOQ	% Diff	Lim	Analyzed
Antimony	2.243 ND	0.5607	2.243 U	2.803	NC	10	01/05/17
Arsenic	2.639	0.2803	1.368 J	1.402	NC	10	01/11/17
Barium	87.33	0.2803	92.13	1.402	5	10	01/05/17
Beryllium	0.5534	0.1121	0.5761	0.5607	NC	10	01/05/17
Cadmium	0.4166	0.2803	0.4027 J	1.402	NC	10	01/05/17
Chromium	8.442	0.2803	8.738	1.402	3	10	01/05/17
Cobalt	5.668	0.2803	6.034	1.402	6	10	01/05/17
Copper	5.339	0.2804	5.476	1.402	3	10	01/05/17
Lead	6.960	0.2803	7.156	1.402	3	10	01/05/17
Molybdenum	0.3290	0.2803	0.4399 J	1.402	NC	10	01/05/17
Nickel	12.66	0.2803	13.49	1.402	7	10	01/05/17
Selenium	2.243 ND	0.5607	2.243 U	2.803	NC	10	01/11/17
Silver	0.7008 ND	0.2803	0.7008 U	1.402	NC	10	01/05/17
Thallium	2.243 ND	0.5607	2.243 U	2.803	NC	10	01/05/17
Vanadium	13.42	0.2803	13.98	1.402	4	10	01/05/17
Zinc	32.71	1.121	32.94	5.607	1	10	01/11/17

J= Estimated value
U= Not Detected at or above DL
NC= Not Calculated
ND= Not Detected at or above DL
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Iron			
Lab #:	283600	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3050B
Project#:	149831	Analysis:	EPA 6010C
Analyte:	Iron	Basis:	dry
Field ID:	BS-DUTRA-01-112116	Diln Fac:	100.0
Type:	Post Digest Spike	Batch#:	241980
MSS Lab ID:	283600-001	Sampled:	11/21/16
Lab ID:	QC862983	Received:	11/21/16
Matrix:	Soil	Analyzed:	01/12/17
Units:	mg/Kg		

MSS Result	Spiked	Result	%REC	Limits	Moisture
12,790	56,070	76,190	113	80-120	2%

Curtis & Tompkins, Ltd.

Batch QC Report

Manganese

Lab #:	283600	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3050B
Project#:	149831	Analysis:	EPA 6010C
Analyte:	Manganese	Basis:	dry
Field ID:	BS-DUTRA-01-112116	Diln Fac:	1.000
Type:	Post Digest Spike	Batch#:	241980
MSS Lab ID:	283600-001	Sampled:	11/21/16
Lab ID:	QC862983	Received:	11/21/16
Matrix:	Soil	Analyzed:	01/05/17
Units:	mg/Kg		

MSS Result	Spiked	Result	%REC	Limits	Moisture
252.0	5.607	249.8	-39 NM	80-120	2%

NM= Not Meaningful: Sample concentration > 4X spike concentration

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	283600	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3050B
Project#:	149831	Analysis:	EPA 6010C
Field ID:	BS-DUTRA-01-112116	Basis:	dry
Type:	Post Digest Spike	Diln Fac:	1.000
MSS Lab ID:	283600-001	Batch#:	241980
Lab ID:	QC862983	Sampled:	11/21/16
Matrix:	Soil	Received:	11/21/16
Units:	mg/Kg		

Moisture: 2%

Analyte	MSS Result	Spiked	Result	%REC	Limits	Analyzed
Antimony	<0.1676	5.607	1.749	31 *	80-120	01/05/17
Arsenic	2.639	5.607	7.280	83	80-120	01/05/17
Barium	87.33	5.607	92.29	88 NM	80-120	01/05/17
Beryllium	0.5534	5.607	6.874	113	80-120	01/05/17
Cadmium	0.4166	5.607	6.463	108	80-120	01/05/17
Chromium	8.442	5.607	14.53	109	80-120	01/05/17
Cobalt	5.668	5.607	11.31	101	80-120	01/05/17
Copper	5.339	5.607	11.40	108	80-120	01/05/17
Lead	6.960	5.607	12.42	97	80-120	01/05/17
Molybdenum	0.3290	5.607	6.338	107	80-120	01/05/17
Nickel	12.66	5.607	18.25	100	80-120	01/05/17
Selenium	<0.1791	5.607	4.546	81	80-120	01/11/17
Silver	<0.04471	5.607	4.359	78 *	80-120	01/05/17
Thallium	<0.1575	2.803	2.264	81	80-120	01/05/17
Vanadium	13.42	5.607	19.40	107	80-120	01/05/17
Zinc	32.71	5.607	38.67	106 NM	80-120	01/11/17

*= Value outside of QC limits; see narrative
NM= Not Meaningful: Sample concentration > 4X spike concentration

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	283600	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3050B
Project#:	149831	Analysis:	EPA 6010C
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC863326	Batch#:	242066
Matrix:	Soil	Prepared:	12/05/16
Units:	mg/Kg	Analyzed:	12/06/16

Analyte	Result	LOQ	DL
Antimony	0.37 U	0.47	0.14
Arsenic	0.19 U	0.23	0.068
Barium	0.12 U	0.23	0.050
Beryllium	0.023 U	0.093	0.012
Cadmium	0.058 U	0.23	0.024
Chromium	0.33 Q b	0.23	0.059
Cobalt	0.058 U	0.23	0.028
Copper	0.19 U	0.23	0.078
Lead	0.12 U	0.23	0.065
Molybdenum	0.12 U	0.23	0.046
Nickel	0.12 U	0.23	0.061
Selenium	0.37 U	0.47	0.15
Silver	0.12 U	0.23	0.037
Thallium	0.37 U	0.47	0.13
Vanadium	0.12 U	0.23	0.053
Zinc	1.1 Q b	0.93	0.19

Q= See narrative
U= Not Detected at or above DL
b= See narrative
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	283600	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3050B
Project#:	149831	Analysis:	EPA 6010C
Matrix:	Soil	Batch#:	242066
Units:	mg/Kg	Prepared:	12/05/16
Diln Fac:	1.000	Analyzed:	12/06/16

Type: BS Lab ID: QC863327

Analyte	Spiked	Result	%REC	Limits
Antimony	51.55	49.67	96	79-114
Arsenic	51.55	49.95	97	82-111
Barium	51.55	54.13	105	83-113
Beryllium	25.77	26.66	103	83-113
Cadmium	51.55	53.36	104	82-113
Chromium	51.55	53.70	104	85-113
Cobalt	51.55	51.34	100	85-112
Copper	51.55	53.30	103	81-117
Lead	51.55	50.92	99	81-112
Molybdenum	51.55	51.15	99	82-116
Nickel	51.55	52.88	103	83-113
Selenium	51.55	49.88	97	78-111
Silver	5.155	4.887	95	82-112
Thallium	51.55	50.81	99	83-111
Vanadium	51.55	53.00	103	82-114
Zinc	51.55	52.37	102	82-113

Type: BSD Lab ID: QC863328

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Antimony	49.50	46.90	95	79-114	2	20
Arsenic	49.50	47.16	95	82-111	2	20
Barium	49.50	51.34	104	83-113	1	20
Beryllium	24.75	25.55	103	83-113	0	20
Cadmium	49.50	50.62	102	82-113	1	20
Chromium	49.50	51.17	103	85-113	1	20
Cobalt	49.50	48.26	97	85-112	2	20
Copper	49.50	50.41	102	81-117	2	20
Lead	49.50	47.56	96	81-112	3	20
Molybdenum	49.50	48.60	98	82-116	1	20
Nickel	49.50	50.27	102	83-113	1	20
Selenium	49.50	47.28	96	78-111	1	20
Silver	4.950	4.684	95	82-112	0	20
Thallium	49.50	48.03	97	83-111	2	20
Vanadium	49.50	50.11	101	82-114	2	20
Zinc	49.50	49.56	100	82-113	1	20

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	283600	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3050B
Project#:	149831	Analysis:	EPA 6010C
Field ID:	ZZZZZZZZZZ	Batch#:	242066
MSS Lab ID:	283790-070	Sampled:	11/29/16
Matrix:	Soil	Received:	11/29/16
Units:	mg/Kg	Prepared:	12/05/16
Basis:	as received	Analyzed:	12/06/16
Diln Fac:	1.000		

Type: MS Lab ID: QC863329

Analyte	MSS Result	Spiked	Result	%REC	Limits
Antimony	8.346	52.08	23.33	29 *	79-114
Arsenic	9.403	52.08	58.04	93	82-111
Barium	103.2	52.08	171.7	132 *	83-113
Beryllium	0.3740	26.04	26.12	99	83-113
Cadmium	0.7824	52.08	48.17	91	82-113
Chromium	144.1	52.08	236.2	177 *	85-113
Cobalt	22.07	52.08	68.70	90	85-112
Copper	19.73	52.08	75.55	107	81-117
Lead	8.616	52.08	52.85	85	81-112
Molybdenum	0.2405	52.08	44.67	85	82-116
Nickel	258.7	52.08	330.3	138 NM	83-113
Selenium	<0.1581	52.08	46.32	89	78-111
Silver	<0.03947	5.208	4.350	84	82-112
Thallium	0.9870	52.08	44.05	83	83-111
Vanadium	57.06	52.08	115.2	112	82-114
Zinc	47.42	52.08	99.60	100	82-113

Type: MSD Lab ID: QC863330

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Antimony	52.63	23.29	28 *	79-114	1	20
Arsenic	52.63	59.44	95	82-111	1	20
Barium	52.63	173.8	134 *	83-113	1	20
Beryllium	26.32	26.62	100	83-113	1	20
Cadmium	52.63	48.95	92	82-113	1	20
Chromium	52.63	243.0	188 *	85-113	3	20
Cobalt	52.63	70.53	92	85-112	2	20
Copper	52.63	76.42	108	81-117	0	20
Lead	52.63	54.36	87	81-112	2	20
Molybdenum	52.63	45.36	86	82-116	0	20
Nickel	52.63	357.5	188 NM	83-113	8	20
Selenium	52.63	46.83	89	78-111	0	20
Silver	5.263	4.426	84	82-112	1	20
Thallium	52.63	44.49	83	83-111	0	20
Vanadium	52.63	118.5	117 *	82-114	2	20
Zinc	52.63	99.66	99	82-113	0	20

*= Value outside of QC limits; see narrative
NM= Not Meaningful: Sample concentration > 4X spike concentration
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Iron

Lab #:	283600	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3050B
Project#:	149831	Analysis:	EPA 6010C
Analyte:	Iron	Basis:	as received
Field ID:	ZZZZZZZZZZ	Diln Fac:	500.0
Type:	Serial Dilution	Batch#:	242066
MSS Lab ID:	283790-070	Sampled:	11/29/16
Lab ID:	QC863331	Received:	11/29/16
Matrix:	Soil	Analyzed:	01/05/17
Units:	mg/Kg		

MSS Result	MSS LOQ	Result	LOQ	% Diff	Lim
35,990	495.0	33,850	2,475	6	10

LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Manganese

Lab #:	283600	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3050B
Project#:	149831	Analysis:	EPA 6010C
Analyte:	Manganese	Basis:	as received
Field ID:	ZZZZZZZZZZ	Diln Fac:	500.0
Type:	Serial Dilution	Batch#:	242066
MSS Lab ID:	283790-070	Sampled:	11/29/16
Lab ID:	QC863331	Received:	11/29/16
Matrix:	Soil	Analyzed:	12/07/16
Units:	mg/Kg		

MSS Result	MSS LOQ	Result	LOQ	% Diff	Lim
579.2	24.75	607.7	123.8	5	10

LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	283600	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3050B
Project#:	149831	Analysis:	EPA 6010C
Field ID:	ZZZZZZZZZZ	Basis:	as received
Type:	Serial Dilution	Diln Fac:	5.000
MSS Lab ID:	283790-070	Batch#:	242066
Lab ID:	QC863331	Sampled:	11/29/16
Matrix:	Soil	Received:	11/29/16
Units:	mg/Kg	Analyzed:	12/06/16

Analyte	MSS Result	MSS LOQ	Result	LOQ	% Diff	Lim
Antimony	8.598	0.4950	9.099	2.475	6	10
Arsenic	9.066	0.2475	9.599	1.238	6	10
Barium	102.7	0.2475	108.2	1.238	5	10
Beryllium	0.4112	0.09901	0.4369 J	0.4950	NC	10
Cadmium	0.8945	0.2475	0.8697 J	1.238	NC	10
Chromium	143.7	0.2475	151.4	1.238	5	10
Cobalt	22.53	0.2475	24.81	1.238	10	10
Copper	19.59	0.2476	19.18	1.238	2	10
Lead	8.999	0.2475	9.523	1.238	6	10
Molybdenum	0.4162	0.2475	0.4224 J	1.238	NC	10
Nickel	257.6	0.2475	279.6	1.238	9	10
Selenium	1.980 ND	0.4950	1.980 U	2.475	NC	10
Silver	0.6188 ND	0.2475	0.6188 U	1.238	NC	10
Thallium	0.9870	0.4950	1.980 U	2.475	NC	10
Vanadium	56.75	0.2475	58.67	1.238	3	10
Zinc	47.68	0.9901	51.98	4.950	9	10

J= Estimated value
U= Not Detected at or above DL
NC= Not Calculated
ND= Not Detected at or above DL
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Iron

Lab #:	283600	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3050B
Project#:	149831	Analysis:	EPA 6010C
Analyte:	Iron	Basis:	as received
Field ID:	ZZZZZZZZZZ	Diln Fac:	100.0
Type:	Post Digest Spike	Batch#:	242066
MSS Lab ID:	283790-070	Sampled:	11/29/16
Lab ID:	QC863332	Received:	11/29/16
Matrix:	Soil	Analyzed:	01/05/17
Units:	mg/Kg		

MSS Result	Spiked	Result	%REC	Limits
35,990	49,500	94,210	118	80-120

Curtis & Tompkins, Ltd.

Batch QC Report

Manganese

Lab #:	283600	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3050B
Project#:	149831	Analysis:	EPA 6010C
Analyte:	Manganese	Basis:	as received
Field ID:	ZZZZZZZZZZ	Diln Fac:	100.0
Type:	Post Digest Spike	Batch#:	242066
MSS Lab ID:	283790-070	Sampled:	11/29/16
Lab ID:	QC863332	Received:	11/29/16
Matrix:	Soil	Analyzed:	12/07/16
Units:	mg/Kg		

MSS Result	Spiked	Result	%REC	Limits
579.2	495.0	1,122	110	80-120

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	283600	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3050B
Project#:	149831	Analysis:	EPA 6010C
Field ID:	ZZZZZZZZZZ	Basis:	as received
Type:	Post Digest Spike	Diln Fac:	1.000
MSS Lab ID:	283790-070	Batch#:	242066
Lab ID:	QC863332	Sampled:	11/29/16
Matrix:	Soil	Received:	11/29/16
Units:	mg/Kg	Analyzed:	12/06/16

Analyte	MSS Result	Spiked	Result	%REC	Limits
Antimony	8.598	4.950	12.76	84	80-120
Arsenic	9.066	4.950	13.67	93	80-120
Barium	102.7	4.950	104.0	26 NM	80-120
Beryllium	0.4112	4.950	5.527	103	80-120
Cadmium	0.8945	4.950	5.644	96	80-120
Chromium	143.7	4.950	143.5	-4 NM	80-120
Cobalt	22.53	4.950	26.49	80 NM	80-120
Copper	19.59	4.950	24.22	94	80-120
Lead	8.999	4.950	12.93	79 *	80-120
Molybdenum	0.4162	4.950	5.154	96	80-120
Nickel	257.6	4.950	253.1	-91 NM	80-120
Selenium	<0.1581	4.950	5.392	109	80-120
Silver	<0.03947	4.950	4.506	91	80-120
Thallium	0.9870	2.475	2.643	67 *	80-120
Vanadium	56.75	4.950	59.98	65 NM	80-120
Zinc	47.68	4.950	50.06	48 NM	80-120

*= Value outside of QC limits; see narrative
NM= Not Meaningful: Sample concentration > 4X spike concentration

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	283600	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	METHOD
Project#:	149831	Analysis:	EPA 7471B
Analyte:	Mercury	Diln Fac:	1.000
Type:	BLANK	Batch#:	242384
Lab ID:	QC864588	Prepared:	12/14/16
Matrix:	Soil	Analyzed:	12/14/16
Units:	mg/Kg		

Result	LOQ	DL
0.0077 U	0.015	0.0046

U= Not Detected at or above DL
DL= Detection Limit
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	283600	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	METHOD
Project#:	149831	Analysis:	EPA 7471B
Analyte:	Mercury	Batch#:	242384
Matrix:	Soil	Prepared:	12/14/16
Units:	mg/Kg	Analyzed:	12/14/16
Diln Fac:	1.000		

Type	Lab ID	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC864589	0.1953	0.2257	116	80-124		
BSD	QC864590	0.2119	0.2429	115	80-124	1	20

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	283600	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	METHOD
Project#:	149831	Analysis:	EPA 7471B
Analyte:	Mercury	Diln Fac:	1.000
Field ID:	BS-DUTRA-01-112116	Batch#:	242384
MSS Lab ID:	283600-001	Sampled:	11/21/16
Matrix:	Soil	Received:	11/21/16
Units:	mg/Kg	Prepared:	12/14/16
Basis:	as received	Analyzed:	12/14/16

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
MS	QC864591	1.449	0.1923	1.115	>LR -174 NM	80-124		
MSD	QC864592		0.2016	2.169	>LR 357 NM	80-124	NC	20

NC= Not Calculated
NM= Not Meaningful: Sample concentration > 4X spike concentration
>LR= Response exceeds instrument's linear range
RPD= Relative Percent Difference

REPORTING SUMMARY FOR 283600 METALS Soil
Curtis & Tompkins Laboratories

Lab ID	Inst ID	Analyzed	IDF	SB	AS	BA	BE	CD	CR	CO	CU	FE	PB	MN	HG	MO	NI	SE	AG	TL	VL	ZN
283600-001	MET44	12/14/16 17:08	1.0																			
283600-001	MET44	12/14/16 17:51	5.0												+							
283600-001	MET09	01/05/17 23:42	1.0	+	+	+	+	+	+	+	+		+	+		+	+		+	+	+	
283600-001	MET09	01/11/17 14:36	100.0																			
283600-001	MET09	01/11/17 14:39	1.0															+				+
283600-001	MET09	01/12/17 08:35	100.0								+											
283600-002	MET44	12/14/16 17:14	1.0																			
283600-002	MET44	12/14/16 17:52	5.0												+							
283600-002	MET09	01/05/17 23:53	1.0	+	+	+	+	+	+	+	+		+	+		+	+		+	+	+	
283600-002	MET09	01/11/17 14:50	1.0															+				+
283600-002	MET09	01/12/17 02:15	100.0								+											
283600-003	MET44	12/14/16 17:15	1.0																			
283600-003	MET44	12/14/16 17:54	5.0												+							
283600-003	MET09	01/05/17 23:59	1.0	+		+	+	+	+	+	+		+	+		+	+		+	+	+	
283600-003	MET09	01/11/17 14:57	1.0																			
283600-003	MET09	01/11/17 18:29	1.0		+																	+
283600-003	MET09	01/12/17 02:22	100.0								+											
283600-003	MET09	01/12/17 03:07	1.0															+				
283600-004	MET44	12/14/16 17:19	1.0												+							
283600-004	MET09	01/06/17 00:01	1.0	+	+	+	+	+	+	+	+		+	+		+	+		+	+	+	
283600-004	MET09	01/11/17 14:59	1.0																			
283600-004	MET09	01/11/17 18:32	1.0																			+
283600-004	MET09	01/12/17 02:25	100.0								+											
283600-004	MET09	01/12/17 03:09	1.0															+				
283600-005	MET44	12/14/16 17:20	1.0																			
283600-005	MET44	12/14/16 17:55	5.0												+							
283600-005	MET09	01/06/17 00:04	1.0	+		+	+	+	+	+	+		+	+		+	+		+	+	+	
283600-005	MET09	01/11/17 15:01	1.0																			
283600-005	MET09	01/11/17 18:34	1.0		+																	+
283600-005	MET09	01/12/17 02:27	100.0								+											
283600-005	MET09	01/12/17 03:12	1.0															+				
283600-006	MET44	12/14/16 17:22	1.0																			
283600-006	MET44	12/14/16 17:56	5.0												+							
283600-006	MET09	01/06/17 00:06	1.0	+		+	+	+	+	+	+		+	+		+	+		+	+	+	
283600-006	MET09	01/11/17 15:03	1.0																			
283600-006	MET09	01/11/17 18:36	1.0		+																	+
283600-006	MET09	01/12/17 02:29	100.0								+											
283600-006	MET09	01/12/17 03:18	1.0															+				
283600-007	MET44	12/14/16 17:23	1.0																			
283600-007	MET44	12/14/16 17:57	10.0												+							
283600-007	MET09	01/06/17 00:08	1.0	+		+	+	+	+	+	+		+	+		+	+		+	+	+	
283600-007	MET09	01/11/17 15:05	1.0																			
283600-007	MET09	01/11/17 18:38	1.0		+																	+
283600-007	MET09	01/12/17 02:32	100.0								+											
283600-007	MET09	01/12/17 03:20	1.0															+				
283600-008	MET44	12/14/16 17:25	1.0																			

REPORTING SUMMARY FOR 283600 METALS Soil
Curtis & Tompkins Laboratories

Lab ID	Inst ID	Analyzed	IDF	SB	AS	BA	BE	CD	CR	CO	CU	FE	PB	MN	HG	MO	NI	SE	AG	TL	VL	ZN
283600-008	MET44	12/14/16 17:59	5.0												+							
283600-008	MET09	01/06/17 00:10	1.0	+	+	+	+	+	+	+	+		+	+		+	+		+	+	+	
283600-008	MET09	01/11/17 15:08	1.0																			
283600-008	MET09	01/11/17 18:40	1.0																			+
283600-008	MET09	01/12/17 02:34	100.0									+										
283600-008	MET09	01/12/17 03:23	1.0															+				
283600-009	MET44	12/14/16 17:26	1.0																			
283600-009	MET44	12/14/16 17:58	1.0												+							
283600-009	MET09	01/06/17 00:12	1.0	+	+	+	+	+	+	+	+		+	+		+	+		+	+	+	
283600-009	MET09	01/11/17 15:10	1.0																			
283600-009	MET09	01/11/17 18:42	1.0																			+
283600-009	MET09	01/12/17 02:37	100.0									+										
283600-009	MET09	01/12/17 03:25	1.0																			
283600-009	MET09	01/12/17 08:37	1.0															+				
283600-010	MET44	12/14/16 17:27	1.0																			
283600-010	MET44	12/14/16 18:00	5.0												+							
283600-010	MET09	01/06/17 00:14	1.0	+	+	+	+	+	+	+	+		+	+			+		+	+	+	
283600-010	MET09	01/11/17 15:12	1.0																			
283600-010	MET09	01/11/17 18:45	1.0													+						+
283600-010	MET09	01/12/17 02:39	100.0									+										
283600-010	MET09	01/12/17 03:27	1.0																			
283600-010	MET09	01/12/17 08:39	1.0															+				
283600-011	MET44	12/14/16 17:29	1.0																			
283600-011	MET44	12/14/16 18:04	5.0												+							
283600-011	MET09	01/06/17 00:17	1.0	+		+	+	+	+	+	+		+	+		+	+		+	+	+	
283600-011	MET09	01/11/17 15:14	1.0																			
283600-011	MET09	01/11/17 18:47	1.0		+																	+
283600-011	MET09	01/12/17 02:41	100.0									+										
283600-011	MET09	01/12/17 03:29	1.0															+				
283600-011	MET09	01/12/17 08:42	1.0																			
283600-012	MET09	12/06/16 19:00	1.0	+	+	+	+	+	+	+	+		+	+		+	+	+	+		+	+
283600-012	MET09	12/07/16 20:20	100.0																			
283600-012	MET09	12/07/16 20:25	1.0																			
283600-012	MET44	12/14/16 17:30	1.0																			
283600-012	MET44	12/14/16 18:05	1.0												+							
283600-012	MET09	01/04/17 13:47	100.0									+										
283600-012	MET09	01/04/17 14:27	1.0																	+		
283600-013	MET44	12/14/16 17:31	1.0																			
283600-013	MET44	12/14/16 18:06	2.0												+							
283600-013	MET09	01/06/17 00:19	1.0	+	+	+	+	+	+	+	+		+	+		+	+		+	+	+	
283600-013	MET09	01/11/17 15:16	1.0																			
283600-013	MET09	01/11/17 18:53	1.0																			+
283600-013	MET09	01/12/17 02:44	100.0									+										
283600-013	MET09	01/12/17 03:31	1.0																			
283600-013	MET09	01/12/17 08:44	1.0															+				
283600-014	MET44	12/14/16 17:35	1.0																			
283600-014	MET44	12/14/16 18:07	5.0												+							

REPORTING SUMMARY FOR 283600 METALS Soil
Curtis & Tompkins Laboratories

Lab ID	Inst ID	Analyzed	IDF	SB	AS	BA	BE	CD	CR	CO	CU	FE	PB	MN	HG	MO	NI	SE	AG	TL	VL	ZN
283600-014	MET09	01/06/17 00:28	1.0	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
283600-014	MET09	01/11/17 18:56	1.0																			+
283600-014	MET09	01/12/17 02:51	100.0									+										
283600-014	MET09	01/12/17 03:33	1.0															+				
283600-015	MET44	12/14/16 17:37	1.0																			
283600-015	MET44	12/14/16 18:08	1.0												+							
283600-015	MET09	01/06/17 00:30	1.0	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	
283600-015	MET09	01/11/17 18:58	1.0																			+
283600-015	MET09	01/12/17 02:53	100.0									+										
283600-015	MET09	01/12/17 03:36	1.0																			
283600-015	MET09	01/12/17 08:46	1.0															+				
283600-016	MET44	12/14/16 17:38	1.0																			
283600-016	MET44	12/14/16 18:09	5.0												+							
283600-016	MET09	01/06/17 00:32	1.0	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	
283600-016	MET09	01/11/17 19:00	1.0																			+
283600-016	MET09	01/12/17 02:55	100.0									+										
283600-016	MET09	01/12/17 03:38	1.0																			
283600-016	MET09	01/12/17 08:48	1.0															+				
283600-017	MET44	12/14/16 17:39	1.0																			
283600-017	MET44	12/14/16 18:11	5.0												+							
283600-017	MET09	01/06/17 00:34	1.0	+		+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	
283600-017	MET09	01/11/17 19:02	1.0		+																	+
283600-017	MET09	01/12/17 02:58	100.0									+										
283600-017	MET09	01/12/17 03:44	1.0															+				
283600-018	MET44	12/14/16 17:41	1.0																			
283600-018	MET44	12/14/16 18:12	1.0												+							
283600-018	MET09	01/06/17 00:36	1.0	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	
283600-018	MET09	01/11/17 19:04	1.0																			+
283600-018	MET09	01/12/17 03:00	100.0									+										
283600-018	MET09	01/12/17 03:47	1.0															+				
283600-018	MET09	01/12/17 08:50	1.0																			
283600-019	MET44	12/14/16 17:42	1.0																			
283600-019	MET44	12/14/16 18:13	5.0												+							
283600-019	MET09	01/06/17 00:38	1.0	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	
283600-019	MET09	01/11/17 19:06	1.0																			+
283600-019	MET09	01/12/17 03:03	100.0									+										
283600-019	MET09	01/12/17 03:49	1.0															+				
283600-020	MET44	12/14/16 17:43	1.0																			
283600-020	MET44	12/14/16 18:14	5.0												+							
283600-020	MET09	01/11/17 19:09	1.0	+	+	+	+	+	+	+		+	+	+		+	+	+	+	+	+	+
283600-020	MET09	01/12/17 03:05	100.0									+										
283600-020	MET09	01/12/17 03:51	1.0															+				
283600-020	MET09	01/12/17 08:57	1.0																			
283600-020	MET09	01/12/17 11:53	1.0							+												
QC862977	MET09	01/05/17 23:34	1.0	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	
QC862977	MET09	01/11/17 14:30	1.0															+				+

REPORTING SUMMARY FOR 283600 METALS Soil
Curtis & Tompkins Laboratories

Lab ID	Inst ID	Analyzed	IDF	SB	AS	BA	BE	CD	CR	CO	CU	FE	PB	MN	HG	MO	NI	SE	AG	TL	VN	ZN
QC862978	MET09	01/05/17 23:37	1.0	+	+	+	+	+	+	+	+	+	+	+		+	+		+	+	+	
QC862978	MET09	01/11/17 14:33	1.0															+				+
QC862979	MET09	01/05/17 23:39	1.0	+	+	+	+	+	+	+	+	+	+	+		+	+		+	+	+	
QC862979	MET09	01/11/17 14:34	1.0															+				+
QC862980	MET09	01/05/17 23:44	1.0	+	+	+	+	+	+	+	+		+	+		+	+		+	+	+	
QC862980	MET09	01/11/17 14:41	1.0															+				+
QC862980	MET09	01/12/17 02:06	100.0									+										
QC862981	MET09	01/05/17 23:46	1.0	+	+	+	+	+	+	+	+		+	+		+	+		+	+	+	
QC862981	MET09	01/11/17 14:43	1.0															+				+
QC862981	MET09	01/12/17 02:08	100.0									+										
QC862982	MET09	01/05/17 23:48	5.0	+		+	+	+	+	+	+		+	+		+	+		+	+	+	
QC862982	MET09	01/11/17 14:45	5.0		+													+				+
QC862982	MET09	01/12/17 02:11	500.0									+										
QC862983	MET09	01/05/17 23:50	1.0	+	+	+	+	+	+	+	+		+	+		+	+		+	+	+	
QC862983	MET09	01/11/17 14:48	1.0															+				+
QC862983	MET09	01/12/17 02:13	100.0																			
QC862983	MET09	01/12/17 11:51	100.0									+										
QC863326	MET09	12/06/16 11:32	1.0	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC863326	MET09	12/06/16 13:57	1.0																			
QC863327	MET09	12/06/16 11:34	1.0	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC863328	MET09	12/06/16 11:36	1.0	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+
QC863329	MET09	12/06/16 11:47	1.0	+	+	+	+	+	+	+	+		+	+		+	+	+	+	+	+	+
QC863329	MET09	12/07/16 20:02	1.0																			
QC863329	MET09	01/05/17 14:55	1.0									+										
QC863330	MET09	12/06/16 11:49	1.0	+	+	+	+	+	+	+	+		+	+		+	+	+	+	+	+	+
QC863330	MET09	12/07/16 20:04	1.0																			
QC863330	MET09	01/05/17 14:57	1.0									+										
QC863331	MET09	12/06/16 11:51	5.0	+	+	+	+	+	+	+	+		+			+	+	+	+	+	+	+
QC863331	MET09	12/07/16 19:57	500.0											+								
QC863331	MET09	01/05/17 14:43	500.0									+										
QC863332	MET09	12/06/16 11:54	1.0	+	+	+	+	+	+	+	+		+			+	+	+	+	+	+	+
QC863332	MET09	12/07/16 19:59	100.0											+								
QC863332	MET09	01/05/17 14:45	100.0									+										
QC864588	MET44	12/14/16 16:50	1.0												+							
QC864589	MET44	12/14/16 16:51	1.0																			
QC864589	MET44	12/14/16 16:55	1.0												+							
QC864590	MET44	12/14/16 16:52	1.0																			

REPORTING SUMMARY FOR 283600 METALS Soil
Curtis & Tompkins Laboratories

Lab ID	Inst ID	Analyzed	IDF	SB	AS	BA	BE	CD	CR	CO	CU	FE	PB	MN	HG	MO	NI	SE	AG	TL	VN	ZN
QC864590	MET44	12/14/16 16:56	1.0												+							
QC864591	MET44	12/14/16 17:10	1.0												+							
QC864592	MET44	12/14/16 17:11	1.0												+							
QC864593	MET44	12/14/16 17:13	5.0												+							

ICP Data

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 96491671

Instrument : MET09
Method : EPA 6010C

Begun : 12/06/16 10:31
SOP Version : icp metals_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met09_sn_0816	ICALBLK				12/06/16 10:31	1.0		
002	met09_sn_0816	ICAL	L1			12/06/16 10:34	1.0	1	
003	met09_sn_0816	ICAL	L2			12/06/16 10:36	1.0	2	
004	met09_sn_0816	ICAL	L3			12/06/16 10:38	1.0	3	
005	met09_sn_0816	ICAL	L4			12/06/16 10:41	1.0	4	
006	met09_sn_0816	ICAL	L5			12/06/16 10:43	1.0	5	
007	met09_sn_0816	XICV				12/06/16 10:45	1.0	6	
008	met09_sn_0816	ICV				12/06/16 10:49	1.0	6	
009	met09_sn_0816	XCRI				12/06/16 10:51	1.0	7	
010	met09_sn_0816	CRI				12/06/16 10:54	1.0	7	
011	met09_sn_0816	ICB				12/06/16 10:58	1.0		
012	met09_sn_0816	ICSA				12/06/16 11:03	1.0	8	10:AL=520000
013	met09_sn_0816	XICSAB				12/06/16 11:10	1.0	9	
014	met09_sn_0816	XICSAB				12/06/16 11:12	1.0	9	
015	met09_sn_0816	ICSAB				12/06/16 11:15	1.0	9	5:AL=520000
016	met09_sn_0816	XMS	QC863103	WET Leachate	242010	12/06/16 11:17	10.0		
017	met09_sn_0816	XMSD	QC863104	WET Leachate	242010	12/06/16 11:20	10.0		
018	met09_sn_0816	SAMPLE	283771-001	WET Leachate	242010	12/06/16 11:22	10.0		1:NA=190000
019	met09_sn_0816	SAMPLE	283773-001	WET Leachate	242010	12/06/16 11:24	10.0		1:NA=200000
020	met09_sn_0816	SAMPLE	283771-001	TCLP Leachate	242004	12/06/16 11:27	10.0		
021	met09_sn_0816	X	RINSE			12/06/16 11:29	1.0		
022	met09_sn_0816	BLANK	QC863326	Soil	242066	12/06/16 11:32	1.0		
023	met09_sn_0816	BS	QC863327	Soil	242066	12/06/16 11:34	1.0		
024	met09_sn_0816	BSD	QC863328	Soil	242066	12/06/16 11:36	1.0		
025	met09_sn_0816	MSS	283790-070	Soil	242066	12/06/16 11:37	1.0		6:FE=610000
026	met09_sn_0816	CCV				12/06/16 11:39	1.0	10	
027	met09_sn_0816	XCCB				12/06/16 11:41	1.0		
028	met09_sn_0816	CCB				12/06/16 11:45	1.0		
029	met09_sn_0816	MS	QC863329	Soil	242066	12/06/16 11:47	1.0		5:FE=650000
030	met09_sn_0816	MSD	QC863330	Soil	242066	12/06/16 11:49	1.0		5:FE=650000
031	met09_sn_0816	SER	QC863331	Soil	242066	12/06/16 11:51	5.0		
032	met09_sn_0816	PDS	QC863332	Soil	242066	12/06/16 11:54	1.0	11 12 13	6:FE=610000
033	met09_sn_0816	SAMPLE	283870-001	Soil	242066	12/06/16 11:56	1.0		2:FE=300000
034	met09_sn_0816	SAMPLE	283950-001	Soil	242066	12/06/16 11:58	1.0		2:FE=210000
035	met09_sn_0816	MSS	283790-070	Soil	242066	12/06/16 12:02	1.0		6:FE=610000
036	met09_sn_0816	SAMPLE	283870-001	Soil	242066	12/06/16 12:04	1.0		2:FE=300000
037	met09_sn_0816	SAMPLE	283950-002	Soil	242066	12/06/16 12:06	1.0		2:AL=220000
038	met09_sn_0816	X	RINSE			12/06/16 12:08	1.0		
039	met09_sn_0816	XCCV				12/06/16 12:11	1.0	10	
040	met09_sn_0816	XCCB				12/06/16 12:14	1.0		
041	met09_sn_0816	CCV				12/06/16 12:18	1.0	10	
042	met09_sn_0816	CCB				12/06/16 12:20	1.0		
043	met09_sn_0816	SAMPLE	283790-016	Soil	241979	12/06/16 12:22	100.0		
044	met09_sn_0816	X	RINSE			12/06/16 12:24	1.0		
045	met09_sn_0816	BLANK	QC863119	WET Leachate	242013	12/06/16 12:27	10.0		
046	met09_sn_0816	BS	QC863120	WET Leachate	242013	12/06/16 12:29	1.0		
047	met09_sn_0816	BSD	QC863121	WET Leachate	242013	12/06/16 12:32	1.0		
048	met09_sn_0816	MSS	283915-001	WET Leachate	242013	12/06/16 12:34	10.0		1:NA=170000
049	met09_sn_0816	MS	QC863122	WET Leachate	242013	12/06/16 12:37	10.0		
050	met09_sn_0816	MSD	QC863123	WET Leachate	242013	12/06/16 12:39	10.0		
051	met09_sn_0816	SAMPLE	283858-001	WET Leachate	242013	12/06/16 12:42	10.0		
052	met09_sn_0816	SAMPLE	283873-006	WET Leachate	242013	12/06/16 12:44	10.0		1:NA=260000

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 96491671

Instrument : MET09 Begun : 12/06/16 10:31
Method : EPA 6010C SOP Version : icp metals_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met09_sn_0816	XCCV				12/06/16 12:46	1.0	10	
054	met09_sn_0816	XCCB				12/06/16 12:48	1.0		
055	met09_sn_0816	CCV				12/06/16 12:51	1.0	10	
056	met09_sn_0816	CCB				12/06/16 12:53	1.0		
057	met09_sn_0816	CCV				12/06/16 12:58	1.0	10	

TLO 12/06/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 57.

Standards used: 1=S31329 2=S31085 3=S31084 4=S31086 5=S31195 6=S31647 7=S31330 8=S31001 9=S31075 10=S31646 11=S29983 12=S29984 13=S30560

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 96491671

Date : 12/06/16 Reference : met09_sn_0816
Sequence : MET09 12/06/16 Analyzed : 12/06/16 10:34

#	Type	Sample ID	Y A
		ICAL STD	15674634
		LOWER LIMIT	4702390
		UPPER LIMIT	18809561
011	ICB		15375007
012	ICSA		13948532
015	ICSAB		13933145
022	BLANK	QC863326	16039691
023	BS	QC863327	15110914
024	BSD	QC863328	15329896
026	CCV		14993554
028	CCB		15353882
029	MS	QC863329	14542974
030	MSD	QC863330	14570348
031	SER	QC863331	14945707
032	PDS	QC863332	14517616
041	CCV		14906431
042	CCB		15437220

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 283600 METALS Soil: EPA 6010C

Inst : MET09
Calnum : 96491671001
Units : ug/L

Date : 06-DEC-2016 10:31
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met09_sn_0816	96491671002	L1	06-DEC-2016 10:34	S31329
L2	met09_sn_0816	96491671003	L2	06-DEC-2016 10:36	S31085
L3	met09_sn_0816	96491671004	L3	06-DEC-2016 10:38	S31084
L4	met09_sn_0816	96491671005	L4	06-DEC-2016 10:41	S31086
L5	met09_sn_0816	96491671006	L5	06-DEC-2016 10:43	S31195

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Antimony	A	4.6700	4.4850	4.3420	4.3800		LOR0	0.00000	0.22833		4.4693	1.000	0.995	
Arsenic	A	4.4600	3.5540	3.4385	3.4945		LOR0	0.00000	0.28621		3.7368	1.000	0.995	
Barium	A	113.56	121.60	120.79	116.03		LOR0	0.00000	0.00861		118.00	1.000	0.995	
Beryllium	A	8536.4	9132.9	9086.4			LOR0	0.00000	1.10E-4		8918.6	1.000	0.995	
Cadmium	A	200.10	218.90	217.47	206.01		LOR0	0.00000	0.00485		210.62	1.000	0.995	
Chromium	A	242.12	269.34	270.38	265.51		LOR0	0.00000	0.00377		261.84	1.000	0.995	
Cobalt	A	50.280	57.583	57.340	55.762		LOR0	0.00000	0.01793		55.241	1.000	0.995	
Copper	A	589.46	478.07	475.22	465.05		LOR0	0.00000	0.00215		501.95	1.000	0.995	
Lead	A	23.640	25.699	25.398	24.363		LOR0	0.00000	0.04103		24.775	1.000	0.995	
Manganese	A	1117.1	1231.5	1219.0	1138.0		LOR0	0.00000	8.78E-4		1176.4	1.000	0.995	
Molybdenum	A	33.440	38.761	38.328	37.508		LOR0	0.00000	0.02666		37.009	1.000	0.995	
Nickel	A	135.46	146.85	147.04	143.47		LOR0	0.00000	0.00697		143.20	1.000	0.995	
Selenium	A	3.8200	4.5780	4.5235	4.5611		LOR0	0.00000	0.21926		4.3707	1.000	0.995	
Silver	A	111.10	108.37	111.37	110.39		LOR0	0.00000	0.00906		110.31	1.000	0.995	
Thallium	A	3.8000	4.1180	4.0098	3.9016		LOR0	0.00000	0.25623		3.9574	1.000	0.995	
Vanadium	A	304.30	331.29	331.97	329.50		LOR0	0.00000	0.00303		324.26	1.000	0.995	
Zinc	A	99.630	97.116	94.346	91.652		LOR0	0.00000	0.01091		95.686	1.000	0.995	
Iron	R	17.420		17.425	18.033	17.623	LOR0	0.00000	0.05673		17.625	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Antimony	A	10.000	7	100.00	2	1000.0	-1	10000	0		
Arsenic	A	5.0000	**28**	100.00	2	1000.0	-2	10000	0		
Barium	A	5.0000	-2	100.00	5	1000.0	4	10000	0		
Beryllium	A	2.0000	-6	100.00	1	1000.0	0				
Cadmium	A	5.0000	-3	100.00	6	1000.0	6	10000	0		
Chromium	A	5.0000	-9	100.00	1	1000.0	2	10000	0		
Cobalt	A	5.0000	-10	100.00	3	1000.0	3	10000	0		
Copper	A	5.0000	**27**	100.00	3	1000.0	2	10000	0		
Lead	A	5.0000	-3	100.00	5	1000.0	4	10000	0		
Manganese	A	5.0000	-2	100.00	8	1000.0	7	10000	0		
Molybdenum	A	5.0000	-11	100.00	3	1000.0	2	10000	0		
Nickel	A	5.0000	-6	100.00	2	1000.0	2	10000	0		
Selenium	A	10.000	-16	100.00	0	1000.0	-1	10000	0		
Silver	A	5.0000	1	20.000	-2	200.00	1	2000.0	0		
Thallium	A	10.000	-3	100.00	6	1000.0	3	10000	0		
Vanadium	A	5.0000	-8	100.00	1	1000.0	1	10000	0		
Zinc	A	20.000	9	100.00	6	1000.0	3	10000	0		
Iron	R	100.00	-1			1000.0	-1	10000	2	100000	0

Instrument amount = a0 + response * a1 + response^2 * a2; LOR0=Linear regression forced thru origin, including 0,0 point

96491671001

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 283600 METALS Soil
EPA 6010C

Inst : MET09
Calnum : 96491671001 Cal Date : 06-DEC-2016

ICV 96491671008 (06-DEC-2016) stds: S31647

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	5000	4954	ug/L	-1	10	
Arsenic	A	5000	4986	ug/L	0	10	
Barium	A	5000	5078	ug/L	2	10	
Beryllium	A	500.0	509.6	ug/L	2	10	
Cadmium	A	5000	5121	ug/L	2	10	
Chromium	A	5000	5075	ug/L	2	10	
Cobalt	A	5000	4952	ug/L	-1	10	
Copper	A	5000	5016	ug/L	0	10	
Lead	A	5000	5036	ug/L	1	10	
Manganese	A	5000	5209	ug/L	4	10	
Molybdenum	A	5000	5067	ug/L	1	10	
Nickel	A	5000	5038	ug/L	1	10	
Selenium	A	5000	5000	ug/L	0	10	
Silver	A	1000	1006	ug/L	1	10	
Thallium	A	5000	4911	ug/L	-2	10	
Vanadium	A	5000	5051	ug/L	1	10	
Zinc	A	5000	5078	ug/L	2	10	
Iron	R	20000	20590	ug/L	3	10	

CURTIS & TOMPKINS LOW-LEVEL PERFORMANCE VERIFICATION STANDARD FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 96491671010.1 File : met09_sn_0816 Time : 06-DEC-2016 10:54
Cal : 96491671001 Caldate : 06-DEC-2016
Standards: S31330

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	10.00	10.23	ug/L	2	30	
Arsenic	A	5.000	3.893	ug/L	**-22**	30	!cri-
Barium	A	5.000	4.860	ug/L	-3	30	
Beryllium	A	2.000	2.021	ug/L	1	30	
Cadmium	A	5.000	5.027	ug/L	1	30	
Chromium	A	5.000	4.576	ug/L	-8	30	
Cobalt	A	5.000	4.462	ug/L	-11	30	
Copper	A	5.000	5.818	ug/L	16	30	
Lead	A	5.000	4.900	ug/L	-2	30	
Manganese	A	5.000	5.033	ug/L	1	30	
Molybdenum	A	5.000	5.029	ug/L	1	30	
Nickel	A	5.000	5.050	ug/L	1	30	
Selenium	A	10.00	8.819	ug/L	-12	30	
Silver	A	5.000	5.176	ug/L	4	30	
Thallium	A	10.00	9.472	ug/L	-5	30	
Vanadium	A	5.000	4.680	ug/L	-6	30	
Zinc	A	20.00	21.00	ug/L	5	30	
Iron	R	100.0	103.5	ug/L	3	30	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	15674634	15454294	-1.41

!=warning -=low bias

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 96491671011.1 File : met09_sn_0816 Time : 06-DEC-2016 10:58
Cal : 96491671001 Caldate : 06-DEC-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	0.5000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	1.250	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	
Iron	R	ND	100.0	80.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	15674634	15375007	-1.91

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 96491671012.1 File : met09_sn_0816 Time : 06-DEC-2016 11:03
Cal : 96491671001 Caldate : 06-DEC-2016
Standards: S31001

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	[0.6585]	10.00	ug/L	
Arsenic	A	[-4.050]	5.000	ug/L	!a-
Barium	A	[0.9925]	5.000	ug/L	
Beryllium	A	[-0.1626]	2.000	ug/L	
Cadmium	A	[1.823]	5.000	ug/L	!a+
Cobalt	A	[2.337]	5.000	ug/L	
Lead	A	[2.859]	5.000	ug/L	!a+
Molybdenum	A	[-1.935]	5.000	ug/L	
Selenium	A	[-5.536]	10.00	ug/L	
Silver	A	[0.5578]	5.000	ug/L	
Thallium	A	[-7.528]	10.00	ug/L	!a-
Zinc	A	[0.7418]	20.00	ug/L	

Interferent	Ch	Spiked	Quant	Units	%Rec	Flags
Chromium	A	20000	18980	ug/L	95	
Copper	A	20000	20290	ug/L	101	
Manganese	A	20000	18610	ug/L	93	
Nickel	A	20000	18360	ug/L	92	
Vanadium	A	20000	19710	ug/L	99	
Aluminum	R	500000	515400	ug/L	103	
Calcium	R	500000	489500	ug/L	98	
Iron	R	200000	198500	ug/L	99	
Magnesium	R	500000	506400	ug/L	101	
Titanium	R	20000	21440	ug/L	107	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	15674634	13948532	-11.01

!=warning +=high bias -=low bias a=ICSA

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 96491671015.1 File : met09_sn_0816 Time : 06-DEC-2016 11:15
Cal : 96491671001 Caldate : 06-DEC-2016
Standards: S31075

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	494.5	ug/L	-1	20	
Arsenic	A	500.0	469.2	ug/L	-6	20	
Barium	A	500.0	506.2	ug/L	1	20	
Beryllium	A	500.0	521.3	ug/L	4	20	
Cadmium	A	1000	980.0	ug/L	-2	20	
Chromium	A	500.0	489.5	ug/L	-2	20	
Cobalt	A	500.0	464.0	ug/L	-7	20	
Copper	A	500.0	496.0	ug/L	-1	20	
Lead	A	1000	883.4	ug/L	-12	20	
Manganese	A	500.0	508.4	ug/L	2	20	
Molybdenum	A	500.0	475.1	ug/L	-5	20	
Nickel	A	1000	949.9	ug/L	-5	20	
Selenium	A	500.0	477.8	ug/L	-4	20	
Silver	A	1000	1088	ug/L	9	20	
Thallium	A	500.0	464.1	ug/L	-7	20	
Vanadium	A	500.0	523.3	ug/L	5	20	
Zinc	A	1000	950.7	ug/L	-5	20	
Iron	R	200000	196600	ug/L	-2		

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	15674634	13933145	-11.11

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 96491671026.1 File : met09_sn_0816 Time : 06-DEC-2016 11:39
Cal : 96491671001 Caldate : 06-DEC-2016
Standards: S31646

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	4.4693	4.1733	5000	4764	ug/L	-5	10	
Arsenic	A	3.7368	3.3465	5000	4789	ug/L	-4	10	
Barium	A	118.00	117.83	5000	5076	ug/L	2	10	
Beryllium	A	8918.6	9276.4	500.0	510.4	ug/L	2	10	
Cadmium	A	210.62	205.04	5000	4974	ug/L	-1	10	
Chromium	A	261.84	267.21	5000	5031	ug/L	1	10	
Cobalt	A	55.241	53.796	5000	4822	ug/L	-4	10	
Copper	A	501.95	468.55	5000	5036	ug/L	1	10	
Lead	A	24.775	23.641	5000	4850	ug/L	-3	10	
Manganese	A	1176.4	1180.8	5000	5184	ug/L	4	10	
Molybdenum	A	37.009	36.563	5000	4873	ug/L	-3	10	
Nickel	A	143.20	143.23	5000	4990	ug/L	0	10	
Selenium	A	4.3707	4.4043	5000	4828	ug/L	-3	10	
Silver	A	110.31	110.92	1000	1005	ug/L	0	10	
Thallium	A	3.9574	3.7481	5000	4802	ug/L	-4	10	
Vanadium	A	324.26	331.81	5000	5035	ug/L	1	10	
Zinc	A	95.686	89.773	5000	4896	ug/L	-2	10	
Iron	R	17.625	18.587	20000	21090	ug/L	5	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	15674634	14993554	-4.35

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 96491671028.1 File : met09_sn_0816 Time : 06-DEC-2016 11:45
Cal : 96491671001 Caldate : 06-DEC-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	0.5000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	1.250	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	
Iron	R	ND	100.0	80.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	15674634	15353882	-2.05

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 96491671041.1 File : met09_sn_0816 Time : 06-DEC-2016 12:18
Cal : 96491671001 Caldate : 06-DEC-2016
Standards: S31646

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	4.4693	3.9903	5000	4555	ug/L	-9	10	
Arsenic	A	3.7368	3.2009	5000	4581	ug/L	-8	10	
Barium	A	118.00	116.52	5000	5019	ug/L	0	10	
Beryllium	A	8918.6	9315.7	500.0	512.6	ug/L	3	10	
Cadmium	A	210.62	199.88	5000	4848	ug/L	-3	10	
Chromium	A	261.84	263.35	5000	4958	ug/L	-1	10	
Cobalt	A	55.241	51.400	5000	4608	ug/L	-8	10	
Copper	A	501.95	466.17	5000	5011	ug/L	0	10	
Lead	A	24.775	22.485	5000	4612	ug/L	-8	10	
Manganese	A	1176.4	1175.0	5000	5159	ug/L	3	10	
Molybdenum	A	37.009	35.278	5000	4702	ug/L	-6	10	
Nickel	A	143.20	140.67	5000	4901	ug/L	-2	10	
Selenium	A	4.3707	4.2577	5000	4668	ug/L	-7	10	
Silver	A	110.31	109.03	1000	987.6	ug/L	-1	10	
Thallium	A	3.9574	3.6764	5000	4710	ug/L	-6	10	
Vanadium	A	324.26	328.03	5000	4977	ug/L	0	10	
Zinc	A	95.686	86.760	5000	4732	ug/L	-5	10	
Iron	R	17.625	18.222	20000	20670	ug/L	3	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	15674634	14906431	-4.90

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 96491671042.1 File : met09_sn_0816 Time : 06-DEC-2016 12:20
Cal : 96491671001 Caldate : 06-DEC-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	0.5000	ug/L	
Cadmium	A	[1.304]	5.000	1.250	ug/L	!CCB
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	[2.599]	5.000	2.500	ug/L	!CCB
Manganese	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	[1.273]	5.000	1.250	ug/L	!CCB
Zinc	A	ND	20.00	16.00	ug/L	
Iron	R	ND	100.0	80.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	15674634	15437220	-1.51

!=warning CCB=instrument blank

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 96492132

Instrument : MET09 Begun : 12/06/16 18:12
Method : EPA 6010C SOP Version : icp metals_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met09_sn_0816	ICALBLK				12/06/16 18:12	1.0		
002	met09_sn_0816	ICAL	L1			12/06/16 18:15	1.0	1	
003	met09_sn_0816	ICAL	L2			12/06/16 18:17	1.0	2	
004	met09_sn_0816	ICAL	L3			12/06/16 18:19	1.0	3	
005	met09_sn_0816	ICAL	L4			12/06/16 18:22	1.0	4	
006	met09_sn_0816	ICAL	L5			12/06/16 18:24	1.0	5	
007	met09_sn_0816	ICV				12/06/16 18:26	1.0	6	
008	met09_sn_0816	XCRI				12/06/16 18:28	1.0	7	
009	met09_sn_0816	CRI				12/06/16 18:32	1.0	7	
010	met09_sn_0816	XICB				12/06/16 18:34	1.0		
011	met09_sn_0816	ICB				12/06/16 18:37	1.0		
012	met09_sn_0816	ICSA				12/06/16 18:39	1.0	8	10:AL=510000
013	met09_sn_0816	ICSAB				12/06/16 18:54	1.0	9	5:AL=510000
014	met09_sn_0816	SAMPLE	283600-012	Soil	242066	12/06/16 19:00	1.0		4:CA=310000
015	met09_sn_0816	SAMPLE	283790-067	Soil	242066	12/06/16 19:02	1.0		6:FE=610000
016	met09_sn_0816	SAMPLE	283790-068	Soil	242066	12/06/16 19:05	1.0		6:FE=630000
017	met09_sn_0816	SAMPLE	283790-069	Soil	242066	12/06/16 19:07	1.0		6:FE=610000
018	met09_sn_0816	SAMPLE	283790-071	Soil	242066	12/06/16 19:09	1.0		6:FE=650000
019	met09_sn_0816	SAMPLE	283790-072	Soil	242066	12/06/16 19:11	1.0		6:FE=590000
020	met09_sn_0816	SAMPLE	283790-073	Soil	242066	12/06/16 19:13	1.0		6:FE=580000
021	met09_sn_0816	SAMPLE	283790-074	Soil	242066	12/06/16 19:16	1.0		7:CA=780000
022	met09_sn_0816	SAMPLE	283790-075	Soil	242066	12/06/16 19:18	1.0		6:FE=580000
023	met09_sn_0816	SAMPLE	283790-076	Soil	242066	12/06/16 19:20	1.0		6:FE=650000
024	met09_sn_0816	CCV				12/06/16 19:22	1.0	10	
025	met09_sn_0816	CCB				12/06/16 19:24	1.0		
026	met09_sn_0816	CCB				12/06/16 19:26	1.0		
027	met09_sn_0816	CCV				12/06/16 19:31	1.0	10	
028	met09_sn_0816	CCB				12/06/16 19:34	1.0		
029	met09_sn_0816	SAMPLE	283790-077	Soil	242066	12/06/16 19:37	1.0		6:FE=660000
030	met09_sn_0816	SAMPLE	283790-078	Soil	242066	12/06/16 19:39	1.0		6:FE=640000
031	met09_sn_0816	X	RINSE			12/06/16 19:41	1.0		
032	met09_sn_0816	BLANK	QC863273	Soil	242052	12/06/16 19:44	1.0		
033	met09_sn_0816	BS	QC863274	Soil	242052	12/06/16 19:46	1.0		
034	met09_sn_0816	BSD	QC863275	Soil	242052	12/06/16 19:49	1.0		
035	met09_sn_0816	MSS	283791-002	Soil	242052	12/06/16 19:51	1.0		8:FE=790000
036	met09_sn_0816	MS	QC863276	Soil	242052	12/06/16 19:53	1.0		6:FE=720000
037	met09_sn_0816	MSD	QC863277	Soil	242052	12/06/16 19:56	1.0		7:FE=710000
038	met09_sn_0816	SER	QC863278	Soil	242052	12/06/16 19:58	5.0		
039	met09_sn_0816	CCV				12/06/16 20:00	1.0	10	
040	met09_sn_0816	CCB				12/06/16 20:02	1.0		
041	met09_sn_0816	CCB				12/06/16 20:04	1.0		
042	met09_sn_0816	PDS	QC863279	Soil	242052	12/06/16 20:06	1.0	11 12 13	8:FE=780000
043	met09_sn_0816	SAMPLE	283636-013	Soil	242052	12/06/16 20:09	1.0		7:FE=560000
044	met09_sn_0816	SAMPLE	283636-014	Soil	242052	12/06/16 20:11	1.0		6:FE=570000
045	met09_sn_0816	SAMPLE	283636-015	Soil	242052	12/06/16 20:13	1.0		3:FE=330000
046	met09_sn_0816	SAMPLE	283790-020	Soil	242052	12/06/16 20:15	1.0		5:FE=600000
047	met09_sn_0816	SAMPLE	283790-021	Soil	242052	12/06/16 20:17	1.0		5:FE=500000
048	met09_sn_0816	SAMPLE	283810-001	Soil	242052	12/06/16 20:19	1.0		3:FE=380000
049	met09_sn_0816	SAMPLE	283810-002	Soil	242052	12/06/16 20:22	1.0		3:FE=370000
050	met09_sn_0816	SAMPLE	283810-003	Soil	242052	12/06/16 20:24	1.0		2:FE=320000
051	met09_sn_0816	SAMPLE	283811-001	Soil	242052	12/06/16 20:26	1.0		5:FE=410000
052	met09_sn_0816	CCV				12/06/16 20:28	1.0	10	

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 96492132

Instrument : MET09 Begun : 12/06/16 18:12
Method : EPA 6010C SOP Version : icp metals_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met09_sn_0816	CCB				12/06/16 20:30	1.0		
054	met09_sn_0816	CCV				12/06/16 20:43	1.0	10	
055	met09_sn_0816	CCB				12/06/16 20:45	1.0		
056	met09_sn_0816	CCB				12/06/16 20:47	1.0		

MNA 12/06/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 56.

Standards used: 1=S31329 2=S31085 3=S31084 4=S31086 5=S31195 6=S31647 7=S31330 8=S31001 9=S31075 10=S31646 11=S29983 12=S29984 13=S30560

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 96492132

Date : 12/06/16 Reference : met09_sn_0816
Sequence : MET09 12/06/16 Analyzed : 12/06/16 18:15

#	Type	Sample ID	Y A
		ICAL STD	16781577
		LOWER LIMIT	5034473
		UPPER LIMIT	20137893
011	ICB		16374154
012	ICSA		14936820
013	ICSAB		14658064
014	SAMPLE	283600-012	15646490
024	CCV		15763939
025	CCB		15948757

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 283600 METALS Soil: EPA 6010C

Inst : MET09
Calnum : 96492132001
Units : ug/L

Date : 06-DEC-2016 18:12
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met09_sn_0816	96492132002	L1	06-DEC-2016 18:15	S31329
L2	met09_sn_0816	96492132003	L2	06-DEC-2016 18:17	S31085
L3	met09_sn_0816	96492132004	L3	06-DEC-2016 18:19	S31084
L4	met09_sn_0816	96492132005	L4	06-DEC-2016 18:22	S31086
L5	met09_sn_0816	96492132006	L5	06-DEC-2016 18:24	S31195

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Antimony	A	4.2800	3.7430	3.6532	3.7153		LOR0	0.00000	0.26920		3.8479	1.000	0.995	
Arsenic	A	2.8400	3.1040	3.0446	3.1045		LOR0	0.00000	0.32218		3.0233	1.000	0.995	
Barium	A	112.58	117.25	116.02	115.03		LOR0	0.00000	0.00869		115.22	1.000	0.995	
Beryllium	A	9467.3	9858.9	9672.5			LOR0	0.00000	1.03E-4		9666.2	1.000	0.995	
Cadmium	A	178.46	184.33	184.06	178.27		LOR0	0.00000	0.00561		181.28	1.000	0.995	
Chromium	A	271.18	286.47	280.50	282.74		LOR0	0.00000	0.00354		280.22	1.000	0.995	
Cobalt	A	49.520	55.030	54.013	54.872		LOR0	0.00000	0.01823		53.359	1.000	0.995	
Copper	A	486.86	505.83	490.92	498.88		LOR0	0.00000	0.00200		495.62	1.000	0.995	
Lead	A	22.080	22.616	22.130	22.306		LOR0	0.00000	0.04483		22.283	1.000	0.995	
Manganese	A	1206.8	1269.2	1229.3	1199.5		LOR0	0.00000	8.33E-4		1226.2	1.000	0.995	
Molybdenum	A	28.620	31.272	30.814	31.305		LOR0	0.00000	0.03195		30.503	1.000	0.995	
Nickel	A	141.78	141.63	141.33	142.53		LOR0	0.00000	0.00702		141.82	1.000	0.995	
Selenium	A	4.1600	3.8850	3.8280	3.9043		LOR0	0.00000	0.25618		3.9443	1.000	0.995	
Silver	A	106.70	112.40	116.04	120.61		LOR0	0.00000	0.00829		113.94	1.000	0.995	
Thallium	A	3.0900	3.3540	3.3237	3.2958		LOR0	0.00000	0.30339		3.2659	1.000	0.995	
Vanadium	A	302.84	353.76	348.47	354.26		LOR0	0.00000	0.00282		339.83	1.000	0.995	
Zinc	A	78.370	81.057	77.617	77.716		LOR0	0.00000	0.01287		78.690	1.000	0.995	
Iron	R	18.161		24.484	24.494	23.975	LOR0	0.00000	0.04170		22.778	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Antimony	A	10.000	15	100.00	1	1000.0	-2	10000	0		
Arsenic	A	5.0000	-9	100.00	0	1000.0	-2	10000	0		
Barium	A	5.0000	-2	100.00	2	1000.0	1	10000	0		
Beryllium	A	2.0000	-2	100.00	2	1000.0	0				
Cadmium	A	5.0000	0	100.00	3	1000.0	3	10000	0		
Chromium	A	5.0000	-4	100.00	1	1000.0	-1	10000	0		
Cobalt	A	5.0000	-10	100.00	0	1000.0	-2	10000	0		
Copper	A	5.0000	-2	100.00	1	1000.0	-2	10000	0		
Lead	A	5.0000	-1	100.00	1	1000.0	-1	10000	0		
Manganese	A	5.0000	1	100.00	6	1000.0	2	10000	0		
Molybdenum	A	5.0000	-9	100.00	0	1000.0	-2	10000	0		
Nickel	A	5.0000	-1	100.00	-1	1000.0	-1	10000	0		
Selenium	A	10.000	7	100.00	0	1000.0	-2	10000	0		
Silver	A	5.0000	-12	20.000	-7	200.00	-4	2000.0	0		
Thallium	A	10.000	-6	100.00	2	1000.0	1	10000	0		
Vanadium	A	5.0000	-15	100.00	0	1000.0	-2	10000	0		
Zinc	A	20.000	1	100.00	4	1000.0	0	10000	0		
Iron	R	100.00	**-24**			1000.0	2	10000	2	100000	0

Instrument amount = a0 + response * a1 + response^2 * a2; LOR0=Linear regression forced thru origin, including 0,0 point

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 283600 METALS Soil
EPA 6010C

Inst : MET09
Calnum : 96492132001 Cal Date : 06-DEC-2016

ICV 96492132007 (06-DEC-2016) stds: S31647

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	5000	5047	ug/L	1	10	
Arsenic	A	5000	5054	ug/L	1	10	
Barium	A	5000	5042	ug/L	1	10	
Beryllium	A	500.0	507.9	ug/L	2	10	
Cadmium	A	5000	5121	ug/L	2	10	
Chromium	A	5000	5030	ug/L	1	10	
Cobalt	A	5000	4978	ug/L	0	10	
Copper	A	5000	4971	ug/L	-1	10	
Lead	A	5000	4955	ug/L	-1	10	
Manganese	A	5000	5142	ug/L	3	10	
Molybdenum	A	5000	5022	ug/L	0	10	
Nickel	A	5000	4979	ug/L	0	10	
Selenium	A	5000	5027	ug/L	1	10	
Silver	A	1000	1000	ug/L	0	10	
Thallium	A	5000	4927	ug/L	-1	10	
Vanadium	A	5000	5009	ug/L	0	10	
Zinc	A	5000	5038	ug/L	1	10	
Iron	R	20000	20520	ug/L	3	10	

CURTIS & TOMPKINS LOW-LEVEL PERFORMANCE VERIFICATION STANDARD FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 96492132009.1 File : met09_sn_0816 Time : 06-DEC-2016 18:32
Cal : 96492132001 Caldate : 06-DEC-2016
Standards: S31330

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	10.00	11.09	ug/L	11	30	
Arsenic	A	5.000	4.132	ug/L	-17	30	
Barium	A	5.000	5.264	ug/L	5	30	
Beryllium	A	2.000	2.111	ug/L	6	30	
Cadmium	A	5.000	5.368	ug/L	7	30	
Chromium	A	5.000	5.005	ug/L	0	30	
Cobalt	A	5.000	5.036	ug/L	1	30	
Copper	A	5.000	5.905	ug/L	18	30	
Lead	A	5.000	4.614	ug/L	-8	30	
Manganese	A	5.000	5.345	ug/L	7	30	
Molybdenum	A	5.000	5.264	ug/L	5	30	
Nickel	A	5.000	5.364	ug/L	7	30	
Selenium	A	10.00	10.87	ug/L	9	30	
Silver	A	5.000	4.063	ug/L	-19	30	
Thallium	A	10.00	9.370	ug/L	-6	30	
Vanadium	A	5.000	4.978	ug/L	0	30	
Zinc	A	20.00	22.47	ug/L	12	30	
Iron	R	100.0	105.0	ug/L	5	30	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16781577	16456698	-1.94

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 96492132011.1 File : met09_sn_0816 Time : 06-DEC-2016 18:37
Cal : 96492132001 Caldate : 06-DEC-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	0.5000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	1.250	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	
Iron	R	ND	100.0	80.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16781577	16374154	-2.43

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 96492132012.1 File : met09_sn_0816 Time : 06-DEC-2016 18:39
Cal : 96492132001 Caldate : 06-DEC-2016
Standards: S31001

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	[-7.626]	10.00	ug/L	!a-
Arsenic	A	[-0.8618]	5.000	ug/L	
Barium	A	[-0.01163]	5.000	ug/L	
Beryllium	A	[0.05190]	2.000	ug/L	
Cadmium	A	[1.974]	5.000	ug/L	!a+
Cobalt	A	[3.818]	5.000	ug/L	!a+
Lead	A	[-2.884]	5.000	ug/L	!a-
Molybdenum	A	[-0.9104]	5.000	ug/L	
Selenium	A	[-5.196]	10.00	ug/L	
Silver	A	[-1.473]	5.000	ug/L	
Thallium	A	[1.724]	10.00	ug/L	
Zinc	A	[-0.9506]	20.00	ug/L	

Interferent	Ch	Spiked	Quant	Units	%Rec	Flags
Chromium	A	20000	18760	ug/L	94	
Copper	A	20000	20390	ug/L	102	
Manganese	A	20000	18430	ug/L	92	
Nickel	A	20000	18060	ug/L	90	
Vanadium	A	20000	19390	ug/L	97	
Aluminum	R	500000	507300	ug/L	101	
Calcium	R	500000	483000	ug/L	97	
Iron	R	200000	195300	ug/L	98	
Magnesium	R	500000	500900	ug/L	100	
Titanium	R	20000	20410	ug/L	102	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16781577	14936820	-10.99

!=warning +=high bias -=low bias a=ICSA

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 96492132013.1 File : met09_sn_0816 Time : 06-DEC-2016 18:54
Cal : 96492132001 Caldate : 06-DEC-2016
Standards: S31075

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	488.5	ug/L	-2	20	
Arsenic	A	500.0	512.8	ug/L	3	20	
Barium	A	500.0	513.4	ug/L	3	20	
Beryllium	A	500.0	522.0	ug/L	4	20	
Cadmium	A	1000	1024	ug/L	2	20	
Chromium	A	500.0	501.5	ug/L	0	20	
Cobalt	A	500.0	481.2	ug/L	-4	20	
Copper	A	500.0	500.9	ug/L	0	20	
Lead	A	1000	940.9	ug/L	-6	20	
Manganese	A	500.0	512.5	ug/L	3	20	
Molybdenum	A	500.0	494.0	ug/L	-1	20	
Nickel	A	1000	970.8	ug/L	-3	20	
Selenium	A	500.0	510.1	ug/L	2	20	
Silver	A	1000	1100	ug/L	10	20	
Thallium	A	500.0	489.7	ug/L	-2	20	
Vanadium	A	500.0	531.8	ug/L	6	20	
Zinc	A	1000	987.7	ug/L	-1	20	
Iron	R	200000	194700	ug/L	-3		

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16781577	14658064	-12.65

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 96492132024.1 File : met09_sn_0816 Time : 06-DEC-2016 19:22
Cal : 96492132001 Caldate : 06-DEC-2016
Standards: S31646

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	3.8479	3.5689	5000	4804	ug/L	-4	10	
Arsenic	A	3.0233	3.0232	5000	4870	ug/L	-3	10	
Barium	A	115.22	113.59	5000	4937	ug/L	-1	10	
Beryllium	A	9666.2	9856.8	500.0	509.4	ug/L	2	10	
Cadmium	A	181.28	175.07	5000	4908	ug/L	-2	10	
Chromium	A	280.22	281.34	5000	4976	ug/L	0	10	
Cobalt	A	53.359	52.707	5000	4803	ug/L	-4	10	
Copper	A	495.62	491.60	5000	4928	ug/L	-1	10	
Lead	A	22.283	21.411	5000	4800	ug/L	-4	10	
Manganese	A	1226.2	1228.7	5000	5121	ug/L	2	10	
Molybdenum	A	30.503	29.634	5000	4734	ug/L	-5	10	
Nickel	A	141.82	138.84	5000	4871	ug/L	-3	10	
Selenium	A	3.9443	3.7852	5000	4848	ug/L	-3	10	
Silver	A	113.94	119.82	1000	993.8	ug/L	-1	10	
Thallium	A	3.2659	3.1020	5000	4706	ug/L	-6	10	
Vanadium	A	339.83	351.00	5000	4955	ug/L	-1	10	
Zinc	A	78.690	74.639	5000	4802	ug/L	-4	10	
Iron	R	22.778	25.311	20000	21110	ug/L	6	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16781577	15763939	-6.06

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 96492132025.1 File : met09_sn_0816 Time : 06-DEC-2016 19:24
Cal : 96492132001 Caldate : 06-DEC-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	0.5000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	[3.678]	5.000	2.500	ug/L	!CCB
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	[1.550]	5.000	1.250	ug/L	!CCB
Zinc	A	ND	20.00	16.00	ug/L	
Iron	R	198.2	100.0	80.00	ug/L	CCB ***

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16781577	15948757	-4.96

!=warning CCB=instrument blank

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 96493529

Instrument : MET09 Begun : 12/07/16 17:29
Method : EPA 6010C SOP Version : icp metals_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met09_sn_0816	ICALBLK				12/07/16 17:29	1.0		
002	met09_sn_0816	ICAL	L1			12/07/16 17:32	1.0	1	
003	met09_sn_0816	ICAL	L2			12/07/16 17:34	1.0	2	
004	met09_sn_0816	ICAL	L3			12/07/16 17:36	1.0	3	
005	met09_sn_0816	ICAL	L4			12/07/16 17:39	1.0	4	
006	met09_sn_0816	ICAL	L5			12/07/16 17:41	1.0	5	
007	met09_sn_0816	XICV				12/07/16 17:43	1.0	6	
008	met09_sn_0816	ICV				12/07/16 17:51	1.0	6	
009	met09_sn_0816	XCRI				12/07/16 18:07	1.0	7	
010	met09_sn_0816	CRI				12/07/16 18:10	1.0	7	
011	met09_sn_0816	ICB				12/07/16 18:12	1.0		
012	met09_sn_0816	ICSA				12/07/16 18:15	1.0	8	11:AL=530000
013	met09_sn_0816	ICSAB				12/07/16 18:38	1.0	9	5:AL=510000
014	met09_sn_0816	SAMPLE	283827-045	Miscell.	242055	12/07/16 18:39	100.0		
015	met09_sn_0816	SAMPLE	283827-061	Miscell.	242055	12/07/16 18:42	100.0		
016	met09_sn_0816	SAMPLE	283827-082	Miscell.	242055	12/07/16 18:44	100.0		
017	met09_sn_0816	SAMPLE	283827-108	Miscell.	242055	12/07/16 18:46	100.0		
018	met09_sn_0816	SAMPLE	283827-109	Miscell.	242055	12/07/16 18:49	100.0		
019	met09_sn_0816	SAMPLE	283827-110	Miscell.	242055	12/07/16 18:51	100.0		
020	met09_sn_0816	SAMPLE	283827-111	Miscell.	242055	12/07/16 18:53	100.0		
021	met09_sn_0816	SAMPLE	283827-113	Miscell.	242055	12/07/16 18:56	100.0		
022	met09_sn_0816	SAMPLE	283827-115	Miscell.	242055	12/07/16 18:58	100.0		
023	met09_sn_0816	CCV				12/07/16 19:01	1.0	10	
024	met09_sn_0816	CCB				12/07/16 19:03	1.0		
025	met09_sn_0816	CCB				12/07/16 19:05	1.0		
026	met09_sn_0816	SAMPLE	283827-116	Miscell.	242055	12/07/16 19:07	100.0		
027	met09_sn_0816	SAMPLE	283827-045	Miscell.	242055	12/07/16 19:09	1.0		3:FE=870000
028	met09_sn_0816	SAMPLE	283827-061	Miscell.	242055	12/07/16 19:12	1.0		4:CA=1000000
029	met09_sn_0816	SAMPLE	283827-082	Miscell.	242055	12/07/16 19:15	1.0		7:CA=670000
030	met09_sn_0816	X	RINSE			12/07/16 19:18	1.0		
031	met09_sn_0816	SAMPLE	283827-108	Miscell.	242055	12/07/16 19:20	1.0		3:FE=170000
032	met09_sn_0816	SAMPLE	283827-109	Miscell.	242055	12/07/16 19:23	1.0		4:FE=200000
033	met09_sn_0816	SAMPLE	283827-110	Miscell.	242055	12/07/16 19:25	1.0		4:FE=720000
034	met09_sn_0816	SAMPLE	283827-111	Miscell.	242055	12/07/16 19:27	1.0		4:FE=1900000
035	met09_sn_0816	X	RINSE			12/07/16 19:29	1.0		
036	met09_sn_0816	CCV				12/07/16 19:32	1.0	10	
037	met09_sn_0816	CCB				12/07/16 19:34	1.0		
038	met09_sn_0816	CCV				12/07/16 19:38	1.0	10	
039	met09_sn_0816	CCB				12/07/16 19:41	1.0		
040	met09_sn_0816	CCB				12/07/16 19:43	1.0		
041	met09_sn_0816	SAMPLE	283827-113	Miscell.	242055	12/07/16 19:45	1.0		4:FE=250000
042	met09_sn_0816	SAMPLE	283827-115	Miscell.	242055	12/07/16 19:48	1.0		6:FE=240000
043	met09_sn_0816	SAMPLE	283827-116	Miscell.	242055	12/07/16 19:50	1.0		3:FE=230000
044	met09_sn_0816	X	RINSE			12/07/16 19:52	1.0		
045	met09_sn_0816	MSS	283790-070	Soil	242066	12/07/16 19:55	100.0		
046	met09_sn_0816	SER	QC863331	Soil	242066	12/07/16 19:57	500.0		
047	met09_sn_0816	PDS	QC863332	Soil	242066	12/07/16 19:59	100.0	11 12 13	
048	met09_sn_0816	MS	QC863329	Soil	242066	12/07/16 20:02	1.0		2:FE=630000
049	met09_sn_0816	MSD	QC863330	Soil	242066	12/07/16 20:04	1.0		2:FE=630000
050	met09_sn_0816	X	RINSE			12/07/16 20:06	1.0		
051	met09_sn_0816	CCV				12/07/16 20:08	1.0	10	
052	met09_sn_0816	CCB				12/07/16 20:11	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 96493529

Instrument : MET09 Begun : 12/07/16 17:29
Method : EPA 6010C SOP Version : icp metals_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met09_sn_0816	CCB				12/07/16 20:13	1.0		
054	met09_sn_0816	SAMPLE	282972-001	Miscell.	242066	12/07/16 20:15	100.0		
055	met09_sn_0816	SAMPLE	282973-001	Miscell.	242066	12/07/16 20:17	100.0		
056	met09_sn_0816	SAMPLE	283600-012	Soil	242066	12/07/16 20:20	100.0		
057	met09_sn_0816	?SAMPLE	283974-001		242066	12/07/16 20:22	1.0		
058	met09_sn_0816	SAMPLE	283600-012	Soil	242066	12/07/16 20:25	1.0		4:CA=320000
059	met09_sn_0816	SAMPLE	283790-067	Soil	242066	12/07/16 20:27	1.0		6:FE=610000
060	met09_sn_0816	SAMPLE	283790-072	Soil	242066	12/07/16 20:29	1.0		6:FE=580000
061	met09_sn_0816	SAMPLE	283790-074	Soil	242066	12/07/16 20:31	1.0		7:CA=790000
062	met09_sn_0816	SAMPLE	283790-078	Soil	242066	12/07/16 20:34	1.0		6:FE=620000
063	met09_sn_0816	X	RINSE			12/07/16 20:36	1.0		
064	met09_sn_0816	CCV				12/07/16 20:38	1.0	10	
065	met09_sn_0816	CCB				12/07/16 20:40	1.0		
066	met09_sn_0816	CCB				12/07/16 20:42	1.0		
067	met09_sn_0816	BLANK	QC863515	Water	242114	12/07/16 20:44	1.0		
068	met09_sn_0816	CCV				12/07/16 20:53	1.0	10	
069	met09_sn_0816	CCB				12/07/16 20:55	1.0		
070	met09_sn_0816	BLANK	QC863515	Water	242114	12/07/16 21:03	1.0		
071	met09_sn_0816	BS	QC863516	Water	242114	12/07/16 21:06	1.0		
072	met09_sn_0816	BSD	QC863517	Water	242114	12/07/16 21:08	1.0		
073	met09_sn_0816	MSS	283978-001	Water	242114	12/07/16 21:10	1.0		
074	met09_sn_0816	MS	QC863518	Water	242114	12/07/16 21:13	1.0		
075	met09_sn_0816	MSD	QC863519	Water	242114	12/07/16 21:15	1.0		
076	met09_sn_0816	SAMPLE	283999-001	Water	242114	12/07/16 21:18	1.0		
077	met09_sn_0816	SAMPLE	283999-002	Water	242114	12/07/16 21:20	1.0		
078	met09_sn_0816	SAMPLE	283999-003	Water	242114	12/07/16 21:22	1.0		
079	met09_sn_0816	SAMPLE	283999-004	Water	242114	12/07/16 21:25	1.0		
080	met09_sn_0816	CCV				12/07/16 21:27	1.0	10	
081	met09_sn_0816	CCB				12/07/16 21:29	1.0		
082	met09_sn_0816	CCB				12/07/16 21:31	1.0		
083	met09_sn_0816	SAMPLE	284006-001	Water	242114	12/07/16 21:34	1.0		1:FE=130000
084	met09_sn_0816	SAMPLE	284006-003	Water	242114	12/07/16 21:37	1.0		
085	met09_sn_0816	X	RINSE			12/07/16 21:39	1.0		
086	met09_sn_0816	BLANK	QC863510	Water	242113	12/07/16 21:42	1.0		4:NA=3300000
087	met09_sn_0816	BS	QC863511	Water	242113	12/07/16 21:46	1.0		
088	met09_sn_0816	BSD	QC863512	Water	242113	12/07/16 21:48	1.0		
089	met09_sn_0816	MSS	283991-005	Water	242113	12/07/16 21:50	1.0		2:NA=220000
090	met09_sn_0816	MS	QC863513	Water	242113	12/07/16 21:53	1.0		
091	met09_sn_0816	MSD	QC863514	Water	242113	12/07/16 21:55	1.0		
092	met09_sn_0816	CCV				12/07/16 21:58	1.0	10	
093	met09_sn_0816	CCB				12/07/16 22:00	1.0		
094	met09_sn_0816	CCB				12/07/16 22:02	1.0		
095	met09_sn_0816	X	RINSE			12/07/16 22:12	1.0		
096	met09_sn_0816	BLANK	QC863485	Soil	242107	12/07/16 22:14	1.0		4:NA=6100000
097	met09_sn_0816	BS	QC863486	Soil	242107	12/07/16 22:18	1.0		
098	met09_sn_0816	BSD	QC863487	Soil	242107	12/07/16 22:21	1.0		
099	met09_sn_0816	MSS	283873-003	Soil	242107	12/07/16 22:23	1.0		5:CA=920000
100	met09_sn_0816	MS	QC863488	Soil	242107	12/07/16 22:25	1.0		1:CA=800000
101	met09_sn_0816	MSD	QC863489	Soil	242107	12/07/16 22:27	1.0		1:CA=900000
102	met09_sn_0816	SER	QC863490	Soil	242107	12/07/16 22:30	5.0		
103	met09_sn_0816	PDS	QC863491	Soil	242107	12/07/16 22:33	1.0	11 12 13	5:CA=900000
104	met09_sn_0816	SAMPLE	283873-004	Soil	242107	12/07/16 22:35	1.0		5:CA=770000

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 96493529

Instrument : MET09 Begun : 12/07/16 17:29
Method : EPA 6010C SOP Version : icp metals_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
105	met09_sn_0816	CCV				12/07/16 22:37	1.0	10	
106	met09_sn_0816	CCB				12/07/16 22:39	1.0		
107	met09_sn_0816	CCB				12/07/16 22:41	1.0		
108	met09_sn_0816	SAMPLE	283873-005	Soil	242107	12/07/16 22:43	1.0		5:CA=610000
109	met09_sn_0816	SAMPLE	283873-006	Soil	242107	12/07/16 22:46	1.0		6:FE=480000
110	met09_sn_0816	SAMPLE	283873-008	Soil	242107	12/07/16 22:48	1.0		4:FE=490000
111	met09_sn_0816	SAMPLE	283894-001	Soil	242107	12/07/16 22:50	1.0		4:FE=370000
112	met09_sn_0816	SAMPLE	283894-002	Soil	242107	12/07/16 22:52	1.0		4:FE=330000
113	met09_sn_0816	SAMPLE	283894-003	Soil	242107	12/07/16 22:54	1.0		3:FE=290000
114	met09_sn_0816	SAMPLE	283918-001	Soil	242107	12/07/16 22:56	1.0		5:AL=260000
115	met09_sn_0816	SAMPLE	283918-002	Soil	242107	12/07/16 22:59	1.0		5:AL=280000
116	met09_sn_0816	SAMPLE	283918-003	Soil	242107	12/07/16 23:02	1.0		4:FE=230000
117	met09_sn_0816	SAMPLE	283927-001	Soil	242107	12/07/16 23:05	1.0		5:CA=570000
118	met09_sn_0816	CCV				12/07/16 23:08	1.0	10	
119	met09_sn_0816	CCB				12/07/16 23:10	1.0		
120	met09_sn_0816	CCB				12/07/16 23:12	1.0		

MNA 12/07/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 114.

Standards used: 1=S31329 2=S31085 3=S31084 4=S31086 5=S31195 6=S31647 7=S31330 8=S31001 9=S31075 10=S31646 11=S29983 12=S29984 13=S30560

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 96493529

Date : 12/07/16 Reference : met09_sn_0816
Sequence : MET09 12/07/16 Analyzed : 12/07/16 17:32

#	Type	Sample ID	Y A
		ICAL STD	17590397
		LOWER LIMIT	5277119
		UPPER LIMIT	21108476
011	ICB		17701944
012	ICSA		16068156
013	ICSAB		15901687
038	CCV		17194688
040	CCB		20802516
046	SER	QC863331	17508454
047	PDS	QC863332	17230067
048	MS	QC863329	16349461
049	MSD	QC863330	16238807
051	CCV		18119045
052	CCB		17611297
056	SAMPLE	283600-012	17508508
058	SAMPLE	283600-012	16868703

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 283600 METALS Soil: EPA 6010C

Inst : MET09
Calnum : 96493529001
Units : ug/L

Date : 07-DEC-2016 17:29
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met09_sn_0816	96493529002	L1	07-DEC-2016 17:32	S31329
L2	met09_sn_0816	96493529003	L2	07-DEC-2016 17:34	S31085
L3	met09_sn_0816	96493529004	L3	07-DEC-2016 17:36	S31084
L4	met09_sn_0816	96493529005	L4	07-DEC-2016 17:39	S31086
L5	met09_sn_0816	96493529006	L5	07-DEC-2016 17:41	S31195

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Antimony	A	3.6900	4.0740	4.0405	4.0499		LOR0	0.00000	0.24692		3.9636	1.000	0.995	
Arsenic	A	3.3400	3.2380	3.2456	3.2576		LOR0	0.00000	0.30698		3.2703	1.000	0.995	
Barium	A	92.020	89.196	90.229	87.429		LOR0	0.00000	0.01143		89.719	1.000	0.995	
Beryllium	A	6915.1	6655.6	6737.1			LOR0	0.00000	1.48E-4		6769.2	1.000	0.995	
Cadmium	A	166.40	162.78	165.74	157.22		LOR0	0.00000	0.00636		163.03	1.000	0.995	
Chromium	A	277.16	280.83	284.92	278.08		LOR0	0.00000	0.00360		280.25	1.000	0.995	
Cobalt	A	79.400	77.819	79.746	77.937		LOR0	0.00000	0.01283		78.725	1.000	0.995	
Copper	A	527.32	444.83	445.66	436.46		LOR0	0.00000	0.00229		463.57	1.000	0.995	
Lead	A	35.660	28.412	28.065	27.883		LOR0	0.00000	0.03586		30.005	1.000	0.995	
Manganese	A	1084.3	1070.7	1074.3	1032.6		LOR0	0.00000	9.68E-4		1065.5	1.000	0.995	
Molybdenum	A	28.320	27.978	28.055	27.662		LOR0	0.00000	0.03615		28.004	1.000	0.995	
Nickel	A	135.52	130.28	134.48	131.35		LOR0	0.00000	0.00761		132.91	1.000	0.995	
Selenium	A	3.6400	3.5780	3.6212	3.6445		LOR0	0.00000	0.27440		3.6209	1.000	0.995	
Silver	A	97.580	117.36	116.90	116.18		LOR0	0.00000	0.00861		112.00	1.000	0.995	
Thallium	A	2.6700	2.5610	2.5879	2.5153		LOR0	0.00000	0.39744		2.5836	1.000	0.995	
Vanadium	A	340.72	329.46	336.92	331.61		LOR0	0.00000	0.00302		334.68	1.000	0.995	
Zinc	A	74.260	64.982	64.627	63.174		LOR0	0.00000	0.01583		66.761	1.000	0.995	
Iron	R	18.739		18.322	18.809	18.300	LOR0	0.00000	0.05463		18.542	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Antimony	A	10.000	-9	100.00	1	1000.0	0	10000	0		
Arsenic	A	5.0000	3	100.00	-1	1000.0	0	10000	0		
Barium	A	5.0000	5	100.00	2	1000.0	3	10000	0		
Beryllium	A	2.0000	3	100.00	-1	1000.0	0				
Cadmium	A	5.0000	6	100.00	3	1000.0	5	10000	0		
Chromium	A	5.0000	0	100.00	1	1000.0	2	10000	0		
Cobalt	A	5.0000	2	100.00	0	1000.0	2	10000	0		
Copper	A	5.0000	**21**	100.00	2	1000.0	2	10000	0		
Lead	A	5.0000	**28**	100.00	2	1000.0	1	10000	0		
Manganese	A	5.0000	5	100.00	4	1000.0	4	10000	0		
Molybdenum	A	5.0000	2	100.00	1	1000.0	1	10000	0		
Nickel	A	5.0000	3	100.00	-1	1000.0	2	10000	0		
Selenium	A	10.000	0	100.00	-2	1000.0	-1	10000	0		
Silver	A	5.0000	-16	20.000	1	200.00	1	2000.0	0		
Thallium	A	10.000	6	100.00	2	1000.0	3	10000	0		
Vanadium	A	5.0000	3	100.00	-1	1000.0	2	10000	0		
Zinc	A	20.000	18	100.00	3	1000.0	2	10000	0		
Iron	R	100.00	2			1000.0	0	10000	3	100000	0

Instrument amount = a0 + response * a1 + response^2 * a2; LOR0=Linear regression forced thru origin, including 0,0 point

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 283600 METALS Soil
EPA 6010C

Inst : MET09
Calnum : 96493529001 Cal Date : 07-DEC-2016

ICV 96493529008 (07-DEC-2016) stds: S31647

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	5000	4972	ug/L	-1	10	
Arsenic	A	5000	5037	ug/L	1	10	
Barium	A	5000	5034	ug/L	1	10	
Beryllium	A	500.0	501.4	ug/L	0	10	
Cadmium	A	5000	5092	ug/L	2	10	
Chromium	A	5000	5005	ug/L	0	10	
Cobalt	A	5000	4933	ug/L	-1	10	
Copper	A	5000	5002	ug/L	0	10	
Lead	A	5000	4942	ug/L	-1	10	
Manganese	A	5000	5053	ug/L	1	10	
Molybdenum	A	5000	4953	ug/L	-1	10	
Nickel	A	5000	4964	ug/L	-1	10	
Selenium	A	5000	5018	ug/L	0	10	
Silver	A	1000	991.9	ug/L	-1	10	
Thallium	A	5000	4943	ug/L	-1	10	
Vanadium	A	5000	4995	ug/L	0	10	
Zinc	A	5000	5009	ug/L	0	10	
Iron	R	20000	17260	ug/L	**-14**	10	v- ***

-=low bias v=ICV

CURTIS & TOMPKINS LOW-LEVEL PERFORMANCE VERIFICATION STANDARD FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 96493529010.1 File : met09_sn_0816 Time : 07-DEC-2016 18:10
Cal : 96493529001 Caldate : 07-DEC-2016
Standards: S31330

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	10.00	10.75	ug/L	7	30	
Arsenic	A	5.000	4.613	ug/L	-8	30	
Barium	A	5.000	4.907	ug/L	-2	30	
Beryllium	A	2.000	1.782	ug/L	-11	30	
Cadmium	A	5.000	4.920	ug/L	-2	30	
Chromium	A	5.000	4.667	ug/L	-7	30	
Cobalt	A	5.000	4.591	ug/L	-8	30	
Copper	A	5.000	3.953	ug/L	**-21**	30	!cri-
Lead	A	5.000	5.938	ug/L	19	30	
Manganese	A	5.000	4.908	ug/L	-2	30	
Molybdenum	A	5.000	4.645	ug/L	-7	30	
Nickel	A	5.000	3.959	ug/L	**-21**	30	!cri-
Selenium	A	10.00	8.520	ug/L	-15	30	
Silver	A	5.000	4.329	ug/L	-13	30	
Thallium	A	10.00	9.399	ug/L	-6	30	
Vanadium	A	5.000	4.585	ug/L	-8	30	
Zinc	A	20.00	19.80	ug/L	-1	30	
Iron	R	100.0	52.31	ug/L	**-48**	30	cri- ***

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	17590397	18939608	7.67

!=warning -=low bias

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 96493529011.2 File : met09_sn_0816 Time : 07-DEC-2016 18:12
Cal : 96493529001 Caldate : 07-DEC-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	0.5000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	1.250	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	
Iron	R	ND	100.0	80.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	17590397	17701944	0.63

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 96493529012.2 File : met09_sn_0816 Time : 07-DEC-2016 18:15
Cal : 96493529001 Caldate : 07-DEC-2016
Standards: S31001

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	[-1.998]	10.00	ug/L	
Arsenic	A	[2.709]	5.000	ug/L	
Barium	A	[1.095]	5.000	ug/L	
Beryllium	A	[1.600]	2.000	ug/L	!a+
Cadmium	A	[3.117]	5.000	ug/L	!a+
Cobalt	A	[1.108]	5.000	ug/L	
Lead	A	[0.01253]	5.000	ug/L	
Molybdenum	A	[-1.261]	5.000	ug/L	
Selenium	A	[9.547]	10.00	ug/L	!a+
Silver	A	[-4.223]	5.000	ug/L	!a-
Thallium	A	[-3.006]	10.00	ug/L	
Zinc	A	[-18.63]	20.00	ug/L	!a-

Interferent	Ch	Spiked	Quant	Units	%Rec	Flags
Chromium	A	20000	19460	ug/L	97	
Copper	A	20000	21420	ug/L	107	
Manganese	A	20000	18770	ug/L	94	
Nickel	A	20000	18790	ug/L	94	
Vanadium	A	20000	20130	ug/L	101	
Aluminum	R	500000	525400	ug/L	105	
Calcium	R	500000	492700	ug/L	99	
Iron	R	200000	197500	ug/L	99	
Magnesium	R	500000	512600	ug/L	103	
Titanium	R	20000	20700	ug/L	104	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	17590397	16068156	-8.65

!=warning +=high bias -=low bias a=ICSA

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 96493529013.2 File : met09_sn_0816 Time : 07-DEC-2016 18:38
Cal : 96493529001 Caldate : 07-DEC-2016
Standards: S31075

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	475.2	ug/L	-5	20	
Arsenic	A	500.0	534.9	ug/L	7	20	
Barium	A	500.0	518.1	ug/L	4	20	
Beryllium	A	500.0	527.2	ug/L	5	20	
Cadmium	A	1000	1052	ug/L	5	20	
Chromium	A	500.0	511.7	ug/L	2	20	
Cobalt	A	500.0	505.0	ug/L	1	20	
Copper	A	500.0	539.8	ug/L	8	20	
Lead	A	1000	979.0	ug/L	-2	20	
Manganese	A	500.0	525.9	ug/L	5	20	
Molybdenum	A	500.0	514.1	ug/L	3	20	
Nickel	A	1000	997.6	ug/L	0	20	
Selenium	A	500.0	497.8	ug/L	0	20	
Silver	A	1000	1140	ug/L	14	20	
Thallium	A	500.0	442.2	ug/L	-12	20	
Vanadium	A	500.0	531.0	ug/L	6	20	
Zinc	A	1000	1013	ug/L	1	20	
Iron	R	200000	192900	ug/L	-4		

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	17590397	15901687	-9.60

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 96493529038.1 File : met09_sn_0816 Time : 07-DEC-2016 19:38
Cal : 96493529001 Caldate : 07-DEC-2016
Standards: S31646

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	3.9636	3.9087	5000	4826	ug/L	-3	10	
Arsenic	A	3.2703	3.2030	5000	4916	ug/L	-2	10	
Barium	A	89.719	89.024	5000	5090	ug/L	2	10	
Beryllium	A	6769.2	6887.0	500.0	511.2	ug/L	2	10	
Cadmium	A	163.03	158.23	5000	5029	ug/L	1	10	
Chromium	A	280.25	282.92	5000	5086	ug/L	2	10	
Cobalt	A	78.725	76.919	5000	4934	ug/L	-1	10	
Copper	A	463.57	444.04	5000	5086	ug/L	2	10	
Lead	A	30.005	26.979	5000	4838	ug/L	-3	10	
Manganese	A	1065.5	1060.3	5000	5132	ug/L	3	10	
Molybdenum	A	28.004	26.817	5000	4847	ug/L	-3	10	
Nickel	A	132.91	131.81	5000	5017	ug/L	0	10	
Selenium	A	3.6209	3.5493	5000	4870	ug/L	-3	10	
Silver	A	112.00	117.09	1000	1008	ug/L	1	10	
Thallium	A	2.5836	2.4148	5000	4799	ug/L	-4	10	
Vanadium	A	334.68	336.98	5000	5080	ug/L	2	10	
Zinc	A	66.761	62.394	5000	4937	ug/L	-1	10	
Iron	R	18.542	18.982	20000	20740	ug/L	4	10	v- ***

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	17590397	17194688	-2.25

-=low bias v=ICV

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 96493529040.1 File : met09_sn_0816 Time : 07-DEC-2016 19:43
Cal : 96493529001 Caldate : 07-DEC-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	0.5000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	1.250	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	
Iron	R	ND	100.0	80.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	17590397	20802516	18.26

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 96493529051.1 File : met09_sn_0816 Time : 07-DEC-2016 20:08
Cal : 96493529001 Caldate : 07-DEC-2016
Standards: S31646

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	3.9636	3.5338	5000	4363	ug/L	**-13**	10	c- r ***
Arsenic	A	3.2703	2.9003	5000	4452	ug/L	**-11**	10	c- r ***
Barium	A	89.719	80.158	5000	4583	ug/L	-8	10	r ***
Beryllium	A	6769.2	6184.8	500.0	459.1	ug/L	-8	10	r ***
Cadmium	A	163.03	140.98	5000	4481	ug/L	-10	10	r ***
Chromium	A	280.25	251.95	5000	4529	ug/L	-9	10	r ***
Cobalt	A	78.725	69.077	5000	4431	ug/L	**-11**	10	c- r ***
Copper	A	463.57	394.10	5000	4514	ug/L	-10	10	r ***
Lead	A	30.005	24.687	5000	4427	ug/L	**-11**	10	c- r ***
Manganese	A	1065.5	938.45	5000	4542	ug/L	-9	10	r ***
Molybdenum	A	28.004	23.854	5000	4311	ug/L	**-14**	10	c- r ***
Nickel	A	132.91	118.53	5000	4511	ug/L	-10	10	r ***
Selenium	A	3.6209	3.2146	5000	4411	ug/L	**-12**	10	c- r ***
Silver	A	112.00	106.16	1000	913.7	ug/L	-9	10	r ***
Thallium	A	2.5836	2.2354	5000	4442	ug/L	**-11**	10	c- r ***
Vanadium	A	334.68	300.92	5000	4537	ug/L	-9	10	r ***
Zinc	A	66.761	55.762	5000	4412	ug/L	**-12**	10	c- r ***
Iron	R	18.542	7.3681	20000	8050	ug/L	**-60**	10	c- r v- ***

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	17590397	18119045	3.01

-=low bias c=CCV r=RSD out v=ICV

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 96493529052.1 File : met09_sn_0816 Time : 07-DEC-2016 20:11
Cal : 96493529001 Caldate : 07-DEC-2016

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	0.5000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	1.250	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	
Iron	R	ND	100.0	80.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	17590397	17611297	0.12

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 97006278

Instrument : MET09 Begun : 01/04/17 08:38
Method : EPA 6010C SOP Version : icp metals_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met09_sn_0816	ICALBLK				01/04/17 08:38	1.0		
002	met09_sn_0816	ICAL	L1			01/04/17 08:41	1.0	1	
003	met09_sn_0816	ICAL	L2			01/04/17 08:43	1.0	2	
004	met09_sn_0816	ICAL	L3			01/04/17 08:45	1.0	3	
005	met09_sn_0816	ICAL	L4			01/04/17 08:48	1.0	4	
006	met09_sn_0816	ICAL	L5			01/04/17 08:50	1.0	5	
007	met09_sn_0816	ICV				01/04/17 08:52	1.0	6	
008	met09_sn_0816	CRI				01/04/17 08:54	1.0	7	
009	met09_sn_0816	ICB				01/04/17 08:57	1.0		
010	met09_sn_0816	ICSA				01/04/17 09:02	1.0	8	10:AL=510000
011	met09_sn_0816	ICSAB				01/04/17 09:20	1.0	9	5:AL=530000
012	met09_sn_0816	MSS	284553-001	Soil	242974	01/04/17 09:22	100.0		
013	met09_sn_0816	X	RINSE			01/04/17 09:24	1.0		
014	met09_sn_0816	BLANK	QC866736	TCLP Leachate	242937	01/04/17 09:27	10.0		1:NA=150000
015	met09_sn_0816	BLANK	QC866737	TCLP Leachate	242937	01/04/17 09:29	10.0		
016	met09_sn_0816	BS	QC866738	TCLP Leachate	242937	01/04/17 09:32	1.0		
017	met09_sn_0816	BSD	QC866739	TCLP Leachate	242937	01/04/17 09:34	1.0		
018	met09_sn_0816	MSS	284721-001	TCLP Leachate	242937	01/04/17 09:36	10.0		1:CA=250000
019	met09_sn_0816	MS	QC866740	TCLP Leachate	242937	01/04/17 09:39	10.0		1:CA=250000
020	met09_sn_0816	MSD	QC866741	TCLP Leachate	242937	01/04/17 09:41	10.0		1:CA=250000
021	met09_sn_0816	SAMPLE	284687-001	TCLP Leachate	242937	01/04/17 09:44	10.0		
022	met09_sn_0816	CCV				01/04/17 09:46	1.0	10	
023	met09_sn_0816	CCB				01/04/17 09:48	1.0		
024	met09_sn_0816	X	RINSE			01/04/17 09:53	1.0		
025	met09_sn_0816	SAMPLE	284072-001	Water	242234	01/04/17 09:56	1.0		
026	met09_sn_0816	SAMPLE	284073-001	Water	242234	01/04/17 09:58	1.0		
027	met09_sn_0816	SAMPLE	284074-001	Water	242234	01/04/17 10:01	1.0		
028	met09_sn_0816	SAMPLE	284399-001	Water	242562	01/04/17 10:03	1.0		1:CA=130000
029	met09_sn_0816	SAMPLE	284399-002	Water	242562	01/04/17 10:05	1.0		
030	met09_sn_0816	SAMPLE	284593-011	Soil	242974	01/04/17 10:08	1.0		5:FE=490000
031	met09_sn_0816	SAMPLE	284581-001	Soil	242974	01/04/17 10:10	1.0		4:FE=450000
032	met09_sn_0816	SAMPLE	284581-002	Soil	242974	01/04/17 10:12	1.0		6:FE=590000
033	met09_sn_0816	X	RINSE			01/04/17 10:14	1.0		
034	met09_sn_0816	CCV				01/04/17 10:17	1.0	10	
035	met09_sn_0816	CCB				01/04/17 10:19	1.0		
036	met09_sn_0816	BLANK	QC866945	Soil	242986	01/04/17 10:21	1.0		
037	met09_sn_0816	BS	QC866946	Soil	242986	01/04/17 10:24	1.0		
038	met09_sn_0816	BSD	QC866947	Soil	242986	01/04/17 10:26	1.0		
039	met09_sn_0816	MSS	284570-001	Soil	242986	01/04/17 10:29	1.0		3:FE=2000000
040	met09_sn_0816	MS	QC866948	Soil	242986	01/04/17 10:31	1.0		
041	met09_sn_0816	MSD	QC866949	Soil	242986	01/04/17 10:33	1.0		
042	met09_sn_0816	SER	QC866950	Soil	242986	01/04/17 10:36	5.0		
043	met09_sn_0816	PDS	QC866951	Soil	242986	01/04/17 10:39	1.0	11 12 13	3:FE=1900000
044	met09_sn_0816	MSS	284235-001	Soil	242473	01/04/17 10:41	1.0		4:MG=510000
045	met09_sn_0816	SAMPLE	284235-002	Soil	242473	01/04/17 10:43	1.0		5:MG=3600000
046	met09_sn_0816	CCV				01/04/17 10:45	1.0	10	
047	met09_sn_0816	CCB				01/04/17 10:48	1.0		
048	met09_sn_0816	SAMPLE	284235-003	Soil	242473	01/04/17 10:50	1.0		4:FE=350000
049	met09_sn_0816	SAMPLE	284235-004	Soil	242473	01/04/17 10:52	1.0		3:FE=230000
050	met09_sn_0816	SAMPLE	284235-005	Soil	242473	01/04/17 10:54	1.0		1:FE=150000
051	met09_sn_0816	SAMPLE	284399-001	Water	242562	01/04/17 10:57	1.0		1:CA=130000
052	met09_sn_0816	SAMPLE	284235-006	Soil	242473	01/04/17 11:00	1.0		3:CA=440000

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 97006278

Instrument : MET09 Begun : 01/04/17 08:38
Method : EPA 6010C SOP Version : icp metals_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met09_sn_0816	SAMPLE	284235-007	Soil	242473	01/04/17 11:02	1.0		4:CA=640000
054	met09_sn_0816	SAMPLE	284235-008	Soil	242473	01/04/17 11:04	1.0		3:FE=290000
055	met09_sn_0816	SAMPLE	284235-009	Soil	242473	01/04/17 11:06	1.0		1:FE=200000
056	met09_sn_0816	SAMPLE	284235-010	Soil	242473	01/04/17 11:10	1.0		1:FE=170000
057	met09_sn_0816	SAMPLE	284235-011	Soil	242473	01/04/17 11:13	1.0		7:CA=410000
058	met09_sn_0816	CCV				01/04/17 11:15	1.0	10	
059	met09_sn_0816	CCB				01/04/17 11:17	1.0		
060	met09_sn_0816	SAMPLE	284235-012	Soil	242473	01/04/17 11:19	1.0		6:FE=550000
061	met09_sn_0816	SAMPLE	284235-013	Soil	242473	01/04/17 11:22	1.0		3:FE=250000
062	met09_sn_0816	SAMPLE	284235-014	Soil	242473	01/04/17 11:24	1.0		1:FE=220000
063	met09_sn_0816	SAMPLE	284235-015	Soil	242473	01/04/17 11:26	1.0		1:FE=200000
064	met09_sn_0816	SAMPLE	284235-016	Soil	242473	01/04/17 11:29	1.0		4:FE=410000
065	met09_sn_0816	SAMPLE	284235-017	Soil	242473	01/04/17 11:31	1.0		6:FE=430000
066	met09_sn_0816	SAMPLE	284235-018	Soil	242473	01/04/17 11:33	1.0		5:MG=970000
067	met09_sn_0816	SAMPLE	284235-019	Soil	242473	01/04/17 11:35	1.0		2:FE=340000
068	met09_sn_0816	SAMPLE	284235-020	Soil	242473	01/04/17 11:38	1.0		2:FE=230000
069	met09_sn_0816	X	RINSE			01/04/17 11:40	1.0		
070	met09_sn_0816	CCV				01/04/17 11:42	1.0	10	
071	met09_sn_0816	CCB				01/04/17 11:44	1.0		
072	met09_sn_0816	SAMPLE	283636-013	Soil	242052	01/04/17 11:47	100.0		
073	met09_sn_0816	SAMPLE	283636-014	Soil	242052	01/04/17 11:49	100.0		
074	met09_sn_0816	SAMPLE	284178-001	Filtrate	242406	01/04/17 12:00	5.0		3:NA=880000
075	met09_sn_0816	SAMPLE	284178-002	Filtrate	242406	01/04/17 12:03	5.0		2:MG=210000
076	met09_sn_0816	SAMPLE	284178-003	Filtrate	242406	01/04/17 12:06	5.0		2:MG=210000
077	met09_sn_0816	SAMPLE	284178-004	Filtrate	242406	01/04/17 12:09	5.0		2:MG=210000
078	met09_sn_0816	SAMPLE	284395-001	Water	242562	01/04/17 12:12	1.0		3:CA=210000
079	met09_sn_0816	SAMPLE	283636-013	Soil	242052	01/04/17 12:15	1.0		7:FE=570000
080	met09_sn_0816	SAMPLE	283636-014	Soil	242052	01/04/17 12:17	1.0		6:FE=570000
081	met09_sn_0816	CCV				01/04/17 12:20	1.0	10	
082	met09_sn_0816	CCB				01/04/17 12:22	1.0		
083	met09_sn_0816	SAMPLE	284235-035	Soil	242474	01/04/17 12:24	1.0		2:FE=220000
084	met09_sn_0816	SAMPLE	284235-036	Soil	242474	01/04/17 12:26	1.0		5:FE=510000
085	met09_sn_0816	SAMPLE	284235-037	Soil	242474	01/04/17 12:29	1.0		11:MG=1200000
086	met09_sn_0816	SAMPLE	283636-015	Soil	242052	01/04/17 12:31	1.0		3:FE=340000
087	met09_sn_0816	X	RINSE			01/04/17 12:33	1.0		
088	met09_sn_0816	SAMPLE	284178-001	Filtrate	242406	01/04/17 12:36	5.0		2:MG=210000
089	met09_sn_0816	SAMPLE	284178-003	Filtrate	242406	01/04/17 12:39	5.0		2:MG=210000
090	met09_sn_0816	SAMPLE	284178-004	Filtrate	242406	01/04/17 12:42	5.0		2:MG=210000
091	met09_sn_0816	SAMPLE	283636-015	Soil	242052	01/04/17 12:45	1.0		3:FE=340000
092	met09_sn_0816	SAMPLE	283636-014	Soil	242052	01/04/17 12:47	1.0		6:FE=570000
093	met09_sn_0816	CCV				01/04/17 12:49	1.0	10	
094	met09_sn_0816	CCB				01/04/17 12:52	1.0		
095	met09_sn_0816	X	RINSE			01/04/17 12:54	1.0		
096	met09_sn_0816	SAMPLE	284170-007	Miscell.	242346	01/04/17 12:56	500.0		1:ZN=19000
097	met09_sn_0816	SAMPLE	284170-012	Miscell.	242346	01/04/17 13:00	500.0		
098	met09_sn_0816	SAMPLE	284402-002	Filtrate	242837	01/04/17 13:02	100.0		
099	met09_sn_0816	SAMPLE	284402-003	Filtrate	242837	01/04/17 13:04	100.0		
100	met09_sn_0816	X	RINSE			01/04/17 13:07	1.0		
101	met09_sn_0816	BS	QC864679	Filtrate	242406	01/04/17 13:09	1.0		
102	met09_sn_0816	BSD	QC864680	Filtrate	242406	01/04/17 13:12	1.0		
103	met09_sn_0816	SAMPLE	284402-004	Filtrate	242837	01/04/17 13:14	100.0		
104	met09_sn_0816	SAMPLE	284475-001	Water	242660	01/04/17 13:17	100.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 97006278

Instrument : MET09 Begun : 01/04/17 08:38
Method : EPA 6010C SOP Version : icp metals_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
105	met09_sn_0816	CCV				01/04/17 13:19	1.0	10	
106	met09_sn_0816	CCB				01/04/17 13:21	1.0		
107	met09_sn_0816	SAMPLE	284170-007	Miscell.	242346	01/04/17 13:24	1000		1:ZN=10000
108	met09_sn_0816	SAMPLE	284475-002	Water	242660	01/04/17 13:27	100.0		
109	met09_sn_0816	SAMPLE	284475-003	Water	242660	01/04/17 13:29	100.0		
110	met09_sn_0816	SAMPLE	284170-002	Miscell.	242346	01/04/17 13:32	100.0		
111	met09_sn_0816	SAMPLE	284170-003	Miscell.	242346	01/04/17 13:34	100.0		
112	met09_sn_0816	SAMPLE	284170-005	Miscell.	242346	01/04/17 13:36	100.0		
113	met09_sn_0816	SAMPLE	284170-006	Miscell.	242346	01/04/17 13:40	100.0		
114	met09_sn_0816	SAMPLE	284102-001	Miscell.	242250	01/04/17 13:42	100.0		
115	met09_sn_0816	SAMPLE	284102-005	Miscell.	242250	01/04/17 13:44	100.0		
116	met09_sn_0816	SAMPLE	283600-012	Soil	242066	01/04/17 13:47	100.0		
117	met09_sn_0816	CCV				01/04/17 13:49	1.0	10	
118	met09_sn_0816	CCB				01/04/17 13:52	1.0		
119	met09_sn_0816	SAMPLE	284479-021	Water	242660	01/04/17 13:54	1.0		6:FE=1300000
120	met09_sn_0816	SAMPLE	284170-005	Miscell.	242346	01/04/17 13:56	1.0		
121	met09_sn_0816	SAMPLE	284170-008	Miscell.	242346	01/04/17 13:59	1.0		
122	met09_sn_0816	SAMPLE	284170-009	Miscell.	242346	01/04/17 14:02	1.0		
123	met09_sn_0816	SAMPLE	284273-012	Soil	242792	01/04/17 14:04	1.0		2:FE=400000
124	met09_sn_0816	SAMPLE	284170-005	Miscell.	242346	01/04/17 14:07	1.0		7:PB=550000
125	met09_sn_0816	SAMPLE	284102-001	Miscell.	242250	01/04/17 14:10	1.0		6:CA=1100000
126	met09_sn_0816	X	RINSE			01/04/17 14:12	1.0		
127	met09_sn_0816	SAMPLE	284102-002	Miscell.	242250	01/04/17 14:15	1.0		4:CA=670000
128	met09_sn_0816	SAMPLE	284102-003	Miscell.	242250	01/04/17 14:18	1.0		1:MG=500000
129	met09_sn_0816	CCV				01/04/17 14:20	1.0	10	
130	met09_sn_0816	CCB				01/04/17 14:22	1.0		
131	met09_sn_0816	SAMPLE	284102-005	Miscell.	242250	01/04/17 14:25	1.0		4:CA=3200000
132	met09_sn_0816	SAMPLE	283600-012	Soil	242066	01/04/17 14:27	1.0		4:CA=310000
133	met09_sn_0816	SAMPLE	284348-001	Water	242562	01/04/17 14:29	1.0		
134	met09_sn_0816	SAMPLE	284348-002	Water	242562	01/04/17 14:32	1.0		
135	met09_sn_0816	SAMPLE	284170-007	Miscell.	242346	01/04/17 14:34	10000		
136	met09_sn_0816	SAMPLE	284351-001	Water	242562	01/04/17 14:37	1.0		
137	met09_sn_0816	SAMPLE	284351-002	Water	242562	01/04/17 14:39	1.0		
138	met09_sn_0816	SAMPLE	284351-003	Water	242562	01/04/17 14:41	1.0		
139	met09_sn_0816	SAMPLE	284351-004	Water	242562	01/04/17 14:44	1.0		
140	met09_sn_0816	SAMPLE	284383-002	Water	242562	01/04/17 14:46	1.0		
141	met09_sn_0816	CCV				01/04/17 14:49	1.0	10	
142	met09_sn_0816	CCB				01/04/17 14:51	1.0		
143	met09_sn_0816	SAMPLE	284068-001	Filtrate	242406	01/04/17 14:53	1.0		
144	met09_sn_0816	SAMPLE	284068-002	Filtrate	242406	01/04/17 14:56	1.0		
145	met09_sn_0816	SAMPLE	284568-001	Soil	242974	01/04/17 14:58	1.0		3:FE=350000
146	met09_sn_0816	SAMPLE	284568-002	Soil	242974	01/04/17 15:02	1.0		2:FE=280000
147	met09_sn_0816	SAMPLE	284568-003	Soil	242974	01/04/17 15:05	1.0		2:FE=300000
148	met09_sn_0816	SAMPLE	284636-001	Soil	242974	01/04/17 15:08	1.0		2:FE=320000
149	met09_sn_0816	SAMPLE	284636-002	Soil	242974	01/04/17 15:11	1.0		1:FE=280000
150	met09_sn_0816	SAMPLE	284637-001	Soil	242974	01/04/17 15:14	1.0		6:FE=570000
151	met09_sn_0816	SAMPLE	284637-002	Soil	242974	01/04/17 15:16	1.0		4:FE=380000
152	met09_sn_0816	SAMPLE	284637-003	Soil	242974	01/04/17 15:18	1.0		3:FE=490000
153	met09_sn_0816	CCV				01/04/17 15:21	1.0	10	
154	met09_sn_0816	CCB				01/04/17 15:23	1.0		

TLO 01/04/17 : I verified that the vials loaded on the instrument matched the

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 97006278

Instrument : MET09 Begun : 01/04/17 08:38
Method : EPA 6010C SOP Version : icp metals_rv18

sequence data entry, for runs 1 through 154.

Standards used: 1=S31329 2=S31859 3=S31860 4=S31861 5=S31195 6=S31647 7=S31330 8=S31001 9=S31844 10=S31646 11=S29983 12=S29984 13=S30560

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 97006278

Date : 01/04/17 Reference : met09_sn_0816
Sequence : MET09 01/04/17 Analyzed : 01/04/17 08:41

#	Type	Sample ID	Y A
		ICAL STD	16601680
		LOWER LIMIT	4980504
		UPPER LIMIT	19922016
009	ICB		16533791
010	ICSA		14699305
011	ICSAB		14604576
035	CCB		16487085
039	MSS	284570-001	15341275
047	CCB		16261083
105	CCV		16037408
106	CCB		16548851
116	SAMPLE	283600-012	16430981
117	CCV		15948736
118	CCB		16435930
123	SAMPLE	284273-012	16282180
129	CCV		16123623
130	CCB		16613667
132	SAMPLE	283600-012	15845593
141	CCV		16056225
142	CCB		16296734

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 283600 METALS Soil: EPA 6010C

Inst : MET09
Calnum : 97006278001
Units : ug/L

Date : 04-JAN-2017 08:38
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met09_sn_0816	97006278002	L1	04-JAN-2017 08:41	S31329
L2	met09_sn_0816	97006278003	L2	04-JAN-2017 08:43	S31859
L3	met09_sn_0816	97006278004	L3	04-JAN-2017 08:45	S31860
L4	met09_sn_0816	97006278005	L4	04-JAN-2017 08:48	S31861
L5	met09_sn_0816	97006278006	L5	04-JAN-2017 08:50	S31195

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Antimony	A	5.2700	5.8120	5.7616	5.8345		LOR0	0.00000	0.17142		5.6695	1.000	0.995	
Arsenic	A	3.5800	3.9350	3.8987	3.9415		LOR0	0.00000	0.25374		3.8388	1.000	0.995	
Barium	A	115.84	115.26	115.14	111.45		LOR0	0.00000	0.00897		114.42	1.000	0.995	
Beryllium	A	8652.4	8510.2	8505.1			LOR0	0.00000	1.18E-4		8555.9	1.000	0.995	
Cadmium	A	182.72	182.56	184.18	176.19		LOR0	0.00000	0.00567		181.41	1.000	0.995	
Chromium	A	257.26	248.29	246.43	242.57		LOR0	0.00000	0.00412		248.64	1.000	0.995	
Cobalt	A	51.420	50.192	50.262	49.853		LOR0	0.00000	0.02006		50.432	1.000	0.995	
Copper	A	456.64	424.31	414.74	412.05		LOR0	0.00000	0.00243		426.93	1.000	0.995	
Lead	A	37.140	32.802	32.705	31.361		LOR0	0.00000	0.03187		33.502	1.000	0.995	
Manganese	A	1079.4	1103.9	1077.8	1037.7		LOR0	0.00000	9.63E-4		1074.7	1.000	0.995	
Molybdenum	A	32.540	33.889	33.662	33.279		LOR0	0.00000	0.03005		33.343	1.000	0.995	
Nickel	A	129.42	129.38	130.92	128.98		LOR0	0.00000	0.00775		129.67	1.000	0.995	
Selenium	A	7.1600	7.3790	7.1876	7.2331		LOR0	0.00000	0.13826		7.2399	1.000	0.995	
Silver	A	204.24	179.51	173.85	172.91		LOR0	0.00000	0.00578		182.63	1.000	0.995	
Thallium	A	6.0400	4.8610	4.6992	4.5652		LOR0	0.00000	0.21898		5.0414	1.000	0.995	
Vanadium	A	335.68	314.29	312.30	311.11		LOR0	0.00000	0.00321		318.35	1.000	0.995	
Zinc	A	120.82	120.85	116.31	116.62		LOR0	0.00000	0.00857		118.65	1.000	0.995	
Iron	R	16.941		15.420	16.385	15.650	LOR0	0.00000	0.06387		16.099	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Antimony	A	10.000	-10	100.00	0	1000.0	-1	10000	0		
Arsenic	A	5.0000	-9	100.00	0	1000.0	-1	10000	0		
Barium	A	5.0000	4	100.00	3	1000.0	3	10000	0		
Beryllium	A	2.0000	2	100.00	0	1000.0	0				
Cadmium	A	5.0000	4	100.00	4	1000.0	4	10000	0		
Chromium	A	5.0000	6	100.00	2	1000.0	2	10000	0		
Cobalt	A	5.0000	3	100.00	1	1000.0	1	10000	0		
Copper	A	5.0000	11	100.00	3	1000.0	1	10000	0		
Lead	A	5.0000	18	100.00	5	1000.0	4	10000	0		
Manganese	A	5.0000	4	100.00	6	1000.0	4	10000	0		
Molybdenum	A	5.0000	-2	100.00	2	1000.0	1	10000	0		
Nickel	A	5.0000	0	100.00	0	1000.0	1	10000	0		
Selenium	A	10.000	-1	100.00	2	1000.0	-1	10000	0		
Silver	A	5.0000	18	20.000	4	200.00	1	2000.0	0		
Thallium	A	10.000	**32**	100.00	6	1000.0	3	10000	0		
Vanadium	A	5.0000	8	100.00	1	1000.0	0	10000	0		
Zinc	A	20.000	4	100.00	4	1000.0	0	10000	0		
Iron	R	100.00	8			1000.0	-2	10000	5	100000	0

Instrument amount = a0 + response * a1 + response^2 * a2; LOR0=Linear regression forced thru origin, including 0,0 point

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 283600 METALS Soil
EPA 6010C

Inst : MET09
Calnum : 97006278001 Cal Date : 04-JAN-2017

ICV 97006278007 (04-JAN-2017) stds: S31647

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	5000	5046	ug/L	1	10	
Arsenic	A	5000	5107	ug/L	2	10	
Barium	A	5000	5076	ug/L	2	10	
Beryllium	A	500.0	512.4	ug/L	2	10	
Cadmium	A	5000	5129	ug/L	3	10	
Chromium	A	5000	5085	ug/L	2	10	
Cobalt	A	5000	4961	ug/L	-1	10	
Copper	A	5000	4995	ug/L	0	10	
Lead	A	5000	5000	ug/L	0	10	
Manganese	A	5000	5150	ug/L	3	10	
Molybdenum	A	5000	5060	ug/L	1	10	
Nickel	A	5000	5031	ug/L	1	10	
Selenium	A	5000	5050	ug/L	1	10	
Silver	A	1000	1001	ug/L	0	10	
Thallium	A	5000	4995	ug/L	0	10	
Vanadium	A	5000	5055	ug/L	1	10	
Zinc	A	5000	5172	ug/L	3	10	
Iron	R	20000	20670	ug/L	3	10	

CURTIS & TOMPKINS LOW-LEVEL PERFORMANCE VERIFICATION STANDARD FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97006278008.2 File : met09_sn_0816 Time : 04-JAN-2017 08:54
Cal : 97006278001 Caldate : 04-JAN-2017
Standards: S31330

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	10.00	10.67	ug/L	7	30	
Arsenic	A	5.000	6.457	ug/L	**29**	30	!cri+
Barium	A	5.000	5.184	ug/L	4	30	
Beryllium	A	2.000	2.037	ug/L	2	30	
Cadmium	A	5.000	5.385	ug/L	8	30	
Chromium	A	5.000	4.993	ug/L	0	30	
Cobalt	A	5.000	4.832	ug/L	-3	30	
Copper	A	5.000	5.331	ug/L	7	30	
Lead	A	5.000	6.098	ug/L	**22**	30	!cri+
Manganese	A	5.000	5.233	ug/L	5	30	
Molybdenum	A	5.000	5.848	ug/L	17	30	
Nickel	A	5.000	5.470	ug/L	9	30	
Selenium	A	10.00	12.39	ug/L	**24**	30	!cri+
Silver	A	5.000	5.078	ug/L	2	30	
Thallium	A	10.00	10.36	ug/L	4	30	
Vanadium	A	5.000	4.898	ug/L	-2	30	
Zinc	A	20.00	20.91	ug/L	5	30	
Iron	R	100.0	102.3	ug/L	2	30	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16601680	16440983	-0.97

!=warning +=high bias

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97006278009.2 File : met09_sn_0816 Time : 04-JAN-2017 08:57
Cal : 97006278001 Caldate : 04-JAN-2017

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	0.5000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	1.250	ug/L	
Zinc	A	ND	20.00	---	ug/L	
Iron	R	ND	100.0	80.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16601680	16533791	-0.41

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97006278010.2 File : met09_sn_0816 Time : 04-JAN-2017 09:02
Cal : 97006278001 Caldate : 04-JAN-2017
Standards: S31001

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	[-1.792]	10.00	ug/L	
Arsenic	A	[-2.252]	5.000	ug/L	
Barium	A	[1.523]	5.000	ug/L	
Beryllium	A	[0.9250]	2.000	ug/L	!a+
Cadmium	A	[1.070]	5.000	ug/L	
Cobalt	A	[-0.7710]	5.000	ug/L	
Lead	A	[0.7727]	5.000	ug/L	
Molybdenum	A	[0.9907]	5.000	ug/L	
Selenium	A	[-9.415]	10.00	ug/L	!a-
Silver	A	[-1.970]	5.000	ug/L	
Thallium	A	[-1.683]	10.00	ug/L	
Zinc	A	[17.04]	20.00	ug/L	!a+

Interferent	Ch	Spiked	Quant	Units	%Rec	Flags
Chromium	A	20000	19640	ug/L	98	
Copper	A	20000	21150	ug/L	106	
Manganese	A	20000	19020	ug/L	95	
Nickel	A	20000	18850	ug/L	94	
Vanadium	A	20000	20260	ug/L	101	
Aluminum	R	500000	512900	ug/L	103	
Calcium	R	500000	492900	ug/L	99	
Iron	R	200000	197500	ug/L	99	
Magnesium	R	500000	503300	ug/L	101	
Titanium	R	20000	20840	ug/L	104	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16601680	14699305	-11.46

!=warning +=high bias -=low bias a=ICSA

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97006278011.2 File : met09_sn_0816 Time : 04-JAN-2017 09:20
Cal : 97006278001 Caldate : 04-JAN-2017
Standards: S31844

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	470.5	ug/L	-6	20	
Arsenic	A	500.0	488.5	ug/L	-2	20	
Barium	A	500.0	532.5	ug/L	7	20	
Beryllium	A	500.0	520.7	ug/L	4	20	
Cadmium	A	1000	1037	ug/L	4	20	
Chromium	A	500.0	508.1	ug/L	2	20	
Cobalt	A	500.0	502.9	ug/L	1	20	
Copper	A	500.0	495.4	ug/L	-1	20	
Lead	A	1000	957.4	ug/L	-4	20	
Manganese	A	500.0	511.4	ug/L	2	20	
Molybdenum	A	500.0	508.3	ug/L	2	20	
Nickel	A	1000	978.6	ug/L	-2	20	
Selenium	A	500.0	513.4	ug/L	3	20	
Silver	A	1000	1040	ug/L	4	20	
Thallium	A	500.0	414.8	ug/L	-17	20	
Vanadium	A	500.0	543.5	ug/L	9	20	
Zinc	A	1000	1011	ug/L	1	20	
Iron	R	200000	199700	ug/L	0		

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16601680	14604576	-12.03

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97006278105.1 File : met09_sn_0816 Time : 04-JAN-2017 13:19
Cal : 97006278001 Caldate : 04-JAN-2017
Standards: S31646

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	5.6695	5.7016	5000	4887	ug/L	-2	10	
Arsenic	A	3.8388	3.9442	5000	5004	ug/L	0	10	
Barium	A	114.42	112.94	5000	5065	ug/L	1	10	
Beryllium	A	8555.9	8626.9	500.0	507.2	ug/L	1	10	
Cadmium	A	181.41	178.29	5000	5057	ug/L	1	10	
Chromium	A	248.64	247.41	5000	5099	ug/L	2	10	
Cobalt	A	50.432	49.907	5000	5005	ug/L	0	10	
Copper	A	426.93	416.69	5000	5056	ug/L	1	10	
Lead	A	33.502	30.937	5000	4930	ug/L	-1	10	
Manganese	A	1074.7	1065.8	5000	5133	ug/L	3	10	
Molybdenum	A	33.343	32.580	5000	4895	ug/L	-2	10	
Nickel	A	129.67	129.15	5000	5006	ug/L	0	10	
Selenium	A	7.2399	7.1105	5000	4916	ug/L	-2	10	
Silver	A	182.63	174.64	1000	1010	ug/L	1	10	
Thallium	A	5.0414	4.3966	5000	4814	ug/L	-4	10	
Vanadium	A	318.35	315.53	5000	5071	ug/L	1	10	
Zinc	A	118.65	110.61	5000	4742	ug/L	-5	10	
Iron	R	16.099	16.046	20000	20500	ug/L	2	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16601680	16037408	-3.40

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97006278106.1 File : met09_sn_0816 Time : 04-JAN-2017 13:21
Cal : 97006278001 Caldate : 04-JAN-2017

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	0.5000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	1.250	ug/L	
Zinc	A	ND	20.00	---	ug/L	
Iron	R	ND	100.0	80.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16601680	16548851	-0.32

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97006278117.1 File : met09_sn_0816 Time : 04-JAN-2017 13:49
Cal : 97006278001 Caldate : 04-JAN-2017
Standards: S31646

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	5.6695	5.7310	5000	4912	ug/L	-2	10	
Arsenic	A	3.8388	3.9718	5000	5039	ug/L	1	10	
Barium	A	114.42	112.89	5000	5063	ug/L	1	10	
Beryllium	A	8555.9	8671.3	500.0	509.8	ug/L	2	10	
Cadmium	A	181.41	177.46	5000	5034	ug/L	1	10	
Chromium	A	248.64	248.15	5000	5114	ug/L	2	10	
Cobalt	A	50.432	50.283	5000	5043	ug/L	1	10	
Copper	A	426.93	416.45	5000	5053	ug/L	1	10	
Lead	A	33.502	30.855	5000	4917	ug/L	-2	10	
Manganese	A	1074.7	1071.1	5000	5159	ug/L	3	10	
Molybdenum	A	33.343	32.538	5000	4888	ug/L	-2	10	
Nickel	A	129.67	129.59	5000	5023	ug/L	0	10	
Selenium	A	7.2399	7.0867	5000	4899	ug/L	-2	10	
Silver	A	182.63	175.14	1000	1013	ug/L	1	10	
Thallium	A	5.0414	4.4000	5000	4818	ug/L	-4	10	
Vanadium	A	318.35	316.84	5000	5092	ug/L	2	10	
Zinc	A	118.65	111.13	5000	4765	ug/L	-5	10	
Iron	R	16.099	16.848	20000	21520	ug/L	8	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16601680	15948736	-3.93

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97006278118.1 File : met09_sn_0816 Time : 04-JAN-2017 13:52
Cal : 97006278001 Caldate : 04-JAN-2017

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	0.5000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	1.250	ug/L	
Zinc	A	ND	20.00	---	ug/L	
Iron	R	ND	100.0	80.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16601680	16435930	-1.00

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97006278129.1 File : met09_sn_0816 Time : 04-JAN-2017 14:20
Cal : 97006278001 Caldate : 04-JAN-2017
Standards: S31646

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	5.6695	5.6573	5000	4849	ug/L	-3	10	
Arsenic	A	3.8388	3.9480	5000	5009	ug/L	0	10	
Barium	A	114.42	111.80	5000	5014	ug/L	0	10	
Beryllium	A	8555.9	8570.0	500.0	503.8	ug/L	1	10	
Cadmium	A	181.41	175.66	5000	4983	ug/L	0	10	
Chromium	A	248.64	247.01	5000	5091	ug/L	2	10	
Cobalt	A	50.432	49.955	5000	5010	ug/L	0	10	
Copper	A	426.93	415.57	5000	5042	ug/L	1	10	
Lead	A	33.502	30.526	5000	4865	ug/L	-3	10	
Manganese	A	1074.7	1060.9	5000	5110	ug/L	2	10	
Molybdenum	A	33.343	32.220	5000	4840	ug/L	-3	10	
Nickel	A	129.67	127.91	5000	4958	ug/L	-1	10	
Selenium	A	7.2399	6.9886	5000	4831	ug/L	-3	10	
Silver	A	182.63	175.40	1000	1014	ug/L	1	10	
Thallium	A	5.0414	4.3710	5000	4786	ug/L	-4	10	
Vanadium	A	318.35	314.37	5000	5052	ug/L	1	10	
Zinc	A	118.65	104.77	5000	4492	ug/L	-10	10	
Iron	R	16.099	16.248	20000	20750	ug/L	4	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16601680	16123623	-2.88

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97006278130.1 File : met09_sn_0816 Time : 04-JAN-2017 14:22
Cal : 97006278001 Caldate : 04-JAN-2017

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	0.5000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	1.250	ug/L	
Zinc	A	ND	20.00	---	ug/L	
Iron	R	ND	100.0	80.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16601680	16613667	0.07

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97006278141.2 File : met09_sn_0816 Time : 04-JAN-2017 14:49
Cal : 97006278001 Caldate : 04-JAN-2017
Standards: S31646

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	5.6695	5.6857	5000	4873	ug/L	-3	10	
Arsenic	A	3.8388	3.9795	5000	5049	ug/L	1	10	
Barium	A	114.42	112.27	5000	5035	ug/L	1	10	
Beryllium	A	8555.9	8614.9	500.0	506.5	ug/L	1	10	
Cadmium	A	181.41	175.65	5000	4982	ug/L	0	10	
Chromium	A	248.64	247.96	5000	5110	ug/L	2	10	
Cobalt	A	50.432	50.009	5000	5015	ug/L	0	10	
Copper	A	426.93	418.45	5000	5077	ug/L	2	10	
Lead	A	33.502	30.874	5000	4920	ug/L	-2	10	
Manganese	A	1074.7	1065.0	5000	5129	ug/L	3	10	
Molybdenum	A	33.343	32.198	5000	4837	ug/L	-3	10	
Nickel	A	129.67	128.59	5000	4984	ug/L	0	10	
Selenium	A	7.2399	7.0529	5000	4876	ug/L	-2	10	
Silver	A	182.63	176.29	1000	1019	ug/L	2	10	
Thallium	A	5.0414	4.3775	5000	4793	ug/L	-4	10	
Vanadium	A	318.35	316.38	5000	5085	ug/L	2	10	
Zinc	A	118.65	107.81	5000	4622	ug/L	-8	10	
Iron	R	16.099	16.418	20000	20970	ug/L	5	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16601680	16056225	-3.29

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97006278142.1 File : met09_sn_0816 Time : 04-JAN-2017 14:51
Cal : 97006278001 Caldate : 04-JAN-2017

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	0.5000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	1.250	ug/L	
Zinc	A	ND	20.00	---	ug/L	
Iron	R	ND	100.0	80.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16601680	16296734	-1.84

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 97008032

Instrument : MET09 Begun : 01/05/17 13:52
Method : EPA 6010C SOP Version : icp metals_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met09_sn_0816	ICALBLK				01/05/17 13:52	1.0		
002	met09_sn_0816	ICAL	L1			01/05/17 13:54	1.0	1	
003	met09_sn_0816	ICAL	L2			01/05/17 13:57	1.0	2	
004	met09_sn_0816	ICAL	L3			01/05/17 13:59	1.0	3	
005	met09_sn_0816	ICAL	L4			01/05/17 14:01	1.0	4	
006	met09_sn_0816	ICAL	L5			01/05/17 14:04	1.0	5	
007	met09_sn_0816	ICV				01/05/17 14:06	1.0	6	
008	met09_sn_0816	CRI				01/05/17 14:11	1.0	7	
009	met09_sn_0816	ICB				01/05/17 14:14	1.0		
010	met09_sn_0816	ICSA				01/05/17 14:16	1.0	8	10:AL=500000
011	met09_sn_0816	ICSAB				01/05/17 14:38	1.0	9	5:AL=500000
012	met09_sn_0816	MSS	283790-070	Soil	242066	01/05/17 14:41	100.0		
013	met09_sn_0816	SER	QC863331	Soil	242066	01/05/17 14:43	500.0		
014	met09_sn_0816	PDS	QC863332	Soil	242066	01/05/17 14:45	100.0	10 11 12	
015	met09_sn_0816	SAMPLE	284666-013	Miscell.	242989	01/05/17 14:48	500.0		1:SN=12000
016	met09_sn_0816	SAMPLE	284772-002	Water	243000	01/05/17 14:50	100.0		
017	met09_sn_0816	X	RINSE			01/05/17 14:53	1.0		
018	met09_sn_0816	MS	QC863329	Soil	242066	01/05/17 14:55	1.0		6:FE=630000
019	met09_sn_0816	MSD	QC863330	Soil	242066	01/05/17 14:57	1.0		6:FE=630000
020	met09_sn_0816	BS	QC866987	Water	243000	01/05/17 14:59	1.0		
021	met09_sn_0816	BSD	QC866988	Water	243000	01/05/17 15:02	1.0		
022	met09_sn_0816	CCV				01/05/17 15:04	1.0	13	
023	met09_sn_0816	CCB				01/05/17 15:06	1.0		
024	met09_sn_0816	MSS	284781-002	Water	243000	01/05/17 15:09	1.0		3:NA=380000
025	met09_sn_0816	MS	QC866989	Water	243000	01/05/17 15:11	1.0		3:NA=380000
026	met09_sn_0816	MSD	QC866990	Water	243000	01/05/17 15:14	1.0		
027	met09_sn_0816	SAMPLE	284760-001	Water	243000	01/05/17 15:16	1.0		
028	met09_sn_0816	SAMPLE	284781-001	Water	243000	01/05/17 15:19	1.0		
029	met09_sn_0816	SAMPLE	284666-012	Miscell.	242989	01/05/17 15:21	1.0		2:NA=130000
030	met09_sn_0816	X	RINSE			01/05/17 15:24	1.0		
031	met09_sn_0816	SAMPLE	284666-014	Miscell.	242989	01/05/17 15:27	1.0		5:K=2600000
032	met09_sn_0816	SAMPLE	284666-015	Miscell.	242989	01/05/17 15:30	1.0		8:PB=350000
033	met09_sn_0816	SAMPLE	284479-019	Soil	242731	01/05/17 15:33	1.0		6:FE=580000
034	met09_sn_0816	CCV				01/05/17 15:35	1.0	13	
035	met09_sn_0816	CCB				01/05/17 15:37	1.0		
036	met09_sn_0816	CCB				01/05/17 15:39	1.0		
037	met09_sn_0816	MS	QC865945	Soil	242731	01/05/17 15:41	1.0		
038	met09_sn_0816	MSD	QC865946	Soil	242731	01/05/17 15:44	1.0		
039	met09_sn_0816	X	RINSE			01/05/17 15:46	1.0		
040	met09_sn_0816	MS	QC866984	Water	242999	01/05/17 15:48	1.0		
041	met09_sn_0816	MSD	QC866985	Water	242999	01/05/17 15:52	1.0		
042	met09_sn_0816	MSS	284406-002	Water	242883	01/05/17 15:55	1.0		
043	met09_sn_0816	SAMPLE	284406-003	Water	242883	01/05/17 15:57	1.0		
044	met09_sn_0816	SAMPLE	284406-004	Water	242883	01/05/17 16:00	1.0		
045	met09_sn_0816	SAMPLE	284406-005	Water	242883	01/05/17 16:02	1.0		
046	met09_sn_0816	SAMPLE	284406-006	Water	242883	01/05/17 16:05	1.0		
047	met09_sn_0816	CCV				01/05/17 16:07	1.0	13	
048	met09_sn_0816	CCB				01/05/17 16:09	1.0		
049	met09_sn_0816	CCB				01/05/17 16:11	1.0		
050	met09_sn_0816	SAMPLE	284406-007	Water	242883	01/05/17 16:14	1.0		
051	met09_sn_0816	SAMPLE	284406-008	Water	242883	01/05/17 16:16	1.0		
052	met09_sn_0816	SAMPLE	284406-009	Water	242883	01/05/17 16:18	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 97008032

Instrument : MET09 Begun : 01/05/17 13:52
Method : EPA 6010C SOP Version : icp metals_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met09_sn_0816	SAMPLE	284406-010	Water	242883	01/05/17 16:21	1.0		
054	met09_sn_0816	SAMPLE	284406-011	Water	242883	01/05/17 16:23	1.0		
055	met09_sn_0816	SAMPLE	284406-012	Water	242883	01/05/17 16:26	1.0		
056	met09_sn_0816	SAMPLE	284406-013	Water	242883	01/05/17 16:28	1.0		
057	met09_sn_0816	SAMPLE	284406-014	Water	242883	01/05/17 16:30	1.0		
058	met09_sn_0816	SAMPLE	284406-015	Water	242883	01/05/17 16:33	1.0		
059	met09_sn_0816	SAMPLE	284406-019	Water	242883	01/05/17 16:35	1.0		
060	met09_sn_0816	CCV				01/05/17 16:38	1.0	13	
061	met09_sn_0816	CCB				01/05/17 16:40	1.0		
062	met09_sn_0816	CCB				01/05/17 16:42	1.0		
063	met09_sn_0816	SAMPLE	284420-001	Water	242883	01/05/17 16:44	1.0		
064	met09_sn_0816	SAMPLE	284420-002	Water	242883	01/05/17 16:47	1.0		
065	met09_sn_0816	SAMPLE	283259-003	Water	241598	01/05/17 16:49	1.0		1:CA=120000
066	met09_sn_0816	BLANK	QC866792	Water	242954	01/05/17 16:51	1.0		
067	met09_sn_0816	X	RINSE			01/05/17 16:54	1.0		
068	met09_sn_0816	BS	QC866793	Water	242954	01/05/17 16:56	1.0		
069	met09_sn_0816	BSD	QC866794	Water	242954	01/05/17 16:59	1.0		
070	met09_sn_0816	MSS	284675-008	Water	242954	01/05/17 17:01	1.0		1:CA=100000
071	met09_sn_0816	MS	QC866795	Water	242954	01/05/17 17:03	1.0		3:CA=110000
072	met09_sn_0816	MSD	QC866796	Water	242954	01/05/17 17:06	1.0		2:CA=120000
073	met09_sn_0816	CCV				01/05/17 17:08	1.0	13	
074	met09_sn_0816	CCB				01/05/17 17:11	1.0		
075	met09_sn_0816	CCV				01/05/17 17:19	1.0	13	
076	met09_sn_0816	CCB				01/05/17 17:21	1.0		
077	met09_sn_0816	BS	QC866906	Filtrate	242979	01/05/17 17:31	1.0		
078	met09_sn_0816	BSD	QC866907	Filtrate	242979	01/05/17 17:34	1.0		
079	met09_sn_0816	MSS	284372-003	Filtrate	242979	01/05/17 17:36	1.0		
080	met09_sn_0816	MS	QC866908	Filtrate	242979	01/05/17 17:38	1.0		
081	met09_sn_0816	MSD	QC866909	Filtrate	242979	01/05/17 17:41	1.0		
082	met09_sn_0816	SAMPLE	284372-006	Filtrate	242979	01/05/17 17:43	1.0		
083	met09_sn_0816	SAMPLE	284372-009	Filtrate	242979	01/05/17 17:46	1.0		
084	met09_sn_0816	SAMPLE	284372-012	Filtrate	242979	01/05/17 17:48	1.0		
085	met09_sn_0816	SAMPLE	284372-015	Filtrate	242979	01/05/17 17:51	1.0		
086	met09_sn_0816	SAMPLE	284372-018	Filtrate	242979	01/05/17 17:53	1.0		
087	met09_sn_0816	CCV				01/05/17 17:55	1.0	13	
088	met09_sn_0816	CCB				01/05/17 17:58	1.0		
089	met09_sn_0816	CCB				01/05/17 18:00	1.0		
090	met09_sn_0816	SAMPLE	284372-021	Filtrate	242979	01/05/17 18:02	1.0		
091	met09_sn_0816	SAMPLE	284372-024	Filtrate	242979	01/05/17 18:04	1.0		
092	met09_sn_0816	SAMPLE	284372-027	Filtrate	242979	01/05/17 18:07	1.0		
093	met09_sn_0816	SAMPLE	284372-030	Filtrate	242979	01/05/17 18:09	1.0		
094	met09_sn_0816	SAMPLE	284372-033	Filtrate	242979	01/05/17 18:12	1.0		
095	met09_sn_0816	SAMPLE	284372-036	Filtrate	242979	01/05/17 18:14	1.0		
096	met09_sn_0816	SAMPLE	284372-039	Filtrate	242979	01/05/17 18:16	1.0		
097	met09_sn_0816	SAMPLE	284372-042	Filtrate	242979	01/05/17 18:19	1.0		
098	met09_sn_0816	SAMPLE	284372-045	Filtrate	242979	01/05/17 18:21	1.0		
099	met09_sn_0816	SAMPLE	284372-048	Filtrate	242979	01/05/17 18:24	1.0		
100	met09_sn_0816	CCV				01/05/17 18:26	1.0	13	
101	met09_sn_0816	CCB				01/05/17 18:28	1.0		
102	met09_sn_0816	CCB				01/05/17 18:30	1.0		
103	met09_sn_0816	SAMPLE	284372-051	Filtrate	242979	01/05/17 18:33	1.0		
104	met09_sn_0816	SAMPLE	284372-054	Filtrate	242979	01/05/17 18:35	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 97008032

Instrument : MET09 Begun : 01/05/17 13:52
Method : EPA 6010C SOP Version : icp metals_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
105	met09_sn_0816	SAMPLE	284372-057	Filtrate	242979	01/05/17 18:38	1.0		
106	met09_sn_0816	SAMPLE	284372-060	Filtrate	242979	01/05/17 18:40	1.0		
107	met09_sn_0816	XSAMPLE	EMPTY	Filtrate	242979	01/05/17 18:42	1.0		
108	met09_sn_0816	X	RINSE			01/05/17 18:46	1.0		
109	met09_sn_0816	MSS	284781-002	Water	243000	01/05/17 18:48	100.0		
110	met09_sn_0816	BLANK	QC867131	Water	243031	01/05/17 18:50	1.0		
111	met09_sn_0816	BS	QC867132	Water	243031	01/05/17 18:53	1.0		
112	met09_sn_0816	BSD	QC867133	Water	243031	01/05/17 18:55	1.0		
113	met09_sn_0816	CCV				01/05/17 18:58	1.0	13	
114	met09_sn_0816	CCB				01/05/17 19:00	1.0		

MNA 01/05/17 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 49.

Standards used: 1=S31329 2=S31859 3=S31860 4=S31861 5=S31195 6=S31647 7=S31330 8=S31001 9=S31844 10=S29983 11=S29984 12=S30560 13=S31646

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 97008032

Date : 01/05/17 Reference : met09_sn_0816
Sequence : MET09 01/05/17 Analyzed : 01/05/17 13:54

#	Type	Sample ID	Y A
		ICAL STD	14452583
		LOWER LIMIT	4335775
		UPPER LIMIT	17343099
009	ICB		14535133
010	ICSA		13080726
011	ICSAB		13090202
013	SER	QC863331	14601395
014	PDS	QC863332	14197693
018	MS	QC863329	13519531
019	MSD	QC863330	13459872
022	CCV		14195222
023	CCB		14472290

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 283600 METALS Soil: EPA 6010C

Inst : MET09
Calnum : 97008032001
Units : ug/L

Date : 05-JAN-2017 13:52
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met09_sn_0816	97008032002	L1	05-JAN-2017 13:54	S31329
L2	met09_sn_0816	97008032003	L2	05-JAN-2017 13:57	S31859
L3	met09_sn_0816	97008032004	L3	05-JAN-2017 13:59	S31860
L4	met09_sn_0816	97008032005	L4	05-JAN-2017 14:01	S31861
L5	met09_sn_0816	97008032006	L5	05-JAN-2017 14:04	S31195

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Antimony	A	7.5500	7.5760	7.4761	7.5387		LOR0	0.00000	0.13266		7.5352	1.000	0.995	
Arsenic	A	6.2200	5.1320	5.0110	5.0704		LOR0	0.00000	0.19724		5.3584	1.000	0.995	
Barium	A	130.38	129.68	128.07	123.86		LOR0	0.00000	0.00807		128.00	1.000	0.995	
Beryllium	A	9016.2	8965.9	8937.7			LOR0	0.00000	1.12E-4		8973.2	1.000	0.995	
Cadmium	A	220.18	220.90	215.97	206.52		LOR0	0.00000	0.00484		215.89	1.000	0.995	
Chromium	A	274.28	267.04	263.21	259.39		LOR0	0.00000	0.00385		265.98	1.000	0.995	
Cobalt	A	57.960	58.922	58.701	57.920		LOR0	0.00000	0.01726		58.376	1.000	0.995	
Copper	A	408.08	454.70	444.50	447.74		LOR0	0.00000	0.00223		438.75	1.000	0.995	
Lead	A	38.440	37.764	37.494	36.086		LOR0	0.00000	0.02770		37.446	1.000	0.995	
Manganese	A	1210.0	1223.0	1183.9	1134.1		LOR0	0.00000	8.81E-4		1187.8	1.000	0.995	
Molybdenum	A	41.800	43.307	42.611	42.719		LOR0	0.00000	0.02341		42.609	1.000	0.995	
Nickel	A	132.08	141.57	143.74	141.99		LOR0	0.00000	0.00704		139.84	1.000	0.995	
Selenium	A	10.460	9.2740	9.0483	9.1854		LOR0	0.00000	0.10888		9.4919	1.000	0.995	
Silver	A	210.16	194.12	186.36	186.45		LOR0	0.00000	0.00536		194.27	1.000	0.995	
Thallium	A	6.8100	6.0630	5.8600	5.6743		LOR0	0.00000	0.17617		6.1018	1.000	0.995	
Vanadium	A	334.58	331.34	327.27	326.99		LOR0	0.00000	0.00306		330.04	1.000	0.995	
Zinc	A	138.01	119.92	118.84	119.18		LOR0	0.00000	0.00839		123.99	1.000	0.995	
Iron	R	18.489		18.578	18.264	17.965	LOR0	0.00000	0.05565		18.324	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Antimony	A	10.000	0	100.00	1	1000.0	-1	10000	0		
Arsenic	A	5.0000	**23**	100.00	1	1000.0	-1	10000	0		
Barium	A	5.0000	5	100.00	5	1000.0	3	10000	0		
Beryllium	A	2.0000	1	100.00	0	1000.0	0				
Cadmium	A	5.0000	7	100.00	7	1000.0	5	10000	0		
Chromium	A	5.0000	6	100.00	3	1000.0	1	10000	0		
Cobalt	A	5.0000	0	100.00	2	1000.0	1	10000	0		
Copper	A	5.0000	-9	100.00	2	1000.0	-1	10000	0		
Lead	A	5.0000	6	100.00	5	1000.0	4	10000	0		
Manganese	A	5.0000	7	100.00	8	1000.0	4	10000	0		
Molybdenum	A	5.0000	-2	100.00	1	1000.0	0	10000	0		
Nickel	A	5.0000	-7	100.00	0	1000.0	1	10000	0		
Selenium	A	10.000	14	100.00	1	1000.0	-1	10000	0		
Silver	A	5.0000	13	20.000	4	200.00	0	2000.0	0		
Thallium	A	10.000	20	100.00	7	1000.0	3	10000	0		
Vanadium	A	5.0000	2	100.00	1	1000.0	0	10000	0		
Zinc	A	20.000	16	100.00	1	1000.0	0	10000	0		
Iron	R	100.00	3			1000.0	3	10000	2	100000	0

Instrument amount = a0 + response * a1 + response^2 * a2; LOR0=Linear regression forced thru origin, including 0,0 point

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 283600 METALS Soil
EPA 6010C

Inst : MET09
Calnum : 97008032001 Cal Date : 05-JAN-2017

ICV 97008032007 (05-JAN-2017) stds: S31647

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	5000	5083	ug/L	2	10	
Arsenic	A	5000	5093	ug/L	2	10	
Barium	A	5000	5066	ug/L	1	10	
Beryllium	A	500.0	511.7	ug/L	2	10	
Cadmium	A	5000	5132	ug/L	3	10	
Chromium	A	5000	5068	ug/L	1	10	
Cobalt	A	5000	4996	ug/L	0	10	
Copper	A	5000	4902	ug/L	-2	10	
Lead	A	5000	5090	ug/L	2	10	
Manganese	A	5000	5147	ug/L	3	10	
Molybdenum	A	5000	5040	ug/L	1	10	
Nickel	A	5000	4980	ug/L	0	10	
Selenium	A	5000	5074	ug/L	1	10	
Silver	A	1000	1004	ug/L	0	10	
Thallium	A	5000	4956	ug/L	-1	10	
Vanadium	A	5000	5044	ug/L	1	10	
Zinc	A	5000	4847	ug/L	-3	10	
Iron	R	20000	21010	ug/L	5	10	

CURTIS & TOMPKINS LOW-LEVEL PERFORMANCE VERIFICATION STANDARD FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97008032008.1 File : met09_sn_0816 Time : 05-JAN-2017 14:11
Cal : 97008032001 Caldate : 05-JAN-2017
Standards: S31330

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	10.00	9.616	ug/L	-4	30	
Arsenic	A	5.000	6.555	ug/L	**31**	30	cri+ ***
Barium	A	5.000	5.242	ug/L	5	30	
Beryllium	A	2.000	2.021	ug/L	1	30	
Cadmium	A	5.000	5.348	ug/L	7	30	
Chromium	A	5.000	5.101	ug/L	2	30	
Cobalt	A	5.000	5.044	ug/L	1	30	
Copper	A	5.000	5.116	ug/L	2	30	
Lead	A	5.000	5.710	ug/L	14	30	
Manganese	A	5.000	5.283	ug/L	6	30	
Molybdenum	A	5.000	5.647	ug/L	13	30	
Nickel	A	5.000	4.597	ug/L	-8	30	
Selenium	A	10.00	10.56	ug/L	6	30	
Silver	A	5.000	5.610	ug/L	12	30	
Thallium	A	10.00	12.29	ug/L	**23**	30	!cri+
Vanadium	A	5.000	5.267	ug/L	5	30	
Zinc	A	20.00	20.31	ug/L	2	30	
Iron	R	100.0	102.5	ug/L	2	30	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	14452583	14591323	0.96

!=warning +=high bias

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97008032009.1 File : met09_sn_0816 Time : 05-JAN-2017 14:14
Cal : 97008032001 Caldate : 05-JAN-2017

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	0.5000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	1.250	ug/L	
Zinc	A	ND	20.00	---	ug/L	
Iron	R	ND	100.0	80.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	14452583	14535133	0.57

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97008032010.1 File : met09_sn_0816 Time : 05-JAN-2017 14:16
Cal : 97008032001 Caldate : 05-JAN-2017
Standards: S31001

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	[4.071]	10.00	ug/L	
Arsenic	A	5.857	5.000	ug/L	a+ ***
Barium	A	[-0.5705]	5.000	ug/L	
Beryllium	A	[-0.2829]	2.000	ug/L	
Cadmium	A	[1.757]	5.000	ug/L	!a+
Cobalt	A	[-1.411]	5.000	ug/L	
Lead	A	[1.898]	5.000	ug/L	
Molybdenum	A	[-0.3781]	5.000	ug/L	
Selenium	A	19.47	10.00	ug/L	a+ ***
Silver	A	[-0.8148]	5.000	ug/L	
Thallium	A	[2.288]	10.00	ug/L	
Zinc	A	[-19.46]	20.00	ug/L	!a-

Interferent	Ch	Spiked	Quant	Units	%Rec	Flags
Chromium	A	20000	19420	ug/L	97	
Copper	A	20000	20780	ug/L	104	
Manganese	A	20000	18630	ug/L	93	
Nickel	A	20000	18400	ug/L	92	
Vanadium	A	20000	20210	ug/L	101	
Aluminum	R	500000	501200	ug/L	100	
Calcium	R	500000	483800	ug/L	97	
Iron	R	200000	194900	ug/L	97	
Magnesium	R	500000	499500	ug/L	100	
Titanium	R	20000	20860	ug/L	104	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	14452583	13080726	-9.49

!=warning +=high bias -=low bias a=ICSA

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97008032011.1 File : met09_sn_0816 Time : 05-JAN-2017 14:38
Cal : 97008032001 Caldate : 05-JAN-2017
Standards: S31844

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	470.1	ug/L	-6	20	
Arsenic	A	500.0	453.2	ug/L	-9	20	
Barium	A	500.0	529.7	ug/L	6	20	
Beryllium	A	500.0	523.9	ug/L	5	20	
Cadmium	A	1000	1032	ug/L	3	20	
Chromium	A	500.0	501.5	ug/L	0	20	
Cobalt	A	500.0	478.1	ug/L	-4	20	
Copper	A	500.0	489.7	ug/L	-2	20	
Lead	A	1000	921.4	ug/L	-8	20	
Manganese	A	500.0	502.7	ug/L	1	20	
Molybdenum	A	500.0	490.1	ug/L	-2	20	
Nickel	A	1000	959.8	ug/L	-4	20	
Selenium	A	500.0	518.5	ug/L	4	20	
Silver	A	1000	1035	ug/L	3	20	
Thallium	A	500.0	406.2	ug/L	-19	20	
Vanadium	A	500.0	540.6	ug/L	8	20	
Zinc	A	1000	942.3	ug/L	-6	20	
Iron	R	200000	195200	ug/L	-2		

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	14452583	13090202	-9.43

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97008032022.1 File : met09_sn_0816 Time : 05-JAN-2017 15:04
Cal : 97008032001 Caldate : 05-JAN-2017
Standards: S31646

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	7.5352	7.5929	5000	5036	ug/L	1	10	
Arsenic	A	5.3584	5.1586	5000	5088	ug/L	2	10	
Barium	A	128.00	125.67	5000	5071	ug/L	1	10	
Beryllium	A	8973.2	9085.6	500.0	508.3	ug/L	2	10	
Cadmium	A	215.89	210.68	5000	5098	ug/L	2	10	
Chromium	A	265.98	262.84	5000	5066	ug/L	1	10	
Cobalt	A	58.376	57.576	5000	4970	ug/L	-1	10	
Copper	A	438.75	439.92	5000	4913	ug/L	-2	10	
Lead	A	37.446	36.416	5000	5044	ug/L	1	10	
Manganese	A	1187.8	1162.1	5000	5121	ug/L	2	10	
Molybdenum	A	42.609	42.357	5000	4958	ug/L	-1	10	
Nickel	A	139.84	141.69	5000	4989	ug/L	0	10	
Selenium	A	9.4919	9.3362	5000	5083	ug/L	2	10	
Silver	A	194.27	185.26	1000	993.6	ug/L	-1	10	
Thallium	A	6.1018	5.6054	5000	4938	ug/L	-1	10	
Vanadium	A	330.04	330.93	5000	5060	ug/L	1	10	
Zinc	A	123.99	117.53	5000	4931	ug/L	-1	10	
Iron	R	18.324	18.974	20000	21120	ug/L	6	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	14452583	14195222	-1.78

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97008032023.1 File : met09_sn_0816 Time : 05-JAN-2017 15:06
Cal : 97008032001 Caldate : 05-JAN-2017

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	0.5000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	1.250	ug/L	
Zinc	A	ND	20.00	---	ug/L	
Iron	R	ND	100.0	80.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	14452583	14472290	0.14

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 97008403

Instrument : MET09 Begun : 01/05/17 20:03
Method : EPA 6010C SOP Version : icp metals_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met09_sn_0816	ICALBLK				01/05/17 20:03	1.0		
002	met09_sn_0816	ICAL	L1			01/05/17 20:06	1.0	1	
003	met09_sn_0816	ICAL	L2			01/05/17 20:08	1.0	2	
004	met09_sn_0816	ICAL	L3			01/05/17 20:11	1.0	3	
005	met09_sn_0816	ICAL	L4			01/05/17 20:13	1.0	4	
006	met09_sn_0816	ICAL	L5			01/05/17 20:15	1.0	5	
007	met09_sn_0816	XICV				01/05/17 20:17	1.0	6	
008	met09_sn_0816	ICV				01/05/17 20:21	1.0	6	
009	met09_sn_0816	XCRI				01/05/17 20:32	1.0	7	
010	met09_sn_0816	CRI				01/05/17 20:38	1.0	7	
011	met09_sn_0816	ICB				01/05/17 20:41	1.0		
012	met09_sn_0816	ICSA				01/05/17 20:43	1.0	8	10:AL=500000
013	met09_sn_0816	ICSAB				01/05/17 21:11	1.0	9	5:MG=500000
014	met09_sn_0816	SAMPLE	284675-009	Water	242954	01/05/17 21:21	1.0		2:CA=160000
015	met09_sn_0816	SAMPLE	284675-010	Water	242954	01/05/17 21:23	1.0		4:MG=520000
016	met09_sn_0816	SAMPLE	284689-009	Water	242954	01/05/17 21:26	1.0		4:CA=240000
017	met09_sn_0816	SAMPLE	284536-001	Water	242774	01/05/17 21:29	1.0		7:AS=620000
018	met09_sn_0816	SAMPLE	284545-001	Water	242774	01/05/17 21:31	1.0		
019	met09_sn_0816	SAMPLE	284555-002	Water	242774	01/05/17 21:34	100.0		1:CA=160000
020	met09_sn_0816	SAMPLE	284566-001	Water	242774	01/05/17 21:36	1.0		1:CA=160000
021	met09_sn_0816	SAMPLE	284566-002	Water	242774	01/05/17 21:38	1.0		
022	met09_sn_0816	SAMPLE	284673-001	Water	243031	01/05/17 21:41	1.0		
023	met09_sn_0816	X	RINSE			01/05/17 21:43	1.0		
024	met09_sn_0816	CCV				01/05/17 21:46	1.0	10	
025	met09_sn_0816	CCB				01/05/17 21:48	1.0		
026	met09_sn_0816	BLANK	QC865304	Water	242563	01/05/17 21:50	1.0		
027	met09_sn_0816	BS	QC865305	Water	242563	01/05/17 21:53	1.0		
028	met09_sn_0816	BSD	QC865306	Water	242563	01/05/17 21:55	1.0		
029	met09_sn_0816	MSS	284323-002	Water	242563	01/05/17 21:58	1.0		
030	met09_sn_0816	MS	QC865307	Water	242563	01/05/17 22:00	1.0		
031	met09_sn_0816	MSD	QC865308	Water	242563	01/05/17 22:02	1.0		
032	met09_sn_0816	SAMPLE	284324-001	Water	242563	01/05/17 22:05	1.0		1:NA=320000
033	met09_sn_0816	SAMPLE	284326-001	Water	242563	01/05/17 22:07	1.0		
034	met09_sn_0816	SAMPLE	284338-001	Water	242563	01/05/17 22:10	1.0		1:CA=210000
035	met09_sn_0816	SAMPLE	284338-002	Water	242563	01/05/17 22:12	1.0		1:MN=13000
036	met09_sn_0816	CCV				01/05/17 22:15	1.0	10	
037	met09_sn_0816	CCB				01/05/17 22:17	1.0		
038	met09_sn_0816	SAMPLE	284338-003	Water	242563	01/05/17 22:19	1.0		1:CA=180000
039	met09_sn_0816	SAMPLE	284338-004	Water	242563	01/05/17 22:22	1.0		1:CA=240000
040	met09_sn_0816	SAMPLE	284339-001	Water	242563	01/05/17 22:24	1.0		
041	met09_sn_0816	SAMPLE	284339-002	Water	242563	01/05/17 22:26	1.0		
042	met09_sn_0816	SAMPLE	284339-003	Water	242563	01/05/17 22:29	1.0		
043	met09_sn_0816	SAMPLE	284339-004	Water	242563	01/05/17 22:31	1.0		
044	met09_sn_0816	SAMPLE	284339-005	Water	242563	01/05/17 22:34	1.0		
045	met09_sn_0816	SAMPLE	284339-006	Water	242563	01/05/17 22:36	1.0		
046	met09_sn_0816	SAMPLE	284413-001	Water	242563	01/05/17 22:38	1.0		
047	met09_sn_0816	SAMPLE	284413-002	Water	242563	01/05/17 22:41	1.0		
048	met09_sn_0816	CCV				01/05/17 22:43	1.0	10	
049	met09_sn_0816	CCB				01/05/17 22:45	1.0		
050	met09_sn_0816	CCB				01/05/17 22:47	1.0		
051	met09_sn_0816	SAMPLE	284413-003	Water	242563	01/05/17 22:50	1.0		
052	met09_sn_0816	SAMPLE	284426-008	Water	242563	01/05/17 22:52	1.0		3:NA=120000

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 97008403

Instrument : MET09 Begun : 01/05/17 20:03
Method : EPA 6010C SOP Version : icp metals_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met09_sn_0816	SAMPLE	284426-009	Water	242563	01/05/17 22:55	1.0		1:CA=130000
054	met09_sn_0816	SAMPLE	284426-010	Water	242563	01/05/17 22:58	1.0		
055	met09_sn_0816	CCV				01/05/17 23:00	1.0	10	
056	met09_sn_0816	CCB				01/05/17 23:02	1.0		
057	met09_sn_0816	X	RINSE			01/05/17 23:32	1.0		
058	met09_sn_0816	BLANK	QC862977	Soil	241980	01/05/17 23:34	1.0		
059	met09_sn_0816	BS	QC862978	Soil	241980	01/05/17 23:37	1.0		
060	met09_sn_0816	BSD	QC862979	Soil	241980	01/05/17 23:39	1.0		
061	met09_sn_0816	MSS	283600-001	Soil	241980	01/05/17 23:42	1.0		4:CA=230000
062	met09_sn_0816	MS	QC862980	Soil	241980	01/05/17 23:44	1.0		2:CA=320000
063	met09_sn_0816	MSD	QC862981	Soil	241980	01/05/17 23:46	1.0		2:CA=390000
064	met09_sn_0816	SER	QC862982	Soil	241980	01/05/17 23:48	5.0		
065	met09_sn_0816	PDS	QC862983	Soil	241980	01/05/17 23:50	1.0	11 12 13	4:CA=240000
066	met09_sn_0816	SAMPLE	283600-002	Soil	241980	01/05/17 23:53	1.0		4:CA=300000
067	met09_sn_0816	CCV				01/05/17 23:55	1.0	10	
068	met09_sn_0816	CCB				01/05/17 23:57	1.0		
069	met09_sn_0816	SAMPLE	283600-003	Soil	241980	01/05/17 23:59	1.0		4:CA=290000
070	met09_sn_0816	SAMPLE	283600-004	Soil	241980	01/06/17 00:01	1.0		4:CA=340000
071	met09_sn_0816	SAMPLE	283600-005	Soil	241980	01/06/17 00:04	1.0		4:CA=240000
072	met09_sn_0816	SAMPLE	283600-006	Soil	241980	01/06/17 00:06	1.0		4:CA=250000
073	met09_sn_0816	SAMPLE	283600-007	Soil	241980	01/06/17 00:08	1.0		4:CA=250000
074	met09_sn_0816	SAMPLE	283600-008	Soil	241980	01/06/17 00:10	1.0		4:CA=360000
075	met09_sn_0816	SAMPLE	283600-009	Soil	241980	01/06/17 00:12	1.0		4:CA=300000
076	met09_sn_0816	SAMPLE	283600-010	Soil	241980	01/06/17 00:14	1.0		4:CA=240000
077	met09_sn_0816	SAMPLE	283600-011	Soil	241980	01/06/17 00:17	1.0		4:CA=250000
078	met09_sn_0816	SAMPLE	283600-013	Soil	241980	01/06/17 00:19	1.0		4:CA=280000
079	met09_sn_0816	CCV				01/06/17 00:21	1.0	10	
080	met09_sn_0816	CCB				01/06/17 00:23	1.0		
081	met09_sn_0816	CCB				01/06/17 00:25	1.0		
082	met09_sn_0816	SAMPLE	283600-014	Soil	241980	01/06/17 00:28	1.0		4:CA=240000
083	met09_sn_0816	SAMPLE	283600-015	Soil	241980	01/06/17 00:30	1.0		4:CA=270000
084	met09_sn_0816	SAMPLE	283600-016	Soil	241980	01/06/17 00:32	1.0		4:CA=340000
085	met09_sn_0816	SAMPLE	283600-017	Soil	241980	01/06/17 00:34	1.0		4:CA=330000
086	met09_sn_0816	SAMPLE	283600-018	Soil	241980	01/06/17 00:36	1.0		4:CA=260000
087	met09_sn_0816	SAMPLE	283600-019	Soil	241980	01/06/17 00:38	1.0		4:CA=280000
088	met09_sn_0816	CCV				01/06/17 00:41	1.0	10	
089	met09_sn_0816	CCB				01/06/17 00:43	1.0		
090	met09_sn_0816	X	RINSE			01/06/17 00:50	1.0		
091	met09_sn_0816	SAMPLE	284096-004	Water	242376	01/06/17 00:52	1.0		
092	met09_sn_0816	SAMPLE	284096-005	Water	242376	01/06/17 00:55	1.0		
093	met09_sn_0816	SAMPLE	284096-006	Water	242376	01/06/17 00:57	1.0		
094	met09_sn_0816	SAMPLE	284096-007	Water	242376	01/06/17 01:00	1.0		
095	met09_sn_0816	SAMPLE	284096-008	Water	242376	01/06/17 01:02	1.0		
096	met09_sn_0816	SAMPLE	284096-009	Water	242376	01/06/17 01:05	1.0		
097	met09_sn_0816	SAMPLE	284096-010	Water	242376	01/06/17 01:07	1.0		
098	met09_sn_0816	SAMPLE	284096-011	Water	242376	01/06/17 01:09	1.0		
099	met09_sn_0816	SAMPLE	284096-012	Water	242376	01/06/17 01:12	1.0		
100	met09_sn_0816	CCV				01/06/17 01:14	1.0	10	
101	met09_sn_0816	CCB				01/06/17 01:16	1.0		
102	met09_sn_0816	SAMPLE	284096-013	Water	242376	01/06/17 01:19	1.0		
103	met09_sn_0816	SAMPLE	284096-014	Water	242376	01/06/17 01:21	1.0		
104	met09_sn_0816	SAMPLE	284096-018	Water	242376	01/06/17 01:24	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 97008403

Instrument : MET09 Begun : 01/05/17 20:03
Method : EPA 6010C SOP Version : icp metals_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
105	met09_sn_0816	SAMPLE	284237-001	Water	242376	01/06/17 01:26	1.0		
106	met09_sn_0816	X	RINSE			01/06/17 01:29	1.0		
107	met09_sn_0816	SAMPLE	284290-006	Filtrate	242454	01/06/17 01:31	1.0		3:CA=120000
108	met09_sn_0816	SAMPLE	284294-001	Filtrate	242454	01/06/17 01:33	1.0		
109	met09_sn_0816	SAMPLE	284294-002	Filtrate	242454	01/06/17 01:36	1.0		1:CA=160000
110	met09_sn_0816	SAMPLE	284294-003	Filtrate	242454	01/06/17 01:38	1.0		1:CA=140000
111	met09_sn_0816	SAMPLE	284294-004	Filtrate	242454	01/06/17 01:41	1.0		2:CA=110000
112	met09_sn_0816	CCV				01/06/17 01:43	1.0	10	
113	met09_sn_0816	CCB				01/06/17 01:45	1.0		
114	met09_sn_0816	SAMPLE	284295-033	Filtrate	242454	01/06/17 01:48	1.0		4:MG=350000
115	met09_sn_0816	SAMPLE	284295-034	Filtrate	242454	01/06/17 01:51	1.0		3:CA=230000
116	met09_sn_0816	SAMPLE	284295-035	Filtrate	242454	01/06/17 01:54	1.0		3:CA=240000
117	met09_sn_0816	X	RINSE			01/06/17 01:57	1.0		
118	met09_sn_0816	BLANK	QC867031	Filtrate	243008	01/06/17 01:59	1.0		
119	met09_sn_0816	BS	QC867032	Filtrate	243008	01/06/17 02:02	1.0		
120	met09_sn_0816	BSD	QC867033	Filtrate	243008	01/06/17 02:04	1.0		
121	met09_sn_0816	MSS	284760-001	Filtrate	243008	01/06/17 02:07	1.0		
122	met09_sn_0816	MS	QC867034	Filtrate	243008	01/06/17 02:09	1.0		
123	met09_sn_0816	MSD	QC867035	Filtrate	243008	01/06/17 02:12	1.0		
124	met09_sn_0816	CCV				01/06/17 02:14	1.0	10	
125	met09_sn_0816	CCB				01/06/17 02:16	1.0		
126	met09_sn_0816	SAMPLE	284750-019	Filtrate	243008	01/06/17 02:19	1.0		1:NA=100000
127	met09_sn_0816	SAMPLE	284750-020	Filtrate	243008	01/06/17 02:21	1.0		1:NA=100000
128	met09_sn_0816	SAMPLE	284750-021	Filtrate	243008	01/06/17 02:23	1.0		
129	met09_sn_0816	SAMPLE	284781-001	Filtrate	243008	01/06/17 02:26	1.0		
130	met09_sn_0816	SAMPLE	284781-002	Filtrate	243008	01/06/17 02:28	1.0		3:NA=360000
131	met09_sn_0816	X	RINSE			01/06/17 02:31	1.0		
132	met09_sn_0816	SAMPLE	284182-001	WET Leachate	242420	01/06/17 02:33	10.0		1:NA=170000
133	met09_sn_0816	X	RINSE			01/06/17 02:36	1.0		
134	met09_sn_0816	BLANK	QC867072	Soil	243018	01/06/17 02:38	1.0		
135	met09_sn_0816	BS	QC867073	Soil	243018	01/06/17 02:40	1.0		
136	met09_sn_0816	CCV				01/06/17 02:43	1.0	10	
137	met09_sn_0816	CCB				01/06/17 02:45	1.0		
138	met09_sn_0816	BSD	QC867074	Soil	243018	01/06/17 02:48	1.0		
139	met09_sn_0816	MSS	284649-001	Soil	243018	01/06/17 02:50	1.0		1:FE=150000
140	met09_sn_0816	MS	QC867075	Soil	243018	01/06/17 02:53	1.0		1:FE=180000
141	met09_sn_0816	MSD	QC867076	Soil	243018	01/06/17 02:55	1.0		1:FE=170000
142	met09_sn_0816	SAMPLE	284649-002	Soil	243018	01/06/17 02:58	1.0		1:FE=150000
143	met09_sn_0816	SAMPLE	284650-001	Soil	243018	01/06/17 03:01	1.0		1:FE=150000
144	met09_sn_0816	SAMPLE	284650-002	Soil	243018	01/06/17 03:04	1.0		3:FE=450000
145	met09_sn_0816	SAMPLE	284651-001	Soil	243018	01/06/17 03:06	1.0		1:FE=190000
146	met09_sn_0816	SAMPLE	284651-002	Soil	243018	01/06/17 03:09	1.0		4:FE=520000
147	met09_sn_0816	SAMPLE	284652-001	Soil	243018	01/06/17 03:11	1.0		
148	met09_sn_0816	CCV				01/06/17 03:15	1.0	10	
149	met09_sn_0816	CCB				01/06/17 03:17	1.0		
150	met09_sn_0816	SAMPLE	284652-002	Soil	243018	01/06/17 03:20	1.0		
151	met09_sn_0816	SAMPLE	284656-001	Soil	243018	01/06/17 03:24	1.0		4:FE=550000
152	met09_sn_0816	SAMPLE	284656-002	Soil	243018	01/06/17 03:26	1.0		5:FE=460000
153	met09_sn_0816	SAMPLE	284657-001	Soil	243018	01/06/17 03:28	1.0		3:FE=490000
154	met09_sn_0816	SAMPLE	284657-002	Soil	243018	01/06/17 03:30	1.0		3:FE=460000
155	met09_sn_0816	SAMPLE	284658-001	Soil	243018	01/06/17 03:32	1.0		1:FE=130000
156	met09_sn_0816	SAMPLE	284658-002	Soil	243018	01/06/17 03:35	1.0		1:FE=180000

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 97008403

Instrument : MET09 Begun : 01/05/17 20:03
Method : EPA 6010C SOP Version : icp metals_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
157	met09_sn_0816	SAMPLE	284659-001	Soil	243018	01/06/17 03:38	1.0		1:FE=150000
158	met09_sn_0816	SAMPLE	284659-002	Soil	243018	01/06/17 03:41	1.0		1:FE=120000
159	met09_sn_0816	SAMPLE	284660-001	Soil	243018	01/06/17 03:45	1.0		3:FE=440000
160	met09_sn_0816	CCV				01/06/17 03:47	1.0	10	
161	met09_sn_0816	CCB				01/06/17 03:49	1.0		
162	met09_sn_0816	SAMPLE	284660-002	Soil	243018	01/06/17 03:51	1.0		4:FE=430000
163	met09_sn_0816	SAMPLE	284661-001	Soil	243018	01/06/17 03:53	1.0		
164	met09_sn_0816	SAMPLE	284661-002	Soil	243018	01/06/17 03:57	1.0		
165	met09_sn_0816	CCV				01/06/17 04:00	1.0	10	
166	met09_sn_0816	CCB				01/06/17 04:02	1.0		

MNA 01/05/17 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 56.

TLO 01/06/17 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 57 through 166.

Standards used: 1=S31329 2=S31859 3=S31860 4=S31861 5=S31195 6=S31647 7=S31330 8=S31001 9=S31844 10=S31646 11=S29983 12=S29984 13=S30560

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 97008403

Date : 01/05/17 Reference : met09_sn_0816
Sequence : MET09 01/05/17 Analyzed : 01/05/17 20:06

#	Type	Sample ID	Y A
		ICAL STD	16389878
		LOWER LIMIT	4916963
		UPPER LIMIT	19667853
011	ICB		16375583
012	ICSA		14470105
013	ICSAB		14225611
055	CCV		15607140
056	CCB		16232886
058	BLANK	QC862977	16579650
059	BS	QC862978	15884826
060	BSD	QC862979	15866985
061	MSS	283600-001	15605204
062	MS	QC862980	15295718
063	MSD	QC862981	15245091
064	SER	QC862982	15786548
065	PDS	QC862983	15325113
066	SAMPLE	283600-002	15465996
067	CCV		15583572
068	CCB		16124283
069	SAMPLE	283600-003	15366687
070	SAMPLE	283600-004	15406621
071	SAMPLE	283600-005	15614443
072	SAMPLE	283600-006	15513515
073	SAMPLE	283600-007	15253370
074	SAMPLE	283600-008	15419327
075	SAMPLE	283600-009	15401364
076	SAMPLE	283600-010	15550823
077	SAMPLE	283600-011	15712518
078	SAMPLE	283600-013	15307598
079	CCV		15564136
080	CCB		16285500
081	CCB		16652266
082	SAMPLE	283600-014	15568676
083	SAMPLE	283600-015	15526508
084	SAMPLE	283600-016	15228532
085	SAMPLE	283600-017	15473229
086	SAMPLE	283600-018	15348458
087	SAMPLE	283600-019	15561713
088	CCV		15637285
089	CCB		16130449

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 283600 METALS Soil: EPA 6010C

Inst : MET09
Calnum : 97008403001
Units : ug/L

Date : 05-JAN-2017 20:03
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met09_sn_0816	97008403002	L1	05-JAN-2017 20:06	S31329
L2	met09_sn_0816	97008403003	L2	05-JAN-2017 20:08	S31859
L3	met09_sn_0816	97008403004	L3	05-JAN-2017 20:11	S31860
L4	met09_sn_0816	97008403005	L4	05-JAN-2017 20:13	S31861
L5	met09_sn_0816	97008403006	L5	05-JAN-2017 20:15	S31195

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Antimony	A	6.4800	7.2670	7.2404	7.5269		LOR0	0.00000	0.13291		7.1286	1.000	0.995	
Arsenic	A	3.5800	4.9640	4.8983	5.1195		LOR0	0.00000	0.19542		4.6405	1.000	0.995	
Barium	A	131.48	130.12	128.93	125.05		LOR0	0.00000	0.00799		128.89	1.000	0.995	
Beryllium	A	9240.1	9142.6	9076.1			LOR0	0.00000	1.10E-4		9152.9	1.000	0.995	
Cadmium	A	210.22	216.40	211.55	202.35		LOR0	0.00000	0.00494		210.13	1.000	0.995	
Chromium	A	282.00	288.39	283.18	278.18		LOR0	0.00000	0.00359		282.94	1.000	0.995	
Cobalt	A	59.140	60.120	60.157	59.783		LOR0	0.00000	0.01673		59.800	1.000	0.995	
Copper	A	511.80	469.69	457.37	463.95		LOR0	0.00000	0.00216		475.70	1.000	0.995	
Lead	A	42.020	38.578	38.004	37.760		LOR0	0.00000	0.02648		39.090	1.000	0.995	
Manganese	A	1200.7	1231.5	1192.6	1158.5		LOR0	0.00000	8.63E-4		1195.8	1.000	0.995	
Molybdenum	A	37.800	40.954	40.488	40.624		LOR0	0.00000	0.02462		39.967	1.000	0.995	
Nickel	A	147.98	146.11	147.80	146.41		LOR0	0.00000	0.00683		147.08	1.000	0.995	
Selenium	A	8.9300	8.5660	8.4664	8.8583		LOR0	0.00000	0.11294		8.7052	1.000	0.995	
Silver	A	197.92	201.16	202.81	202.29		LOR0	0.00000	0.00494		201.04	1.000	0.995	
Thallium	A	5.6000	5.6160	5.5000	5.4532		LOR0	0.00000	0.18336		5.5423	1.000	0.995	
Vanadium	A	384.24	360.46	354.24	353.87		LOR0	0.00000	0.00283		363.21	1.000	0.995	
Zinc	A	68.560	90.174	98.586	99.716		LOR0	0.00000	0.01003		89.259	1.000	0.995	
Iron	R	17.796		16.114	16.381	15.966	LOR0	0.00000	0.06262		16.564	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Antimony	A	10.000	-14	100.00	-3	1000.0	-4	10000	0		
Arsenic	A	5.0000	**-30**	100.00	-3	1000.0	-4	10000	0		
Barium	A	5.0000	5	100.00	4	1000.0	3	10000	0		
Beryllium	A	2.0000	2	100.00	1	1000.0	0				
Cadmium	A	5.0000	4	100.00	7	1000.0	4	10000	0		
Chromium	A	5.0000	1	100.00	4	1000.0	2	10000	0		
Cobalt	A	5.0000	-1	100.00	1	1000.0	1	10000	0		
Copper	A	5.0000	10	100.00	1	1000.0	-1	10000	0		
Lead	A	5.0000	11	100.00	2	1000.0	1	10000	0		
Manganese	A	5.0000	4	100.00	6	1000.0	3	10000	0		
Molybdenum	A	5.0000	-7	100.00	1	1000.0	0	10000	0		
Nickel	A	5.0000	1	100.00	0	1000.0	1	10000	0		
Selenium	A	10.000	1	100.00	-3	1000.0	-4	10000	0		
Silver	A	5.0000	-2	20.000	-1	200.00	0	2000.0	0		
Thallium	A	10.000	3	100.00	3	1000.0	1	10000	0		
Vanadium	A	5.0000	9	100.00	2	1000.0	0	10000	0		
Zinc	A	20.000	**-31**	100.00	-10	1000.0	-1	10000	0		
Iron	R	100.00	11			1000.0	1	10000	3	100000	0

Instrument amount = a0 + response * a1 + response^2 * a2; LOR0=Linear regression forced thru origin, including 0,0 point

97008403001

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 283600 METALS Soil
EPA 6010C

Inst : MET09
Calnum : 97008403001 Cal Date : 05-JAN-2017

ICV 97008403008 (05-JAN-2017) stds: S31647

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	5000	5018	ug/L	0	10	
Arsenic	A	5000	5084	ug/L	2	10	
Barium	A	5000	5183	ug/L	4	10	
Beryllium	A	500.0	516.9	ug/L	3	10	
Cadmium	A	5000	5262	ug/L	5	10	
Chromium	A	5000	5162	ug/L	3	10	
Cobalt	A	5000	5025	ug/L	1	10	
Copper	A	5000	4966	ug/L	-1	10	
Lead	A	5000	5052	ug/L	1	10	
Manganese	A	5000	5121	ug/L	2	10	
Molybdenum	A	5000	5108	ug/L	2	10	
Nickel	A	5000	5103	ug/L	2	10	
Selenium	A	5000	5084	ug/L	2	10	
Silver	A	1000	1004	ug/L	0	10	
Thallium	A	5000	5039	ug/L	1	10	
Vanadium	A	5000	5149	ug/L	3	10	
Zinc	A	5000	5235	ug/L	5	10	
Iron	R	20000	21330	ug/L	7	10	

CURTIS & TOMPKINS LOW-LEVEL PERFORMANCE VERIFICATION STANDARD FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97008403010.1 File : met09_sn_0816 Time : 05-JAN-2017 20:38
Cal : 97008403001 Caldate : 05-JAN-2017
Standards: S31330

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	10.00	7.236	ug/L	**-28**	30	!cri-
Arsenic	A	5.000	3.829	ug/L	**-23**	30	!cri-
Barium	A	5.000	5.245	ug/L	5	30	
Beryllium	A	2.000	2.000	ug/L	0	30	
Cadmium	A	5.000	5.218	ug/L	4	30	
Chromium	A	5.000	4.978	ug/L	0	30	
Cobalt	A	5.000	5.003	ug/L	0	30	
Copper	A	5.000	4.851	ug/L	-3	30	
Lead	A	5.000	5.274	ug/L	5	30	
Manganese	A	5.000	5.166	ug/L	3	30	
Molybdenum	A	5.000	4.528	ug/L	-9	30	
Nickel	A	5.000	5.116	ug/L	2	30	
Selenium	A	10.00	9.569	ug/L	-4	30	
Silver	A	5.000	4.702	ug/L	-6	30	
Thallium	A	10.00	10.60	ug/L	6	30	
Vanadium	A	5.000	5.362	ug/L	7	30	
Zinc	A	20.00	12.07	ug/L	**-40**	30	cri- ***
Iron	R	100.0	105.4	ug/L	5	30	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16389878	16439119	0.30

!=warning -=low bias

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97008403011.2 File : met09_sn_0816 Time : 05-JAN-2017 20:41
Cal : 97008403001 Caldate : 05-JAN-2017

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	0.5000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	1.250	ug/L	
Zinc	A	ND	20.00	---	ug/L	
Iron	R	ND	100.0	80.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16389878	16375583	-0.09

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97008403012.2 File : met09_sn_0816 Time : 05-JAN-2017 20:43
Cal : 97008403001 Caldate : 05-JAN-2017
Standards: S31001

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	[-9.289]	10.00	ug/L	!a-
Arsenic	A	[4.102]	5.000	ug/L	!a+
Barium	A	[-2.662]	5.000	ug/L	!a-
Beryllium	A	[-1.755]	2.000	ug/L	!a-
Cadmium	A	[1.727]	5.000	ug/L	!a+
Cobalt	A	[-0.3605]	5.000	ug/L	
Lead	A	[-1.862]	5.000	ug/L	
Molybdenum	A	[-0.5506]	5.000	ug/L	
Selenium	A	[-19.09]	10.00	ug/L	a- ***
Silver	A	[2.494]	5.000	ug/L	
Thallium	A	[-2.686]	10.00	ug/L	
Zinc	A	[-16.61]	20.00	ug/L	!a-

Interferent	Ch	Spiked	Quant	Units	%Rec	Flags
Chromium	A	20000	19370	ug/L	97	
Copper	A	20000	20710	ug/L	104	
Manganese	A	20000	18800	ug/L	94	
Nickel	A	20000	18550	ug/L	93	
Vanadium	A	20000	20080	ug/L	100	
Aluminum	R	500000	495200	ug/L	99	
Calcium	R	500000	478000	ug/L	96	
Iron	R	200000	194100	ug/L	97	
Magnesium	R	500000	495000	ug/L	99	
Titanium	R	20000	20860	ug/L	104	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16389878	14470105	-11.71

!=warning +=high bias -=low bias a=ICSA

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97008403013.2 File : met09_sn_0816 Time : 05-JAN-2017 21:11
Cal : 97008403001 Caldate : 05-JAN-2017
Standards: S31844

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	430.0	ug/L	-14	20	
Arsenic	A	500.0	440.7	ug/L	-12	20	
Barium	A	500.0	549.9	ug/L	10	20	
Beryllium	A	500.0	528.9	ug/L	6	20	
Cadmium	A	1000	1072	ug/L	7	20	
Chromium	A	500.0	515.0	ug/L	3	20	
Cobalt	A	500.0	492.4	ug/L	-2	20	
Copper	A	500.0	499.4	ug/L	0	20	
Lead	A	1000	936.1	ug/L	-6	20	
Manganese	A	500.0	517.8	ug/L	4	20	
Molybdenum	A	500.0	506.9	ug/L	1	20	
Nickel	A	1000	993.5	ug/L	-1	20	
Selenium	A	500.0	467.1	ug/L	-7	20	
Silver	A	1000	1055	ug/L	6	20	
Thallium	A	500.0	416.4	ug/L	-17	20	
Vanadium	A	500.0	551.6	ug/L	10	20	
Zinc	A	1000	1008	ug/L	1	20	
Iron	R	200000	197100	ug/L	-1		

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16389878	14225611	-13.20

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97008403055.2 File : met09_sn_0816 Time : 05-JAN-2017 23:00
Cal : 97008403001 Caldate : 05-JAN-2017
Standards: S31646

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	7.1286	7.1129	5000	4727	ug/L	-5	10	
Arsenic	A	4.6405	4.9244	5000	4812	ug/L	-4	10	
Barium	A	128.89	128.34	5000	5130	ug/L	3	10	
Beryllium	A	9152.9	9331.4	500.0	514.0	ug/L	3	10	
Cadmium	A	210.13	205.29	5000	5070	ug/L	1	10	
Chromium	A	282.94	286.14	5000	5142	ug/L	3	10	
Cobalt	A	59.800	59.310	5000	4960	ug/L	-1	10	
Copper	A	475.70	462.05	5000	4980	ug/L	0	10	
Lead	A	39.090	37.074	5000	4909	ug/L	-2	10	
Manganese	A	1195.8	1182.4	5000	5102	ug/L	2	10	
Molybdenum	A	39.967	39.335	5000	4842	ug/L	-3	10	
Nickel	A	147.08	148.10	5000	5057	ug/L	1	10	
Selenium	A	8.7052	8.4504	5000	4772	ug/L	-5	10	
Silver	A	201.04	203.01	1000	1004	ug/L	0	10	
Thallium	A	5.5423	5.2159	5000	4782	ug/L	-4	10	
Vanadium	A	363.21	363.24	5000	5132	ug/L	3	10	
Zinc	A	89.259	99.954	5000	5013	ug/L	0	10	
Iron	R	16.564	16.390	20000	20520	ug/L	3	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16389878	15607140	-4.78

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97008403056.1 File : met09_sn_0816 Time : 05-JAN-2017 23:02
Cal : 97008403001 Caldate : 05-JAN-2017

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	0.5000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	1.250	ug/L	
Zinc	A	ND	20.00	---	ug/L	
Iron	R	ND	100.0	80.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16389878	16232886	-0.96

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97008403067.1 File : met09_sn_0816 Time : 05-JAN-2017 23:55
Cal : 97008403001 Caldate : 05-JAN-2017
Standards: S31646

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	7.1286	7.0036	5000	4654	ug/L	-7	10	
Arsenic	A	4.6405	4.8585	5000	4747	ug/L	-5	10	
Barium	A	128.89	126.40	5000	5052	ug/L	1	10	
Beryllium	A	9152.9	9334.8	500.0	514.2	ug/L	3	10	
Cadmium	A	210.13	200.64	5000	4955	ug/L	-1	10	
Chromium	A	282.94	280.62	5000	5043	ug/L	1	10	
Cobalt	A	59.800	57.859	5000	4839	ug/L	-3	10	
Copper	A	475.70	452.14	5000	4873	ug/L	-3	10	
Lead	A	39.090	36.209	5000	4794	ug/L	-4	10	
Manganese	A	1195.8	1182.8	5000	5103	ug/L	2	10	
Molybdenum	A	39.967	38.653	5000	4758	ug/L	-5	10	
Nickel	A	147.08	145.16	5000	4957	ug/L	-1	10	
Selenium	A	8.7052	8.3439	5000	4712	ug/L	-6	10	
Silver	A	201.04	199.16	1000	984.5	ug/L	-2	10	
Thallium	A	5.5423	5.1198	5000	4694	ug/L	-6	10	
Vanadium	A	363.21	357.03	5000	5044	ug/L	1	10	
Zinc	A	89.259	98.200	5000	4925	ug/L	-2	10	
Iron	R	16.564	16.329	20000	20450	ug/L	2	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16389878	15583572	-4.92

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97008403068.1 File : met09_sn_0816 Time : 05-JAN-2017 23:57
Cal : 97008403001 Caldate : 05-JAN-2017

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	0.5000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	1.250	ug/L	
Zinc	A	ND	20.00	---	ug/L	
Iron	R	ND	100.0	80.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16389878	16124283	-1.62

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97008403079.1 File : met09_sn_0816 Time : 06-JAN-2017 00:21
Cal : 97008403001 Caldate : 05-JAN-2017
Standards: S31646

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	7.1286	7.0306	5000	4672	ug/L	-7	10	
Arsenic	A	4.6405	4.8830	5000	4771	ug/L	-5	10	
Barium	A	128.89	128.71	5000	5145	ug/L	3	10	
Beryllium	A	9152.9	9367.7	500.0	516.0	ug/L	3	10	
Cadmium	A	210.13	204.06	5000	5040	ug/L	1	10	
Chromium	A	282.94	287.61	5000	5169	ug/L	3	10	
Cobalt	A	59.800	59.040	5000	4938	ug/L	-1	10	
Copper	A	475.70	464.46	5000	5006	ug/L	0	10	
Lead	A	39.090	36.949	5000	4892	ug/L	-2	10	
Manganese	A	1195.8	1185.7	5000	5116	ug/L	2	10	
Molybdenum	A	39.967	39.197	5000	4825	ug/L	-4	10	
Nickel	A	147.08	147.75	5000	5045	ug/L	1	10	
Selenium	A	8.7052	8.3465	5000	4713	ug/L	-6	10	
Silver	A	201.04	204.44	1000	1011	ug/L	1	10	
Thallium	A	5.5423	5.1662	5000	4737	ug/L	-5	10	
Vanadium	A	363.21	364.92	5000	5156	ug/L	3	10	
Zinc	A	89.259	98.999	5000	4965	ug/L	-1	10	
Iron	R	16.564	16.066	20000	20120	ug/L	1	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16389878	15564136	-5.04

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97008403080.1 File : met09_sn_0816 Time : 06-JAN-2017 00:23
Cal : 97008403001 Caldate : 05-JAN-2017

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	0.5000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	1.250	ug/L	
Zinc	A	ND	20.00	---	ug/L	
Iron	R	ND	100.0	80.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16389878	16285500	-0.64

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97008403081.1 File : met09_sn_0816 Time : 06-JAN-2017 00:25
Cal : 97008403001 Caldate : 05-JAN-2017

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	0.5000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	1.250	ug/L	
Zinc	A	ND	20.00	---	ug/L	
Iron	R	ND	100.0	80.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16389878	16652266	1.60

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97008403088.2 File : met09_sn_0816 Time : 06-JAN-2017 00:41
Cal : 97008403001 Caldate : 05-JAN-2017
Standards: S31646

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	7.1286	6.9946	5000	4648	ug/L	-7	10	
Arsenic	A	4.6405	4.8624	5000	4751	ug/L	-5	10	
Barium	A	128.89	126.39	5000	5052	ug/L	1	10	
Beryllium	A	9152.9	9335.1	500.0	514.2	ug/L	3	10	
Cadmium	A	210.13	199.30	5000	4922	ug/L	-2	10	
Chromium	A	282.94	281.96	5000	5067	ug/L	1	10	
Cobalt	A	59.800	57.928	5000	4845	ug/L	-3	10	
Copper	A	475.70	452.97	5000	4882	ug/L	-2	10	
Lead	A	39.090	36.135	5000	4784	ug/L	-4	10	
Manganese	A	1195.8	1178.8	5000	5086	ug/L	2	10	
Molybdenum	A	39.967	38.335	5000	4718	ug/L	-6	10	
Nickel	A	147.08	145.11	5000	4955	ug/L	-1	10	
Selenium	A	8.7052	8.3483	5000	4714	ug/L	-6	10	
Silver	A	201.04	200.42	1000	990.7	ug/L	-1	10	
Thallium	A	5.5423	5.1297	5000	4703	ug/L	-6	10	
Vanadium	A	363.21	357.91	5000	5057	ug/L	1	10	
Zinc	A	89.259	97.503	5000	4890	ug/L	-2	10	
Iron	R	16.564	16.259	20000	20360	ug/L	2	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16389878	15637285	-4.59

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97008403089.1 File : met09_sn_0816 Time : 06-JAN-2017 00:43
Cal : 97008403001 Caldate : 05-JAN-2017

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	0.5000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	1.250	ug/L	
Zinc	A	ND	20.00	---	ug/L	
Iron	R	ND	100.0	80.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16389878	16130449	-1.58

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 97016677

Instrument : MET09 Begun : 01/11/17 13:57
Method : EPA 6010C SOP Version : icp metals_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met09_sn_0816	ICALBLK				01/11/17 13:57	1.0		
002	met09_sn_0816	ICAL	L1			01/11/17 13:59	1.0	1	
003	met09_sn_0816	ICAL	L2			01/11/17 14:02	1.0	2	
004	met09_sn_0816	ICAL	L3			01/11/17 14:04	1.0	3	
005	met09_sn_0816	ICAL	L4			01/11/17 14:05	1.0	4	
006	met09_sn_0816	ICAL	L5			01/11/17 14:08	1.0	5	
007	met09_sn_0816	ICV				01/11/17 14:10	1.0	6	
008	met09_sn_0816	CRI				01/11/17 14:12	1.0	7	
009	met09_sn_0816	ICB				01/11/17 14:15	1.0		
010	met09_sn_0816	ICSA				01/11/17 14:20	1.0	8	10:AL=500000
011	met09_sn_0816	ICSAB				01/11/17 14:27	1.0	9	4:MG=240000
012	met09_sn_0816	ICSAB				01/11/17 14:28	1.0	9	5:AL=520000
013	met09_sn_0816	BLANK	QC862977	Soil	241980	01/11/17 14:30	1.0		
014	met09_sn_0816	BS	QC862978	Soil	241980	01/11/17 14:33	1.0		
015	met09_sn_0816	BSD	QC862979	Soil	241980	01/11/17 14:34	1.0		
016	met09_sn_0816	MSS	283600-001	Soil	241980	01/11/17 14:36	100.0		
017	met09_sn_0816	MSS	283600-001	Soil	241980	01/11/17 14:39	1.0		4:CA=240000
018	met09_sn_0816	MS	QC862980	Soil	241980	01/11/17 14:41	1.0		3:CA=320000
019	met09_sn_0816	MSD	QC862981	Soil	241980	01/11/17 14:43	1.0		4:CA=400000
020	met09_sn_0816	SER	QC862982	Soil	241980	01/11/17 14:45	5.0		
021	met09_sn_0816	PDS	QC862983	Soil	241980	01/11/17 14:48	1.0	10 11 12	4:CA=240000
022	met09_sn_0816	SAMPLE	283600-002	Soil	241980	01/11/17 14:50	1.0		4:CA=300000
023	met09_sn_0816	CCV				01/11/17 14:52	1.0	13	
024	met09_sn_0816	CCB				01/11/17 14:54	1.0		
025	met09_sn_0816	SAMPLE	283600-003	Soil	241980	01/11/17 14:57	1.0		4:CA=300000
026	met09_sn_0816	SAMPLE	283600-004	Soil	241980	01/11/17 14:59	1.0		4:CA=350000
027	met09_sn_0816	SAMPLE	283600-005	Soil	241980	01/11/17 15:01	1.0		4:CA=250000
028	met09_sn_0816	SAMPLE	283600-006	Soil	241980	01/11/17 15:03	1.0		4:CA=250000
029	met09_sn_0816	SAMPLE	283600-007	Soil	241980	01/11/17 15:05	1.0		4:CA=240000
030	met09_sn_0816	SAMPLE	283600-008	Soil	241980	01/11/17 15:08	1.0		4:CA=360000
031	met09_sn_0816	SAMPLE	283600-009	Soil	241980	01/11/17 15:10	1.0		4:CA=300000
032	met09_sn_0816	SAMPLE	283600-010	Soil	241980	01/11/17 15:12	1.0		4:CA=240000
033	met09_sn_0816	SAMPLE	283600-011	Soil	241980	01/11/17 15:14	1.0		4:CA=260000
034	met09_sn_0816	SAMPLE	283600-013	Soil	241980	01/11/17 15:16	1.0		4:CA=290000

MNA 01/11/17 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 34.

Standards used: 1=S31329 2=S31859 3=S31860 4=S31861 5=S31195 6=S31647 7=S31330 8=S31001 9=S31844 10=S29983 11=S29984 12=S30560 13=S31646

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 97016677

Date : 01/11/17 Reference : met09_sn_0816
Sequence : MET09 01/11/17 Analyzed : 01/11/17 13:59

#	Type	Sample ID	Y	A
		ICAL STD	16193882	
		LOWER LIMIT	4858165	
		UPPER LIMIT	19432658	
009	ICB		16226077	
010	ICSA		14707680	
012	ICSAB		14535032	
013	BLANK	QC862977	16619950	
014	BS	QC862978	16344444	
015	BSD	QC862979	16282232	
016	MSS	283600-001	33642781	*
017	MSS	283600-001	15848467	
018	MS	QC862980	15516124	
019	MSD	QC862981	15507705	
020	SER	QC862982	16218692	
021	PDS	QC862983	15759845	
022	SAMPLE	283600-002	15760188	
023	CCV		15877659	
024	CCB		16248744	
025	SAMPLE	283600-003	15904696	
026	SAMPLE	283600-004	15683737	
027	SAMPLE	283600-005	15724897	
028	SAMPLE	283600-006	15713599	
029	SAMPLE	283600-007	15997169	
030	SAMPLE	283600-008	15726432	
031	SAMPLE	283600-009	15613144	
032	SAMPLE	283600-010	15889265	
033	SAMPLE	283600-011	15957383	
034	SAMPLE	283600-013	15795439	

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 283600 METALS Soil: EPA 6010C

Inst : MET09
Calnum : 97016677001
Units : ug/L

Date : 11-JAN-2017 13:57
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met09_sn_0816	97016677002	L1	11-JAN-2017 13:59	S31329
L2	met09_sn_0816	97016677003	L2	11-JAN-2017 14:02	S31859
L3	met09_sn_0816	97016677004	L3	11-JAN-2017 14:04	S31860
L4	met09_sn_0816	97016677005	L4	11-JAN-2017 14:05	S31861
L5	met09_sn_0816	97016677006	L5	11-JAN-2017 14:08	S31195

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Antimony	A	7.4400	8.3900	8.2279	8.4723		LOR0	0.00000	0.11807		8.1325	1.000	0.995	
Arsenic	A	5.2400	5.6910	5.6168	5.7833		LOR0	0.00000	0.17296		5.5828	1.000	0.995	
Barium	A	134.66	133.73	133.09	128.37		LOR0	0.00000	0.00779		132.46	1.000	0.995	
Beryllium	A	9228.4	9182.8	9220.4			LOR0	0.00000	1.08E-4		9210.5	1.000	0.995	
Cadmium	A	256.88	260.76	256.40	244.45		LOR0	0.00000	0.00409		254.62	1.000	0.995	
Chromium	A	259.30	269.64	266.60	262.48		LOR0	0.00000	0.00381		264.50	1.000	0.995	
Cobalt	A	59.240	59.374	58.972	57.695		LOR0	0.00000	0.01733		58.820	1.000	0.995	
Copper	A	401.78	442.04	433.80	427.82		LOR0	0.00000	0.00234		426.36	1.000	0.995	
Lead	A	44.800	42.018	41.322	40.829		LOR0	0.00000	0.02449		42.242	1.000	0.995	
Manganese	A	1155.5	1180.8	1150.8	1102.6		LOR0	0.00000	9.07E-4		1147.4	1.000	0.995	
Molybdenum	A	49.240	50.542	50.037	49.347		LOR0	0.00000	0.02026		49.792	1.000	0.995	
Nickel	A	146.46	151.10	152.34	150.06		LOR0	0.00000	0.00666		149.99	1.000	0.995	
Selenium	A	9.5600	10.916	10.948	11.215		LOR0	0.00000	0.08919		10.660	1.000	0.995	
Silver	A	166.34	180.90	180.30	179.82		LOR0	0.00000	0.00556		176.84	1.000	0.995	
Thallium	A	7.9400	8.6010	8.4672	8.2899		LOR0	0.00000	0.12060		8.3245	1.000	0.995	
Vanadium	A	353.32	341.91	337.50	336.83		LOR0	0.00000	0.00297		342.39	1.000	0.995	
Zinc	A	188.25	167.09	164.05	161.34		LOR0	0.00000	0.00620		170.18	1.000	0.995	
Iron	R	17.398		16.647	17.204	16.213	LOR0	0.00000	0.06164		16.866	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Antimony	A	10.000	-12	100.00	-1	1000.0	-3	10000	0		
Arsenic	A	5.0000	-9	100.00	-2	1000.0	-3	10000	0		
Barium	A	5.0000	5	100.00	4	1000.0	4	10000	0		
Beryllium	A	2.0000	0	100.00	0	1000.0	0				
Cadmium	A	5.0000	5	100.00	7	1000.0	5	10000	0		
Chromium	A	5.0000	-1	100.00	3	1000.0	2	10000	0		
Cobalt	A	5.0000	3	100.00	3	1000.0	2	10000	0		
Copper	A	5.0000	-6	100.00	3	1000.0	1	10000	0		
Lead	A	5.0000	10	100.00	3	1000.0	1	10000	0		
Manganese	A	5.0000	5	100.00	7	1000.0	4	10000	0		
Molybdenum	A	5.0000	0	100.00	2	1000.0	1	10000	0		
Nickel	A	5.0000	-2	100.00	1	1000.0	2	10000	0		
Selenium	A	10.000	-15	100.00	-3	1000.0	-2	10000	0		
Silver	A	5.0000	-8	20.000	1	200.00	0	2000.0	0		
Thallium	A	10.000	-4	100.00	4	1000.0	2	10000	0		
Vanadium	A	5.0000	5	100.00	2	1000.0	0	10000	0		
Zinc	A	20.000	17	100.00	4	1000.0	2	10000	0		
Iron	R	100.00	7			1000.0	3	10000	6	100000	0

Instrument amount = a0 + response * a1 + response^2 * a2; LOR0=Linear regression forced thru origin, including 0,0 point

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 283600 METALS Soil
EPA 6010C

Inst : MET09
Calnum : 97016677001 Cal Date : 11-JAN-2017

ICV 97016677007 (11-JAN-2017) stds: S31647

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	5000	5062	ug/L	1	10	
Arsenic	A	5000	5092	ug/L	2	10	
Barium	A	5000	5141	ug/L	3	10	
Beryllium	A	500.0	503.1	ug/L	1	10	
Cadmium	A	5000	5213	ug/L	4	10	
Chromium	A	5000	5078	ug/L	2	10	
Cobalt	A	5000	5059	ug/L	1	10	
Copper	A	5000	5086	ug/L	2	10	
Lead	A	5000	5060	ug/L	1	10	
Manganese	A	5000	5163	ug/L	3	10	
Molybdenum	A	5000	5126	ug/L	3	10	
Nickel	A	5000	5059	ug/L	1	10	
Selenium	A	5000	5071	ug/L	1	10	
Silver	A	1000	1005	ug/L	1	10	
Thallium	A	5000	4985	ug/L	0	10	
Vanadium	A	5000	5057	ug/L	1	10	
Zinc	A	5000	5182	ug/L	4	10	
Iron	R	20000	20720	ug/L	4	10	

CURTIS & TOMPKINS LOW-LEVEL PERFORMANCE VERIFICATION STANDARD FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97016677008.1 File : met09_sn_0816 Time : 11-JAN-2017 14:12
Cal : 97016677001 Caldate : 11-JAN-2017
Standards: S31330

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	10.00	12.27	ug/L	**23**	30	!cri+
Arsenic	A	5.000	6.135	ug/L	**23**	30	!cri+
Barium	A	5.000	5.182	ug/L	4	30	
Beryllium	A	2.000	2.004	ug/L	0	30	
Cadmium	A	5.000	5.366	ug/L	7	30	
Chromium	A	5.000	4.955	ug/L	-1	30	
Cobalt	A	5.000	5.034	ug/L	1	30	
Copper	A	5.000	5.400	ug/L	8	30	
Lead	A	5.000	5.304	ug/L	6	30	
Manganese	A	5.000	5.241	ug/L	5	30	
Molybdenum	A	5.000	7.077	ug/L	**42**	30	cri+ ***
Nickel	A	5.000	4.982	ug/L	0	30	
Selenium	A	10.00	11.12	ug/L	11	30	
Silver	A	5.000	4.308	ug/L	-14	30	
Thallium	A	10.00	10.54	ug/L	5	30	
Vanadium	A	5.000	4.972	ug/L	-1	30	
Zinc	A	20.00	21.49	ug/L	7	30	
Iron	R	100.0	107.9	ug/L	8	30	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16193882	16190944	-0.02

!=warning +=high bias

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97016677009.1 File : met09_sn_0816 Time : 11-JAN-2017 14:15
Cal : 97016677001 Caldate : 11-JAN-2017

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	0.5000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	1.250	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	
Iron	R	ND	100.0	80.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16193882	16226077	0.20

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97016677010.1 File : met09_sn_0816 Time : 11-JAN-2017 14:20
Cal : 97016677001 Caldate : 11-JAN-2017
Standards: S31001

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	[-1.507]	10.00	ug/L	
Arsenic	A	[-2.906]	5.000	ug/L	
Barium	A	[-4.274]	5.000	ug/L	!a-
Beryllium	A	[-1.057]	2.000	ug/L	!a-
Cadmium	A	[0.5134]	5.000	ug/L	
Cobalt	A	[-2.967]	5.000	ug/L	!a-
Lead	A	[-1.677]	5.000	ug/L	
Molybdenum	A	[0.5856]	5.000	ug/L	
Selenium	A	[6.525]	10.00	ug/L	
Silver	A	[2.137]	5.000	ug/L	
Thallium	A	[-9.639]	10.00	ug/L	!a-
Zinc	A	[3.162]	20.00	ug/L	

Interferent	Ch	Spiked	Quant	Units	%Rec	Flags
Chromium	A	20000	19520	ug/L	98	
Copper	A	20000	21220	ug/L	106	
Manganese	A	20000	19120	ug/L	96	
Nickel	A	20000	18860	ug/L	94	
Vanadium	A	20000	20120	ug/L	101	
Aluminum	R	500000	502300	ug/L	100	
Calcium	R	500000	483200	ug/L	97	
Iron	R	200000	196400	ug/L	98	
Magnesium	R	500000	498500	ug/L	100	
Titanium	R	20000	21600	ug/L	108	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16193882	14707680	-9.18

!=warning -=low bias a=ICSA

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97016677012.1 File : met09_sn_0816 Time : 11-JAN-2017 14:28
Cal : 97016677001 Caldate : 11-JAN-2017
Standards: S31844

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	425.0	ug/L	-15	20	
Arsenic	A	500.0	445.0	ug/L	-11	20	
Barium	A	500.0	538.6	ug/L	8	20	
Beryllium	A	500.0	527.2	ug/L	5	20	
Cadmium	A	1000	1054	ug/L	5	20	
Chromium	A	500.0	508.8	ug/L	2	20	
Cobalt	A	500.0	501.3	ug/L	0	20	
Copper	A	500.0	497.4	ug/L	-1	20	
Lead	A	1000	942.9	ug/L	-6	20	
Manganese	A	500.0	515.0	ug/L	3	20	
Molybdenum	A	500.0	509.7	ug/L	2	20	
Nickel	A	1000	992.4	ug/L	-1	20	
Selenium	A	500.0	503.4	ug/L	1	20	
Silver	A	1000	1025	ug/L	2	20	
Thallium	A	500.0	423.7	ug/L	-15	20	
Vanadium	A	500.0	546.7	ug/L	9	20	
Zinc	A	1000	1023	ug/L	2	20	
Iron	R	200000	201300	ug/L	1		

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16193882	14535032	-10.24

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97016677023.1 File : met09_sn_0816 Time : 11-JAN-2017 14:52
Cal : 97016677001 Caldate : 11-JAN-2017
Standards: S31646

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	8.1325	8.4821	5000	5007	ug/L	0	10	
Arsenic	A	5.5828	5.8647	5000	5072	ug/L	1	10	
Barium	A	132.46	131.18	5000	5107	ug/L	2	10	
Beryllium	A	9210.5	9244.9	500.0	501.4	ug/L	0	10	
Cadmium	A	254.62	252.58	5000	5164	ug/L	3	10	
Chromium	A	264.50	267.01	5000	5086	ug/L	2	10	
Cobalt	A	58.820	58.483	5000	5067	ug/L	1	10	
Copper	A	426.36	434.14	5000	5073	ug/L	1	10	
Lead	A	42.242	40.989	5000	5019	ug/L	0	10	
Manganese	A	1147.4	1134.1	5000	5141	ug/L	3	10	
Molybdenum	A	49.792	50.302	5000	5096	ug/L	2	10	
Nickel	A	149.99	151.33	5000	5042	ug/L	1	10	
Selenium	A	10.660	11.284	5000	5032	ug/L	1	10	
Silver	A	176.84	180.94	1000	1006	ug/L	1	10	
Thallium	A	8.3245	8.1175	5000	4895	ug/L	-2	10	
Vanadium	A	342.39	340.80	5000	5059	ug/L	1	10	
Zinc	A	170.18	163.59	5000	5069	ug/L	1	10	
Iron	R	16.866	17.296	20000	21320	ug/L	7	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16193882	15877659	-1.95

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97016677024.1 File : met09_sn_0816 Time : 11-JAN-2017 14:54
Cal : 97016677001 Caldate : 11-JAN-2017

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	0.5000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	1.250	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	
Iron	R	ND	100.0	80.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16193882	16248744	0.34

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 97016869

Instrument : MET09 Begun : 01/11/17 17:09
Method : EPA 6010C SOP Version : icp metals_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met09_sn_0816	ICALBLK				01/11/17 17:09	1.0		
002	met09_sn_0816	ICAL	L1			01/11/17 17:11	1.0	1	
003	met09_sn_0816	ICAL	L2			01/11/17 17:14	1.0	2	
004	met09_sn_0816	ICAL	L3			01/11/17 17:16	1.0	3	
005	met09_sn_0816	ICAL	L4			01/11/17 17:17	1.0	4	
006	met09_sn_0816	ICAL	L5			01/11/17 17:20	1.0	5	
007	met09_sn_0816	ICV				01/11/17 17:22	1.0	6	
008	met09_sn_0816	XCRI				01/11/17 17:24	1.0	7	
009	met09_sn_0816	CRI				01/11/17 17:26	1.0	7	
010	met09_sn_0816	XICB				01/11/17 17:32	1.0		
011	met09_sn_0816	ICB				01/11/17 17:40	1.0		
012	met09_sn_0816	ICSA				01/11/17 17:47	1.0	8	10:AL=510000
013	met09_sn_0816	ICSAB				01/11/17 18:17	1.0	9	5:AL=460000
014	met09_sn_0816	X	RINSE			01/11/17 18:27	1.0		
015	met09_sn_0816	SAMPLE	283600-003	Soil	241980	01/11/17 18:29	1.0		4:CA=280000
016	met09_sn_0816	SAMPLE	283600-004	Soil	241980	01/11/17 18:32	1.0		4:CA=330000
017	met09_sn_0816	SAMPLE	283600-005	Soil	241980	01/11/17 18:34	1.0		4:CA=240000
018	met09_sn_0816	SAMPLE	283600-006	Soil	241980	01/11/17 18:36	1.0		4:CA=250000
019	met09_sn_0816	SAMPLE	283600-007	Soil	241980	01/11/17 18:38	1.0		4:CA=240000
020	met09_sn_0816	SAMPLE	283600-008	Soil	241980	01/11/17 18:40	1.0		4:CA=360000
021	met09_sn_0816	SAMPLE	283600-009	Soil	241980	01/11/17 18:42	1.0		4:CA=300000
022	met09_sn_0816	SAMPLE	283600-010	Soil	241980	01/11/17 18:45	1.0		4:CA=240000
023	met09_sn_0816	SAMPLE	283600-011	Soil	241980	01/11/17 18:47	1.0		4:CA=260000
024	met09_sn_0816	CCV				01/11/17 18:49	1.0	10	
025	met09_sn_0816	CCB				01/11/17 18:51	1.0		
026	met09_sn_0816	SAMPLE	283600-013	Soil	241980	01/11/17 18:53	1.0		4:CA=290000
027	met09_sn_0816	SAMPLE	283600-014	Soil	241980	01/11/17 18:56	1.0		4:CA=240000
028	met09_sn_0816	SAMPLE	283600-015	Soil	241980	01/11/17 18:58	1.0		4:CA=260000
029	met09_sn_0816	SAMPLE	283600-016	Soil	241980	01/11/17 19:00	1.0		4:CA=340000
030	met09_sn_0816	SAMPLE	283600-017	Soil	241980	01/11/17 19:02	1.0		4:CA=330000
031	met09_sn_0816	SAMPLE	283600-018	Soil	241980	01/11/17 19:04	1.0		4:CA=260000
032	met09_sn_0816	SAMPLE	283600-019	Soil	241980	01/11/17 19:06	1.0		4:CA=290000
033	met09_sn_0816	SAMPLE	283600-020	Soil	241980	01/11/17 19:09	1.0		4:CA=290000
034	met09_sn_0816	X	RINSE			01/11/17 19:11	1.0		
035	met09_sn_0816	BLANK	QC866777	Water	242951	01/11/17 19:13	1.0		
036	met09_sn_0816	CCV				01/11/17 19:15	1.0	10	
037	met09_sn_0816	CCB				01/11/17 19:18	1.0		
038	met09_sn_0816	BS	QC866778	Water	242951	01/11/17 19:20	1.0		
039	met09_sn_0816	BSD	QC866779	Water	242951	01/11/17 19:22	1.0		
040	met09_sn_0816	MSS	284733-001	Water	242951	01/11/17 19:25	1.0		3:NA=310000
041	met09_sn_0816	MS	QC866780	Water	242951	01/11/17 19:27	1.0		
042	met09_sn_0816	MSD	QC866781	Water	242951	01/11/17 19:30	1.0		
043	met09_sn_0816	SER	QC866782	Water	242951	01/11/17 19:32	5.0		
044	met09_sn_0816	PDS	QC866783	Water	242951	01/11/17 19:35	1.0	11 12 13	3:NA=310000
045	met09_sn_0816	SAMPLE	284600-001	Water	242951	01/11/17 19:37	1.0		1:CA=130000
046	met09_sn_0816	SAMPLE	284604-002	Water	242951	01/11/17 19:40	1.0		1:NA=230000
047	met09_sn_0816	X	RINSE			01/11/17 19:43	1.0		
048	met09_sn_0816	CCV				01/11/17 19:45	1.0	10	
049	met09_sn_0816	CCB				01/11/17 19:47	1.0		
050	met09_sn_0816	BLANK	QC867875	Water	243220	01/11/17 19:50	1.0		
051	met09_sn_0816	BS	QC867876	Water	243220	01/11/17 19:52	1.0		
052	met09_sn_0816	BSD	QC867877	Water	243220	01/11/17 19:55	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 97016869

Instrument : MET09 Begun : 01/11/17 17:09
Method : EPA 6010C SOP Version : icp metals_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met09_sn_0816	MSS	284955-008	Water	243220	01/11/17 19:57	1.0		1:CA=100000
054	met09_sn_0816	MS	QC867878	Water	243220	01/11/17 19:59	1.0		
055	met09_sn_0816	MSD	QC867879	Water	243220	01/11/17 20:02	1.0		
056	met09_sn_0816	SAMPLE	284955-001	Water	243220	01/11/17 20:04	1.0		
057	met09_sn_0816	SAMPLE	284955-003	Water	243220	01/11/17 20:06	1.0		
058	met09_sn_0816	SAMPLE	284955-005	Water	243220	01/11/17 20:09	1.0		
059	met09_sn_0816	SAMPLE	284955-006	Water	243220	01/11/17 20:11	1.0		
060	met09_sn_0816	CCV				01/11/17 20:14	1.0	10	
061	met09_sn_0816	CCB				01/11/17 20:16	1.0		
062	met09_sn_0816	SAMPLE	284955-007	Water	243220	01/11/17 20:18	1.0		
063	met09_sn_0816	X	RINSE			01/11/17 20:21	1.0		
064	met09_sn_0816	BLANK	QC867957	Filtrate	243240	01/11/17 20:23	1.0		
065	met09_sn_0816	BS	QC867958	Filtrate	243240	01/11/17 20:25	1.0		
066	met09_sn_0816	BSD	QC867959	Filtrate	243240	01/11/17 20:28	1.0		
067	met09_sn_0816	MSS	284973-001	Filtrate	243240	01/11/17 20:30	1.0		1:NA=160000
068	met09_sn_0816	MS	QC867960	Filtrate	243240	01/11/17 20:33	1.0		
069	met09_sn_0816	MSD	QC867961	Filtrate	243240	01/11/17 20:35	1.0		
070	met09_sn_0816	SAMPLE	284955-002	Filtrate	243240	01/11/17 20:37	1.0		
071	met09_sn_0816	SAMPLE	284955-004	Filtrate	243240	01/11/17 20:40	1.0		
072	met09_sn_0816	CCV				01/11/17 20:42	1.0	10	
073	met09_sn_0816	CCB				01/11/17 20:44	1.0		

MNA 01/11/17 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 73.

Standards used: 1=S31329 2=S31859 3=S31860 4=S31861 5=S31195 6=S31647 7=S31330 8=S31001 9=S31844 10=S31646 11=S29983 12=S29984 13=S30560

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 97016869

Date : 01/11/17 Reference : met09_sn_0816
Sequence : MET09 01/11/17 Analyzed : 01/11/17 17:11

#	Type	Sample ID	Y A
		ICAL STD	16098975
		LOWER LIMIT	4829693
		UPPER LIMIT	19318770
011	ICB		16025476
012	ICSA		14481326
013	ICSAB		14552034
015	SAMPLE	283600-003	15809463
016	SAMPLE	283600-004	15595438
017	SAMPLE	283600-005	15567110
018	SAMPLE	283600-006	15694950
019	SAMPLE	283600-007	15778829
020	SAMPLE	283600-008	15632084
021	SAMPLE	283600-009	15718357
022	SAMPLE	283600-010	15672051
023	SAMPLE	283600-011	15770168
024	CCV		15657142
025	CCB		16366457
026	SAMPLE	283600-013	15584532
027	SAMPLE	283600-014	15671784
028	SAMPLE	283600-015	15662237
029	SAMPLE	283600-016	15680626
030	SAMPLE	283600-017	15769564
031	SAMPLE	283600-018	15675082
032	SAMPLE	283600-019	15774563
033	SAMPLE	283600-020	15585793
036	CCV		15718816
037	CCB		16217552
045	SAMPLE	284600-001	14938309
046	SAMPLE	284604-002	15858405
049	CCB		16177888

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 283600 METALS Soil: EPA 6010C

Inst : MET09
Calnum : 97016869001
Units : ug/L

Date : 11-JAN-2017 17:09
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met09_sn_0816	97016869002	L1	11-JAN-2017 17:11	S31329
L2	met09_sn_0816	97016869003	L2	11-JAN-2017 17:14	S31859
L3	met09_sn_0816	97016869004	L3	11-JAN-2017 17:16	S31860
L4	met09_sn_0816	97016869005	L4	11-JAN-2017 17:17	S31861
L5	met09_sn_0816	97016869006	L5	11-JAN-2017 17:20	S31195

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Antimony	A	8.1900	8.3370	8.4696	8.5568		LOR0	0.00000	0.11688		8.3884	1.000	0.995	
Arsenic	A	7.8400	5.9580	5.8306	5.8859		LOR0	0.00000	0.16991		6.3786	1.000	0.995	
Barium	A	134.96	132.07	133.29	130.38		LOR0	0.00000	0.00767		132.67	1.000	0.995	
Beryllium	A	9451.1	9066.7	9195.6			LOR0	0.00000	1.09E-4		9237.8	1.000	0.995	
Cadmium	A	259.42	259.25	258.14	249.47		LOR0	0.00000	0.00401		256.57	1.000	0.995	
Chromium	A	267.64	268.26	267.65	267.23		LOR0	0.00000	0.00374		267.70	1.000	0.995	
Cobalt	A	58.760	59.419	60.008	59.571		LOR0	0.00000	0.01679		59.439	1.000	0.995	
Copper	A	380.56	436.03	435.23	434.47		LOR0	0.00000	0.00230		421.57	1.000	0.995	
Lead	A	41.120	41.696	41.997	41.214		LOR0	0.00000	0.02426		41.507	1.000	0.995	
Manganese	A	1143.3	1166.0	1153.7	1114.6		LOR0	0.00000	8.97E-4		1144.4	1.000	0.995	
Molybdenum	A	50.880	50.087	49.994	50.262		LOR0	0.00000	0.01990		50.306	1.000	0.995	
Nickel	A	145.60	149.23	153.25	152.38		LOR0	0.00000	0.00656		150.12	1.000	0.995	
Selenium	A	13.350	11.040	11.100	11.347		LOR0	0.00000	0.08815		11.709	1.000	0.995	
Silver	A	164.52	172.06	181.72	184.81		LOR0	0.00000	0.00541		175.78	1.000	0.995	
Thallium	A	10.060	8.7010	8.4114	8.2561		LOR0	0.00000	0.12110		8.8571	1.000	0.995	
Vanadium	A	366.80	338.55	338.19	341.54		LOR0	0.00000	0.00293		346.27	1.000	0.995	
Zinc	A	178.80	161.10	160.49	158.76		LOR0	0.00000	0.00630		164.79	1.000	0.995	
Iron	R	16.986		16.565	16.575	16.287	LOR0	0.00000	0.06139		16.603	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Antimony	A	10.000	-4	100.00	-3	1000.0	-1	10000	0		
Arsenic	A	5.0000	**33**	100.00	1	1000.0	-1	10000	0		
Barium	A	5.0000	3	100.00	1	1000.0	2	10000	0		
Beryllium	A	2.0000	3	100.00	-1	1000.0	0				
Cadmium	A	5.0000	4	100.00	4	1000.0	3	10000	0		
Chromium	A	5.0000	0	100.00	0	1000.0	0	10000	0		
Cobalt	A	5.0000	-1	100.00	0	1000.0	1	10000	0		
Copper	A	5.0000	-12	100.00	0	1000.0	0	10000	0		
Lead	A	5.0000	0	100.00	1	1000.0	2	10000	0		
Manganese	A	5.0000	3	100.00	5	1000.0	3	10000	0		
Molybdenum	A	5.0000	1	100.00	0	1000.0	-1	10000	0		
Nickel	A	5.0000	-4	100.00	-2	1000.0	1	10000	0		
Selenium	A	10.000	18	100.00	-3	1000.0	-2	10000	0		
Silver	A	5.0000	-11	20.000	-7	200.00	-2	2000.0	0		
Thallium	A	10.000	**22**	100.00	5	1000.0	2	10000	0		
Vanadium	A	5.0000	7	100.00	-1	1000.0	-1	10000	0		
Zinc	A	20.000	13	100.00	1	1000.0	1	10000	0		
Iron	R	100.00	4			1000.0	2	10000	2	100000	0

Instrument amount = a0 + response * a1 + response^2 * a2; LOR0=Linear regression forced thru origin, including 0,0 point

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 283600 METALS Soil
EPA 6010C

Inst : MET09
Calnum : 97016869001 Cal Date : 11-JAN-2017

ICV 97016869007 (11-JAN-2017) stds: S31647

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	5000	4882	ug/L	-2	10	
Arsenic	A	5000	4929	ug/L	-1	10	
Barium	A	5000	4906	ug/L	-2	10	
Beryllium	A	500.0	489.6	ug/L	-2	10	
Cadmium	A	5000	4969	ug/L	-1	10	
Chromium	A	5000	4877	ug/L	-2	10	
Cobalt	A	5000	4818	ug/L	-4	10	
Copper	A	5000	4873	ug/L	-3	10	
Lead	A	5000	4899	ug/L	-2	10	
Manganese	A	5000	4961	ug/L	-1	10	
Molybdenum	A	5000	4876	ug/L	-2	10	
Nickel	A	5000	4852	ug/L	-3	10	
Selenium	A	5000	4861	ug/L	-3	10	
Silver	A	1000	960.3	ug/L	-4	10	
Thallium	A	5000	4764	ug/L	-5	10	
Vanadium	A	5000	4864	ug/L	-3	10	
Zinc	A	5000	4938	ug/L	-1	10	
Iron	R	20000	19930	ug/L	0	10	

CURTIS & TOMPKINS LOW-LEVEL PERFORMANCE VERIFICATION STANDARD FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97016869009.1 File : met09_sn_0816 Time : 11-JAN-2017 17:26
Cal : 97016869001 Caldate : 11-JAN-2017
Standards: S31330

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	10.00	10.55	ug/L	6	30	
Arsenic	A	5.000	6.323	ug/L	**26**	30	!cri+
Barium	A	5.000	5.153	ug/L	3	30	
Beryllium	A	2.000	2.044	ug/L	2	30	
Cadmium	A	5.000	5.239	ug/L	5	30	
Chromium	A	5.000	4.963	ug/L	-1	30	
Cobalt	A	5.000	5.015	ug/L	0	30	
Copper	A	5.000	99.49	ug/L	**1890**	30	cri+ ***
Lead	A	5.000	5.336	ug/L	7	30	
Manganese	A	5.000	5.095	ug/L	2	30	
Molybdenum	A	5.000	5.821	ug/L	16	30	
Nickel	A	5.000	4.535	ug/L	-9	30	
Selenium	A	10.00	9.102	ug/L	-9	30	
Silver	A	5.000	3.956	ug/L	**-21**	30	!cri-
Thallium	A	10.00	11.83	ug/L	18	30	
Vanadium	A	5.000	5.331	ug/L	7	30	
Zinc	A	20.00	20.32	ug/L	2	30	
Iron	R	100.0	108.1	ug/L	8	30	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16098975	16146790	0.30

!=warning +=high bias -=low bias

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97016869011.1 File : met09_sn_0816 Time : 11-JAN-2017 17:40
Cal : 97016869001 Caldate : 11-JAN-2017

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	0.5000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	1.250	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	
Iron	R	ND	100.0	80.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16098975	16025476	-0.46

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97016869012.1 File : met09_sn_0816 Time : 11-JAN-2017 17:47
Cal : 97016869001 Caldate : 11-JAN-2017
Standards: S31001

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	[6.185]	10.00	ug/L	!a+
Arsenic	A	[1.002]	5.000	ug/L	
Barium	A	[-4.866]	5.000	ug/L	!a-
Beryllium	A	[0.1076]	2.000	ug/L	
Cadmium	A	[0.3593]	5.000	ug/L	
Cobalt	A	[-0.4081]	5.000	ug/L	
Lead	A	[-1.635]	5.000	ug/L	
Molybdenum	A	[-0.2323]	5.000	ug/L	
Selenium	A	13.44	10.00	ug/L	a+ ***
Silver	A	[-0.8269]	5.000	ug/L	
Thallium	A	[-4.624]	10.00	ug/L	
Zinc	A	[-2.892]	20.00	ug/L	

Interferent	Ch	Spiked	Quant	Units	%Rec	Flags
Chromium	A	20000	19300	ug/L	97	
Copper	A	20000	20920	ug/L	105	
Manganese	A	20000	18980	ug/L	95	
Nickel	A	20000	18620	ug/L	93	
Vanadium	A	20000	19920	ug/L	100	
Aluminum	R	500000	508400	ug/L	102	
Calcium	R	500000	490900	ug/L	98	
Iron	R	200000	195800	ug/L	98	
Magnesium	R	500000	499000	ug/L	100	
Titanium	R	20000	20850	ug/L	104	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16098975	14481326	-10.05

!=warning +=high bias -=low bias a=ICSA

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97016869013.1 File : met09_sn_0816 Time : 11-JAN-2017 18:17
Cal : 97016869001 Caldate : 11-JAN-2017
Standards: S31844

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	409.8	ug/L	-18	20	
Arsenic	A	500.0	426.4	ug/L	-15	20	
Barium	A	500.0	517.4	ug/L	3	20	
Beryllium	A	500.0	504.6	ug/L	1	20	
Cadmium	A	1000	1009	ug/L	1	20	
Chromium	A	500.0	491.8	ug/L	-2	20	
Cobalt	A	500.0	466.0	ug/L	-7	20	
Copper	A	500.0	480.8	ug/L	-4	20	
Lead	A	1000	894.8	ug/L	-11	20	
Manganese	A	500.0	498.1	ug/L	0	20	
Molybdenum	A	500.0	486.3	ug/L	-3	20	
Nickel	A	1000	953.2	ug/L	-5	20	
Selenium	A	500.0	485.7	ug/L	-3	20	
Silver	A	1000	991.5	ug/L	-1	20	
Thallium	A	500.0	408.1	ug/L	-18	20	
Vanadium	A	500.0	528.9	ug/L	6	20	
Zinc	A	1000	979.0	ug/L	-2	20	
Iron	R	200000	179900	ug/L	-10		

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16098975	14552034	-9.61

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97016869024.2 File : met09_sn_0816 Time : 11-JAN-2017 18:49
Cal : 97016869001 Caldate : 11-JAN-2017
Standards: S31646

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	8.3884	8.3335	5000	4870	ug/L	-3	10	
Arsenic	A	6.3786	5.7756	5000	4907	ug/L	-2	10	
Barium	A	132.67	129.96	5000	4983	ug/L	0	10	
Beryllium	A	9237.8	9209.1	500.0	500.8	ug/L	0	10	
Cadmium	A	256.57	249.79	5000	5005	ug/L	0	10	
Chromium	A	267.70	265.58	5000	4969	ug/L	-1	10	
Cobalt	A	59.439	58.267	5000	4890	ug/L	-2	10	
Copper	A	421.57	427.89	5000	4924	ug/L	-2	10	
Lead	A	41.507	40.938	5000	4966	ug/L	-1	10	
Manganese	A	1144.4	1125.6	5000	5047	ug/L	1	10	
Molybdenum	A	50.306	49.938	5000	4968	ug/L	-1	10	
Nickel	A	150.12	150.19	5000	4928	ug/L	-1	10	
Selenium	A	11.709	10.964	5000	4832	ug/L	-3	10	
Silver	A	175.78	180.79	1000	978.4	ug/L	-2	10	
Thallium	A	8.8571	7.8589	5000	4759	ug/L	-5	10	
Vanadium	A	346.27	338.48	5000	4956	ug/L	-1	10	
Zinc	A	164.79	159.28	5000	5016	ug/L	0	10	
Iron	R	16.603	16.601	20000	20380	ug/L	2	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16098975	15657142	-2.74

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97016869025.1 File : met09_sn_0816 Time : 11-JAN-2017 18:51
Cal : 97016869001 Caldate : 11-JAN-2017

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	0.5000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	1.250	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	
Iron	R	ND	100.0	80.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16098975	16366457	1.66

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97016869036.2 File : met09_sn_0816 Time : 11-JAN-2017 19:15
Cal : 97016869001 Caldate : 11-JAN-2017
Standards: S31646

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	8.3884	8.4819	5000	4957	ug/L	-1	10	
Arsenic	A	6.3786	5.8582	5000	4977	ug/L	0	10	
Barium	A	132.67	128.63	5000	4932	ug/L	-1	10	
Beryllium	A	9237.8	9206.7	500.0	500.7	ug/L	0	10	
Cadmium	A	256.57	246.33	5000	4935	ug/L	-1	10	
Chromium	A	267.70	263.02	5000	4921	ug/L	-2	10	
Cobalt	A	59.439	57.681	5000	4841	ug/L	-3	10	
Copper	A	421.57	423.04	5000	4868	ug/L	-3	10	
Lead	A	41.507	40.169	5000	4872	ug/L	-3	10	
Manganese	A	1144.4	1126.3	5000	5051	ug/L	1	10	
Molybdenum	A	50.306	49.294	5000	4904	ug/L	-2	10	
Nickel	A	150.12	148.53	5000	4874	ug/L	-3	10	
Selenium	A	11.709	11.191	5000	4932	ug/L	-1	10	
Silver	A	175.78	178.39	1000	965.4	ug/L	-3	10	
Thallium	A	8.8571	7.9136	5000	4792	ug/L	-4	10	
Vanadium	A	346.27	335.43	5000	4911	ug/L	-2	10	
Zinc	A	164.79	157.41	5000	4957	ug/L	-1	10	
Iron	R	16.603	16.226	20000	19920	ug/L	0	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16098975	15718816	-2.36

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97016869037.1 File : met09_sn_0816 Time : 11-JAN-2017 19:18
Cal : 97016869001 Caldate : 11-JAN-2017

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	0.5000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	1.250	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	
Iron	R	ND	100.0	80.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16098975	16217552	0.74

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 97017148

Instrument : MET09 Begun : 01/11/17 21:48
Method : EPA 6010C SOP Version : icp metals_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met09_sn_0816	ICALBLK				01/11/17 21:48	1.0		
002	met09_sn_0816	ICAL	L1			01/11/17 21:51	1.0	1	
003	met09_sn_0816	ICAL	L2			01/11/17 21:53	1.0	2	
004	met09_sn_0816	ICAL	L3			01/11/17 21:55	1.0	3	
005	met09_sn_0816	ICAL	L4			01/11/17 21:57	1.0	4	
006	met09_sn_0816	ICAL	L5			01/11/17 21:59	1.0	5	
007	met09_sn_0816	ICV				01/11/17 22:01	1.0	6	
008	met09_sn_0816	XCRI				01/11/17 22:03	1.0	7	
009	met09_sn_0816	CRI				01/11/17 22:07	1.0	7	
010	met09_sn_0816	XICB				01/11/17 22:09	1.0		
011	met09_sn_0816	ICB				01/11/17 22:13	1.0		
012	met09_sn_0816	ICSA				01/11/17 22:16	1.0	8	10:AL=510000
013	met09_sn_0816	ICSAB				01/11/17 22:48	1.0	9	5:AL=490000
014	met09_sn_0816	X	RINSE			01/12/17 01:02	1.0		
015	met09_sn_0816	BLANK	QC867970	Soil	243243	01/12/17 01:04	1.0		
016	met09_sn_0816	BS	QC867971	Soil	243243	01/12/17 01:06	1.0		
017	met09_sn_0816	BSD	QC867972	Soil	243243	01/12/17 01:08	1.0		
018	met09_sn_0816	MSS	284837-003	Soil	243243	01/12/17 01:09	1.0		5:FE=410000
019	met09_sn_0816	MS	QC867973	Soil	243243	01/12/17 01:11	1.0		1:FE=450000
020	met09_sn_0816	MSD	QC867974	Soil	243243	01/12/17 01:14	1.0		2:FE=2400000
021	met09_sn_0816	SAMPLE	284929-010	Soil	243243	01/12/17 01:16	1.0		5:CA=380000
022	met09_sn_0816	SAMPLE	284666-011	Miscell.	243243	01/12/17 01:18	1.0		2:K=230000
023	met09_sn_0816	SAMPLE	284837-004	Soil	243243	01/12/17 01:21	1.0		6:FE=460000
024	met09_sn_0816	CCV				01/12/17 01:23	1.0	10	
025	met09_sn_0816	CCB				01/12/17 01:26	1.0		
026	met09_sn_0816	SAMPLE	284855-003	Soil	243243	01/12/17 01:28	1.0		2:FE=330000
027	met09_sn_0816	SAMPLE	284867-002	Soil	243243	01/12/17 01:30	1.0		6:CA=1200000
028	met09_sn_0816	SAMPLE	284867-003	Soil	243243	01/12/17 01:32	1.0		6:FE=540000
029	met09_sn_0816	SAMPLE	284867-010	Soil	243243	01/12/17 01:35	1.0		6:CA=520000
030	met09_sn_0816	SAMPLE	284867-011	Soil	243243	01/12/17 01:37	1.0		6:CA=1200000
031	met09_sn_0816	SAMPLE	284867-024	Soil	243243	01/12/17 01:39	1.0		7:FE=780000
032	met09_sn_0816	SAMPLE	284867-025	Soil	243243	01/12/17 01:41	1.0		7:FE=870000
033	met09_sn_0816	SAMPLE	284867-027	Soil	243243	01/12/17 01:43	1.0		7:CA=1200000
034	met09_sn_0816	SAMPLE	284867-028	Soil	243243	01/12/17 01:46	1.0		6:CA=800000
035	met09_sn_0816	SAMPLE	284867-041	Soil	243243	01/12/17 01:48	1.0		6:FE=510000
036	met09_sn_0816	CCV				01/12/17 01:50	1.0	10	
037	met09_sn_0816	CCB				01/12/17 01:52	1.0		
038	met09_sn_0816	SAMPLE	284867-042	Soil	243243	01/12/17 01:55	1.0		6:CA=960000
039	met09_sn_0816	SAMPLE	284867-044	Soil	243243	01/12/17 01:57	1.0		7:FE=760000
040	met09_sn_0816	SAMPLE	284867-045	Soil	243243	01/12/17 01:59	1.0		7:FE=740000
041	met09_sn_0816	SAMPLE	284872-013	Soil	243243	01/12/17 02:01	1.0		6:FE=470000
042	met09_sn_0816	X	RINSE			01/12/17 02:03	1.0		
043	met09_sn_0816	MS	QC862980	Soil	241980	01/12/17 02:06	100.0		
044	met09_sn_0816	MSD	QC862981	Soil	241980	01/12/17 02:08	100.0		
045	met09_sn_0816	SER	QC862982	Soil	241980	01/12/17 02:11	500.0		
046	met09_sn_0816	PDS	QC862983	Soil	241980	01/12/17 02:13	100.0	11 12 13	
047	met09_sn_0816	SAMPLE	283600-002	Soil	241980	01/12/17 02:15	100.0		
048	met09_sn_0816	CCV				01/12/17 02:18	1.0	10	
049	met09_sn_0816	CCB				01/12/17 02:20	1.0		
050	met09_sn_0816	SAMPLE	283600-003	Soil	241980	01/12/17 02:22	100.0		
051	met09_sn_0816	SAMPLE	283600-004	Soil	241980	01/12/17 02:25	100.0		
052	met09_sn_0816	SAMPLE	283600-005	Soil	241980	01/12/17 02:27	100.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 97017148

Instrument : MET09 Begun : 01/11/17 21:48
Method : EPA 6010C SOP Version : icp metals_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met09_sn_0816	SAMPLE	283600-006	Soil	241980	01/12/17 02:29	100.0		
054	met09_sn_0816	SAMPLE	283600-007	Soil	241980	01/12/17 02:32	100.0		
055	met09_sn_0816	SAMPLE	283600-008	Soil	241980	01/12/17 02:34	100.0		
056	met09_sn_0816	SAMPLE	283600-009	Soil	241980	01/12/17 02:37	100.0		
057	met09_sn_0816	SAMPLE	283600-010	Soil	241980	01/12/17 02:39	100.0		
058	met09_sn_0816	SAMPLE	283600-011	Soil	241980	01/12/17 02:41	100.0		
059	met09_sn_0816	SAMPLE	283600-013	Soil	241980	01/12/17 02:44	100.0		
060	met09_sn_0816	CCV				01/12/17 02:46	1.0	10	
061	met09_sn_0816	CCB				01/12/17 02:48	1.0		
062	met09_sn_0816	SAMPLE	283600-014	Soil	241980	01/12/17 02:51	100.0		
063	met09_sn_0816	SAMPLE	283600-015	Soil	241980	01/12/17 02:53	100.0		
064	met09_sn_0816	SAMPLE	283600-016	Soil	241980	01/12/17 02:55	100.0		
065	met09_sn_0816	SAMPLE	283600-017	Soil	241980	01/12/17 02:58	100.0		
066	met09_sn_0816	SAMPLE	283600-018	Soil	241980	01/12/17 03:00	100.0		
067	met09_sn_0816	SAMPLE	283600-019	Soil	241980	01/12/17 03:03	100.0		
068	met09_sn_0816	SAMPLE	283600-020	Soil	241980	01/12/17 03:05	100.0		
069	met09_sn_0816	SAMPLE	283600-003	Soil	241980	01/12/17 03:07	1.0		4:CA=290000
070	met09_sn_0816	SAMPLE	283600-004	Soil	241980	01/12/17 03:09	1.0		4:CA=340000
071	met09_sn_0816	SAMPLE	283600-005	Soil	241980	01/12/17 03:12	1.0		4:CA=240000
072	met09_sn_0816	CCV				01/12/17 03:14	1.0	10	
073	met09_sn_0816	CCB				01/12/17 03:16	1.0		
074	met09_sn_0816	SAMPLE	283600-006	Soil	241980	01/12/17 03:18	1.0		4:CA=240000
075	met09_sn_0816	SAMPLE	283600-007	Soil	241980	01/12/17 03:20	1.0		4:CA=240000
076	met09_sn_0816	SAMPLE	283600-008	Soil	241980	01/12/17 03:23	1.0		4:CA=360000
077	met09_sn_0816	SAMPLE	283600-009	Soil	241980	01/12/17 03:25	1.0		4:CA=290000
078	met09_sn_0816	SAMPLE	283600-010	Soil	241980	01/12/17 03:27	1.0		4:CA=240000
079	met09_sn_0816	SAMPLE	283600-011	Soil	241980	01/12/17 03:29	1.0		4:CA=250000
080	met09_sn_0816	SAMPLE	283600-013	Soil	241980	01/12/17 03:31	1.0		4:CA=290000
081	met09_sn_0816	SAMPLE	283600-014	Soil	241980	01/12/17 03:33	1.0		4:CA=230000
082	met09_sn_0816	SAMPLE	283600-015	Soil	241980	01/12/17 03:36	1.0		4:CA=260000
083	met09_sn_0816	SAMPLE	283600-016	Soil	241980	01/12/17 03:38	1.0		4:CA=340000
084	met09_sn_0816	CCV				01/12/17 03:40	1.0	10	
085	met09_sn_0816	CCB				01/12/17 03:42	1.0		
086	met09_sn_0816	SAMPLE	283600-017	Soil	241980	01/12/17 03:44	1.0		4:CA=330000
087	met09_sn_0816	SAMPLE	283600-018	Soil	241980	01/12/17 03:47	1.0		4:CA=250000
088	met09_sn_0816	SAMPLE	283600-019	Soil	241980	01/12/17 03:49	1.0		4:CA=280000
089	met09_sn_0816	SAMPLE	283600-020	Soil	241980	01/12/17 03:51	1.0		4:CA=280000
090	met09_sn_0816	X	RINSE			01/12/17 03:53	1.0		
091	met09_sn_0816	BLANK	QC866777	Water	242951	01/12/17 03:55	1.0		
092	met09_sn_0816	BS	QC866778	Water	242951	01/12/17 03:58	1.0		
093	met09_sn_0816	BSD	QC866779	Water	242951	01/12/17 04:00	1.0		
094	met09_sn_0816	MSS	284733-001	Water	242951	01/12/17 04:03	1.0		3:NA=310000
095	met09_sn_0816	MS	QC866780	Water	242951	01/12/17 04:05	1.0		
096	met09_sn_0816	CCV				01/12/17 04:08	1.0	10	
097	met09_sn_0816	CCB				01/12/17 04:10	1.0		
098	met09_sn_0816	MSD	QC866781	Water	242951	01/12/17 04:12	1.0		
099	met09_sn_0816	SER	QC866782	Water	242951	01/12/17 04:15	5.0		
100	met09_sn_0816	PDS	QC866783	Water	242951	01/12/17 04:17	1.0	11 12 13	3:NA=310000
101	met09_sn_0816	SAMPLE	284600-001	Water	242951	01/12/17 04:19	1.0		1:CA=120000
102	met09_sn_0816	SAMPLE	284604-002	Water	242951	01/12/17 04:22	1.0		1:NA=240000
103	met09_sn_0816	X	RINSE			01/12/17 04:25	1.0		
104	met09_sn_0816	BS	QC867958	Filtrate	243240	01/12/17 04:27	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 97017148

Instrument : MET09 Begun : 01/11/17 21:48
Method : EPA 6010C SOP Version : icp metals_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
105	met09_sn_0816	BSD	QC867959	Filtrate	243240	01/12/17 04:30	1.0		
106	met09_sn_0816	X	RINSE			01/12/17 04:32	1.0		
107	met09_sn_0816	BLANK	QC866937	Filtrate	242985	01/12/17 04:34	1.0		
108	met09_sn_0816	CCV				01/12/17 04:37	1.0	10	
109	met09_sn_0816	CCB				01/12/17 04:39	1.0		
110	met09_sn_0816	BS	QC866938	Filtrate	242985	01/12/17 04:41	1.0		
111	met09_sn_0816	BSD	QC866939	Filtrate	242985	01/12/17 04:44	1.0		
112	met09_sn_0816	MSS	284544-001	Filtrate	242985	01/12/17 04:46	100.0		
113	met09_sn_0816	MSS	284544-001	Filtrate	242985	01/12/17 04:49	1.0		3:CA=230000
114	met09_sn_0816	X	RINSE			01/12/17 04:52	1.0		
115	met09_sn_0816	MS	QC866940	Filtrate	242985	01/12/17 04:54	1.0		3:CA=230000
116	met09_sn_0816	MSD	QC866941	Filtrate	242985	01/12/17 04:57	1.0		3:CA=230000
117	met09_sn_0816	SAMPLE	284544-002	Filtrate	242985	01/12/17 05:00	100.0		1:AS=44000
118	met09_sn_0816	SAMPLE	284544-003	Filtrate	242985	01/12/17 05:03	100.0		
119	met09_sn_0816	SAMPLE	284544-003	Filtrate	242985	01/12/17 05:06	1.0		
120	met09_sn_0816	CCV				01/12/17 05:09	1.0	10	
121	met09_sn_0816	CCB				01/12/17 05:11	1.0		
122	met09_sn_0816	X	RINSE			01/12/17 05:13	1.0		
123	met09_sn_0816	X	RINSE			01/12/17 05:16	1.0		
124	met09_sn_0816	X	RINSE			01/12/17 05:18	1.0		
125	met09_sn_0816	CCV				01/12/17 05:20	1.0	10	
126	met09_sn_0816	CCB				01/12/17 05:23	1.0		

TLO 01/12/17 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 126.

Standards used: 1=S31329 2=S31859 3=S31860 4=S31861 5=S31195 6=S31647 7=S31330 8=S31001 9=S31844 10=S31646 11=S29983 12=S29984 13=S30560

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 97017148

Date : 01/11/17 Reference : met09_sn_0816
Sequence : MET09 01/11/17 Analyzed : 01/11/17 21:51

#	Type	Sample ID	Y A
		ICAL STD	16050810
		LOWER LIMIT	4815243
		UPPER LIMIT	19260972
011	ICB		16182158
012	ICSA		14514482
013	ICSAB		14411690
036	CCV		15631458
037	CCB		15894502
043	MS	QC862980	15991105
044	MSD	QC862981	16052599
045	SER	QC862982	16008037
046	PDS	QC862983	15844851
047	SAMPLE	283600-002	16126486
048	CCV		15566582
049	CCB		16099847
050	SAMPLE	283600-003	16016404
051	SAMPLE	283600-004	16024681
052	SAMPLE	283600-005	15840775
053	SAMPLE	283600-006	15796359
054	SAMPLE	283600-007	15893575
055	SAMPLE	283600-008	16052914
056	SAMPLE	283600-009	15893192
057	SAMPLE	283600-010	15858172
058	SAMPLE	283600-011	15869936
059	SAMPLE	283600-013	15899262
060	CCV		15602800
061	CCB		15997055
062	SAMPLE	283600-014	16049310
063	SAMPLE	283600-015	15966364
064	SAMPLE	283600-016	15901417
065	SAMPLE	283600-017	15914717
066	SAMPLE	283600-018	15900995
067	SAMPLE	283600-019	15995221
068	SAMPLE	283600-020	15998991
069	SAMPLE	283600-003	15317732
070	SAMPLE	283600-004	15329512
071	SAMPLE	283600-005	15516719
072	CCV		15670160
073	CCB		15943454
074	SAMPLE	283600-006	15558701
075	SAMPLE	283600-007	15615662
076	SAMPLE	283600-008	15592236
077	SAMPLE	283600-009	15516125
078	SAMPLE	283600-010	15590221
079	SAMPLE	283600-011	15499541
080	SAMPLE	283600-013	15115355
081	SAMPLE	283600-014	15507439
082	SAMPLE	283600-015	15579879
083	SAMPLE	283600-016	15333194
084	CCV		15759293
085	CCB		16013607

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 97017148

Date : 01/11/17 Reference : met09_sn_0816
Sequence : MET09 01/11/17 Analyzed : 01/11/17 21:51

#	Type	Sample ID	Y A
086	SAMPLE	283600-017	15498591
087	SAMPLE	283600-018	15338132
088	SAMPLE	283600-019	15599587
089	SAMPLE	283600-020	15525163
096	CCV		15624834
097	CCB		15794502
101	SAMPLE	284600-001	15020829
102	SAMPLE	284604-002	15523381
109	CCB		16189472

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 283600 METALS Soil: EPA 6010C

Inst : MET09
Calnum : 97017148001
Units : ug/L

Date : 11-JAN-2017 21:48
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met09_sn_0816	97017148002	L1	11-JAN-2017 21:51	S31329
L2	met09_sn_0816	97017148003	L2	11-JAN-2017 21:53	S31859
L3	met09_sn_0816	97017148004	L3	11-JAN-2017 21:55	S31860
L4	met09_sn_0816	97017148005	L4	11-JAN-2017 21:57	S31861
L5	met09_sn_0816	97017148006	L5	11-JAN-2017 21:59	S31195

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Antimony	A	6.8500	8.3750	8.3600	8.4229		LOR0	0.00000	0.11873		8.0020	1.000	0.995	
Arsenic	A	7.7000	5.8610	5.7358	5.7721		LOR0	0.00000	0.17326		6.2672	1.000	0.995	
Barium	A	133.38	133.93	133.67	129.39		LOR0	0.00000	0.00773		132.59	1.000	0.995	
Beryllium	A	9249.2	9166.4	9156.6			LOR0	0.00000	1.09E-4		9190.7	1.000	0.995	
Cadmium	A	257.90	261.23	258.23	247.41		LOR0	0.00000	0.00404		256.19	1.000	0.995	
Chromium	A	268.90	272.96	268.70	265.14		LOR0	0.00000	0.00377		268.92	1.000	0.995	
Cobalt	A	56.560	60.263	59.444	59.226		LOR0	0.00000	0.01688		58.873	1.000	0.995	
Copper	A	436.44	447.34	437.01	432.48		LOR0	0.00000	0.00231		438.32	1.000	0.995	
Lead	A	38.840	42.440	41.584	41.235		LOR0	0.00000	0.02425		41.025	1.000	0.995	
Manganese	A	1154.2	1186.4	1155.4	1106.3		LOR0	0.00000	9.03E-4		1150.6	1.000	0.995	
Molybdenum	A	48.300	50.789	49.817	50.010		LOR0	0.00000	0.02000		49.729	1.000	0.995	
Nickel	A	141.86	152.60	153.61	151.15		LOR0	0.00000	0.00662		149.80	1.000	0.995	
Selenium	A	12.430	12.139	11.392	11.482		LOR0	0.00000	0.08710		11.861	1.000	0.995	
Silver	A	207.18	191.55	182.98	183.35		LOR0	0.00000	0.00545		191.26	1.000	0.995	
Thallium	A	8.3200	8.4330	8.2299	7.9055		LOR0	0.00000	0.12644		8.2221	1.000	0.995	
Vanadium	A	340.48	345.49	340.16	339.42		LOR0	0.00000	0.00295		341.39	1.000	0.995	
Zinc	A	175.58	160.92	162.62	156.21		LOR0	0.00000	0.00640		163.83	1.000	0.995	
Iron	R	17.256		15.823	16.457	15.889	LOR0	0.00000	0.06291		16.356	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Antimony	A	10.000	-19	100.00	-1	1000.0	-1	10000	0		
Arsenic	A	5.0000	**33**	100.00	2	1000.0	-1	10000	0		
Barium	A	5.0000	3	100.00	3	1000.0	3	10000	0		
Beryllium	A	2.0000	1	100.00	0	1000.0	0				
Cadmium	A	5.0000	4	100.00	6	1000.0	4	10000	0		
Chromium	A	5.0000	1	100.00	3	1000.0	1	10000	0		
Cobalt	A	5.0000	-5	100.00	2	1000.0	0	10000	0		
Copper	A	5.0000	1	100.00	3	1000.0	1	10000	0		
Lead	A	5.0000	-6	100.00	3	1000.0	1	10000	0		
Manganese	A	5.0000	4	100.00	7	1000.0	4	10000	0		
Molybdenum	A	5.0000	-3	100.00	2	1000.0	0	10000	0		
Nickel	A	5.0000	-6	100.00	1	1000.0	2	10000	0		
Selenium	A	10.000	8	100.00	6	1000.0	-1	10000	0		
Silver	A	5.0000	13	20.000	4	200.00	0	2000.0	0		
Thallium	A	10.000	5	100.00	7	1000.0	4	10000	0		
Vanadium	A	5.0000	0	100.00	2	1000.0	0	10000	0		
Zinc	A	20.000	12	100.00	3	1000.0	4	10000	0		
Iron	R	100.00	9			1000.0	0	10000	4	100000	0

Instrument amount = a0 + response * a1 + response^2 * a2; LOR0=Linear regression forced thru origin, including 0,0 point

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 283600 METALS Soil
EPA 6010C

Inst : MET09
Calnum : 97017148001 Cal Date : 11-JAN-2017

ICV 97017148007 (11-JAN-2017) stds: S31647

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	5000	4986	ug/L	0	10	
Arsenic	A	5000	5043	ug/L	1	10	
Barium	A	5000	4944	ug/L	-1	10	
Beryllium	A	500.0	490.7	ug/L	-2	10	
Cadmium	A	5000	5003	ug/L	0	10	
Chromium	A	5000	4938	ug/L	-1	10	
Cobalt	A	5000	4870	ug/L	-3	10	
Copper	A	5000	4908	ug/L	-2	10	
Lead	A	5000	4903	ug/L	-2	10	
Manganese	A	5000	5002	ug/L	0	10	
Molybdenum	A	5000	4933	ug/L	-1	10	
Nickel	A	5000	4874	ug/L	-3	10	
Selenium	A	5000	5042	ug/L	1	10	
Silver	A	1000	976.9	ug/L	-2	10	
Thallium	A	5000	4980	ug/L	0	10	
Vanadium	A	5000	4899	ug/L	-2	10	
Zinc	A	5000	4858	ug/L	-3	10	
Iron	R	20000	20100	ug/L	0	10	

CURTIS & TOMPKINS LOW-LEVEL PERFORMANCE VERIFICATION STANDARD FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97017148009.1 File : met09_sn_0816 Time : 11-JAN-2017 22:07
Cal : 97017148001 Caldate : 11-JAN-2017
Standards: S31330

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	10.00	9.855	ug/L	-1	30	
Arsenic	A	5.000	6.625	ug/L	**33**	30	cri+ ***
Barium	A	5.000	5.166	ug/L	3	30	
Beryllium	A	2.000	2.029	ug/L	1	30	
Cadmium	A	5.000	5.338	ug/L	7	30	
Chromium	A	5.000	5.051	ug/L	1	30	
Cobalt	A	5.000	5.145	ug/L	3	30	
Copper	A	5.000	101.8	ug/L	**1936**	30	cri+ ***
Lead	A	5.000	5.430	ug/L	9	30	
Manganese	A	5.000	5.233	ug/L	5	30	
Molybdenum	A	5.000	5.299	ug/L	6	30	
Nickel	A	5.000	5.210	ug/L	4	30	
Selenium	A	10.00	10.75	ug/L	8	30	
Silver	A	5.000	4.916	ug/L	-2	30	
Thallium	A	10.00	8.963	ug/L	-10	30	
Vanadium	A	5.000	4.689	ug/L	-6	30	
Zinc	A	20.00	20.43	ug/L	2	30	
Iron	R	100.0	106.5	ug/L	7	30	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16050810	15865181	-1.16

+=high bias

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97017148011.1 File : met09_sn_0816 Time : 11-JAN-2017 22:13
Cal : 97017148001 Caldate : 11-JAN-2017

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	0.5000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	1.250	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	
Iron	R	ND	100.0	80.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16050810	16182158	0.82

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97017148012.1 File : met09_sn_0816 Time : 11-JAN-2017 22:16
Cal : 97017148001 Caldate : 11-JAN-2017
Standards: S31001

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	[-2.435]	10.00	ug/L	
Arsenic	A	[-1.628]	5.000	ug/L	
Barium	A	[-4.889]	5.000	ug/L	!a-
Beryllium	A	[-0.3492]	2.000	ug/L	
Cadmium	A	[0.3976]	5.000	ug/L	
Cobalt	A	[-0.7607]	5.000	ug/L	
Lead	A	[-3.739]	5.000	ug/L	!a-
Molybdenum	A	[0.2317]	5.000	ug/L	
Selenium	A	[9.587]	10.00	ug/L	!a+
Silver	A	[0.5470]	5.000	ug/L	
Thallium	A	[-9.860]	10.00	ug/L	!a-
Zinc	A	[-2.042]	20.00	ug/L	

Interferent	Ch	Spiked	Quant	Units	%Rec	Flags
Chromium	A	20000	19420	ug/L	97	
Copper	A	20000	20870	ug/L	104	
Manganese	A	20000	18960	ug/L	95	
Nickel	A	20000	18670	ug/L	93	
Vanadium	A	20000	19990	ug/L	100	
Aluminum	R	500000	508100	ug/L	102	
Calcium	R	500000	486300	ug/L	97	
Iron	R	200000	195500	ug/L	98	
Magnesium	R	500000	497200	ug/L	99	
Titanium	R	20000	21250	ug/L	106	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16050810	14514482	-9.57

!=warning +=high bias -=low bias a=ICSA

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97017148013.1 File : met09_sn_0816 Time : 11-JAN-2017 22:48
Cal : 97017148001 Caldate : 11-JAN-2017
Standards: S31844

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	420.8	ug/L	-16	20	
Arsenic	A	500.0	448.8	ug/L	-10	20	
Barium	A	500.0	519.0	ug/L	4	20	
Beryllium	A	500.0	510.1	ug/L	2	20	
Cadmium	A	1000	1018	ug/L	2	20	
Chromium	A	500.0	495.5	ug/L	-1	20	
Cobalt	A	500.0	477.4	ug/L	-5	20	
Copper	A	500.0	482.5	ug/L	-4	20	
Lead	A	1000	912.6	ug/L	-9	20	
Manganese	A	500.0	499.5	ug/L	0	20	
Molybdenum	A	500.0	502.6	ug/L	1	20	
Nickel	A	1000	965.3	ug/L	-3	20	
Selenium	A	500.0	526.6	ug/L	5	20	
Silver	A	1000	990.6	ug/L	-1	20	
Thallium	A	500.0	435.2	ug/L	-13	20	
Vanadium	A	500.0	532.1	ug/L	6	20	
Zinc	A	1000	1008	ug/L	1	20	
Iron	R	200000	192300	ug/L	-4		

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16050810	14411690	-10.21

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97017148036.1 File : met09_sn_0816 Time : 12-JAN-2017 01:50
Cal : 97017148001 Caldate : 11-JAN-2017
Standards: S31646

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	8.0020	8.3306	5000	4946	ug/L	-1	10	
Arsenic	A	6.2672	5.7266	5000	4961	ug/L	-1	10	
Barium	A	132.59	128.65	5000	4970	ug/L	-1	10	
Beryllium	A	9190.7	9014.9	500.0	492.3	ug/L	-2	10	
Cadmium	A	256.19	248.63	5000	5023	ug/L	0	10	
Chromium	A	268.92	261.77	5000	4936	ug/L	-1	10	
Cobalt	A	58.873	56.674	5000	4784	ug/L	-4	10	
Copper	A	438.32	424.33	5000	4905	ug/L	-2	10	
Lead	A	41.025	40.271	5000	4883	ug/L	-2	10	
Manganese	A	1150.6	1108.0	5000	5005	ug/L	0	10	
Molybdenum	A	49.729	49.413	5000	4940	ug/L	-1	10	
Nickel	A	149.80	148.51	5000	4912	ug/L	-2	10	
Selenium	A	11.861	11.766	5000	5124	ug/L	2	10	
Silver	A	191.26	176.68	1000	963.6	ug/L	-4	10	
Thallium	A	8.2221	8.0668	5000	5100	ug/L	2	10	
Vanadium	A	341.39	334.25	5000	4924	ug/L	-2	10	
Zinc	A	163.83	164.42	5000	5261	ug/L	5	10	
Iron	R	16.356	15.807	20000	19890	ug/L	-1	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16050810	15631458	-2.61

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97017148037.1 File : met09_sn_0816 Time : 12-JAN-2017 01:52
Cal : 97017148001 Caldate : 11-JAN-2017

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	0.5000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	1.250	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	
Iron	R	ND	100.0	80.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16050810	15894502	-0.97

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97017148048.1 File : met09_sn_0816 Time : 12-JAN-2017 02:18
Cal : 97017148001 Caldate : 11-JAN-2017
Standards: S31646

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	8.0020	8.2574	5000	4902	ug/L	-2	10	
Arsenic	A	6.2672	5.6840	5000	4924	ug/L	-2	10	
Barium	A	132.59	130.15	5000	5028	ug/L	1	10	
Beryllium	A	9190.7	9156.5	500.0	500.0	ug/L	0	10	
Cadmium	A	256.19	252.60	5000	5103	ug/L	2	10	
Chromium	A	268.92	264.05	5000	4979	ug/L	0	10	
Cobalt	A	58.873	56.965	5000	4809	ug/L	-4	10	
Copper	A	438.32	428.90	5000	4958	ug/L	-1	10	
Lead	A	41.025	40.885	5000	4957	ug/L	-1	10	
Manganese	A	1150.6	1120.2	5000	5060	ug/L	1	10	
Molybdenum	A	49.729	49.920	5000	4991	ug/L	0	10	
Nickel	A	149.80	150.47	5000	4977	ug/L	0	10	
Selenium	A	11.861	11.829	5000	5151	ug/L	3	10	
Silver	A	191.26	177.40	1000	967.6	ug/L	-3	10	
Thallium	A	8.2221	8.1507	5000	5153	ug/L	3	10	
Vanadium	A	341.39	337.70	5000	4975	ug/L	-1	10	
Zinc	A	163.83	170.82	5000	5466	ug/L	9	10	
Iron	R	16.356	15.943	20000	20060	ug/L	0	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16050810	15566582	-3.02

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97017148049.1 File : met09_sn_0816 Time : 12-JAN-2017 02:20
Cal : 97017148001 Caldate : 11-JAN-2017

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	0.5000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	1.250	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	
Iron	R	ND	100.0	80.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16050810	16099847	0.31

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97017148060.1 File : met09_sn_0816 Time : 12-JAN-2017 02:46
Cal : 97017148001 Caldate : 11-JAN-2017
Standards: S31646

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	8.0020	8.3634	5000	4965	ug/L	-1	10	
Arsenic	A	6.2672	5.7324	5000	4966	ug/L	-1	10	
Barium	A	132.59	129.46	5000	5001	ug/L	0	10	
Beryllium	A	9190.7	9123.9	500.0	498.2	ug/L	0	10	
Cadmium	A	256.19	251.32	5000	5077	ug/L	2	10	
Chromium	A	268.92	263.37	5000	4966	ug/L	-1	10	
Cobalt	A	58.873	56.290	5000	4752	ug/L	-5	10	
Copper	A	438.32	425.96	5000	4924	ug/L	-2	10	
Lead	A	41.025	40.643	5000	4928	ug/L	-1	10	
Manganese	A	1150.6	1110.7	5000	5018	ug/L	0	10	
Molybdenum	A	49.729	49.813	5000	4981	ug/L	0	10	
Nickel	A	149.80	149.94	5000	4959	ug/L	-1	10	
Selenium	A	11.861	11.928	5000	5194	ug/L	4	10	
Silver	A	191.26	176.16	1000	960.8	ug/L	-4	10	
Thallium	A	8.2221	8.2132	5000	5193	ug/L	4	10	
Vanadium	A	341.39	337.38	5000	4970	ug/L	-1	10	
Zinc	A	163.83	170.73	5000	5463	ug/L	9	10	
Iron	R	16.356	16.044	20000	20190	ug/L	1	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16050810	15602800	-2.79

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97017148061.1 File : met09_sn_0816 Time : 12-JAN-2017 02:48
Cal : 97017148001 Caldate : 11-JAN-2017

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	0.5000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	1.250	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	
Iron	R	ND	100.0	80.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16050810	15997055	-0.33

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97017148072.1 File : met09_sn_0816 Time : 12-JAN-2017 03:14
Cal : 97017148001 Caldate : 11-JAN-2017
Standards: S31646

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	8.0020	8.1831	5000	4858	ug/L	-3	10	
Arsenic	A	6.2672	5.6355	5000	4882	ug/L	-2	10	
Barium	A	132.59	129.98	5000	5021	ug/L	0	10	
Beryllium	A	9190.7	9170.7	500.0	500.8	ug/L	0	10	
Cadmium	A	256.19	251.87	5000	5088	ug/L	2	10	
Chromium	A	268.92	263.84	5000	4975	ug/L	-1	10	
Cobalt	A	58.873	56.439	5000	4765	ug/L	-5	10	
Copper	A	438.32	427.98	5000	4947	ug/L	-1	10	
Lead	A	41.025	40.744	5000	4940	ug/L	-1	10	
Manganese	A	1150.6	1116.1	5000	5042	ug/L	1	10	
Molybdenum	A	49.729	49.902	5000	4989	ug/L	0	10	
Nickel	A	149.80	150.19	5000	4967	ug/L	-1	10	
Selenium	A	11.861	11.800	5000	5139	ug/L	3	10	
Silver	A	191.26	176.79	1000	964.2	ug/L	-4	10	
Thallium	A	8.2221	8.0524	5000	5091	ug/L	2	10	
Vanadium	A	341.39	337.26	5000	4968	ug/L	-1	10	
Zinc	A	163.83	171.98	5000	5503	ug/L	10	10	
Iron	R	16.356	15.963	20000	20090	ug/L	0	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16050810	15670160	-2.37

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97017148073.1 File : met09_sn_0816 Time : 12-JAN-2017 03:16
Cal : 97017148001 Caldate : 11-JAN-2017

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	0.5000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	1.250	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	
Iron	R	ND	100.0	80.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16050810	15943454	-0.67

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97017148084.2 File : met09_sn_0816 Time : 12-JAN-2017 03:40
Cal : 97017148001 Caldate : 11-JAN-2017
Standards: S31646

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	8.0020	8.2082	5000	4873	ug/L	-3	10	
Arsenic	A	6.2672	5.6347	5000	4881	ug/L	-2	10	
Barium	A	132.59	128.17	5000	4951	ug/L	-1	10	
Beryllium	A	9190.7	9015.5	500.0	492.3	ug/L	-2	10	
Cadmium	A	256.19	247.94	5000	5009	ug/L	0	10	
Chromium	A	268.92	259.64	5000	4896	ug/L	-2	10	
Cobalt	A	58.873	55.698	5000	4702	ug/L	-6	10	
Copper	A	438.32	421.75	5000	4875	ug/L	-2	10	
Lead	A	41.025	40.097	5000	4861	ug/L	-3	10	
Manganese	A	1150.6	1100.6	5000	4972	ug/L	-1	10	
Molybdenum	A	49.729	49.188	5000	4918	ug/L	-2	10	
Nickel	A	149.80	147.83	5000	4890	ug/L	-2	10	
Selenium	A	11.861	11.663	5000	5079	ug/L	2	10	
Silver	A	191.26	174.10	1000	949.6	ug/L	-5	10	
Thallium	A	8.2221	8.0194	5000	5070	ug/L	1	10	
Vanadium	A	341.39	332.62	5000	4900	ug/L	-2	10	
Zinc	A	163.83	167.60	5000	5363	ug/L	7	10	
Iron	R	16.356	15.631	20000	19670	ug/L	-2	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16050810	15759293	-1.82

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97017148085.1 File : met09_sn_0816 Time : 12-JAN-2017 03:42
Cal : 97017148001 Caldate : 11-JAN-2017

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	0.5000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	1.250	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	
Iron	R	ND	100.0	80.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16050810	16013607	-0.23

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97017148096.2 File : met09_sn_0816 Time : 12-JAN-2017 04:08
Cal : 97017148001 Caldate : 11-JAN-2017
Standards: S31646

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	8.0020	8.2225	5000	4881	ug/L	-2	10	
Arsenic	A	6.2672	5.5987	5000	4850	ug/L	-3	10	
Barium	A	132.59	129.56	5000	5005	ug/L	0	10	
Beryllium	A	9190.7	9116.6	500.0	497.8	ug/L	0	10	
Cadmium	A	256.19	250.20	5000	5054	ug/L	1	10	
Chromium	A	268.92	263.04	5000	4960	ug/L	-1	10	
Cobalt	A	58.873	56.591	5000	4777	ug/L	-4	10	
Copper	A	438.32	427.90	5000	4946	ug/L	-1	10	
Lead	A	41.025	40.526	5000	4914	ug/L	-2	10	
Manganese	A	1150.6	1113.7	5000	5031	ug/L	1	10	
Molybdenum	A	49.729	49.675	5000	4967	ug/L	-1	10	
Nickel	A	149.80	149.58	5000	4947	ug/L	-1	10	
Selenium	A	11.861	11.660	5000	5078	ug/L	2	10	
Silver	A	191.26	176.83	1000	964.5	ug/L	-4	10	
Thallium	A	8.2221	8.0775	5000	5107	ug/L	2	10	
Vanadium	A	341.39	336.99	5000	4964	ug/L	-1	10	
Zinc	A	163.83	168.93	5000	5405	ug/L	8	10	
Iron	R	16.356	15.759	20000	19830	ug/L	-1	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16050810	15624834	-2.65

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97017148097.1 File : met09_sn_0816 Time : 12-JAN-2017 04:10
Cal : 97017148001 Caldate : 11-JAN-2017

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	0.5000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	1.250	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	
Iron	R	ND	100.0	80.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16050810	15794502	-1.60

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 97017751

Instrument : MET09 Begun : 01/12/17 07:51
Method : EPA 6010C SOP Version : icp metals_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met09_sn_0816	ICALBLK				01/12/17 07:51	1.0		
002	met09_sn_0816	ICAL	L1			01/12/17 07:53	1.0	1	
003	met09_sn_0816	ICAL	L2			01/12/17 07:56	1.0	2	
004	met09_sn_0816	ICAL	L3			01/12/17 07:58	1.0	3	
005	met09_sn_0816	ICAL	L4			01/12/17 07:59	1.0	4	
006	met09_sn_0816	ICAL	L5			01/12/17 08:02	1.0	5	
007	met09_sn_0816	ICV				01/12/17 08:04	1.0	6	
008	met09_sn_0816	XCRI				01/12/17 08:06	1.0	7	
009	met09_sn_0816	CRI				01/12/17 08:10	1.0	7	
010	met09_sn_0816	ICB				01/12/17 08:14	1.0		
011	met09_sn_0816	ICSA				01/12/17 08:16	1.0	8	10:AL=520000
012	met09_sn_0816	XICSAB				01/12/17 08:25	1.0	9	5:MG=280000
013	met09_sn_0816	ICSAB				01/12/17 08:28	1.0	9	5:AL=510000
014	met09_sn_0816	BS	QC867958	Filtrate	243240	01/12/17 08:30	1.0		
015	met09_sn_0816	BSD	QC867959	Filtrate	243240	01/12/17 08:32	1.0		
016	met09_sn_0816	MSS	283600-001	Soil	241980	01/12/17 08:35	100.0		
017	met09_sn_0816	SAMPLE	283600-009	Soil	241980	01/12/17 08:37	1.0		4:CA=290000
018	met09_sn_0816	SAMPLE	283600-010	Soil	241980	01/12/17 08:39	1.0		4:CA=240000
019	met09_sn_0816	SAMPLE	283600-011	Soil	241980	01/12/17 08:42	1.0		4:CA=260000
020	met09_sn_0816	SAMPLE	283600-013	Soil	241980	01/12/17 08:44	1.0		4:CA=280000
021	met09_sn_0816	SAMPLE	283600-015	Soil	241980	01/12/17 08:46	1.0		4:CA=260000
022	met09_sn_0816	SAMPLE	283600-016	Soil	241980	01/12/17 08:48	1.0		4:CA=330000
023	met09_sn_0816	SAMPLE	283600-018	Soil	241980	01/12/17 08:50	1.0		4:CA=250000
024	met09_sn_0816	CCV				01/12/17 08:52	1.0	10	
025	met09_sn_0816	CCB				01/12/17 08:55	1.0		
026	met09_sn_0816	SAMPLE	283600-020	Soil	241980	01/12/17 08:57	1.0		4:CA=280000
027	met09_sn_0816	X	RINSE			01/12/17 08:59	1.0		
028	met09_sn_0816	BLANK	QC867975	Soil	243244	01/12/17 09:01	1.0		
029	met09_sn_0816	BS	QC867976	Soil	243244	01/12/17 09:04	1.0		
030	met09_sn_0816	BSD	QC867977	Soil	243244	01/12/17 09:05	1.0		
031	met09_sn_0816	MSS	284907-009	Soil	243244	01/12/17 09:07	1.0		3:FE=320000
032	met09_sn_0816	MS	QC867978	Soil	243244	01/12/17 09:09	1.0		1:FE=440000
033	met09_sn_0816	MSD	QC867979	Soil	243244	01/12/17 09:11	1.0		
034	met09_sn_0816	SER	QC867980	Soil	243244	01/12/17 09:14	5.0		
035	met09_sn_0816	PDS	QC867981	Soil	243244	01/12/17 09:17	1.0	11 12 13	3:FE=310000
036	met09_sn_0816	CCV				01/12/17 09:19	1.0	10	
037	met09_sn_0816	CCB				01/12/17 09:21	1.0		
038	met09_sn_0816	SAMPLE	284838-002	Soil	243244	01/12/17 09:23	1.0		5:FE=470000
039	met09_sn_0816	SAMPLE	284838-004	Soil	243244	01/12/17 09:25	1.0		6:CA=500000
040	met09_sn_0816	SAMPLE	284838-006	Soil	243244	01/12/17 09:28	1.0		6:FE=460000
041	met09_sn_0816	SAMPLE	284873-001	Soil	243244	01/12/17 09:30	1.0		4:FE=460000
042	met09_sn_0816	SAMPLE	284873-002	Soil	243244	01/12/17 09:32	1.0		5:FE=410000
043	met09_sn_0816	SAMPLE	284892-001	Soil	243244	01/12/17 09:34	1.0		3:FE=700000
044	met09_sn_0816	SAMPLE	284893-001	Soil	243244	01/12/17 09:36	1.0		5:FE=480000
045	met09_sn_0816	SAMPLE	284893-002	Soil	243244	01/12/17 09:38	1.0		3:FE=630000
046	met09_sn_0816	SAMPLE	284895-001	Soil	243244	01/12/17 09:41	1.0		5:FE=630000
047	met09_sn_0816	SAMPLE	284897-001	Soil	243244	01/12/17 09:43	1.0		5:FE=660000
048	met09_sn_0816	CCV				01/12/17 09:45	1.0	10	
049	met09_sn_0816	CCB				01/12/17 09:47	1.0		
050	met09_sn_0816	MSS	284837-003	Soil	243243	01/12/17 10:01	1.0		
051	met09_sn_0816	MS	QC867973	Soil	243243	01/12/17 10:03	1.0		1:FE=450000
052	met09_sn_0816	MSD	QC867974	Soil	243243	01/12/17 10:06	1.0		2:FE=2400000

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 97017751

Instrument : MET09 Begun : 01/12/17 07:51
Method : EPA 6010C SOP Version : icp metals_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met09_sn_0816	CCV				01/12/17 10:08	1.0	10	
054	met09_sn_0816	CCB				01/12/17 10:10	1.0		

TLO 01/12/17 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 54.

Standards used: 1=S31329 2=S31859 3=S31860 4=S31861 5=S31195 6=S31647 7=S31330 8=S31001 9=S31844 10=S31646 11=S29983 12=S29984 13=S30560

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 97017751

Date : 01/12/17 Reference : met09_sn_0816
Sequence : MET09 01/12/17 Analyzed : 01/12/17 07:53

#	Type	Sample ID	Y A
		ICAL STD	17290965
		LOWER LIMIT	5187290
		UPPER LIMIT	20749158
010	ICB		17437598
011	ICSA		15297997
013	ICSAB		15250469
016	MSS	283600-001	17030595
017	SAMPLE	283600-009	16499061
018	SAMPLE	283600-010	16806911
019	SAMPLE	283600-011	16707231
020	SAMPLE	283600-013	16548447
021	SAMPLE	283600-015	16464552
022	SAMPLE	283600-016	16474089
023	SAMPLE	283600-018	16591649
024	CCV		16740755
025	CCB		17382439
026	SAMPLE	283600-020	16488142

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 283600 METALS Soil: EPA 6010C

Inst : MET09
Calnum : 97017751001
Units : ug/L

Date : 12-JAN-2017 07:51
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met09_sn_0816	97017751002	L1	12-JAN-2017 07:53	S31329
L2	met09_sn_0816	97017751003	L2	12-JAN-2017 07:56	S31859
L3	met09_sn_0816	97017751004	L3	12-JAN-2017 07:58	S31860
L4	met09_sn_0816	97017751005	L4	12-JAN-2017 07:59	S31861
L5	met09_sn_0816	97017751006	L5	12-JAN-2017 08:02	S31195

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Antimony	A	7.7000	8.1400	8.2952	8.2655		LOR0	0.00000	0.12098		8.1002	1.000	0.995	
Arsenic	A	7.3800	5.4200	5.4616	5.4059		LOR0	0.00000	0.18497		5.9169	1.000	0.995	
Barium	A	135.30	135.71	134.13	131.95		LOR0	0.00000	0.00758		134.27	1.000	0.995	
Beryllium	A	9041.4	9146.3	9213.4			LOR0	0.00000	1.09E-4		9133.7	1.000	0.995	
Cadmium	A	245.78	249.98	243.69	237.75		LOR0	0.00000	0.00421		244.30	1.000	0.995	
Chromium	A	277.88	270.98	267.24	265.93		LOR0	0.00000	0.00376		270.51	1.000	0.995	
Cobalt	A	55.880	57.346	56.356	57.021		LOR0	0.00000	0.01754		56.651	1.000	0.995	
Copper	A	512.90	456.60	441.37	443.92		LOR0	0.00000	0.00225		463.70	1.000	0.995	
Lead	A	41.220	40.766	40.727	39.475		LOR0	0.00000	0.02532		40.547	1.000	0.995	
Manganese	A	1161.4	1190.5	1149.6	1115.3		LOR0	0.00000	8.96E-4		1154.2	1.000	0.995	
Molybdenum	A	45.520	50.168	49.527	49.987		LOR0	0.00000	0.02001		48.800	1.000	0.995	
Nickel	A	150.70	148.61	148.86	149.00		LOR0	0.00000	0.00671		149.29	1.000	0.995	
Selenium	A	10.600	10.576	10.695	10.612		LOR0	0.00000	0.09423		10.621	1.000	0.995	
Silver	A	187.16	187.62	183.90	186.41		LOR0	0.00000	0.00537		186.27	1.000	0.995	
Thallium	A	7.0700	8.0770	8.1652	7.8554		LOR0	0.00000	0.12725		7.7919	1.000	0.995	
Vanadium	A	329.06	350.29	343.11	347.01		LOR0	0.00000	0.00288		342.37	1.000	0.995	
Zinc	A	180.39	161.35	160.55	160.59		LOR0	0.00000	0.00623		165.72	1.000	0.995	
Iron	R	16.165		16.262	16.789	15.816	LOR0	0.00000	0.06319		16.258	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Antimony	A	10.000	-7	100.00	-2	1000.0	0	10000	0		
Arsenic	A	5.0000	**37**	100.00	0	1000.0	1	10000	0		
Barium	A	5.0000	3	100.00	3	1000.0	2	10000	0		
Beryllium	A	2.0000	-2	100.00	-1	1000.0	0				
Cadmium	A	5.0000	3	100.00	5	1000.0	2	10000	0		
Chromium	A	5.0000	4	100.00	2	1000.0	0	10000	0		
Cobalt	A	5.0000	-2	100.00	1	1000.0	-1	10000	0		
Copper	A	5.0000	16	100.00	3	1000.0	-1	10000	0		
Lead	A	5.0000	4	100.00	3	1000.0	3	10000	0		
Manganese	A	5.0000	4	100.00	7	1000.0	3	10000	0		
Molybdenum	A	5.0000	-9	100.00	0	1000.0	-1	10000	0		
Nickel	A	5.0000	1	100.00	0	1000.0	0	10000	0		
Selenium	A	10.000	0	100.00	0	1000.0	1	10000	0		
Silver	A	5.0000	0	20.000	1	200.00	-1	2000.0	0		
Thallium	A	10.000	-10	100.00	3	1000.0	4	10000	0		
Vanadium	A	5.0000	-5	100.00	1	1000.0	-1	10000	0		
Zinc	A	20.000	12	100.00	0	1000.0	0	10000	0		
Iron	R	100.00	2			1000.0	3	10000	6	100000	0

Instrument amount = a0 + response * a1 + response^2 * a2; LOR0=Linear regression forced thru origin, including 0,0 point

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 283600 METALS Soil
EPA 6010C

Inst : MET09
Calnum : 97017751001 Cal Date : 12-JAN-2017

ICV 97017751007 (12-JAN-2017) stds: S31647

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	5000	4998	ug/L	0	10	
Arsenic	A	5000	5041	ug/L	1	10	
Barium	A	5000	4947	ug/L	-1	10	
Beryllium	A	500.0	493.2	ug/L	-1	10	
Cadmium	A	5000	5008	ug/L	0	10	
Chromium	A	5000	4957	ug/L	-1	10	
Cobalt	A	5000	4867	ug/L	-3	10	
Copper	A	5000	4907	ug/L	-2	10	
Lead	A	5000	4963	ug/L	-1	10	
Manganese	A	5000	4987	ug/L	0	10	
Molybdenum	A	5000	4918	ug/L	-2	10	
Nickel	A	5000	4902	ug/L	-2	10	
Selenium	A	5000	5016	ug/L	0	10	
Silver	A	1000	973.3	ug/L	-3	10	
Thallium	A	5000	4835	ug/L	-3	10	
Vanadium	A	5000	4936	ug/L	-1	10	
Zinc	A	5000	4966	ug/L	-1	10	
Iron	R	20000	20510	ug/L	3	10	

CURTIS & TOMPKINS LOW-LEVEL PERFORMANCE VERIFICATION STANDARD FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97017751009.1 File : met09_sn_0816 Time : 12-JAN-2017 08:10
Cal : 97017751001 Caldate : 12-JAN-2017
Standards: S31330

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	10.00	11.14	ug/L	11	30	
Arsenic	A	5.000	5.809	ug/L	16	30	
Barium	A	5.000	5.114	ug/L	2	30	
Beryllium	A	2.000	1.933	ug/L	-3	30	
Cadmium	A	5.000	5.298	ug/L	6	30	
Chromium	A	5.000	5.087	ug/L	2	30	
Cobalt	A	5.000	4.798	ug/L	-4	30	
Copper	A	5.000	100.3	ug/L	**1906**	30	cri+ ***
Lead	A	5.000	5.255	ug/L	5	30	
Manganese	A	5.000	5.163	ug/L	3	30	
Molybdenum	A	5.000	5.068	ug/L	1	30	
Nickel	A	5.000	5.020	ug/L	0	30	
Selenium	A	10.00	10.26	ug/L	3	30	
Silver	A	5.000	4.235	ug/L	-15	30	
Thallium	A	10.00	9.508	ug/L	-5	30	
Vanadium	A	5.000	4.666	ug/L	-7	30	
Zinc	A	20.00	20.21	ug/L	1	30	
Iron	R	100.0	103.4	ug/L	3	30	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	17290965	17404971	0.66

+=high bias

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97017751010.1 File : met09_sn_0816 Time : 12-JAN-2017 08:14
Cal : 97017751001 Caldate : 12-JAN-2017

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	0.5000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	1.250	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	
Iron	R	ND	100.0	80.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	17290965	17437598	0.85

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97017751011.1 File : met09_sn_0816 Time : 12-JAN-2017 08:16
Cal : 97017751001 Caldate : 12-JAN-2017
Standards: S31001

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	[3.267]	10.00	ug/L	
Arsenic	A	[4.962]	5.000	ug/L	!a+
Barium	A	[-2.537]	5.000	ug/L	!a-
Beryllium	A	[0.9624]	2.000	ug/L	!a+
Cadmium	A	[0.4141]	5.000	ug/L	
Cobalt	A	[-2.857]	5.000	ug/L	!a-
Lead	A	[1.676]	5.000	ug/L	
Molybdenum	A	[-0.5313]	5.000	ug/L	
Selenium	A	[8.999]	10.00	ug/L	!a+
Silver	A	[-3.859]	5.000	ug/L	
Thallium	A	[-4.179]	10.00	ug/L	
Zinc	A	[1.861]	20.00	ug/L	

Interferent	Ch	Spiked	Quant	Units	%Rec	Flags
Chromium	A	20000	19410	ug/L	97	
Copper	A	20000	20930	ug/L	105	
Manganese	A	20000	18790	ug/L	94	
Nickel	A	20000	18470	ug/L	92	
Vanadium	A	20000	20070	ug/L	100	
Aluminum	R	500000	521000	ug/L	104	
Calcium	R	500000	492700	ug/L	99	
Iron	R	200000	193100	ug/L	97	
Magnesium	R	500000	492800	ug/L	99	
Titanium	R	20000	20710	ug/L	104	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	17290965	15297997	-11.53

!=warning +=high bias -=low bias a=ICSA

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97017751013.1 File : met09_sn_0816 Time : 12-JAN-2017 08:28
Cal : 97017751001 Caldate : 12-JAN-2017
Standards: S31844

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	417.7	ug/L	-16	20	
Arsenic	A	500.0	399.6	ug/L	-20	20	
Barium	A	500.0	521.5	ug/L	4	20	
Beryllium	A	500.0	504.9	ug/L	1	20	
Cadmium	A	1000	1006	ug/L	1	20	
Chromium	A	500.0	497.6	ug/L	0	20	
Cobalt	A	500.0	471.0	ug/L	-6	20	
Copper	A	500.0	487.4	ug/L	-3	20	
Lead	A	1000	911.0	ug/L	-9	20	
Manganese	A	500.0	499.2	ug/L	0	20	
Molybdenum	A	500.0	486.5	ug/L	-3	20	
Nickel	A	1000	951.3	ug/L	-5	20	
Selenium	A	500.0	498.2	ug/L	0	20	
Silver	A	1000	1010	ug/L	1	20	
Thallium	A	500.0	414.4	ug/L	-17	20	
Vanadium	A	500.0	533.8	ug/L	7	20	
Zinc	A	1000	928.1	ug/L	-7	20	
Iron	R	200000	192600	ug/L	-4		

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	17290965	15250469	-11.80

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97017751024.1 File : met09_sn_0816 Time : 12-JAN-2017 08:52
Cal : 97017751001 Caldate : 12-JAN-2017
Standards: S31646

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	8.1002	8.0658	5000	4879	ug/L	-2	10	
Arsenic	A	5.9169	5.3344	5000	4933	ug/L	-1	10	
Barium	A	134.27	130.19	5000	4933	ug/L	-1	10	
Beryllium	A	9133.7	9130.9	500.0	495.6	ug/L	-1	10	
Cadmium	A	244.30	233.36	5000	4906	ug/L	-2	10	
Chromium	A	270.51	264.17	5000	4967	ug/L	-1	10	
Cobalt	A	56.651	55.838	5000	4897	ug/L	-2	10	
Copper	A	463.70	434.87	5000	4898	ug/L	-2	10	
Lead	A	40.547	38.791	5000	4912	ug/L	-2	10	
Manganese	A	1154.2	1113.1	5000	4989	ug/L	0	10	
Molybdenum	A	48.800	47.957	5000	4797	ug/L	-4	10	
Nickel	A	149.29	145.16	5000	4871	ug/L	-3	10	
Selenium	A	10.621	10.179	5000	4796	ug/L	-4	10	
Silver	A	186.27	182.67	1000	980.1	ug/L	-2	10	
Thallium	A	7.7919	7.2423	5000	4608	ug/L	-8	10	
Vanadium	A	342.37	342.68	5000	4938	ug/L	-1	10	
Zinc	A	165.72	149.04	5000	4640	ug/L	-7	10	
Iron	R	16.258	16.043	20000	20280	ug/L	1	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	17290965	16740755	-3.18

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97017751025.1 File : met09_sn_0816 Time : 12-JAN-2017 08:55
Cal : 97017751001 Caldate : 12-JAN-2017

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	0.5000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	1.250	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	
Iron	R	ND	100.0	80.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	17290965	17382439	0.53

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 97017918

Instrument : MET09 Begun : 01/12/17 10:38
Method : EPA 6010C SOP Version : icp metals_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met09_sn_0816	ICALBLK				01/12/17 10:38	1.0		
002	met09_sn_0816	ICAL	L1			01/12/17 10:40	1.0	1	
003	met09_sn_0816	ICAL	L2			01/12/17 10:43	1.0	2	
004	met09_sn_0816	ICAL	L3			01/12/17 10:45	1.0	3	
005	met09_sn_0816	ICAL	L4			01/12/17 10:47	1.0	4	
006	met09_sn_0816	ICAL	L5			01/12/17 10:50	1.0	5	
007	met09_sn_0816	ICV				01/12/17 10:52	1.0	6	
008	met09_sn_0816	XCRI				01/12/17 10:54	1.0	7	
009	met09_sn_0816	CRI				01/12/17 11:00	1.0	7	
010	met09_sn_0816	ICB				01/12/17 11:03	1.0		
011	met09_sn_0816	ICSA				01/12/17 11:06	1.0	8	10:AL=510000
012	met09_sn_0816	ICSAB				01/12/17 11:13	1.0	9	3:AL=160000
013	met09_sn_0816	ICSAB				01/12/17 11:15	1.0	9	5:AL=490000
014	met09_sn_0816	MSS	284907-009	Soil	243244	01/12/17 11:17	100.0		
015	met09_sn_0816	SER	QC867980	Soil	243244	01/12/17 11:19	500.0		
016	met09_sn_0816	PDS	QC867981	Soil	243244	01/12/17 11:22	100.0	10 11 12	
017	met09_sn_0816	SAMPLE	284907-010	Soil	243244	01/12/17 11:24	100.0		
018	met09_sn_0816	SAMPLE	284666-011	Miscell.	243243	01/12/17 11:26	100.0		
019	met09_sn_0816	MSS	284907-009	Soil	243244	01/12/17 11:30	1.0		3:FE=310000
020	met09_sn_0816	SAMPLE	284838-002	Soil	243244	01/12/17 11:32	1.0		5:CA=470000
021	met09_sn_0816	SAMPLE	284838-004	Soil	243244	01/12/17 11:34	1.0		6:CA=510000
022	met09_sn_0816	SAMPLE	284838-006	Soil	243244	01/12/17 11:36	1.0		6:FE=450000
023	met09_sn_0816	SAMPLE	284873-001	Soil	243244	01/12/17 11:38	1.0		4:FE=450000
024	met09_sn_0816	CCV				01/12/17 11:40	1.0	13	
025	met09_sn_0816	CCB				01/12/17 11:42	1.0		
026	met09_sn_0816	X	RINSE			01/12/17 11:46	1.0		
027	met09_sn_0816	SAMPLE	284666-011	Miscell.	243243	01/12/17 11:48	100.0		
028	met09_sn_0816	PDS	QC862983	Soil	241980	01/12/17 11:51	100.0	10 11 12	
029	met09_sn_0816	SAMPLE	283600-020	Soil	241980	01/12/17 11:53	1.0		4:CA=280000
030	met09_sn_0816	BLANK	QC867982	Water	243245	01/12/17 11:55	1.0		
031	met09_sn_0816	BS	QC867983	Water	243245	01/12/17 11:58	1.0		
032	met09_sn_0816	BSD	QC867984	Water	243245	01/12/17 12:00	1.0		
033	met09_sn_0816	MSS	284975-001	Water	243245	01/12/17 12:02	1.0		
034	met09_sn_0816	MS	QC867985	Water	243245	01/12/17 12:05	1.0		
035	met09_sn_0816	MSD	QC867986	Water	243245	01/12/17 12:09	1.0		
036	met09_sn_0816	CCV				01/12/17 12:12	1.0	13	
037	met09_sn_0816	CCB				01/12/17 12:14	1.0		
038	met09_sn_0816	SER	QC867987	Water	243245	01/12/17 12:16	5.0		
039	met09_sn_0816	PDS	QC867988	Water	243245	01/12/17 12:19	1.0	10 11 12	
040	met09_sn_0816	SAMPLE	284989-001	Water	243245	01/12/17 12:22	1.0		
041	met09_sn_0816	SAMPLE	284882-001	Water	243245	01/12/17 12:24	1.0		
042	met09_sn_0816	SAMPLE	284884-001	Water	243245	01/12/17 12:26	1.0		
043	met09_sn_0816	SAMPLE	284884-002	Water	243245	01/12/17 12:29	1.0		
044	met09_sn_0816	SAMPLE	284884-003	Water	243245	01/12/17 12:31	1.0		
045	met09_sn_0816	SAMPLE	284884-004	Water	243245	01/12/17 12:34	1.0		
046	met09_sn_0816	SAMPLE	284912-001	Water	243245	01/12/17 12:36	1.0		
047	met09_sn_0816	SAMPLE	284912-002	Water	243245	01/12/17 12:38	1.0		
048	met09_sn_0816	CCV				01/12/17 12:41	1.0	13	
049	met09_sn_0816	CCB				01/12/17 12:43	1.0		
050	met09_sn_0816	SAMPLE	284912-003	Water	243245	01/12/17 12:45	1.0		1:CA=120000
051	met09_sn_0816	SAMPLE	284912-004	Water	243245	01/12/17 12:48	1.0		
052	met09_sn_0816	SAMPLE	284912-005	Water	243245	01/12/17 12:50	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 97017918

Instrument : MET09 Begun : 01/12/17 10:38
Method : EPA 6010C SOP Version : icp metals_rv18

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met09_sn_0816	SAMPLE	284912-006	Water	243245	01/12/17 12:52	1.0		
054	met09_sn_0816	SAMPLE	284873-002	Soil	243244	01/12/17 12:55	1.0		5:FE=400000
055	met09_sn_0816	SAMPLE	284892-001	Soil	243244	01/12/17 12:57	1.0		3:FE=710000
056	met09_sn_0816	SAMPLE	284893-001	Soil	243244	01/12/17 12:59	1.0		6:FE=470000
057	met09_sn_0816	SAMPLE	284893-002	Soil	243244	01/12/17 13:01	1.0		3:FE=610000
058	met09_sn_0816	SAMPLE	284895-001	Soil	243244	01/12/17 13:04	1.0		5:FE=630000
059	met09_sn_0816	SAMPLE	284897-001	Soil	243244	01/12/17 13:06	1.0		5:FE=660000
060	met09_sn_0816	CCV				01/12/17 13:08	1.0	13	
061	met09_sn_0816	CCB				01/12/17 13:10	1.0		
062	met09_sn_0816	SAMPLE	284897-002	Soil	243244	01/12/17 13:12	1.0		4:FE=460000
063	met09_sn_0816	SAMPLE	284899-001	Soil	243244	01/12/17 13:15	1.0		6:FE=530000
064	met09_sn_0816	SAMPLE	284899-002	Soil	243244	01/12/17 13:17	1.0		6:FE=540000
065	met09_sn_0816	SAMPLE	284900-001	Soil	243244	01/12/17 13:19	1.0		4:FE=490000
066	met09_sn_0816	SAMPLE	284900-002	Soil	243244	01/12/17 13:21	1.0		3:FE=550000
067	met09_sn_0816	SAMPLE	284901-001	Soil	243244	01/12/17 13:23	1.0		6:CA=730000
068	met09_sn_0816	SAMPLE	284901-002	Soil	243244	01/12/17 13:25	1.0		4:FE=360000
069	met09_sn_0816	SAMPLE	284902-001	Soil	243244	01/12/17 13:28	1.0		7:CA=770000
070	met09_sn_0816	SAMPLE	284907-010	Soil	243244	01/12/17 13:30	1.0		4:FE=440000
071	met09_sn_0816	SAMPLE	284837-004	Soil	243243	01/12/17 13:32	1.0		6:FE=460000
072	met09_sn_0816	CCV				01/12/17 13:34	1.0	13	
073	met09_sn_0816	CCB				01/12/17 13:36	1.0		
074	met09_sn_0816	SAMPLE	284855-003	Soil	243243	01/12/17 13:39	1.0		3:FE=320000
075	met09_sn_0816	SAMPLE	284867-011	Soil	243243	01/12/17 13:41	1.0		6:CA=1200000
076	met09_sn_0816	SAMPLE	284867-044	Soil	243243	01/12/17 13:43	1.0		7:FE=750000
077	met09_sn_0816	SAMPLE	284867-045	Soil	243243	01/12/17 13:46	1.0		7:FE=750000
078	met09_sn_0816	SAMPLE	284872-013	Soil	243243	01/12/17 13:48	1.0		5:FE=470000
079	met09_sn_0816	X	RINSE			01/12/17 13:50	1.0		
080	met09_sn_0816	BLANK	QC867989	TCLP Leachate	243246	01/12/17 13:52	10.0		
081	met09_sn_0816	BS	QC867990	TCLP Leachate	243246	01/12/17 13:55	1.0		
082	met09_sn_0816	BSD	QC867991	TCLP Leachate	243246	01/12/17 13:57	1.0		
083	met09_sn_0816	MSS	284907-010	TCLP Leachate	243246	01/12/17 13:59	10.0		
084	met09_sn_0816	CCV				01/12/17 14:02	1.0	13	
085	met09_sn_0816	CCB				01/12/17 14:04	1.0		
086	met09_sn_0816	MS	QC867992	TCLP Leachate	243246	01/12/17 14:06	10.0		
087	met09_sn_0816	MSD	QC867993	TCLP Leachate	243246	01/12/17 14:09	10.0		
088	met09_sn_0816	SER	QC867994	TCLP Leachate	243246	01/12/17 14:11	50.0		
089	met09_sn_0816	PDS	QC867995	TCLP Leachate	243246	01/12/17 14:14	10.0		
090	met09_sn_0816	SAMPLE	284907-009	TCLP Leachate	243246	01/12/17 14:16	10.0		
091	met09_sn_0816	?SAMPLE	284986-004		243246	01/12/17 14:18	10.0		
092	met09_sn_0816	?SAMPLE	284988-004		243246	01/12/17 14:21	10.0		
093	met09_sn_0816	X	RINSE			01/12/17 14:23	1.0		
094	met09_sn_0816	BLANK	QC867999	WET Leachate	243250	01/12/17 14:25	10.0		1:NA=150000
095	met09_sn_0816	BS	QC868000	WET Leachate	243250	01/12/17 14:28	1.0		
096	met09_sn_0816	CCV				01/12/17 14:30	1.0	13	

TLO 01/12/17 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 52.

Standards used: 1=S31329 2=S31859 3=S31860 4=S31861 5=S31195 6=S31647 7=S31330 8=S31001 9=S31844 10=S29983 11=S29984 12=S30560 13=S31646

CURTIS & TOMPKINS INTERNAL STANDARD SUMMARY FOR SEQUENCE 97017918

Date : 01/12/17 Reference : met09_sn_0816
Sequence : MET09 01/12/17 Analyzed : 01/12/17 10:40

#	Type	Sample ID	Y A
		ICAL STD	16353017
		LOWER LIMIT	4905905
		UPPER LIMIT	19623620
010	ICB		16152125
011	ICSA		14713489
013	ICSAB		14533159
024	CCV		15894365
025	CCB		16321191
028	PDS	QC862983	15783414
029	SAMPLE	283600-020	15521427
036	CCV		15771581
037	CCB		16276821

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 283600 METALS Soil: EPA 6010C

Inst : MET09
Calnum : 97017918001
Units : ug/L

Date : 12-JAN-2017 10:38
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met09_sn_0816	97017918002	L1	12-JAN-2017 10:40	S31329
L2	met09_sn_0816	97017918003	L2	12-JAN-2017 10:43	S31859
L3	met09_sn_0816	97017918004	L3	12-JAN-2017 10:45	S31860
L4	met09_sn_0816	97017918005	L4	12-JAN-2017 10:47	S31861
L5	met09_sn_0816	97017918006	L5	12-JAN-2017 10:50	S31195

Analyte	Ch	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Antimony	A	7.9600	7.6530	7.7106	7.8718		LOR0	0.00000	0.12706		7.7988	1.000	0.995	
Arsenic	A	3.7000	5.1580	5.2121	5.3267		LOR0	0.00000	0.18777		4.8492	1.000	0.995	
Barium	A	128.86	126.89	126.60	123.44		LOR0	0.00000	0.00810		126.45	1.000	0.995	
Beryllium	A	8827.2	8592.8	8746.2			LOR0	0.00000	1.14E-4		8722.0	1.000	0.995	
Cadmium	A	229.44	229.45	229.53	220.97		LOR0	0.00000	0.00452		227.35	1.000	0.995	
Chromium	A	268.04	261.67	259.77	259.52		LOR0	0.00000	0.00385		262.25	1.000	0.995	
Cobalt	A	52.180	55.579	55.732	55.896		LOR0	0.00000	0.01789		54.847	1.000	0.995	
Copper	A	428.62	425.05	423.20	428.09		LOR0	0.00000	0.00234		426.24	1.000	0.995	
Lead	A	38.560	38.915	38.666	38.011		LOR0	0.00000	0.02630		38.538	1.000	0.995	
Manganese	A	1106.1	1110.3	1099.3	1061.9		LOR0	0.00000	9.41E-4		1094.4	1.000	0.995	
Molybdenum	A	43.500	45.507	45.087	45.569		LOR0	0.00000	0.02195		44.916	1.000	0.995	
Nickel	A	142.02	143.84	144.44	143.88		LOR0	0.00000	0.00695		143.55	1.000	0.995	
Selenium	A	12.470	9.5870	9.6871	9.8910		LOR0	0.00000	0.10112		10.409	1.000	0.995	
Silver	A	182.90	183.95	182.51	186.08		LOR0	0.00000	0.00538		183.86	1.000	0.995	
Thallium	A	7.4900	6.4210	6.3041	6.1885		LOR0	0.00000	0.16156		6.6009	1.000	0.995	
Vanadium	A	372.56	330.62	330.30	332.47		LOR0	0.00000	0.00301		341.49	1.000	0.995	
Zinc	A	152.53	139.12	136.98	134.11		LOR0	0.00000	0.00746		140.68	1.000	0.995	
Iron	R	17.121		16.033	16.263	15.846	LOR0	0.00000	0.06309		16.316	1.000	0.995	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Antimony	A	10.000	1	100.00	-3	1000.0	-2	10000	0		
Arsenic	A	5.0000	**-31**	100.00	-3	1000.0	-2	10000	0		
Barium	A	5.0000	4	100.00	3	1000.0	3	10000	0		
Beryllium	A	2.0000	1	100.00	-2	1000.0	0				
Cadmium	A	5.0000	4	100.00	4	1000.0	4	10000	0		
Chromium	A	5.0000	3	100.00	1	1000.0	0	10000	0		
Cobalt	A	5.0000	-7	100.00	-1	1000.0	0	10000	0		
Copper	A	5.0000	0	100.00	-1	1000.0	-1	10000	0		
Lead	A	5.0000	1	100.00	2	1000.0	2	10000	0		
Manganese	A	5.0000	4	100.00	5	1000.0	3	10000	0		
Molybdenum	A	5.0000	-5	100.00	0	1000.0	-1	10000	0		
Nickel	A	5.0000	-1	100.00	0	1000.0	0	10000	0		
Selenium	A	10.000	**26**	100.00	-3	1000.0	-2	10000	0		
Silver	A	5.0000	-2	20.000	-1	200.00	-2	2000.0	0		
Thallium	A	10.000	**21**	100.00	4	1000.0	2	10000	0		
Vanadium	A	5.0000	12	100.00	-1	1000.0	-1	10000	0		
Zinc	A	20.000	14	100.00	4	1000.0	2	10000	0		
Iron	R	100.00	8			1000.0	1	10000	3	100000	0

Instrument amount = a0 + response * a1 + response^2 * a2; LOR0=Linear regression forced thru origin, including 0,0 point

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 283600 METALS Soil
EPA 6010C

Inst : MET09
Calnum : 97017918001 Cal Date : 12-JAN-2017

ICV 97017918007 (12-JAN-2017) stds: S31647

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Antimony	A	5000	4875	ug/L	-2	10	
Arsenic	A	5000	4931	ug/L	-1	10	
Barium	A	5000	4904	ug/L	-2	10	
Beryllium	A	500.0	498.4	ug/L	0	10	
Cadmium	A	5000	4982	ug/L	0	10	
Chromium	A	5000	4885	ug/L	-2	10	
Cobalt	A	5000	4813	ug/L	-4	10	
Copper	A	5000	4796	ug/L	-4	10	
Lead	A	5000	4885	ug/L	-2	10	
Manganese	A	5000	5010	ug/L	0	10	
Molybdenum	A	5000	4863	ug/L	-3	10	
Nickel	A	5000	4850	ug/L	-3	10	
Selenium	A	5000	4926	ug/L	-1	10	
Silver	A	1000	959.9	ug/L	-4	10	
Thallium	A	5000	4815	ug/L	-4	10	
Vanadium	A	5000	4889	ug/L	-2	10	
Zinc	A	5000	4927	ug/L	-1	10	
Iron	R	20000	20120	ug/L	1	10	

CURTIS & TOMPKINS LOW-LEVEL PERFORMANCE VERIFICATION STANDARD FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97017918009.1 File : met09_sn_0816 Time : 12-JAN-2017 11:00
Cal : 97017918001 Caldate : 12-JAN-2017
Standards: S31330

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	10.00	9.242	ug/L	-8	30	
Arsenic	A	5.000	4.807	ug/L	-4	30	
Barium	A	5.000	5.212	ug/L	4	30	
Beryllium	A	2.000	2.008	ug/L	0	30	
Cadmium	A	5.000	5.307	ug/L	6	30	
Chromium	A	5.000	4.847	ug/L	-3	30	
Cobalt	A	5.000	4.752	ug/L	-5	30	
Copper	A	5.000	5.343	ug/L	7	30	
Lead	A	5.000	5.072	ug/L	1	30	
Manganese	A	5.000	5.221	ug/L	4	30	
Molybdenum	A	5.000	5.173	ug/L	3	30	
Nickel	A	5.000	5.457	ug/L	9	30	
Selenium	A	10.00	10.67	ug/L	7	30	
Silver	A	5.000	5.941	ug/L	19	30	
Thallium	A	10.00	10.29	ug/L	3	30	
Vanadium	A	5.000	5.278	ug/L	6	30	
Zinc	A	20.00	20.69	ug/L	3	30	
Iron	R	100.0	101.1	ug/L	1	30	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16353017	15965190	-2.37

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97017918010.1 File : met09_sn_0816 Time : 12-JAN-2017 11:03
Cal : 97017918001 Caldate : 12-JAN-2017

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	0.5000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	1.250	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	
Iron	R	ND	100.0	80.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16353017	16152125	-1.23

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD A FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97017918011.1 File : met09_sn_0816 Time : 12-JAN-2017 11:06
Cal : 97017918001 Caldate : 12-JAN-2017
Standards: S31001

Analyte	Ch	Quant	IQL	Units	Flags
Antimony	A	[3.658]	10.00	ug/L	
Arsenic	A	[-3.625]	5.000	ug/L	
Barium	A	[-4.320]	5.000	ug/L	!a-
Beryllium	A	[-1.276]	2.000	ug/L	!a-
Cadmium	A	[0.7102]	5.000	ug/L	
Cobalt	A	[-2.305]	5.000	ug/L	
Lead	A	[-0.4505]	5.000	ug/L	
Molybdenum	A	[0.5925]	5.000	ug/L	
Selenium	A	[3.196]	10.00	ug/L	
Silver	A	[-2.882]	5.000	ug/L	
Thallium	A	[-1.403]	10.00	ug/L	
Zinc	A	[0.2343]	20.00	ug/L	

Interferent	Ch	Spiked	Quant	Units	%Rec	Flags
Chromium	A	20000	19370	ug/L	97	
Copper	A	20000	20870	ug/L	104	
Manganese	A	20000	18810	ug/L	94	
Nickel	A	20000	18570	ug/L	93	
Vanadium	A	20000	20070	ug/L	100	
Aluminum	R	500000	506400	ug/L	101	
Calcium	R	500000	482100	ug/L	96	
Iron	R	200000	192400	ug/L	96	
Magnesium	R	500000	491900	ug/L	98	
Titanium	R	20000	20950	ug/L	105	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16353017	14713489	-10.03

!=warning -=low bias a=ICSA

CURTIS & TOMPKINS INTERFERENCE CHECK STANDARD AB FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97017918013.1 File : met09_sn_0816 Time : 12-JAN-2017 11:15
Cal : 97017918001 Caldate : 12-JAN-2017
Standards: S31844

Analyte	Ch	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	500.0	422.7	ug/L	-15	20	
Arsenic	A	500.0	449.7	ug/L	-10	20	
Barium	A	500.0	527.7	ug/L	6	20	
Beryllium	A	500.0	510.7	ug/L	2	20	
Cadmium	A	1000	1026	ug/L	3	20	
Chromium	A	500.0	494.0	ug/L	-1	20	
Cobalt	A	500.0	483.1	ug/L	-3	20	
Copper	A	500.0	492.0	ug/L	-2	20	
Lead	A	1000	918.6	ug/L	-8	20	
Manganese	A	500.0	504.7	ug/L	1	20	
Molybdenum	A	500.0	496.8	ug/L	-1	20	
Nickel	A	1000	960.0	ug/L	-4	20	
Selenium	A	500.0	458.0	ug/L	-8	20	
Silver	A	1000	976.6	ug/L	-2	20	
Thallium	A	500.0	442.3	ug/L	-12	20	
Vanadium	A	500.0	535.4	ug/L	7	20	
Zinc	A	1000	990.3	ug/L	-1	20	
Iron	R	200000	190300	ug/L	-5		

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16353017	14533159	-11.13

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97017918024.1 File : met09_sn_0816 Time : 12-JAN-2017 11:40
Cal : 97017918001 Caldate : 12-JAN-2017
Standards: S31646

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	7.7988	7.5102	5000	4771	ug/L	-5	10	
Arsenic	A	4.8492	5.0957	5000	4784	ug/L	-4	10	
Barium	A	126.45	122.79	5000	4972	ug/L	-1	10	
Beryllium	A	8722.0	8615.7	500.0	492.6	ug/L	-1	10	
Cadmium	A	227.35	220.43	5000	4986	ug/L	0	10	
Chromium	A	262.25	253.86	5000	4891	ug/L	-2	10	
Cobalt	A	54.847	53.769	5000	4810	ug/L	-4	10	
Copper	A	426.24	417.44	5000	4876	ug/L	-2	10	
Lead	A	38.538	36.956	5000	4860	ug/L	-3	10	
Manganese	A	1094.4	1062.5	5000	5001	ug/L	0	10	
Molybdenum	A	44.916	43.766	5000	4803	ug/L	-4	10	
Nickel	A	143.55	140.28	5000	4875	ug/L	-3	10	
Selenium	A	10.409	9.4716	5000	4789	ug/L	-4	10	
Silver	A	183.86	178.90	1000	961.6	ug/L	-4	10	
Thallium	A	6.6009	5.8669	5000	4739	ug/L	-5	10	
Vanadium	A	341.49	327.04	5000	4919	ug/L	-2	10	
Zinc	A	140.68	135.62	5000	5055	ug/L	1	10	
Iron	R	16.316	16.090	20000	20300	ug/L	2	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16353017	15894365	-2.80

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97017918025.1 File : met09_sn_0816 Time : 12-JAN-2017 11:42
Cal : 97017918001 Caldate : 12-JAN-2017

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	0.5000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	1.250	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	
Iron	R	ND	100.0	80.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16353017	16321191	-0.19

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97017918036.1 File : met09_sn_0816 Time : 12-JAN-2017 12:12
Cal : 97017918001 Caldate : 12-JAN-2017
Standards: S31646

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Antimony	A	7.7988	7.5728	5000	4811	ug/L	-4	10	
Arsenic	A	4.8492	5.1828	5000	4866	ug/L	-3	10	
Barium	A	126.45	124.71	5000	5050	ug/L	1	10	
Beryllium	A	8722.0	8871.9	500.0	507.3	ug/L	1	10	
Cadmium	A	227.35	224.00	5000	5067	ug/L	1	10	
Chromium	A	262.25	258.85	5000	4987	ug/L	0	10	
Cobalt	A	54.847	54.078	5000	4838	ug/L	-3	10	
Copper	A	426.24	424.25	5000	4956	ug/L	-1	10	
Lead	A	38.538	37.527	5000	4935	ug/L	-1	10	
Manganese	A	1094.4	1078.6	5000	5077	ug/L	2	10	
Molybdenum	A	44.916	44.195	5000	4850	ug/L	-3	10	
Nickel	A	143.55	143.27	5000	4979	ug/L	0	10	
Selenium	A	10.409	9.6470	5000	4878	ug/L	-2	10	
Silver	A	183.86	180.79	1000	971.8	ug/L	-3	10	
Thallium	A	6.6009	5.9589	5000	4814	ug/L	-4	10	
Vanadium	A	341.49	332.91	5000	5007	ug/L	0	10	
Zinc	A	140.68	141.16	5000	5262	ug/L	5	10	
Iron	R	16.316	15.926	20000	20100	ug/L	0	10	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16353017	15771581	-3.56

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 283600 METALS Soil
EPA 6010C

Inst : MET09 IDF : 1.0
Seqnum : 97017918037.1 File : met09_sn_0816 Time : 12-JAN-2017 12:14
Cal : 97017918001 Caldate : 12-JAN-2017

Analyte	Ch	Quant	IQL	LOD	Units	Flags
Antimony	A	ND	10.00	5.000	ug/L	
Arsenic	A	ND	5.000	4.000	ug/L	
Barium	A	ND	5.000	2.500	ug/L	
Beryllium	A	ND	2.000	0.5000	ug/L	
Cadmium	A	ND	5.000	1.250	ug/L	
Chromium	A	ND	5.000	2.500	ug/L	
Cobalt	A	ND	5.000	2.500	ug/L	
Copper	A	ND	5.000	4.000	ug/L	
Lead	A	ND	5.000	2.500	ug/L	
Manganese	A	ND	5.000	2.500	ug/L	
Molybdenum	A	ND	5.000	2.500	ug/L	
Nickel	A	ND	5.000	2.500	ug/L	
Selenium	A	ND	10.00	8.000	ug/L	
Silver	A	ND	5.000	4.000	ug/L	
Thallium	A	ND	10.00	5.000	ug/L	
Vanadium	A	ND	5.000	1.250	ug/L	
Zinc	A	ND	20.00	16.00	ug/L	
Iron	R	ND	100.0	80.00	ug/L	

ISTD (ICAL 002)	Ch	ICAL Abund	Abund	%Drift
Yttrium	A	16353017	16276821	-0.47

SAMPLE PREPARATION SUMMARY

Batch # : 241980 Analysis : ICP
Started By : RLG Prep Date : 02-DEC-2016 13:05 Finished By : RLG
Method : 3050B Units : g
Spike #1 ID : S30743 Spike #2 ID : S30742 Spike #3 ID : S30560

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
283600-001		Soil	.91	50	1	54.95						6010	
283600-002		Soil	.98	50	1	51.02						6010	
283600-003		Soil	1.04	50	1	48.08						6010	
283600-004		Soil	1.03	50	1	48.54						6010	
283600-005		Soil	.92	50	1	54.35						6010	
283600-006		Soil	.97	50	1	51.55						6010	
283600-007		Soil	.92	50	1	54.35						6010	
283600-008		Soil	.97	50	1	51.55						6010	
283600-009		Soil	1.03	50	1	48.54						6010	
283600-010		Soil	.96	50	1	52.08						6010	
283600-011		Soil	.93	50	1	53.76						6010	
283600-013		Soil	.92	50	1	54.35						6010	
283600-014		Soil	.94	50	1	53.19						6010	
283600-015		Soil	.92	50	1	54.35						6010	
283600-016		Soil	1.05	50	1	47.62						6010	
283600-017		Soil	.94	50	1	53.19						6010	
283600-018		Soil	.96	50	1	52.08						6010	
283600-019		Soil	.95	50	1	52.63						6010	
283600-020		Soil	.94	50	1	53.19						6010	
QC862977	BLANK	Soil	1	50	1	50.0							
QC862978	BS	Soil	.97	50	1	51.55		.5	.5	.5			
QC862979	BSD	Soil	.91	50	1	54.95		.5	.5	.5			
QC862980	MS	Soil	.97	50	1	51.55		.5	.5	.5			
QC862981	MSD	Soil	1.04	50	1	48.08		.5	.5	.5			
QC862982	SER	Soil	.91	50	1	54.95							
QC862983	PDS	Soil	.91	50	1	54.95							

Analyst: MNA Date: 01/11/17 Reviewer: PRW Date: 01/12/17

Soil Digestion for ICP & ICP-MS Curtis & Tompkins, Ltd. Version 11, Dec.2015

LIMS Batch #: 241980 Digestion Method: Time ON: 13:05 **BK3977**

Date Digested: 12/2/16 ☒ EPA 3050b Time OFF: 15:40 Page 24

Digested by: SL ☐ _____

	Sample #	Container ID	Weight of Sample (g)	Final Volume (mL)	Filtered? (y/n)	ID ✓	Comments
	BLANK		1.00	☒ 50 ☐	Y	✓	QC 862977
	BS		.97	☒ 50 ☐		✓	78
	BSD		.91	☒ 50 ☐		✓	79
	MS		.97	☒ 50 ☐		✓	80
5	MSD		1.04	☒ 50 ☐		✓	81
	283600-001	A	.91	☒ 50 ☐		✓	MS5
	-002		.98	☒ 50 ☐		✓	
	-003		1.04	☒ 50 ☐		✓	
	-004		1.03	☒ 50 ☐		✓	
10	-005		.92	☒ 50 ☐		✓	
	-006		.97	☒ 50 ☐		✓	
	-007		.92	☒ 50 ☐		✓	
	-008		.97	☒ 50 ☐		✓	
	-009		1.03	☒ 50 ☐		✓	
15	-010		.96	☒ 50 ☐		✓	
	-011		.93	☒ 50 ☐		✓	
	~~-012~~		~~1.03~~	☐ 50 ☐			AG 12/2/16
	-013		.92	☒ 50 ☐	Y	✓	
	-014		.94	☒ 50 ☐		✓	
20	-015		.92	☒ 50 ☐		✓	
	-016		1.05	☒ 50 ☐		✓	
	-017		.94	☒ 50 ☐		✓	
	-018		.96	☒ 50 ☐		✓	
	-019		.95	☒ 50 ☐		✓	
	-020		.94	☒ 50 ☐		✓	

Balance ID: Precisa calibration has been checked? ☒ Yes ☐ No

Reagent ID or LIMS #		Initials / Date
SCP Digestion tubes / ESS Watch glass, lot#	255251 0026 / 1512329-6237-QN	RLG 12/2/16
Blank 'matrix' lot#	T160-6J001	
.5 mL of spike solution (Std1) was added to all spikes	530743	
.5 mL of spike solution (Std2) was added to all spikes	530742	
.5 mL of spike solution (Std3) was added to all spikes	530560	
Digestion Block ID, Probe Location	TETON / 15	
Temperature (°C), Thermometer ID	97° SN#153837	
1:1 HNO3 Reagent ID	JTB 152495	
concentrated HNO3 lot#	JTB 152495	
3mL 30% hydrogen peroxide lot#	EMD Millipore 56039624	
concentrated HCl lot#	JTB 151528	
☒ filtered thru' Whatman 541, lot#	9676688	
Relinquished to ICP group	ICP	

Pipettes

Vol.(mL)	ID
.5	N271500
5	20167008
1	20167008
1.5	20167008

12/2/16

Digestion Chemist / Date

Continued from page 8

Continued on page _____

Reviewed Online/ See LIMS

SAMPLE PREPARATION SUMMARY

Batch # : 242066
Started By : MB4 Prep Date : 05-DEC-2016 22:10
Method : 3050B
Spike #1 ID : S30743 Spike #2 ID : S30742

Analysis : ICP
Finished By : MB4
Units : g
Spike #3 ID : S30560

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
282972-001		Miscell.	.0904	50	1	553.1						6010	
282973-001		Miscell.	.0943	50	1	530.2						6010	
282974-001		Miscell.	.0914	50	1	547.0						6010	
283600-012		Soil	1.06	50	1	47.17						6010	
283790-067		Soil	.94	50	1	53.19						6010	
283790-068		Soil	1.03	50	1	48.54						6010	
283790-069		Soil	.95	50	1	52.63						6010	
283790-070		Soil	1.01	50	1	49.50						6010	
283790-071		Soil	1.01	50	1	49.50						6010	
283790-072		Soil	.97	50	1	51.55						6010	
283790-073		Soil	.99	50	1	50.51						6010	
283790-074		Soil	1.09	50	1	45.87						6010	
283790-075		Soil	.91	50	1	54.95						6010	
283790-076		Soil	.95	50	1	52.63						6010	
283790-077		Soil	.99	50	1	50.51						6010	
283790-078		Soil	.94	50	1	53.19						6010	
283870-001		Soil	.92	50	1	54.35						6010	
283950-001		Soil	.91	50	1	54.95						6010	
283950-002		Soil	1.09	50	1	45.87						6010	
QC863326	BLANK	Soil	1.07	50	1	46.73							
QC863327	BS	Soil	.97	50	1	51.55		.5	.5	.5			
QC863328	BSD	Soil	1.01	50	1	49.50		.5	.5	.5			
QC863329	MS	Soil	.96	50	1	52.08		.5	.5	.5			
QC863330	MSD	Soil	.95	50	1	52.63		.5	.5	.5			
QC863331	SER	Soil	1.01	50	1	49.50							
QC863332	PDS	Soil	1.01	50	1	49.50							

PRW 12/06/16 : 282972-001: No narration of what was sampled.

PRW 12/06/16 : 282973-001: No narration of what was sampled.

PRW 12/06/16 : 282974-001: No narration of what was sampled.

Analyst: TLO Date: 12/06/16 Reviewer: PRW Date: 12/06/16

Soil Digestion for ICP & ICP-MS Curtis & Tompkins, Ltd. MB4 12-5-14 Version 11, Dec.2015

LIMS Batch #: 2420604 Digestion Method: Time ON: ~~20~~ 22:10 **BK3977**

Date Digested: 12-5-14 ☒ EPA 3050b Time OFF: 00:30 Page 16

Digested by: MB4 ☐ _____

	Sample #	Container ID	Weight of Sample (g)	Final Volume (mL)	Filtered? (y/n)	ID ✓	Comments
	Blank		1.07	☒50 ☐___	Yes	✓	QC 8033246
	BS		0.97	☒50 ☐___	↓	✓	27
	BSD		1.01	☒50 ☐___		✓	28
	MS		0.96	☒50 ☐___		✓	29
5	MSD		0.95	☒50 ☐___		✓	30
	282972-001		0.0904	☒50 ☐___		✓	weighed @ leachates: mettler
	282973-001		0.0943	☒50 ☐___		✓	weighed @ leachates: mettler
	282974-001		0.0914	☒50 ☐___		✓	weighed @ leachates: mettler
	283600-012	A	1.06	☒50 ☐___		✓	
10	283790-067	↓	0.94	☒50 ☐___		✓	
	-068		1.03	☒50 ☐___		✓	
	-069		0.95	☒50 ☐___		✓	
	-070		1.01	☒50 ☐___		✓	MSS
	-071		1.01	☒50 ☐___		✓	
15	-072		0.97	☒50 ☐___		✓	
	-073		0.99	☒50 ☐___		✓	
	-074		1.09	☒50 ☐___		✓	
	-075		0.91	☒50 ☐___		✓	
	-076		0.95	☒50 ☐___		✓	
20	-077		0.99	☒50 ☐___		✓	
	-078	↓	0.94	☒50 ☐___		✓	
	283870-001		0.92	☒50 ☐___		✓	alias: 283091-5; comp: 283091-1-41
	283950-001	E	0.91	☒50 ☐___		✓	alias: 283192-45 (19
	-002	E	1.09	☒50 ☐___	↓	✓	alias: 283192-46
				☐50 ☐___			

Balance ID: metals prep calibration has been checked? ☒ Yes ☐ No

Pipettes Vol.(mL)	ID
0.5	N2715010
5	20116708
1.5	20116708

	Reagent ID or LIMS #		Initials / Date
SCP Digestion tubes / ESS Watch glass, lot#	255751-00210		MB4 12-5-14
Blank 'matrix' lot#	TIE0-WJ001		↓
0.5 mL of spike solution (Std1) was added to all spikes	S30743		
0.5 mL of spike solution (Std2) was added to all spikes	S30742		
0.5 mL of spike solution (Std3) was added to all spikes	S305600		
Digestion Block ID, Probe Location	Teton	18	
Temperature (°C), Thermometer ID	95°C	SN415383 7	
1:1 HNO3 Reagent ID	JTB152495		
concentrated HNO3 lot#	JTB152495		
3mL 30% hydrogen peroxide lot#	EMD Millipore	5760396 24	
concentrated HCl lot#	JTB151528		↓
☒ filtered thru' Whatman 541, lot#	9607U488		MB4 12-6-14
Relinquished to ICP group	ICP		↓

12/6/14

Digestion Chemist / Date

Continued from page 0

Continued on page _____

Reviewed Online/ See LIMS

Mercury Data

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 1066503561

Instrument : MET44
Method : EPA 7471B

Begun : 12/14/16 16:41
SOP Version : hg_water_rv19

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met44	ICALBLK				12/14/16 16:41	1.0		
002	met44	ICAL	ICAL1			12/14/16 16:42	1.0	1	
003	met44	ICAL	ICAL2			12/14/16 16:43	1.0	1	
004	met44	ICAL	ICAL3			12/14/16 16:44	1.0	1	
005	met44	ICAL	ICAL4			12/14/16 16:46	1.0	1	
006	met44	ICAL	ICAL5			12/14/16 16:47	1.0	1	
007	met44	ICV				12/14/16 16:48	1.0	2	
008	met44	ICB				12/14/16 16:49	1.0		
009	met44	BLANK	QC864588	Soil	242384	12/14/16 16:50	1.0		
010	met44	BS	QC864589	Soil	242384	12/14/16 16:51	1.0		spk
011	met44	BSD	QC864590	Soil	242384	12/14/16 16:52	1.0		spk
012	met44	X	RINSE			12/14/16 16:54	1.0		
013	met44	BS	QC864589	Soil	242384	12/14/16 16:55	1.0		
014	met44	BSD	QC864590	Soil	242384	12/14/16 16:56	1.0		
015	met44	X	RINSE			12/14/16 16:57	1.0		
016	met44	BLANK	QC864594	Soil	242385	12/14/16 16:58	1.0		
017	met44	BS	QC864595	Soil	242385	12/14/16 16:59	1.0		spk
018	met44	BSD	QC864596	Soil	242385	12/14/16 17:00	1.0		spk
019	met44	CCV				12/14/16 17:01	1.0	3	
020	met44	CCB				12/14/16 17:02	1.0		
021	met44	X	RINSE			12/14/16 17:04	1.0		
022	met44	BS	QC864595	Soil	242385	12/14/16 17:05	1.0		
023	met44	BSD	QC864596	Soil	242385	12/14/16 17:06	1.0		
024	met44	BS	QC864595	Soil	242385	12/14/16 17:07	1.0		
025	met44	MSS	283600-001	Soil	242384	12/14/16 17:08	1.0		1:HG=13
026	met44	MS	QC864591	Soil	242384	12/14/16 17:10	1.0		1:HG=14
027	met44	MSD	QC864592	Soil	242384	12/14/16 17:11	1.0		1:HG=27
028	met44	SER	QC864593	Soil	242384	12/14/16 17:13	5.0		
029	met44	SAMPLE	283600-002	Soil	242384	12/14/16 17:14	1.0		1:HG=13
030	met44	SAMPLE	283600-003	Soil	242384	12/14/16 17:15	1.0		1:HG=15
031	met44	CCV				12/14/16 17:17	1.0	3	
032	met44	CCB				12/14/16 17:18	1.0		
033	met44	SAMPLE	283600-004	Soil	242384	12/14/16 17:19	1.0		
034	met44	SAMPLE	283600-005	Soil	242384	12/14/16 17:20	1.0		1:HG=19
035	met44	SAMPLE	283600-006	Soil	242384	12/14/16 17:22	1.0		1:HG=11
036	met44	SAMPLE	283600-007	Soil	242384	12/14/16 17:23	1.0		1:HG=33
037	met44	SAMPLE	283600-008	Soil	242384	12/14/16 17:25	1.0		1:HG=12
038	met44	SAMPLE	283600-009	Soil	242384	12/14/16 17:26	1.0		
039	met44	SAMPLE	283600-010	Soil	242384	12/14/16 17:27	1.0		1:HG=13
040	met44	SAMPLE	283600-011	Soil	242384	12/14/16 17:29	1.0		1:HG=15
041	met44	SAMPLE	283600-012	Soil	242384	12/14/16 17:30	1.0		
042	met44	SAMPLE	283600-013	Soil	242384	12/14/16 17:31	1.0		1:HG=11
043	met44	CCV				12/14/16 17:33	1.0	3	
044	met44	CCB				12/14/16 17:34	1.0		
045	met44	SAMPLE	283600-014	Soil	242384	12/14/16 17:35	1.0		1:HG=13
046	met44	SAMPLE	283600-015	Soil	242384	12/14/16 17:37	1.0		
047	met44	SAMPLE	283600-016	Soil	242384	12/14/16 17:38	1.0		1:HG=15
048	met44	SAMPLE	283600-017	Soil	242384	12/14/16 17:39	1.0		1:HG=16
049	met44	SAMPLE	283600-018	Soil	242384	12/14/16 17:41	1.0		
050	met44	SAMPLE	283600-019	Soil	242384	12/14/16 17:42	1.0		1:HG=12
051	met44	SAMPLE	283600-020	Soil	242384	12/14/16 17:43	1.0		1:HG=24
052	met44	CCV				12/14/16 17:49	1.0	3	

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 1066503561

Instrument : MET44 Begun : 12/14/16 16:41
Method : EPA 7471B SOP Version : hg_water_rv19

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met44	CCB				12/14/16 17:50	1.0		
054	met44	MSS	283600-001	Soil	242384	12/14/16 17:51	5.0		
055	met44	SAMPLE	283600-002	Soil	242384	12/14/16 17:52	5.0		
056	met44	SAMPLE	283600-003	Soil	242384	12/14/16 17:54	5.0		
057	met44	SAMPLE	283600-005	Soil	242384	12/14/16 17:55	5.0		
058	met44	SAMPLE	283600-006	Soil	242384	12/14/16 17:56	5.0		
059	met44	SAMPLE	283600-007	Soil	242384	12/14/16 17:57	10.0		
060	met44	SAMPLE	283600-009	Soil	242384	12/14/16 17:58	1.0		
061	met44	SAMPLE	283600-008	Soil	242384	12/14/16 17:59	5.0		
062	met44	SAMPLE	283600-010	Soil	242384	12/14/16 18:00	5.0		
063	met44	CCV				12/14/16 18:01	1.0	3	
064	met44	CCB				12/14/16 18:03	1.0		
065	met44	SAMPLE	283600-011	Soil	242384	12/14/16 18:04	5.0		
066	met44	SAMPLE	283600-012	Soil	242384	12/14/16 18:05	1.0		
067	met44	SAMPLE	283600-013	Soil	242384	12/14/16 18:06	2.0		
068	met44	SAMPLE	283600-014	Soil	242384	12/14/16 18:07	5.0		
069	met44	SAMPLE	283600-015	Soil	242384	12/14/16 18:08	1.0		
070	met44	SAMPLE	283600-016	Soil	242384	12/14/16 18:09	5.0		
071	met44	SAMPLE	283600-017	Soil	242384	12/14/16 18:11	5.0		
072	met44	SAMPLE	283600-018	Soil	242384	12/14/16 18:12	1.0		
073	met44	SAMPLE	283600-019	Soil	242384	12/14/16 18:13	5.0		
074	met44	SAMPLE	283600-020	Soil	242384	12/14/16 18:14	5.0		
075	met44	CCV				12/14/16 18:15	1.0	3	
076	met44	CCB				12/14/16 18:16	1.0		
077	met44	CCV				12/15/16 11:24	1.0	3	
078	met44	BLANK	QC864583	Soil	242383	12/15/16 11:30	1.0		
079	met44	XBS	QC864584	Soil	242383	12/15/16 11:31	1.0		spk
080	met44	XBSD	QC864585	Soil	242383	12/15/16 11:32	1.0		spk
081	met44	MSS	283790-014	Soil	242383	12/15/16 11:33	1.0		1:HG=69
082	met44	MS	QC864586	Soil	242383	12/15/16 11:35	1.0		1:HG=63
083	met44	MSD	QC864587	Soil	242383	12/15/16 11:36	1.0		1:HG=69
084	met44	SAMPLE	283790-001	Soil	242383	12/15/16 11:38	1.0		1:HG=41
085	met44	SAMPLE	283790-002	Soil	242383	12/15/16 11:39	1.0		1:HG=22
086	met44	SAMPLE	283790-003	Soil	242383	12/15/16 11:41	1.0		1:HG=48
087	met44	SAMPLE	283790-004	Soil	242383	12/15/16 11:42	1.0		1:HG=26
088	met44	CCV				12/15/16 11:44	1.0	3	
089	met44	CCB				12/15/16 11:45	1.0		
090	met44	BS	QC864584	Soil	242383	12/15/16 11:46	1.0		
091	met44	BSD	QC864585	Soil	242383	12/15/16 11:47	1.0		
092	met44	SAMPLE	283790-005	Soil	242383	12/15/16 11:48	1.0		1:HG=25
093	met44	SAMPLE	283790-006	Soil	242383	12/15/16 11:50	1.0		1:HG=39
094	met44	SAMPLE	283790-007	Soil	242383	12/15/16 11:51	1.0		1:HG=44
095	met44	SAMPLE	283790-008	Soil	242383	12/15/16 11:53	1.0		1:HG=51
096	met44	SAMPLE	283790-009	Soil	242383	12/15/16 11:54	1.0		1:HG=53
097	met44	SAMPLE	283790-010	Soil	242383	12/15/16 11:56	1.0		1:HG=46
098	met44	SAMPLE	283790-011	Soil	242383	12/15/16 11:57	1.0		1:HG=36
099	met44	SAMPLE	283790-012	Soil	242383	12/15/16 11:59	1.0		1:HG=26
100	met44	CCV				12/15/16 12:00	1.0	3	
101	met44	CCB				12/15/16 12:01	1.0		
102	met44	SAMPLE	283790-013	Soil	242383	12/15/16 12:02	1.0		1:HG=26
103	met44	SAMPLE	283790-015	Soil	242383	12/15/16 12:04	1.0		
104	met44	SAMPLE	283848-001	Soil	242383	12/15/16 12:05	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 1066503561

Instrument : MET44
Method : EPA 7471B

Begun : 12/14/16 16:41
SOP Version : hg_water_rv19

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
105	met44	SAMPLE	283848-002	Soil	242383	12/15/16 12:06	1.0		
106	met44	SAMPLE	283848-003	Soil	242383	12/15/16 12:07	1.0		
107	met44	SAMPLE	283848-005	Soil	242383	12/15/16 12:09	1.0		
108	met44	SAMPLE	283848-007	Soil	242383	12/15/16 12:10	1.0		
109	met44	X	RINSE			12/15/16 12:11	1.0		
110	met44	MSS	283752-041	Soil	242385	12/15/16 12:12	1.0		1:HG=14
111	met44	MS	QC864597	Soil	242385	12/15/16 12:13	1.0		1:HG=20
112	met44	CCV				12/15/16 12:15	1.0	3	
113	met44	CCB				12/15/16 12:16	1.0		
114	met44	MSD	QC864598	Soil	242385	12/15/16 12:17	1.0		1:HG=24
115	met44	SAMPLE	283752-043	Soil	242385	12/15/16 12:19	10.0		
116	met44	SAMPLE	283752-044	Soil	242385	12/15/16 12:20	10.0		
117	met44	SAMPLE	283752-045	Soil	242385	12/15/16 12:21	10.0		
118	met44	SAMPLE	283752-046	Soil	242385	12/15/16 12:22	10.0		
119	met44	SAMPLE	283752-047	Soil	242385	12/15/16 12:23	10.0		
120	met44	SAMPLE	283752-048	Soil	242385	12/15/16 12:24	10.0		
121	met44	SAMPLE	283752-049	Soil	242385	12/15/16 12:25	10.0		1:HG=10
122	met44	SAMPLE	283752-050	Soil	242385	12/15/16 12:27	10.0		
123	met44	SAMPLE	283752-051	Soil	242385	12/15/16 12:28	10.0		
124	met44	CCV				12/15/16 12:29	1.0	3	
125	met44	CCB				12/15/16 12:30	1.0		
126	met44	SAMPLE	283752-053	Soil	242385	12/15/16 12:32	10.0		
127	met44	SAMPLE	283752-054	Soil	242385	12/15/16 12:33	10.0		1:HG=17
128	met44	SAMPLE	283752-056	Soil	242385	12/15/16 12:34	10.0		
129	met44	SAMPLE	283752-057	Soil	242385	12/15/16 12:35	10.0		
130	met44	SAMPLE	283752-059	Soil	242385	12/15/16 12:36	10.0		
131	met44	SAMPLE	283752-060	Soil	242385	12/15/16 12:38	10.0		
132	met44	SAMPLE	283752-061	Soil	242385	12/15/16 12:39	10.0		
133	met44	SAMPLE	283752-062	Soil	242385	12/15/16 12:40	10.0		
134	met44	SAMPLE	283752-063	Soil	242385	12/15/16 12:41	10.0		
135	met44	SAMPLE	283752-066	Soil	242385	12/15/16 12:42	10.0		
136	met44	CCV				12/15/16 12:43	1.0	3	
137	met44	CCB				12/15/16 12:44	1.0		
138	met44	X	RINSE			12/15/16 12:46	1.0		
139	met44	SAMPLE	283790-001	Soil	242383	12/15/16 12:47	10.0		
140	met44	SAMPLE	283790-002	Soil	242383	12/15/16 12:48	5.0		
141	met44	SAMPLE	283790-003	Soil	242383	12/15/16 12:49	10.0		1:HG=11
142	met44	SAMPLE	283790-004	Soil	242383	12/15/16 12:50	5.0		
143	met44	MSS	283790-014	Soil	242383	12/15/16 12:52	10.0		1:HG=48
144	met44	SAMPLE	283790-005	Soil	242383	12/15/16 12:53	5.0		
145	met44	SAMPLE	283790-006	Soil	242383	12/15/16 12:54	10.0		
146	met44	SAMPLE	283790-007	Soil	242383	12/15/16 12:55	10.0		
147	met44	SAMPLE	283790-008	Soil	242383	12/15/16 12:57	10.0		1:HG=14
148	met44	CCV				12/15/16 12:58	1.0	3	
149	met44	CCB				12/15/16 12:59	1.0		
150	met44	SAMPLE	283790-009	Soil	242383	12/15/16 13:00	10.0		1:HG=16
151	met44	SAMPLE	283790-010	Soil	242383	12/15/16 13:02	10.0		1:HG=10
152	met44	XSAMPLE	283790-011	Soil	242383	12/15/16 13:03	10.0		
153	met44	XSAMPLE	283790-012	Soil	242383	12/15/16 13:04	5.0		
154	met44	XSAMPLE	283790-013	Soil	242383	12/15/16 13:06	5.0		
155	met44	SAMPLE	283790-015	Soil	242383	12/15/16 13:07	1.0		
156	met44	MSS	283752-041	Soil	242385	12/15/16 13:08	5.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 1066503561

Instrument : MET44 Begun : 12/14/16 16:41
Method : EPA 7471B SOP Version : hg_water_rv19

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
157	met44	SAMPLE	283752-049	Soil	242385	12/15/16 13:09	200.0		
158	met44	SAMPLE	283752-050	Soil	242385	12/15/16 13:10	10.0		
159	met44	SAMPLE	283752-054	Soil	242385	12/15/16 13:11	500.0		
160	met44	CCV				12/15/16 13:12	1.0	3	
161	met44	CCB				12/15/16 13:14	1.0		
162	met44	SAMPLE	283752-056	Soil	242385	12/15/16 13:15	10.0		
163	met44	SAMPLE	283752-061	Soil	242385	12/15/16 13:16	1.0		
164	met44	SAMPLE	283790-003	Soil	242383	12/15/16 13:17	20.0		
165	met44	SAMPLE	283790-004	Soil	242383	12/15/16 13:18	5.0		
166	met44	MSS	283790-014	Soil	242383	12/15/16 13:19	100.0		
167	met44	SAMPLE	283790-005	Soil	242383	12/15/16 13:20	5.0		
168	met44	SAMPLE	283790-008	Soil	242383	12/15/16 13:22	50.0		
169	met44	SAMPLE	283790-009	Soil	242383	12/15/16 13:23	50.0		
170	met44	SAMPLE	283790-010	Soil	242383	12/15/16 13:24	20.0		
171	met44	SAMPLE	283790-011	Soil	242383	12/15/16 13:25	10.0		
172	met44	CCV				12/15/16 13:26	1.0	3	
173	met44	CCB				12/15/16 13:27	1.0		
174	met44	SAMPLE	283790-012	Soil	242383	12/15/16 13:28	5.0		
175	met44	SAMPLE	283790-013	Soil	242383	12/15/16 13:30	5.0		
176	met44	CCV				12/15/16 13:31	1.0	3	
177	met44	CCB				12/15/16 13:32	1.0		
178	met44	SAMPLE	283752-043	Soil	242385	12/15/16 14:10	10.0		
179	met44	CCV				12/15/16 14:11	1.0	3	
180	met44	CCB				12/15/16 14:12	1.0		

RLG 12/15/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 180.

Standards used: 1=S31719 2=S31728 3=S31722

Flags used: spk=5% spike rule

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 283600 METALS Soil: EPA 7471B

Inst : MET44
Calnum : 1066503561001
Units : ug/L

Date : 14-DEC-2016 16:41
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met44	1066503561002	ICAL1	14-DEC-2016 16:42	S31719 (500X)
L2	met44	1066503561003	ICAL2	14-DEC-2016 16:43	S31719 (200X)
L3	met44	1066503561004	ICAL3	14-DEC-2016 16:44	S31719 (50X)
L4	met44	1066503561005	ICAL4	14-DEC-2016 16:46	S31719 (20X)
L5	met44	1066503561006	ICAL5	14-DEC-2016 16:47	S31719 (10X)

Analyte	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Mercury	0.0235	0.0230	0.0232	0.0227	0.0218	LIN0	-0.0588	45.8430		0.0228	0.999	.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Mercury	0.2000	**-22**	0.5000	-6	2.0000	3	5.0000	3	10.000	-1

Instrument amount = a0 + response * a1 + response^2 * a2; LIN0=Linear regression including 0,0 point

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 283600 METALS Soil
EPA 7471B

Inst : MET44
Calnum : 1066503561001 Cal Date : 14-DEC-2016

ICV 1066503561007 (14-DEC-2016) stds: S31728

Analyte	Spiked	Quant	Units	%D	Max	Flags
Mercury	5.000	5.043	ug/L	1	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 283600 METALS Soil
EPA 7471B

Inst : MET44 IDF : 1.0
Seqnum : 1066503561008.1 File : met44 Time : 14-DEC-2016 16:49
Cal : 1066503561001 Caldate : 14-DEC-2016

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 283600 METALS Soil
EPA 7471B

Inst : MET44 IDF : 1.0
Seqnum : 1066503561019.1 File : met44 Time : 14-DEC-2016 17:01
Cal : 1066503561001 Caldate : 14-DEC-2016
Standards: S31722

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0228	0.0227	5.000	5.140	ug/L	3	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 283600 METALS Soil
EPA 7471B

Inst : MET44 IDF : 1.0
Seqnum : 1066503561020.1 File : met44 Time : 14-DEC-2016 17:02
Cal : 1066503561001 Caldate : 14-DEC-2016

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 283600 METALS Soil
EPA 7471B

Inst : MET44 IDF : 1.0
Seqnum : 1066503561031.1 File : met44 Time : 14-DEC-2016 17:17
Cal : 1066503561001 Caldate : 14-DEC-2016
Standards: S31722

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0228	0.0228	5.000	5.158	ug/L	3	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 283600 METALS Soil
EPA 7471B

Inst : MET44 IDF : 1.0
Seqnum : 1066503561032.1 File : met44 Time : 14-DEC-2016 17:18
Cal : 1066503561001 Caldate : 14-DEC-2016

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 283600 METALS Soil
EPA 7471B

Inst : MET44 IDF : 1.0
Seqnum : 1066503561043.1 File : met44 Time : 14-DEC-2016 17:33
Cal : 1066503561001 Caldate : 14-DEC-2016
Standards: S31722

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0228	0.0226	5.000	5.131	ug/L	3	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 283600 METALS Soil
EPA 7471B

Inst : MET44 IDF : 1.0
Seqnum : 1066503561044.1 File : met44 Time : 14-DEC-2016 17:34
Cal : 1066503561001 Caldate : 14-DEC-2016

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 283600 METALS Soil
EPA 7471B

Inst : MET44 IDF : 1.0
Seqnum : 1066503561052.1 File : met44 Time : 14-DEC-2016 17:49
Cal : 1066503561001 Caldate : 14-DEC-2016
Standards: S31722

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0228	0.0227	5.000	5.154	ug/L	3	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 283600 METALS Soil
EPA 7471B

Inst : MET44 IDF : 1.0
Seqnum : 1066503561053.1 File : met44 Time : 14-DEC-2016 17:50
Cal : 1066503561001 Caldate : 14-DEC-2016

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 283600 METALS Soil
EPA 7471B

Inst : MET44 IDF : 1.0
Seqnum : 1066503561063.1 File : met44 Time : 14-DEC-2016 18:01
Cal : 1066503561001 Caldate : 14-DEC-2016
Standards: S31722

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0228	0.0226	5.000	5.112	ug/L	2	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 283600 METALS Soil
EPA 7471B

Inst : MET44 IDF : 1.0
Seqnum : 1066503561064.1 File : met44 Time : 14-DEC-2016 18:03
Cal : 1066503561001 Caldate : 14-DEC-2016

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 283600 METALS Soil
EPA 7471B

Inst : MET44 IDF : 1.0
Seqnum : 1066503561075.1 File : met44 Time : 14-DEC-2016 18:15
Cal : 1066503561001 Caldate : 14-DEC-2016
Standards: S31722

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0228	0.0225	5.000	5.099	ug/L	2	10	

CURTIS & TOMPKINS INSTRUMENT BLANK FOR 283600 METALS Soil
EPA 7471B

Inst : MET44 IDF : 1.0
Seqnum : 1066503561076.1 File : met44 Time : 14-DEC-2016 18:16
Cal : 1066503561001 Caldate : 14-DEC-2016

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

SAMPLE PREPARATION SUMMARY

Batch # : 242384
Started By : LCS
Method : METHOD
Spike #1 ID : S31729

Prep Date : 14-DEC-2016 13:05

Analysis : HG
Finished By : LCS
Units : g

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
283600-001		Soil	.61	50	1	81.97						T22/HG	
283600-002		Soil	.59	50	1	84.75						T22/HG	
283600-003		Soil	.63	50	1	79.37						T22/HG	
283600-004		Soil	.56	50	1	89.29						T22/HG	
283600-005		Soil	.61	50	1	81.97						T22/HG	
283600-006		Soil	.59	50	1	84.75						T22/HG	
283600-007		Soil	.62	50	1	80.65						T22/HG	
283600-008		Soil	.59	50	1	84.75						T22/HG	
283600-009		Soil	.65	50	1	76.92						T22/HG	
283600-010		Soil	.62	50	1	80.65						T22/HG	
283600-011		Soil	.56	50	1	89.29						T22/HG	
283600-012		Soil	.61	50	1	81.97						T22/HG	
283600-013		Soil	.55	50	1	90.91						T22/HG	
283600-014		Soil	.6	50	1	83.33						T22/HG	
283600-015		Soil	.59	50	1	84.75						T22/HG	
283600-016		Soil	.63	50	1	79.37						T22/HG	
283600-017		Soil	.65	50	1	76.92						T22/HG	
283600-018		Soil	.65	50	1	76.92						T22/HG	
283600-019		Soil	.6	50	1	83.33						T22/HG	
283600-020		Soil	.6	50	1	83.33						T22/HG	
QC864588	BLANK	Soil	.65	50	1	76.92							
QC864589	BS	Soil	.64	50	1	78.13		1.25					
QC864590	BSD	Soil	.59	50	1	84.75		1.25					
QC864591	MS	Soil	.65	50	1	76.92		1.25					
QC864592	MSD	Soil	.62	50	1	80.65		1.25					
QC864593	SER	Soil	.61	50	1	81.97							

Analyst: RLG Date: 12/15/16 Reviewer: PRW Date: 12/15/16

283600 T22/HG Soil

Client	: CB&I	Proj Mgr	: MJD
Account Code	: SHAW	Logged By	: DTN
Site	: HPNS Parcel D-1	Dry Wt	: Y
Projectnum	: 149831 (QSMV5) (6010C, 6020A, 7471B)	Report Level	: III
Contact	: Eddie Kalombo	Order Date	: 11/21
First Log In	: 11/21 16:45	Last Addition	: 11/21 00:00

C

242584

A: CCVs immediately bracketting samples & QC must pass
A: Compounds of concern must pass in LCS (see PM for list)
A: Method Blank </= 1/2 RL
A: J to MDL
A: LOD is required to report ND
A: Special List & Rules

Sample	Client ID	Sampled	Hold	Due	OEXT	VOA	MET	WET	Cont
283600-001	BS-DUTRA-01-112116	11/21 08:00	12/19	12/05	0	0	4	0	1
283600-002	BS-DUTRA-02-112116	11/21 08:10	12/19	12/05	0	0	4	0	1
283600-003	BS-DUTRA-03-112116	11/21 08:15	12/19	12/05	0	0	4	0	1
283600-004	BS-DUTRA-04-112116	11/21 08:22	12/19	12/05	0	0	4	0	1
283600-005	BS-DUTRA-05-112116	11/21 08:30	12/19	12/05	0	0	4	0	1
283600-006	BS-DUTRA-06-112116	11/21 08:35	12/19	12/05	0	0	4	0	1
283600-007	BS-DUTRA-07-112116	11/21 08:40	12/19	12/05	0	0	4	0	1
283600-008	BS-DUTRA-08-112116	11/21 08:50	12/19	12/05	0	0	4	0	1
283600-009	BS-DUTRA-09-112116	11/21 08:55	12/19	12/05	0	0	4	0	1
283600-010	BS-DUTRA-10-112116	11/21 09:00	12/19	12/05	0	0	4	0	1
283600-011	BS-DUTRA-11-112116	11/21 09:10	12/19	12/05	0	0	4	0	1
283600-012	BS-DUTRA-12-112116	11/21 09:15	12/19	12/05	0	0	4	0	1
283600-013	BS-DUTRA-13-112116	11/21 09:18	12/19	12/05	0	0	4	0	1
283600-014	BS-DUTRA-14-112116	11/21 09:25	12/19	12/05	0	0	4	0	1
283600-015	BS-DUTRA-15-112116	11/21 09:30	12/19	12/05	0	0	4	0	1
283600-016	BS-DUTRA-16-112116	11/21 09:35	12/19	12/05	0	0	4	0	1
283600-017	BS-DUTRA-17-112116	11/21 09:40	12/19	12/05	0	0	4	0	1
283600-018	BS-DUTRA-18-112116	11/21 09:45	12/19	12/05	0	0	4	0	1
283600-019	BS-DUTRA-19-112116	11/21 09:48	12/19	12/05	0	0	4	0	1
283600-020	BS-DUTRA-20-112116	11/21 09:50	12/19	12/05	0	0	4	0	1

Total count: 20

EK162606

14-DEC-2016 09:43

Soil Digestion for Mercury

Curtis & Tompkins, Ltd.

LIMS Batch #: 242384 Digestion Method: ☒ EPA 7471A/ 7471B

BK 3979

Date Digested: 12/14/16 ☐ _____ Soil C

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Sample #	container ID	Sample Weight (g)	Final Volume (mL)	Filtered? (y/n)	Comments
BLANK		.65	☑50 ☐____	Y	
BS		.64	☑50 ☐____		
BSD		.59	☑50 ☐____		
MS		.65	☑50 ☐____		
MSD		.62	☑50 ☐____		
283600-001	A	.61	☑50 ☐____		MS
-002		.59	☑50 ☐____		
-003		.63	☑50 ☐____		
-004		.56	☑50 ☐____		
-005		.61	☑50 ☐____		
-006		.59	☑50 ☐____		
-007		.62	☑50 ☐____		
-008		.59	☑50 ☐____		
-009		.65	☑50 ☐____		
-010		.62	☑50 ☐____		
-011		.56	☑50 ☐____		
-012		.61	☑50 ☐____		
-013		.55	☑50 ☐____		
-014		.60	☑50 ☐____		
-015		.59	☑50 ☐____		
-016		.63	☑50 ☐____		
-017		.65	☑50 ☐____		
-018		.65	☑50 ☐____		
-019		.60	☑50 ☐____		
-020		.60	☑50 ☐____		

Balance ID: ____ calibration has been checked? ☒ Yes ☐ No

	Reagent ID/ LIMS# / Time	Initials / Date
Digestion Tubes, Lot #	EH16266	YJ 12/14
Blank/LCS 'matrix' ID	J160-6I021	
1.25 mL of spike standard was added to all spikes	531720	
☑ CAL digested with this batch? ICAL Std S#	531719	
ICV / CCV LIMS S#	531721 / 531722	
Digestion Temperature (°C), and Probe Location	96 | 27	
Digestion block ID	Arches	
Thermometer #	4154401	
Digestion Started at (time)	13:05	
Aqua Regia (HNO3+ HCl) Reagent ID	14	
5% $KMnO_4$ reagent ID	12	
NaCl.hydroxylamine hydrochloride Reagent ID	12	
Stannous Chloride Reagent ID	14	
Digestion Completd at (time)	13:30	
☑ filtered thru' 0.45 um syringe filter (lot #)	556100803	

Pipettes

Vol.(mL)	ID
.1	1281530
.25-1	G156935
1.25-5	1110267
10	R229105

LCS 12/14/16

Prep Chemist / Date

Continued from page _____

Continued on page _____

Reviewed Online / See LIMS

Version 7, Dec.2015

Dilutions for 283600 METALS Soil
Curtis & Tompkins Laboratories

Type	Sample ID	IDFs
SAMPLE	283600-001	1X, 5X, 100X
SAMPLE	283600-002	1X, 5X, 100X
SAMPLE	283600-003	1X, 5X, 100X
SAMPLE	283600-004	1X, 100X
SAMPLE	283600-005	1X, 5X, 100X
SAMPLE	283600-006	1X, 5X, 100X
SAMPLE	283600-007	1X, 10X, 100X
SAMPLE	283600-008	1X, 5X, 100X
SAMPLE	283600-009	1X, 100X
SAMPLE	283600-010	1X, 5X, 100X
SAMPLE	283600-011	1X, 5X, 100X
SAMPLE	283600-012	1X, 100X
SAMPLE	283600-013	1X, 2X, 100X
SAMPLE	283600-014	1X, 5X, 100X
SAMPLE	283600-015	1X, 100X
SAMPLE	283600-016	1X, 5X, 100X
SAMPLE	283600-017	1X, 5X, 100X
SAMPLE	283600-018	1X, 100X
SAMPLE	283600-019	1X, 5X, 100X
SAMPLE	283600-020	1X, 5X, 100X
MS	QC862980	1X, 100X
MSD	QC862981	1X, 100X
SER	QC862982	5X, 500X
PDS	QC862983	1X, 100X
SER	QC863331	5X, 500X
PDS	QC863332	1X, 100X

CAS Registry Numbers for 283600 METALS Soil
Curtis & Tompkins Laboratories

Analyte	CAS RN
Antimony	7440-36-0
Arsenic	7440-38-2
Barium	7440-39-3
Beryllium	7440-41-7
Cadmium	7440-43-9
Chromium	7440-47-3
Cobalt	7440-48-4
Copper	7440-50-8
Iron	7439-89-6
Lead	7439-92-1
Manganese	7439-96-5
Mercury	7439-97-6
Molybdenum	7439-98-7
Nickel	7440-02-0
Selenium	7782-49-2
Silver	7440-22-4
Thallium	7440-28-0
Vanadium	7440-62-2
Zinc	7440-66-6

Laboratory Job Number 283600

ANALYTICAL REPORT

Wet Chemistry

Matrix: Soil

Percent Moisture Summary Report

Batch: 243067
Date: 01/06/17
Method: CLP SOW 390
Analyst: MFV

Sample	Tare (g)	Wet (g)	Dry (g)	Percent Solids	Percent Moisture
283600-001	11.1868	17.3412	17.2243	98	2
283600-002	11.2853	18.7982	18.6382	98	2
283600-003	11.1462	18.4063	18.2604	98	2
283600-004	10.9478	17.3721	17.2490	98	2
283600-005	11.2038	17.6022	17.4760	98	2
283600-006	11.3455	18.0543	17.9154	98	2
283600-007	11.3980	17.2531	17.1411	98	2
283600-008	11.0426	17.9791	17.8305	98	2
283600-009	11.3251	18.3470	18.2000	98	2
283600-010	11.3991	16.6664	16.5595	98	2
283600-011	11.3529	16.7472	16.6396	98	2
283600-012	11.2996	17.3952	17.2713	98	2
283600-013	11.2647	16.5790	16.4656	98	2
283600-014	11.2903	18.2013	18.0658	98	2
283600-015	11.3071	18.2219	18.0855	98	2
283600-016	11.1344	17.0011	16.9064	98	2
283600-017	11.2769	18.2569	18.1344	98	2
283600-018	11.0088	17.1763	17.0544	98	2
283600-019	11.0305	17.0075	16.8770	98	2
283600-020	11.0817	16.5799	16.4724	98	2
QC867289	11.1334	17.5113	17.3892	98	2
of 283600-020			RPD:	0.0%	2.1%

Moisture LOG

Curtis & Tompkins, Ltd.

LIMS Batch #: 243067
Date: 1-6-17

Page: **90**
Benchbook#: **BK 3955**
Scale Used
☑ Leachates Analytical
☐ _____

Sample # / Letter	Dish #	Dish Weight (g)	Sample + Dish Wt (g)	Final Weight (g)	*Comments
BLK	10	11.0461	Ø	11.0460	
283600-001 A	75	11.1868	17.3412	17.2243	
-002	9	11.2853	18.7982	18.6382	
-003	48	11.1462	18.4063	18.2604	
-004	53	10.9478	17.3721	17.2490	
-005	18	11.2038	17.6022	17.4760	
-006	41	11.3455	18.0543	17.9154	
-007	11	11.3980	17.2531	17.1411	
-008	64	11.0426	17.9791	17.8305	
-009	19	11.3251	18.3470	18.2000	
-010	29	11.3991	16.6664	16.5595	
-011	92	11.3529	16.7472	16.6396	
-012	17	11.2996	17.3952	17.2713	
-013	22	11.2647	16.5790	16.4656	
-014	12	11.2903	18.2013	18.0658	
-015	87	11.3071	18.2219	18.0855	
-016	1	11.1344	17.0011	16.9064	
-017	43	11.2769	18.2569	18.1344	
-018	3	11.0088	17.1763	17.0544	
-019	14	11.0305	17.0075	16.8770	
-020	46	11.0817	16.5799	16.4724	
SOUP -020	47	11.1334	17.5113	17.3892	
					1-6-17

Date/ Time IN: 1-6-17 0350
Temp (C) IN: 104
Date/ Time OUT: 1-6-17 2000
Temp (C) OUT: 104

Extraction Chemist 1-6-17
Date

Reviewed Online / See LIMS

76
PROJECT AE 163 METTLER

Notebook No. BK-2394

Continued From Page

DATE	ANALYST	0.2000	100.0000	LEVEL	SET #
1-4-17	MV	0.2000	100.0005	✓	40417
1-6-17	MV	0.2000	100.0000	✓	40417

Continued on Page

Read and Understood By

Signed Date Signed Date

Appendix H
Geotechnical Data
(provided on electronic copy only)

TESTING PLAN AND LOG

CONTRACT NUMBER			PROJECT TITLE AND LOCATION							CONTRACTOR	
N62473-12-D-2005			Remedial Action In Parcel D-1							CB&I Federal Services	
SPECIFICATION SECTION AND PARAGRAPH NUMBER	ITEM OF WORK	TEST REQUIRED	ACCREDITED/ APPROVED LAB		SAMPLED BY	TESTED BY	LOCATION OF TEST		DATE COMPLETED	DATE FORWARDED TO CONTR. OFF.	REMARKS
			YES	NO			ON SITE	OFF SITE			
31 00 00		ASTM D422	X		CB&I	Smith Emery		X	06.10.2016	07.12.2016	
31 00 00		ASTM D4318	X		CB&I	Smith Emery		X	06.10.2016	07.12.2016	
31 00 00		ASTM D1557	X		CB&I	Smith Emery		X	06.10.2016	07.12.2016	
31 00 00		ASTM D2216	X		CB&I	Smith Emery		X	06.10.2016	07.12.2016	
31 00 00		ASTM D2487	X		Smith Emery	Smith Emery		X	06.15.2016	08.20.2016	
31 00 00		ASTM C136	X		Smith Emery	Smith Emery		X	06.15.2016	08.20.2016	
31 00 00		ASTM D4318	X		Smith Emery	Smith Emery		X	06.15.2016	08.20.2016	
31 00 00		ASTM D1557	X		Smith Emery	Smith Emery		X	06.21.2016	08.20.2016	
31 00 00		CTM 301	X		CB&I	Smith Emery		X	06.27.2016	07.12.2016	
31 00 00		ASTM D1557	X		CB&I	Smith Emery		X	06.29.2016	08.20.2016	
31 00 00		ASTM D2216	X		Smith Emery	Smith Emery		X	07.21.2016	08.20.2016	
31 00 00		ASTM D1556	X		Smith Emery	Smith Emery		X	07.21.2016	08.20.2016	
31 00 00		ASTM D1557	X		Smith Emery	Smith Emery		X	08.02.2016	08.20.2016	
31 00 00		ASTM D1557	X		Smith Emery	Smith Emery		X	08.08.2016	08.20.2016	
31 00 00		ASTM D6938	X		--	Smith Emery	X		08.08.2016	08.29.2016	
31 00 00		ASTM D6938	X		--	Smith Emery	X		08.11.2016	08.29.2016	
31 00 00		ASTM D1556	X		Smith Emery	Smith Emery	X	X	08.17.2016	09.08.2016	
31 00 00		ASTM D2216	X		Smith Emery	Smith Emery	X	X	08.17.2016	09.08.2016	
31 00 00		ASTM D6938	X		--	Smith Emery	X		08.22.2016	09.08.2016	GMP, arcs
31 00 00		ASTM D6983	X		--	Smith Emery	X		08.22.2016	09.08.2016	NT, SP
31 00 00		ASTM D1556	X		Smith Emery	Smith Emery		X	08.23.2016	09.08.2016	
31 00 00		ASTM D6938	X		--	Smith Emery		X	08.23.2016	09.08.2016	
31 00 00		ASTM D6938	X		--	Smith Emery		X	08.24.2016	09.08.2016	
31 00 00		ASTM D6938	X		--	Smith Emery	X		08.31.2016	10.03.2016	
31 00 00		ASTM D6938	X		--	Smith Emery	X		09.01.2016	10.03.2016	
31 00 00		ASTM D6938	X		--	Smith Emery	X		09.06.2016	10.03.2016	
31 00 00		ASTM D6938	X		--	Smith Emery	X		09.07.2016	10.03.2016	
31 00 00		ASTM D6938	X		--	Smith Emery	X		09.08.2016	10.03.2016	
31 00 00		ASTM D6938	X		--	Smith Emery	X		09.09.2016	10.03.2016	
31 00 00		ASTM D6938	X		--	Smith Emery	X		09.12.2016	10.03.2016	
31 00 00		ASTM D6938	X		--	Smith Emery	X		09.13.2016	10.03.2016	
31 00 00		ASTM D6938	X		--	Smith Emery	X		09.14.2016	10.03.2016	

TESTING PLAN AND LOG

CONTRACT NUMBER			PROJECT TITLE AND LOCATION							CONTRACTOR	
N62473-12-D-2005			Remedial Action In Parcel D-1							CB&I Federal Services	
SPECIFICATION SECTION AND PARAGRAPH NUMBER	ITEM OF WORK	TEST REQUIRED	ACCREDITED/ APPROVED LAB		SAMPLED BY	TESTED BY	LOCATION OF TEST		DATE COMPLETED	DATE FORWARDED TO CONTR. OFF.	REMARKS
			YES	NO			ON SITE	OFF SITE			
31 00 00		ASTM D6938	X		--	Smith Emery	X		09.15.2016	10.03.2016	
31 00 00		ASTM D1557	X		Smith Emery	Smith Emery		X	08.23.2016	10.03.2016	
31 00 00		ASTM D2216	X		Smith Emery	Smith Emery		X	08.23.2016	10.03.2016	
31 00 00		ASTM D2487, D4318	X		Smith Emery	Smith Emery		X	08.23.2016	10.03.2016	
31 00 00		ASTM D1557, D2487, D4318	X		Smith Emery	Smith Emery		X	09.01.2016	10.27.2016	
31 00 00		ASTM D1556, D2216	X		Smith Emery	Smith Emery	X	X	09.12.2016	10.03.2016	
31 00 00		ASTM D1556, D2216	X		Smith Emery	Smith Emery	X	X	09.13.2016	10.03.2016	
31 00 00		ASTM D1556, D2216	X		Smith Emery	Smith Emery	X	X	09.14.2016	10.03.2016	
31 00 00		ASTM D1556, D2216	X		Smith Emery	Smith Emery	X	X	09.15.2016	10.03.2016	
31 00 00		ASTM D1556, D2216	X		Smith Emery	Smith Emery	X	X	09.28.2016	10.27.2016	
31 00 00		ASTM D6938	X		--	Smith Emery	X		09.21.2016	10.26.2016	
31 00 00		ASTM D6938	X		--	Smith Emery	X		09.22.2016	10.26.2016	
31 00 00		ASTM D6938	X		--	Smith Emery	X		09.23.2016	10.26.2016	
31 00 00		ASTM D6938	X		--	Smith Emery	X		09.27.2016	10.26.2016	
31 00 00		ASTM D6938	X		--	Smith Emery	X		10.05.2016	10.26.2016	
31 00 00		ASTM D6938	X		--	Smith Emery	X		10.07.2016	10.26.2016	
31 00 00		ASTM D6938	X		--	Smith Emery	X		11.15.2016	01.04.2017	
31 00 00		ASTM D6938	X		--	Smith Emery	X		11.16.2016	01.04.2017	
31 00 00		ASTM D6938	X		--	Smith Emery	X		11.17.2016	01.04.2017	
31 00 00		ASTM D6938	X		--	Smith Emery	X		11.18.2016	01.04.2017	
32 10 00		CTM 308	X		Smith Emery	Smith Emery		X	11.29.2016	01.04.2017	
32 10 00		CTM 309	X		Smith Emery	Smith Emery		X	11.30.2016	01.04.2017	
31 00 00		ASTM D6938	X		--	Smith Emery	X		11.29.2016	01.04.2017	
31 00 00		ASTM D6938	X		--	Smith Emery	X		11.30.2016	01.04.2017	
31 00 00		ASTM D6938	X		--	Smith Emery	X		12.01.2016	01.04.2017	
31 00 00		ASTM C136	X		Smith Emery	Smith Emery		X	09.01.2016	10.31.2017	
32 10 00		CTM 308	X		Smith Emery	Smith Emery		X	11.30.2016	10.31.2017	
32 10 00		CTM 308	X		Smith Emery	Smith Emery		X	12.19.2016	10.31.2017	
32 10 00		CTM 308	X		Smith Emery	Smith Emery		X	12.20.2016	10.31.2017	
32 10 00		CTM 308	X		Smith Emery	Smith Emery		X	12.22.2016	10.31.2017	

TESTING PLAN AND LOG

CONTRACT NUMBER			PROJECT TITLE AND LOCATION							CONTRACTOR	
N62473-12-D-2005			Remedial Action In Parcel D-1							CB&I Federal Services	
SPECIFICATION SECTION AND PARAGRAPH NUMBER	ITEM OF WORK	TEST REQUIRED	ACCREDITED/ APPROVED LAB		SAMPLED BY	TESTED BY	LOCATION OF TEST		DATE COMPLETED	DATE FORWARDED TO CONTR. OFF.	REMARKS
			YES	NO			ON SITE	OFF SITE			
32 10 00		CTM 308	X		Smith Emery	Smith Emery		X	12.29.2016	10.31.2017	
32 10 00		CTM 308	X		Smith Emery	Smith Emery		X	12.30.2016	10.31.2017	
32 10 00		CTM 308	X		Smith Emery	Smith Emery		X	01.04.2016	10.31.2017	
32 10 00		CTM 308	X		Smith Emery	Smith Emery		X	01.05.2016	10.31.2017	
32 10 00		CTM 308	X		Smith Emery	Smith Emery		X	01.06.2017	10.31.2017	
32 10 00		ASTM D2172	X		Smith Emery	Smith Emery		X	11.29.2016	10.31.2017	
32 10 00		ASTM D2172	X		Smith Emery	Smith Emery		X	11.30.2016	10.31.2017	
32 10 00		ASTM D2172	X		Smith Emery	Smith Emery		X	12.01.2016	10.31.2017	
32 10 00		ASTM D2172	X		Smith Emery	Smith Emery		X	12.02.2016	10.31.2017	
32 10 00		ASTM D2172	X		Smith Emery	Smith Emery		X	12.19.2016	10.31.2017	
32 10 00		ASTM D2172	X		Smith Emery	Smith Emery		X	12.20.2016	10.31.2017	
32 10 00		ASTM D2172	X		Smith Emery	Smith Emery		X	12.21.2016	10.31.2017	
32 10 00		ASTM D2172	X		Smith Emery	Smith Emery		X	12.22.2016	10.31.2017	
32 10 00		AASHTO T 30	X		Smith Emery	Smith Emery		X	11.29.2016	10.31.2017	
32 10 00		AASHTO T 30	X		Smith Emery	Smith Emery		X	11.30.2016	10.31.2017	
32 10 00		AASHTO T 30	X		Smith Emery	Smith Emery		X	12.01.2016	10.31.2017	
32 10 00		AASHTO T 30	X		Smith Emery	Smith Emery		X	12.02.2016	10.31.2017	
32 10 00		AASHTO T 30	X		Smith Emery	Smith Emery		X	12.19.2016	10.31.2017	
32 10 00		AASHTO T 30	X		Smith Emery	Smith Emery		X	12.20.2016	10.31.2017	
32 10 00		AASHTO T 30	X		Smith Emery	Smith Emery		X	12.21.2016	10.31.2017	
32 10 00		AASHTO T 30	X		Smith Emery	Smith Emery		X	12.22.2016	10.31.2017	
32 10 00		CTM 366	X		Smith Emery	Smith Emery		X	11.29.2016	10.31.2017	
32 10 00		CTM 366	X		Smith Emery	Smith Emery		X	11.30.2016	10.31.2017	
32 10 00		CTM 366	X		Smith Emery	Smith Emery		X	12.01.2016	10.31.2017	
32 10 00		CTM 366	X		Smith Emery	Smith Emery		X	12.02.2016	10.31.2017	
32 10 00		CTM 366	X		Smith Emery	Smith Emery		X	12.19.2016	10.31.2017	
32 10 00		CTM 366	X		Smith Emery	Smith Emery		X	12.20.2016	10.31.2017	
32 10 00		CTM 366	X		Smith Emery	Smith Emery		X	12.21.2016	10.31.2017	
32 10 00		CTM 366	X		Smith Emery	Smith Emery		X	12.22.2016	10.31.2017	
32 10 00		CTM 309	X		Smith Emery	Smith Emery		X	12.02.2016	10.31.2017	

Import Fill Geotechnical

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Import Fill Compaction

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY SPECIAL INSPECTION REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 7/21/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunter's Point SF
Inspection(s) Performed: Soils - Compaction
Document(s) Reviewed:

Inspection Report:

On-site mid-morning as requested for work conducted by CBI. Met with Sam Hopstome for job-site overview and project details. Testing of finished AGG basis located at the South pier anchors pro. 95% density @opt. moistures throughout marked locations as directed.

BLD. 274
ASTM=D1556
ASTM=D0016

Work ☑ WAS ☐ WAS NOT Inspected In Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested In Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required) _____

Attachments: _____ Name: Andrew Hawvihorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification # _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 7/21/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunter's Point SF
Inspection(s) Performed: Soils - Compaction
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
									☐	☐
		REF: South Parr							☐	☐
01	#1	East	FAB	9.7	120.6	125.9	96	95	☑	☐
									☐	☐
02	#1		FAB	10.2	119.7	125.9	95	95	☑	☐
									☐	☐
03	#1		FAB	9.8	121.6	125.9	96	95	☑	☐
		West							☐	☐
04	#1		FAB	9.7	120.4	125.9	96	95	☑	☐
									☐	☐
05	#1		FAB	10.1	119.8	125.9	95	95	☑	☐
		BLD 274							☐	☐
06			FAB	9.8	122.3	125.9	97	95	☑	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#1	Brown A.B./Brisbane Bernard Pile		8.5	125.9

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested In Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None
Name: Andrew Hawvihorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY SPECIAL INSPECTION REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 8/2/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunter's Point SF
Inspection(s) Performed: Soils - Compaction
Document(s) Reviewed:

Inspection Report:

On-site mid-morning as requested. Met with Nathalie Rothell for job-site overview and project details. Testing of candlestick point backfill material conducted. Sampling of material for lab-data.
Results Pending.

ASTM-D1557
ASTM-D6938

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested In Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required) _____

Attachments: _____ Name: Andrew Hawvihorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification # _____
Emp. ID: 2324 Page 1 of 1

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 8/2/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunter's Point SF
Inspection(s) Performed: Soils - Compaction
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
									☐	☐
		Rief Station							☐	☐
		#1005							☐	☐
		TRST #01							☐	☐
01		East	5.6	13.4	114.7	119.2	96	95	☑	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
02		West	5.6	12.9	113.9	119.2	96	95	☑	☐
									☐	☐
									☐	☐
									☐	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
	Brown Silty Sand W/ Gravel		12.0	119.2

Work ☐ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☐ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A
Material ☐ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A
Material Tested ☐ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None Name: Andrew Hawvihorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324 Page 1 of 1

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY SPECIAL INSPECTION REPORT

Project Name: GEOTECHNICAL-SERVICES PARCEL D-1 Date: 3/8/16
Project Address: _____ C.B.I.# 149831 SESF Job # 69995-1
Inspection Location: HUNTERS POINT — S.F. / GUNMOCK
Inspection(s) Performed: COMPACTION-TESTING / SAMPLING
Document(s) Reviewed: _____

Inspection Report:

ON-SITE IN THE MORNING AS REQUESTED. MET WITH C.B.I.. FOR JOB-SITE DETAILS AND LOCATIONS. TESTING LOCATION AT THE GUNMOCK AREA @ ARC: # 2. SAMPLING OF MATERIAL (CONCRETE PT) CONDUCTED @ GUNMOCK AREA FOR FUTURE TESTING OF BACKFILL.

Work ☒ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material ☒ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material Tested ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A

~~Work Not~~ In Compliance: Notified (Required) _____

ASTM-D1557
GAGE # 7740

Attachments: _____

Name: ANDREW HOWICHORST

Signature: _____

Certification # _____

Emp. ID: 2324 Page 1 of 2

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: GEOTECHNICAL SERVICES PARCEL D-1 Date: 8/8/16
Project Address: C.B.I. # 149831 SESF Job # 69995-1
Inspection Location: HUNTERS POINT — S.F. / GUNNOCK
Inspection(s) Performed: COMPACTION - TESTING / SAMPLING
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
		GUNNOCK AREA							☐	☐
		STA # 1005							☐	☐
01	#2	EAST	T.2	12.6	114.6	119.2	96	95	☒	☐
		TEST #2							☐	☐
									☐	☐
02		WEST		13.2	113.9	119.2	96	95	☒	☐
									☐	☐
		NORTHEAST							☐	☐
03	#1	FINISH A.B.	FAB	9.6	121.3	125.9	96	95	☒	☐
									☐	☐
									☐	☐
01	#1	ARC: #2	-3'	10.2	120.4	125.9	96	95	☒	☐
									☐	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#2	BROWN SILTY SAND w/ GRVL.		12.0	119.2
#1	BROWN A.R. / BRISBANE BERNARD P.L.		8.5	125.9

Work ☒ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material ☒ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material Tested ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A

~~Work Not~~ In Compliance:
ASTM - D1557
EARTH 7740

Notified (Required): _____

Attachments: None

Name: ANDREW HAWVERMORSE

Signature: _____

Certification #: _____

Emp. ID: 2324

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY SPECIAL INSPECTION REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 8/8/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunter's Point SF
Inspection(s) Performed: Soils - Compaction
Document(s) Reviewed:

Inspection Report:

On Site in the morning as requested.
Met with CBI for Job Site Details and Location Testing located at the gunmole area and arc: #2. Sampling of material (candlestick pt.) conducted and gunmole area for future testing of backfill.

ASTM-D01557
GAGR H7740

Work ☑ WAS ☐ WAS NOT Inspected In Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: . Notified (Required) _____

Attachments: _____ Name: Andrew Hawvihorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification # _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 8/8/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunter's Point SF/Gunmole
Inspection(s) Performed: Soils - Compaction
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
		Gunmole Area							☐	☐
		STA #1005							☐	☐
01	#2	East	T.2	12.6	114.6	11932	96	95	☑	☐
		TRST #02							☐	☐
									☐	☐
02	#2	West	T.2	13.2	113.9	119.2	96	95	☑	☐
									☐	☐
		Northeast	FAB	9.6	121.3	125.9	96	95	☑	☐
03	#1	Finish A.B.							☐	☐
									☐	☐
01	#1	ARC:#2	-30	10.2	120.4	125.9	96	95	☑	☐
									☐	☐
									☐	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#2	Brown Silty Sand W/ Gravel		12.0	119.2
#1	Brown A.R. (Brisbane Biernard Pile		8.5	125.9

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None
Name: Andrew Hawvihorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324 Page 1 of 1

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY SPECIAL INSPECTION REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 8/11/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunter's Point SF/ Gunmole
Inspection(s) Performed: Soils - Compaction
Document(s) Reviewed:

Inspection Report:

On Site in the morning as requested. Met with Sam Hopstone w/ C.B.I. for job site overview and detailed testing of material located at Gumole achieved req. 95% densities and opt. moistures. Plot-plan estalished on this rate, for test location upon placement.

ASTM-D1557
Gage#7740

Work ☑ WAS ☐ WAS NOT Inspected In Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required) _____

Attachments: _____ Name: Andrew Hawvihorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification # _____
Emp. ID: 2324 Page 1 of 3

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 8/11/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunter's Point SF/Gunmole
Inspection(s) Performed: Soils - Compaction
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
01	#3	Reference	S.6	15.6	114.4	119.2	96	95	☑	☐
02	#1	Plot Plan	FAB	10.2	120.4	125.9	95	95	☑	☐
03	#3	Today's Date	S.G	14.2	113.9	119.2	95	95	☑	☐
04	#1	8/11/2016	FAB	10.8	127.8	125.9	97	95	☑	☐
05	#3		S.G	14.9	115.3	119.2	96	95	☑	☐
06	#2		S.G	15.2	114.8	119.2	96	95	☑	☐
07	#1		FAB	11.2	123.6	125.9	98	95	☑	☐
08	#1		FAB	10.9	122.9	125.9	97	95	☑	☐
09	#1		FAB	10.6	123.7	125.9	98	95	☑	☐
10	#3	Continue	S.G	16.3	115.2	119.2	96	95	☑	☐
11	#1	Page #3	FAB	11.2	121.6	125.9	96	95	☑	☐
12	#3		S.G	15.4	114.7	119.2	96	95	☑	☐
13	#3		S.G	15.8	114-9	119.2	96	95	☑	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#1	Brown A.B. (Brisbane Bernard Pile)		8.5	125.9
#2	Brown silty sand with gravel		12.2	119.2
#3	Brown silty sandy clay with gravel (Candlestick PT.)		13.6	119.2

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None Name: Andrew Hawvihorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 8/11/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunter's Point SF
Inspection(s) Performed: Soils - Compaction
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
14	#3	REF: Plot-	S.G	15.4	116.2	119.2	97	95	☑	☐
15	#1	Plan	FAB	10.4	122.8	125.9	97	95	☑	☐
16	#1	On-This	FAB	10.7	123.2	125.9	98	95	☑	☐
17	#3	Date	S.G	16.2	115.6	119.2	97	95	☑	☐
18	#3	8/11/2016	S.G	15.9	114.7	119.2	96	95	☑	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#1	Brown A.B. (Brisbane Bernard Pile)		8.5	125.9
#3	Brown silty sandy clay with gravel (Candlestick PT.)		13.6	119.2

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None Name: Andrew Hawvihorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY SPECIAL INSPECTION REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 8/16/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunter's Point SF
Inspection(s) Performed: Soils - Compaction
Document(s) Reviewed:

Inspection Report:

On Site in the morning as requested.
Met with Chris Maner and Sam Hopstone for job site review.
Sampling for material/REF: Candlestick RB collected for lab-data

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required) _____

Attachments: _____ Name: Andrew Hawvihorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification # _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY SPECIAL INSPECTION REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 8/17/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunter's Point SF
Inspection(s) Performed: Soils - Compaction
Document(s) Reviewed:

Inspection Report:

On Site in the morning as requested.
Met with Chris Maner and Sam Hopstone for job site review.
Continued testing located at Gunmole, achieved relative 95% density's at opt moisture.

REF: ASTM-D1556
ASTM-2216
ASTM-D1557
GAGE #7740

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required) _____

Attachments: _____ Name: Andrew Hawvihorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification # _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 8/17/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunter's Point SF/Gunmole
Inspection(s) Performed: Soils - Compaction
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
									☐	☐
		REF: Plot PLan							☐	☐
01	#3	Dated 8/17/16	S.G.	13.9	113.6	119.2	95	95	☑	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#3	Brown Silty Sand W/ Gravel		13.6	119.2

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None Name: Andrew Hawvihorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324 Page 1 of 1

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 8/18/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunter's Point SF/Gunmole
Inspection(s) Performed: Soils - Compaction
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
									☐	☐
		South Gun-Mole							☐	☐
01	#1		A.B.	10.2	122.8	125.9	97	95	☑	☐
		Verify							☐	☐
		Plot Plan							☐	☐
02	#1	Dated 8/18/16	A.B.	9.8	123.7	125.9	98	95	☑	☐
									☐	☐
			A.B.	10.3	121.5	125.9	96	95	☑	☐
03	#1								☐	☐
									☐	☐
04	#1		A.B.	10.2	122.4	125.9	97	95	☑	☐
									☐	☐
									☐	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#1	Brown A.B.		8.5	125.9

Work ☑ WAS ☐ WAS NOT Inspected In Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None Name: Andrew Hawvihorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324 Page 1 of 1

(b) (4)

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY SPECIAL INSPECTION REPORT

Project Name: GEOTECHNICAL SERVICES PARCEL D-1 Date: 8/17/16
Project Address: C.B.I. 149831 SESF Job # 69995-1
Inspection Location: HUNTERS PT. / GUNMOUR
Inspection(s) Performed: COMPACTION- TESTING
Document(s) Reviewed:

Inspection Report:

ON- SITE ON THE MORNING AS REQUESTED MET WITH CHRIS HENRY / SAM HUPSTONER FOR JOB-SITE ORIENTATION. CONTINUOUS TESTING LOCATED AT GUNMOUR, ACHIEVED REQ. 95% DENSITY AT OPT MOIS CONTS.

Work ☒ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material ☒ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material Tested ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A

~~Work Not~~ In Compliance: Notified (Required) _____

REF: ASTM - D1556
ASTM - 2216
ASTM - D1557
GAGE # 7340

Attachments: _____ Name: ANDREW HALVORSEN

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification # _____
Emp. ID: 2324 Page 1 of 2

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: GEOTECHNICAL SERVICES PARCEL D-1 Date: 8/17/16
Project Address: C.D.T. 149831 SESF Job # 69995-1
Inspection Location: HUNTERS PT. / GUNMOLE
Inspection(s) Performed: COMPACTION- TESTING
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
									☐	☐
									☐	☐
		REF: PLOT PLAN							☐	☐
01	#3	DATED 8/17/16	S.G.	13.9	113.6	119.2	95	95	☒	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#3	BROWN SILTY SANDY CLAY WITH GRAVEL		13.6	119.2
	(CANDLESTICK PT)			

Work ☒ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material ☒ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material Tested ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A

~~Work~~ Not In Compliance:
ASTM-D1557
GAGE # 7740

Notified (Required): _____

Attachments: None

Name: ANDREW HANDECHORST

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: [signature]
Certification #: _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY SPECIAL INSPECTION REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 8/17/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunter's Point SF
Inspection(s) Performed: Soils - Compaction
Document(s) Reviewed:

Inspection Report:

On Site in the morning as requested.
Met with Chris Maner and Sam Hopstone for job site review.
Continued testing located at Gunmole, achieved relative 95% density's at opt moisture.

REF: ASTM-D1556
ASTM-2216
ASTM-D1557
GAGE #7740

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required) _____

Attachments: _____ Name: Andrew Hawvihorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification # _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 8/17/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunter's Point SF/Gunmole
Inspection(s) Performed: Soils - Compaction
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
									☐	☐
		REF: Plot PLan							☐	☐
01	#3	Dated 8/17/16	S.G.	13.9	113.6	119.2	95	95	☑	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#3	Brown Silty Sand W/ Gravel		13.6	119.2

Work ☑ WAS ☐ WAS NOT Inspected In Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested In Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None
Name: Andrew Hawvihorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324 Page 1 of 1

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY SPECIAL INSPECTION REPORT

Project Name: GEOTECHNICAL SERVICES PARCEL D-1 Date: 8/16/16
Project Address: C.B.C.# 149831 SESF Job # 69895-1
Inspection Location: HUNTERS POINT / GUN MOLE
Inspection(s) Performed: SAMPLING ——— CANNON-SETTLE PT.
Document(s) Reviewed:

Inspection Report:

ON-SITE IN THE MORNING AS REQUESTED. MET WITH CHRIS HANEL & SAM HOPSTONE FOR TOP-SITE REVIEW.

SAMPLING OF UPSTREAM / REF: CANNONSETTLE PT. COLLECTED FOR CHAR-DATA

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☐ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☐ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required) _____

Attachments: _____

Name: ANDREW HAUSCHORST

Signature: _____

Certification # _____

Emp. ID: 2224

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY SPECIAL INSPECTION REPORT

Project Name: GEOTECHNICAL SERVICES PARCEL D-1 Date: 8/17/16
Project Address: C.E.I. 149831 SESF Job # 69995-1
Inspection Location: HUNTERS PT. / GUNMOLE
Inspection(s) Performed: COMPACTION-TESTING
Document(s) Reviewed:

Inspection Report:

ON-SITE IN THE MORNING AS REQUESTED MET WITH CHRIS HENRY / SAM HOPSTONE FOR JOB-SITE OVERVIEW. CONTINUED TESTING LOCATED AT GUNMOLE, ACHIEVED REQ 95% DENSITY AT OPT MOISTURES.

Work [X] WAS [ ] WAS NOT Inspected in Accordance with the Requirements of [ ] DSA [ ] OSHPD [X] JURISDICTION Approved Documents [ ] N/A
Work Inspected [X] MET [ ] DID NOT MEET The Requirements of the [ ] DSA [ ] OSHPD [X] JURISDICTION Approved Documents [ ] N/A
Material [X] WAS [ ] WAS NOT Sampled and Tested in Accordance with the Requirements of [ ] DSA [ ] OSHPD [X] JURISDICTION Approved Documents [ ] N/A
Material Tested [X] MET [ ] DID NOT MEET The Requirements of the [ ] DSA [ ] OSHPD [X] JURISDICTION Approved Documents [ ] N/A

~~Work Not~~ In Compliance: Notified (Required) _____

REF: ASTM - D1556
ASTM - 2216
ASTM - D1557
GAGE # 7740

Attachments: _____

Name: ANDREW HAWKCHOPER

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: [signature]
Certification # _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: GEOTECHNICAL SERVICES PARCEL D-1 Date: 8/17/16
Project Address: C.I.T. 149831 SESF Job # 6999S-1
Inspection Location: HUNTERS PT. / GUNMOUR
Inspection(s) Performed: COMPACTION - TESTING
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
									☐	☐
									☐	☐
		REF: PLOT PLAN							☐	☐
01	#3	PATIO 8/17/16	S.C.	13.9	113.6	119.2	95	95	☒	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#3	BROWN SILTY SANDY CLAY WITH GRAVEL (CANDLESTICK PT)		13.6	119.2

Work ☒ WAS ☐ WAS NOT Inspected In Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☒ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material Tested ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

~~Work~~ Not In Compliance:
ASTM - D1557
GAGE # 3240

Notified (Required): _____

Attachments: None

Name: ANDREW HANDRICKSEN

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324 Page 1 of 2

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: GEOTECHNICAL SERVICES / PARCEL D-1 Date: 8/18/16
Project Address: _____ CBI#149831 SESF Job # 69995-1
Inspection Location: HUNTERS PT. ——— GUN-MOLE
Inspection(s) Performed: COMPACTION-TESTING
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
									☐	☐
		SOUTH							☐	☐
		GUN-MOLE							☐	☐
01	#1		AB	10.2	122.8	125.9	97	95	☑	☐
		UBERTY							☐	☐
		PLOT PLAN							☐	☐
02		DATE 8/18/16	AB	9.8	123.7		98	95	☑	☐
									☐	☐
									☐	☐
03			AB	10.3	121.8		96	95	☑	☐
									☐	☐
									☐	☐
04	/	/	AB	10.2	122.4	/	97	95	☒	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#1	BROWN A.B.		8.5	125.9

Work ☒ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material ☒ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material Tested ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A

~~Work~~ Not In Compliance:
ASTM - D1557
6AGR # 7240

Notified (Required): _____

Attachments: None

Name: ANDREW HAWKINHORST

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324 Page 1 of 1

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 8/22/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters Point/South Pier & Triangle
Inspection(s) Performed: _____
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
01	#3	Ref: South Pier	S6	14.7	114.8	119.2	96	95	☑	☐
02	#3	Plot-Plan	S6	15.2	115.2	119.2	96	95	☑	☐
03	#3	Dated 08/22/2016	S6	14.9	115.4	119.2	96	95	☑	☐
04	#3		S6	13.9	114.9	119.2	96	95	☑	☐
05	#3		S6	14.2	113.9	119.2	95	95	☑	☐
06	#3		S6	15.6	115.4	119.2	96	95	☑	☐
07	#3		S6	16.2	116.2	119.2	97	95	☑	☐
08	#3		S6	15.7	114.8	119.2	96	95	☑	☐
									☐	☐
									☐	☐
01	#3	Ref triangle	S6	14.8	115.4	119.2	96	95	☑	☐
02	#3		S6	15.1	114.0	119.2	96	95	☑	☐
03	#3		S6	14.9	114.8	119.2	96	95	☑	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#3	Brown Silty Sandy Clay And Gravel		13.6	119.2

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None
Name: Andrew Hawvihorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324

(b) (4)

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 8/22/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters Point/South Pier & Triangle
Inspection(s) Performed: _____
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
01	#3	Ref: South Pier	S6	14.7	114.8	119.2	96	95	☑	☐
02	#3	Plot-Plan	S6	15.2	115.2	119.2	96	95	☑	☐
03	#3	Dated 08/22/2016	S6	14.9	115.4	119.2	96	95	☑	☐
04	#3		S6	13.9	114.9	119.2	96	95	☑	☐
05	#3		S6	14.2	113.9	119.2	95	95	☑	☐
06	#3		S6	15.6	115.4	119.2	96	95	☑	☐
07	#3		S6	16.2	116.2	119.2	97	95	☑	☐
08	#3		S6	15.7	114.8	119.2	96	95	☑	☐
									☐	☐
									☐	☐
01	#3	Ref triangle	S6	14.8	115.4	119.2	96	95	☑	☐
02	#3		S6	15.1	114.0	119.2	96	95	☑	☐
03	#3		S6	14.9	114.8	119.2	96	95	☑	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#3	Brown Silty Sandy Clay And Gravel		13.6	119.2

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None
Name: Andrew Hawvihorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: GEOTECHNICAL - SERVICES PARCEL D-1 Date: 8/23/16
Project Address: _____ CBRE 147831 SESF Job # 69995-1
Inspection Location: HUNTERS PT. SOUTH PIER / GUNNOCK
Inspection(s) Performed: COMPACTION - TESTING
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf) Dry	Density (pcf) Max	% Rel. Compaction Field	% Rel. Compaction Spec.	Pass	Fail
									☐	☐
01	#3	RRF: SOUTH PIER (ASTM-D1556)	F.G.	18.9	118.3	119.2	98	95	☑	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
02	#1	ARCH 4	-18"	9.2	121.2	125.9	96	95	☑	☐
									☐	☐
03	"	"	A.B.	10.2	122.4	"	96	95	☑	☐
									☐	☐
04	"	"	A.B.	10.4	123.2	"	96	95	☑	☐
									☐	☐
									☐	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#1	BROWN A.B.		8.5	125.9
#3	BROWN SILTY SANDY CLAY / GRAVEL		13.6	119.2

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

~~**Work Not** In Compliance:~~
ASTM - D1556
ASTM - D1557
ASTM - 2216
GAGE # 7240

Notified (Required): _____

Attachments: None

Name: ALVARO MANJARREZ

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 8/22/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters Point/South Pier & Triangle
Inspection(s) Performed: _____
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
01	#3	Ref: South Pier	S6	14.7	114.8	119.2	96	95	☑	☐
02	#3	Plot-Plan	S6	15.2	115.2	119.2	96	95	☑	☐
03	#3	Dated 08/22/2016	S6	14.9	115.4	119.2	96	95	☑	☐
04	#3		S6	13.9	114.9	119.2	96	95	☑	☐
05	#3		S6	14.2	113.9	119.2	95	95	☑	☐
06	#3		S6	15.6	115.4	119.2	96	95	☑	☐
07	#3		S6	16.2	116.2	119.2	97	95	☑	☐
08	#3		S6	15.7	114.8	119.2	96	95	☑	☐
									☐	☐
									☐	☐
01	#3	Ref triangle	S6	14.8	115.4	119.2	96	95	☑	☐
02	#3		S6	15.1	114.0	119.2	96	95	☑	☐
03	#3		S6	14.9	114.8	119.2	96	95	☑	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#3	Brown Silty Sandy Clay And Gravel		13.6	119.2

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None
Name: Andrew Hawvihorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 8/22/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters Point/South Pier & Triangle
Inspection(s) Performed: _____
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
01	#3	Ref: South Pier	S6	14.7	114.8	119.2	96	95	☑	☐
02	#3	Plot-Plan	S6	15.2	115.2	119.2	96	95	☑	☐
03	#3	Dated 08/22/2016	S6	14.9	115.4	119.2	96	95	☑	☐
04	#3		S6	13.9	114.9	119.2	96	95	☑	☐
05	#3		S6	14.2	113.9	119.2	95	95	☑	☐
06	#3		S6	15.6	115.4	119.2	96	95	☑	☐
07	#3		S6	16.2	116.2	119.2	97	95	☑	☐
08	#3		S6	15.7	114.8	119.2	96	95	☑	☐
									☐	☐
									☐	☐
01	#3	Ref triangle	S6	14.8	115.4	119.2	96	95	☑	☐
02	#3		S6	15.1	114.0	119.2	96	95	☑	☐
03	#3		S6	14.9	114.8	119.2	96	95	☑	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#3	Brown Silty Sandy Clay And Gravel		13.6	119.2

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None
Name: Andrew Hawvihorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
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LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 8/22/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters Point/South Pier & Triangle
Inspection(s) Performed: _____
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
01	#3	Ref: South Pier	S6	14.7	114.8	119.2	96	95	☑	☐
02	#3	Plot-Plan	S6	15.2	115.2	119.2	96	95	☑	☐
03	#3	Dated 08/22/2016	S6	14.9	115.4	119.2	96	95	☑	☐
04	#3		S6	13.9	114.9	119.2	96	95	☑	☐
05	#3		S6	14.2	113.9	119.2	95	95	☑	☐
06	#3		S6	15.6	115.4	119.2	96	95	☑	☐
07	#3		S6	16.2	116.2	119.2	97	95	☑	☐
08	#3		S6	15.7	114.8	119.2	96	95	☑	☐
									☐	☐
									☐	☐
01	#3	Ref triangle	S6	14.8	115.4	119.2	96	95	☑	☐
02	#3		S6	15.1	114.0	119.2	96	95	☑	☐
03	#3		S6	14.9	114.8	119.2	96	95	☑	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#3	Brown Silty Sandy Clay And Gravel		13.6	119.2

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None
Name: Andrew Hawvihorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 9/1/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters PT-Triangle
Inspection(s) Performed: _____
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
									☐	☐
01	#4	Ref: Plot - Plan	S.G.	12.4	117.4	122.8	96	95	☑	☐
		Dated 09/01/2016							☐	☐
02	#4		S.G.	11.9	118.6	122.8	96	95	☑	☐
									☐	☐
03	#4		S.G.	12.2	117.9	122.8	96	95	☑	☐
									☐	☐
04	#4		S.G.	11.8	116.9	122.8	95	95	☑	☐
									☐	☐
05	#4		S.G.	11.7	117.6	122.8	96	95	☑	☐
									☐	☐
									☐	☐
									☐	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#4	Brown Silty Sandy Clay w/ Gravel		10.4	122.8

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None Name: Andrew Howvihorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324 Page 1 of 1

SMITH-EMERY SAN FRANCISCO
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(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 9/6/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters Point - Gunmole / Triangle
Inspection(s) Performed: _____
Document(s) Reviewed: _____

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
01	#1	Gunmole Ref: Arc #13	A.B.	10.2	121.6	125.9	96	95	☑	☐
02	#1	Gunmole Ref: Arc #15	A.B.	9.8	120.9	125.9	96	95	☑	☐
03	#1	East #18	A.B.	9.7	122.3	125.9	97	95	☑	☐
04	#1	East #21	A.B.	10.4	121.6	125.9	96	95	☑	☐
05	#1	West Arc# 2	A.B.	9.1	120.4	125.9	95	95	☑	☐
06	#1	Wesr Arc #21	A.B.	9.3	121.7	125.9	96	95	☑	☐
									☐	☐
		Triangle							☐	☐
01	#4	Ref: Plot Plan	S.G.	11.7	118.4	122.8	96	95	☑	☐
02	#4	9/6/2016	S.G.	12.4	117.9	122.8	95	95	☑	☐
03	#4		S.G.	11.9	119.3	122.8	97	95	☑	☐
04	#4		S.G.	11.8	117.7	122.8	95	95	☑	☐
05	#4		S.G.	12.2	118.4	122.8	96	95	☑	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#1	Brown A.B. / Brisbane Bernard Pile		8.5	125.9
#4	Brown Silty Sandy Clay w/ Gravel		10.4	122.8

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None Name: Andrew Hawvichorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324 Page 1 of 1

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 9/9/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters Point/Triangle
Inspection(s) Performed: _____
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
									☐	☐
01	#4	Ref: Plot-Plan	S.G.	11.6	117.4	122.8	95	95	☑	☐
		Dated 9/9/2016							☐	☐
02	#4	Triangle	S.G.	12.2	118.6	122.8	96	95	☑	☐
		South-East							☐	☐
03	#4	Quadrant	S.G.	12.7	116.9	122.8	95	95	☑	☐
									☐	☐
04	#4		S.G.	10.9	118.7	122.8	96	95	☑	☐
									☐	☐
05	#4		S.G.	11.2	117.7	122.8	95	95	☑	☐
									☐	☐
									☐	☐
									☐	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#4	Brown Silty Sandy Clay w/ Gravel		10.4	122.8

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None Name: Andrew Hawvichorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324 Page 1 of 1

(b) (4)

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 9/6/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters Point - Gunmole / Triangle
Inspection(s) Performed: _____
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
01	#1	Gunmole Ref: Arc #13	A.B.	10.2	121.6	125.9	96	95	☑	☐
02	#1	Gunmole Ref: Arc #15	A.B.	9.8	120.9	125.9	96	95	☑	☐
03	#1	East #18	A.B.	9.7	122.3	125.9	97	95	☑	☐
04	#1	East #21	A.B.	10.4	121.6	125.9	96	95	☑	☐
05	#1	West Arc# 2	A.B.	9.1	120.4	125.9	95	95	☑	☐
06	#1	Wesr Arc #21	A.B.	9.3	121.7	125.9	96	95	☑	☐
									☐	☐
		Triangle							☐	☐
01	#4	Ref: Plot Plan	S.G.	11.7	118.4	122.8	96	95	☑	☐
02	#4	9/6/2016	S.G.	12.4	117.9	122.8	95	95	☑	☐
03	#4		S.G.	11.9	119.3	122.8	97	95	☑	☐
04	#4		S.G.	11.8	117.7	122.8	95	95	☑	☐
05	#4		S.G.	12.2	118.4	122.8	96	95	☑	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#1	Brown A.B. / Brisbane Bernard Pile		8.5	125.9
#4	Brown Silty Sandy Clay w/ Gravel		10.4	122.8

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None Name: Andrew Hawvichorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 9/7/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters Point-Gunmole
Inspection(s) Performed: _____
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
01	#1		FAB	9.4	121.6	125.9	96	95	☑	☐
02	#1	Ref: Plot-Plan	FAB	10.2	120.4	125.9	95	95	☑	☐
03	#1	1-15	FAB	9.8	122.8	125.9	97	95	☑	☐
04	#1	Dated 9/6/16	FAB	9.6	123.4	125.9	97	95	☑	☐
05	#1		FAB	8.9	122.9	125.9	97	95	☑	☐
06	#1		FAB	9.1	121.7	125.9	96	95	☑	☐
07	#1		FAB	10.7	122.9	125.9	97	95	☑	☐
08	#1		FAB	9.8	119.7	125.9	95	95	☑	☐
09	#1		FAB	9.7	121.6	125.9	96	95	☑	☐
10	#1		FAB	8.9	122.8	125.9	97	95	☑	☐
11	#1		FAB	9.1	121.6	125.9	96	95	☑	☐
12	#1		FAB	8.9	120.4	125.9	95	95	☑	☐
13	#1		FAB	9.3	120.9	125.9	95	95	☑	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#1	Brown A.B./Brisbane Bernard Pile		8.5	125.9

Work ☐ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☐ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A
Material ☐ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A
Material Tested ☐ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None
Name: Andrew Hawvichorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324 Page 1 of 1

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 9/7/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters Point-Gunmole
Inspection(s) Performed: _____
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
#15	#1		FAB	9.1	121.6	125.9	96	95	☑	☐
#16	#1	Ref: Plot-Plan	FAB	8.9	122.4	125.9	97	95	☑	☐
		1-15							☐	☐
		Dated 09/06/2016							☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#1	Brown A.B./ Brisbane Bernard Pile		8.5	125.9

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None
Name: Andrew Hawvichorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324 Page 1 of 1

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 9/8/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters point/Gunmole
Inspection(s) Performed: _____
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
16	#1	Northwest	A.B.	10.4	121.4	125.9	96	95	☑	☐
17	#1	Quadrant	A.B.	11.6	120.9	125.9	96	95	☑	☐
18	#1	Ref: Plot-Plan	A.B.	11.9	119.8	125.9	95	95	☑	☐
19	#1	9/8/2016	A.B.	10.1	122.4	125.9	97	95	☑	☐
20	#1		A.B.	9.8	121.7	125.9	96	95	☑	☐
21	#1		A.B.	10.4	123.6	125.9	97	95	☑	☐
22	#1		A.B.	11.6	122.9	125.9	97	95	☑	☐
23	#1		A.B.	11.9	121.7	125.9	96	95	☑	☐
24	#1		A.B.	10.4	123.2	125.9	97	95	☑	☐
25	#1		A.B.	11.2	121.6	125.9	96	95	☑	☐
26	#1		A.B.	9.9	122.7	125.9	97	95	☑	☐
27	#1		A.B.	10.4	119.6	125.9	95	95	☑	☐
28	#1		A.B.	11.6	121.3	125.9	96	95	☑	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#1	Brown A.B./ Brisbane Bernard Pile		8.5	125.9

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None
Name: Andrew Hawvichorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324 Page 1 of 1

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 9/8/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters Point
Inspection(s) Performed: _____
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
29	#1	Northeast	A.B.	10.6	122.8	125.9	97	95	☑	☐
30	#1	Quadrant	A.B.	11.2	121.7	125.9	96	95	☑	☐
31	#1	Ref: Plot-Plan	A.B.	11.9	123.4	125.9	97	95	☑	☐
		9/8/2016							☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#1	Brown A.B./ Brisbane Bernard Pile		8.5	125.9

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None
Name: Andrew Hawvichorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324 Page 1 of 1

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 9/9/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters Point/Triangle
Inspection(s) Performed: _____
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
									☐	☐
01	#4	Ref: Plot-Plan	S.G.	11.6	117.4	122.8	95	95	☑	☐
		Dated 9/9/2016							☐	☐
02	#4	Triangle	S.G.	12.2	118.6	122.8	96	95	☑	☐
		South-East							☐	☐
03	#4	Quadrant	S.G.	12.7	116.9	122.8	95	95	☑	☐
									☐	☐
04	#4		S.G.	10.9	118.7	122.8	96	95	☑	☐
									☐	☐
05	#4		S.G.	11.2	117.7	122.8	95	95	☑	☐
									☐	☐
									☐	☐
									☐	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#4	Brown Silty Sandy Clay w/ Gravel		10.4	122.8

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None Name: Andrew Hawvichorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324 Page 1 of 1

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 9/12/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters Point/Gunmole and South Pier
Inspection(s) Performed: _____
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
		REF: Gunmole							☐	☐
01	#1	Arc #11	-30	9.1	121.6	125.9	96	95	☑	☐
02	#1	Arc #11	-18"	9.6	120.4	125.9	95	95	☑	☐
03	#1	Arc #11	A.B.	10.2	119.8	125.9	95	95	☑	☐
04	#1	Arc #11	A.B.	9.8	122.3	125.9	96	95	☑	☐
05	#1	Arc #14	A.B.	9.7	121.7	125.9	96	95	☑	☐
									☐	☐
06	#1	Arc #20	A.B.	10.6	120.4	125.9	95	95	☑	☐
									☐	☐
07	#1	Arc #32	A.B.	9.8	122.3	125.9	96	95	☑	☐
08	#1	South Pier	-18"	9.7	121.6	125.9	96	95	☑	☐
09	#1	Gabion-Repair	A.B.	10.2	122.9	125.9	96	95	☑	☐
10	#1		A.B.	10.4	123.2	125.9	97	95	☑	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#1	Brown A.B./Brisbane Bernard Pile		8.5	125.9

Work ☐ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☐ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A
Material ☐ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A
Material Tested ☐ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None
Name: Andrew Hawvichorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324 Page 1 of 1

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 9/13/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters Point/Triangle
Inspection(s) Performed: _____
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
									☐	☐
		Triangle							☐	☐
		REF: Plot Plan							☐	☐
01	#4		S.G.	11.7	118.4	122.8	96	95	☑	☐
									☐	☐
02	#4		S.G.	12.2	117.6	122.8	96	95	☑	☐
									☐	☐
03	#4		S.G.	13.4	118.4	122.8	96	95	☑	☐
									☐	☐
04	#4		S.G.	12.9	119.7	122.8	97	95	☑	☐
									☐	☐
05	#4		S.G.	11.7	118.4	122.8	96	95	☑	☐
									☐	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#4	Brown Silty Sandy Clay w/ Gravel		10.4	122.8

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None
Name: Andrew Hawvichorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324 Page 1 of 1

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY SPECIAL INSPECTION REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 9/14/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters Point/Gunmole
Inspection(s) Performed: _____
Document(s) Reviewed: _____

Inspection Report:

Performed sand-cone tests at Gunmole South & middle S.IC: REF: crane tower.

Work ☐ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☐ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A
Material ☐ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A
Material Tested ☐ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required) _____

Attachments: _____ Name: Andrew Hawvichorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification # _____
Emp. ID: 2324 Page ___ of ___

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY SPECIAL INSPECTION REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 9/15/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters Point/Gunmole/Triangle
Inspection(s) Performed: _____
Document(s) Reviewed: _____

Inspection Report:

2 Sand-Cone test conducted
1 Gunmole North
1 Triangle-North

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required) _____

Attachments: _____ Name: Andrew Hawvichorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification # _____
Emp. ID: 2324 Page ___ of ___

(b) (4)

(b) (4)

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 9/13/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters Point/Triangle
Inspection(s) Performed: _____
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
									☐	☐
		Triangle							☐	☐
		REF: Plot Plan							☐	☐
01	#4		S.G.	11.7	118.4	122.8	96	95	☑	☐
									☐	☐
02	#4		S.G.	12.2	117.6	122.8	96	95	☑	☐
									☐	☐
03	#4		S.G.	13.4	118.4	122.8	96	95	☑	☐
									☐	☐
04	#4		S.G.	12.9	119.7	122.8	97	95	☑	☐
									☐	☐
05	#4		S.G.	11.7	118.4	122.8	96	95	☑	☐
									☐	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#4	Brown Silty Sandy Clay w/ Gravel		10.4	122.8

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None
Name: Andrew Hawvichorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324

(b) (4)

(b) (4)

(b) (4)

(b) (4)

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 9/21/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters Point / Triangle
Inspection(s) Performed: _____
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
									☐	☐
		REF: Plan Plot							☐	☐
		Dated 9/21/2016							☐	☐
06	#4		S.G.	12.4	113.4	122.8	96	95	☑	☐
07	#4		S.G.	11.9	120.2	122.8	98	95	☑	☐
08	#4		S.G.	11.8	119.8	122.8	97	95	☑	☐
09	#4		S.G.	12.6	118.6	122.8	97	95	☑	☐
10	#4		S.G.	12.7	119.7	122.8	97	95	☑	☐
11	#4		S.G.	11.8	121.2	122.8	98	95	☑	☐
12	#4		S.G.	10.9	120.4	122.8	98	95	☑	☐
13	#4		S.G.	11.2	119.6	122.8	97	95	☑	☐
14	#4		S.G.	10.4	118.7	122.8	97	95	☑	☐
15	#4		S.G.	11.6	120.2	122.8	98	95	☑	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#4	Brown Silty Sandy Clay w/ Gravel		10.4	122.8

Work ☑ WAS ☐ WAS NOT Inspected In Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None
Name: Andrew Hawvichorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324 Page 1 of 1

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 9/22/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters Point/Gunmole
Inspection(s) Performed: _____
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
									☐	☐
		Gunmole							☐	☐
01	#4	REF: Plot Plan	S.G.	11.2	119.6	122.8	97	95	☑	☐
02	#4	Dated 9/22/2016	S.G.	11.9	119.7	122.8	97	95	☑	☐
03	#4	16-28	S.G.	12.4	118.4	122.8	97	95	☑	☐
04	#4		S.G.	13.2	121.3	122.8	98	95	☑	☐
05	#4		S.G.	13.3	120.9	122.8	98	95	☑	☐
06	#4		S.G.	12.8	118.6	122.8	97	95	☑	☐
07	#4		S.G.	11.7	121.3	122.8	98	95	☑	☐
08	#4		S.G.	12.4	120.4	122.8	98	95	☑	☐
09	#4		S.G.	13.6	119.6	122.8	97	95	☑	☐
10	#4		S.G.	12.9	117.4	122.8	96	95	☑	☐
									☐	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#4	Brown Silty Sandy Clay w/ Gravel		10.4	122.8

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None
Name: Andrew Hawvichorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324 Page 1 of 1

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 9/23/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters Point/ Gunmole
Inspection(s) Performed: _____
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
									☐	☐
									☐	☐
		REF: Plot Plan							☐	☐
01	#4	Dated 09/23/2016	S.G.	11.7	121.3	122.8	98	95	☑	☐
02	#4	Tests 29-38	S.G.	12.2	120.9	122.8	98	95	☑	☐
03	#4		S.G.	11.9	118.6	122.8	97	95	☑	☐
04	#4		S.G.	11.6	117.4	122.8	96	95	☑	☐
05	#4		S.G.	10.4	118.9	122.8	97	95	☑	☐
06	#4		S.G.	12.6	121.3	122.8	98	95	☑	☐
07	#4		S.G.	10.6	119.4	122.8	97	95	☑	☐
08	#4		S.G.	10.9	118.7	122.8	97	95	☑	☐
09	#4		S.G.	10.7	119.6	122.8	97	95	☑	☐
10	#1	Arc #14	FAB	9.1	122.4	125.9	97	95	☑	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#4	Brown Silty Sandy Clay w/ Gravel		10.4	122.8
#1	Brown A.B.		8.5	125.9

Work ☑ WAS ☐ WAS NOT Inspected In Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None Name: Andrew Hawvichorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324 Page 1 of 1

(b) (4)

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 9/21/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters Point / Triangle
Inspection(s) Performed: _____
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
									☐	☐
		REF: Plan Plot							☐	☐
		Dated 9/21/2016							☐	☐
06	#4		S.G.	12.4	113.4	122.8	96	95	☑	☐
07	#4		S.G.	11.9	120.2	122.8	98	95	☑	☐
08	#4		S.G.	11.8	119.8	122.8	97	95	☑	☐
09	#4		S.G.	12.6	118.6	122.8	97	95	☑	☐
10	#4		S.G.	12.7	119.7	122.8	97	95	☑	☐
11	#4		S.G.	11.8	121.2	122.8	98	95	☑	☐
12	#4		S.G.	10.9	120.4	122.8	98	95	☑	☐
13	#4		S.G.	11.2	119.6	122.8	97	95	☑	☐
14	#4		S.G.	10.4	118.7	122.8	97	95	☑	☐
15	#4		S.G.	11.6	120.2	122.8	98	95	☑	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#4	Brown Silty Sandy Clay w/ Gravel		10.4	122.8

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None
Name: Andrew Hawvichorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324 Page 1 of 1

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 9/22/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters Point/Gunmole
Inspection(s) Performed: _____
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
									☐	☐
		Gunmole							☐	☐
01	#4	REF: Plot Plan	S.G.	11.2	119.6	122.8	97	95	☑	☐
02	#4	Dated 9/22/2016	S.G.	11.9	119.7	122.8	97	95	☑	☐
03	#4	16-28	S.G.	12.4	118.4	122.8	97	95	☑	☐
04	#4		S.G.	13.2	121.3	122.8	98	95	☑	☐
05	#4		S.G.	13.3	120.9	122.8	98	95	☑	☐
06	#4		S.G.	12.8	118.6	122.8	97	95	☑	☐
07	#4		S.G.	11.7	121.3	122.8	98	95	☑	☐
08	#4		S.G.	12.4	120.4	122.8	98	95	☑	☐
09	#4		S.G.	13.6	119.6	122.8	97	95	☑	☐
10	#4		S.G.	12.9	117.4	122.8	96	95	☑	☐
									☐	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#4	Brown Silty Sandy Clay w/ Gravel		10.4	122.8

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None
Name: Andrew Hawvichorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324 Page 1 of 1

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 9/23/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters Point/ Gunmole
Inspection(s) Performed: _____
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
									☐	☐
									☐	☐
		REF: Plot Plan							☐	☐
01	#4	Dated 09/23/2016	S.G.	11.7	121.3	122.8	98	95	☑	☐
02	#4	Tests 29-38	S.G.	12.2	120.9	122.8	98	95	☑	☐
03	#4		S.G.	11.9	118.6	122.8	97	95	☑	☐
04	#4		S.G.	11.6	117.4	122.8	96	95	☑	☐
05	#4		S.G.	10.4	118.9	122.8	97	95	☑	☐
06	#4		S.G.	12.6	121.3	122.8	98	95	☑	☐
07	#4		S.G.	10.6	119.4	122.8	97	95	☑	☐
08	#4		S.G.	10.9	118.7	122.8	97	95	☑	☐
09	#4		S.G.	10.7	119.6	122.8	97	95	☑	☐
10	#1	Arc #14	FAB	9.1	122.4	125.9	97	95	☑	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#4	Brown Silty Sandy Clay w/ Gravel		10.4	122.8
#1	Brown A.B.		8.5	125.9

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None
Name: Andrew Hawvichorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324 Page 1 of 1

(b) (4)

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 9/27/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters Point - Gunmole
Inspection(s) Performed: _____
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
									☐	☐
		Gunmole							☐	☐
01	#4	REF: Plot Plan	S.G.	11.9	117.4	122.8	95	95	☑	☐
02	#4	Dated 09/27/2016	S.G.	12.4	120.2	122.8	98	95	☑	☐
03	#4		S.G.	12.6	119.8	122.8	98	95	☑	☐
04	#4		S.G.	10.9	118.6	122.8	97	95	☑	☐
05	#4		S.G.	11.2	119.7	122.8	97	95	☑	☐
06	#4		S.G.	12.4	117.8	122.8	95	95	☑	☐
07	#4		S.G.	11.7	120.2	122.8	98	95	☑	☐
08	#4		S.G.	11.7	119.6	122.8	98	95	☑	☐
									☐	☐
									☐	☐
									☐	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#4	Brown Silty Sandy Clay w/ Gravel		10.4	122.8

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested In Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None
Name: Andrew Hawvichorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324 Page 1 of 1

(b) (4)

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 9/27/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters Point - Gunmole
Inspection(s) Performed: _____
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
									☐	☐
		Gunmole							☐	☐
01	#4	REF: Plot Plan	S.G.	11.9	117.4	122.8	95	95	☑	☐
02	#4	Dated 09/27/2016	S.G.	12.4	120.2	122.8	98	95	☑	☐
03	#4		S.G.	12.6	119.8	122.8	98	95	☑	☐
04	#4		S.G.	10.9	118.6	122.8	97	95	☑	☐
05	#4		S.G.	11.2	119.7	122.8	97	95	☑	☐
06	#4		S.G.	12.4	117.8	122.8	95	95	☑	☐
07	#4		S.G.	11.7	120.2	122.8	98	95	☑	☐
08	#4		S.G.	11.7	119.6	122.8	98	95	☑	☐
									☐	☐
									☐	☐
									☐	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#4	Brown Silty Sandy Clay w/ Gravel		10.4	122.8

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested In Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None
Name: Andrew Hawvichorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324 Page 1 of 1

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY SPECIAL INSPECTION REPORT

Project Name: GEOTECHNICAL - SERVICES H.P. PROF D-1 Date: 9/28/16
Project Address: _____ SESF Job # 69995-1
Inspection Location: TRIANGLE AREA
Inspection(s) Performed: SAWN-CORE TESTING / N.G. TESTING
Document(s) Reviewed:

Inspection Report:

① 128.2 @ 6.8
② 120.9 @ 5.8
③ 126.6 @ 6.5

N.G. TESTING TO SAWN-CORE COMPRESSION.

Work ☒ WAS ☐ WAS NOT Inspected In Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material ☒ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material Tested ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required) _____

Attachments: _____

Name: ANDREW HAWKINS

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification # _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY SPECIAL INSPECTION REPORT

Project Name: GEOTECHNICAL - SERVICES H.P. PROF D-1 Date: 9/28/16
Project Address: _____ SESF Job # 69995-1
Inspection Location: TRIANGLE AREA
Inspection(s) Performed: SAWN-CORE TESTING / N.G. TESTING
Document(s) Reviewed:

Inspection Report:

① 128.2 @ 6.8
② 120.9 @ 5.8
③ 126.6 @ 6.5

N.G. TESTING TO SAWN-CORE COMPRESSION.

Work ☒ WAS ☐ WAS NOT Inspected In Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material ☒ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material Tested ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required) _____

Attachments: _____

Name: ANDREW HAWKINS

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification # _____
Emp. ID: 2324

(b) (4)

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY SPECIAL INSPECTION REPORT

Project Name: GEOTECHNICAL - SERVICES H.P. PROF D-1 Date: 9/28/16
Project Address: _____ SESF Job # 69995-1
Inspection Location: TRIANGLE AREA
Inspection(s) Performed: SAWN-CORE TESTING / N.G. TESTING
Document(s) Reviewed:

Inspection Report:

① 128.2 @ 6.8
② 120.9 @ 5.8
③ 126.6 @ 6.5

N.G. TESTING TO SAWN-CORE COMPRESSION.

Work ☒ WAS ☐ WAS NOT Inspected In Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material ☒ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material Tested ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required) _____

Attachments: _____

Name: ANDREW HAWKINS

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification # _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 10/5/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunter's PT./Gunmole
Inspection(s) Performed: _____
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
									☐	☐
									☐	☐
01	#4	REF: Plot-Plan	S.G.	12.2	120.4	122.8	98	95	☑	☐
02	#4	Today's Date	S.G.	11.9	119.7	122.8	97	95	☑	☐
03	#4	10/5/2016	S.G.	11.8	121.2	122.8	98	95	☑	☐
04	#4	Gunmole	S.G.	13.2	119.7	122.8	97	95	☑	☐
05	#4	I-10	S.G.	12.6	121.3	122.8	98	95	☑	☐
06	#4		S.G.	12.5	118.4	122.8	96	95	☑	☐
07	#4		S.G.	11.7	120.2	122.8	98	95	☑	☐
08	#4		S.G.	11.8	119.6	122.8	97	95	☑	☐
09	#4		S.G.	12.2	121.4	122.8	98	95	☑	☐
10	#4		S.G.	13.4	120.8	122.8	98	95	☑	☐
									☐	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#4	Brown Silty Sandy Clay w/ Gravel		10.4	122.8

Work ☑ WAS ☐ WAS NOT Inspected In Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested In Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None Name: Andrew Hawvichorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324 Page 1 of 1

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 10/7/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters PT./Triangle/S.F.
Inspection(s) Performed: _____
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
									☐	☐
		REF: Plot-Plan							☐	☐
01	#4	Today's Date	S.G.	11.7	118.6	122.8	96	95	☑	☐
		10/7/2016							☐	☐
02	#4		S.G.	12.2	119.4	122.8	97	95	☑	☐
									☐	☐
03	#4		S.G.	12.8	120.2	122.8	98	95	☑	☐
									☐	☐
04	#4		S.G.	11.9	119.7	122.8	97	95	☑	☐
									☐	☐
05	#4		S.G.	11.6	120.3	122.8	98	95	☑	☐
									☐	☐
									☐	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#4	Brown Silty Sandy Clay w/ Rock & Gravel		10.4	122.8

Work ☑ WAS ☐ WAS NOT Inspected In Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested In Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None
Name: Andrew Hawvichorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324 Page 1 of 1

(b) (4)

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 10/5/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunter's PT./Gunmole
Inspection(s) Performed: _____
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
									☐	☐
									☐	☐
01	#4	REF: Plot-Plan	S.G.	12.2	120.4	122.8	98	95	☑	☐
02	#4	Today's Date	S.G.	11.9	119.7	122.8	97	95	☑	☐
03	#4	10/5/2016	S.G.	11.8	121.2	122.8	98	95	☑	☐
04	#4	Gunmole	S.G.	13.2	119.7	122.8	97	95	☑	☐
05	#4	1-10	S.G.	12.6	121.3	122.8	98	95	☑	☐
06	#4		S.G.	12.5	118.4	122.8	96	95	☑	☐
07	#4		S.G.	11.7	120.2	122.8	98	95	☑	☐
08	#4		S.G.	11.8	119.6	122.8	97	95	☑	☐
09	#4		S.G.	12.2	121.4	122.8	98	95	☑	☐
10	#4		S.G.	13.4	120.8	122.8	98	95	☑	☐
									☐	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#4	Brown Silty Sandy Clay w/ Gravel		10.4	122.8

Work ☑ WAS ☐ WAS NOT Inspected In Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested In Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None Name: Andrew Hawvichorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324 Page 1 of 1

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 10/7/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters PT./Triangle/S.F.
Inspection(s) Performed: _____
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
									☐	☐
		REF: Plot-Plan							☐	☐
01	#4	Today's Date	S.G.	11.7	118.6	122.8	96	95	☑	☐
		10/7/2016							☐	☐
02	#4		S.G.	12.2	119.4	122.8	97	95	☑	☐
									☐	☐
03	#4		S.G.	12.8	120.2	122.8	98	95	☑	☐
									☐	☐
04	#4		S.G.	11.9	119.7	122.8	97	95	☑	☐
									☐	☐
05	#4		S.G.	11.6	120.3	122.8	98	95	☑	☐
									☐	☐
									☐	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#4	Brown Silty Sandy Clay w/ Rock & Gravel		10.4	122.8

Work ☑ WAS ☐ WAS NOT Inspected In Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested In Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None
Name: Andrew Hawvichorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324 Page 1 of 1

Aggregate Base Course Geotechnical

(b) (4)

(b) (4)

(b) (4)

(b) (4)

(b) (4)

(b) (4)

(b) (4)

(b) (4)

(b) (4)

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(b) (4)

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(b) (4)

(b) (4)

(b) (4)

(b) (4)

Aggregate Base Course Compaction

(b) (4)

(b) (4)

(b) (4)

(b) (4)

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LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 7/21/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunter's Point SF
Inspection(s) Performed: Soils - Compaction
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
									☐	☐
		REF: South Parr							☐	☐
01	#1	East	FAB	9.7	120.6	125.9	96	95	☑	☐
									☐	☐
02	#1		FAB	10.2	119.7	125.9	95	95	☑	☐
									☐	☐
03	#1		FAB	9.8	121.6	125.9	96	95	☑	☐
		West							☐	☐
04	#1		FAB	9.7	120.4	125.9	96	95	☑	☐
									☐	☐
05	#1		FAB	10.1	119.8	125.9	95	95	☑	☐
		BLD 274							☐	☐
06			FAB	9.8	122.3	125.9	97	95	☑	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#1	Brown A.B./Brisbane Bernard Pile		8.5	125.9

Work ☑ WAS ☐ WAS NOT Inspected In Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None
Name: Andrew Hawvihorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
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(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY SPECIAL INSPECTION REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 8/2/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunter's Point SF
Inspection(s) Performed: Soils - Compaction
Document(s) Reviewed:

Inspection Report:

On-site mid-morning as requested. Met with Nathalie Rothell for job-site overview and project details. Testing of candlestick point backfill material conducted. Sampling of material for lab-data.
Results Pending.

ASTM-D1557
ASTM-D6938

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required) _____

Attachments: _____ Name: Andrew Hawvihorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification # _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 8/2/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunter's Point SF
Inspection(s) Performed: Soils - Compaction
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
									☐	☐
		Rief Station							☐	☐
		#1005							☐	☐
		TRST #01							☐	☐
01		East	5.6	13.4	114.7	119.2	96	95	☑	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
02		West	5.6	12.9	113.9	119.2	96	95	☑	☐
									☐	☐
									☐	☐
									☐	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
	Brown Silty Sand W/ Gravel		12.0	119.2

Work ☐ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☐ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A
Material ☐ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A
Material Tested ☐ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None
Name: Andrew Hawvihorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324 Page 1 of 1

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY SPECIAL INSPECTION REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 8/8/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunter's Point SF
Inspection(s) Performed: Soils - Compaction
Document(s) Reviewed:

Inspection Report:

On Site in the morning as requested.
Met with CBI for Job Site Details and Location Testing located at the gunmole area and arc: #2. Sampling of material (candlestick pt.) conducted and gunmole area for future testing of backfill.

ASTM-D01557
GAGR H7740

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required) _____

Attachments: _____ Name: Andrew Hawvihorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification # _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 8/8/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunter's Point SF/Gunmole
Inspection(s) Performed: Soils - Compaction
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
		Gunmole Area							☐	☐
		STA #1005							☐	☐
01	#2	East	T.2	12.6	114.6	11932	96	95	☑	☐
		TRST #02							☐	☐
									☐	☐
02	#2	West	T.2	13.2	113.9	119.2	96	95	☑	☐
									☐	☐
		Northeast	FAB	9.6	121.3	125.9	96	95	☑	☐
03	#1	Finish A.B.							☐	☐
									☐	☐
01	#1	ARC:#2	-30	10.2	120.4	125.9	96	95	☑	☐
									☐	☐
									☐	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#2	Brown Silty Sand W/ Gravel		12.0	119.2
#1	Brown A.R. (Brisbane Biernard Pile		8.5	125.9

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None Name: Andrew Hawvihorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324 Page 1 of 1

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY SPECIAL INSPECTION REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 8/11/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunter's Point SF/ Gunmole
Inspection(s) Performed: Soils - Compaction
Document(s) Reviewed:

Inspection Report:

On Site in the morning as requested. Met with Sam Hopstone w/ C.B.I. for job site overview and detailed testing of material located at Gumole achieved req. 95% densities and opt. moistures. Plot-plan estalished on this rate, for test location upon placement.

ASTM-D1557
Gage#7740

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required) _____

Attachments: _____ Name: Andrew Hawvihorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification # _____
Emp. ID: 2324 Page 1 of 3

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 8/11/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunter's Point SF/Gunmole
Inspection(s) Performed: Soils - Compaction
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
01	#3	Reference	S.6	15.6	114.4	119.2	96	95	☑	☐
02	#1	Plot Plan	FAB	10.2	120.4	125.9	95	95	☑	☐
03	#3	Today's Date	S.G	14.2	113.9	119.2	95	95	☑	☐
04	#1	8/11/2016	FAB	10.8	127.8	125.9	97	95	☑	☐
05	#3		S.G	14.9	115.3	119.2	96	95	☑	☐
06	#2		S.G	15.2	114.8	119.2	96	95	☑	☐
07	#1		FAB	11.2	123.6	125.9	98	95	☑	☐
08	#1		FAB	10.9	122.9	125.9	97	95	☑	☐
09	#1		FAB	10.6	123.7	125.9	98	95	☑	☐
10	#3	Continue	S.G	16.3	115.2	119.2	96	95	☑	☐
11	#1	Page #3	FAB	11.2	121.6	125.9	96	95	☑	☐
12	#3		S.G	15.4	114.7	119.2	96	95	☑	☐
13	#3		S.G	15.8	114-9	119.2	96	95	☑	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#1	Brown A.B. (Brisbane Bernard Pile)		8.5	125.9
#2	Brown silty sand with gravel		12.2	119.2
#3	Brown silty sandy clay with gravel (Candlestick PT.)		13.6	119.2

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None Name: Andrew Hawvihorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 8/11/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunter's Point SF
Inspection(s) Performed: Soils - Compaction
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
14	#3	REF: Plot-	S.G	15.4	116.2	119.2	97	95	☑	☐
15	#1	Plan	FAB	10.4	122.8	125.9	97	95	☑	☐
16	#1	On-This	FAB	10.7	123.2	125.9	98	95	☑	☐
17	#3	Date	S.G	16.2	115.6	119.2	97	95	☑	☐
18	#3	8/11/2016	S.G	15.9	114.7	119.2	96	95	☑	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#1	Brown A.B. (Brisbane Bernard Pile)		8.5	125.9
#3	Brown silty sandy clay with gravel (Candlestick PT.)		13.6	119.2

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None
Name: Andrew Hawvihorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY SPECIAL INSPECTION REPORT

Project Name: GEOTECHNICAL - SERVICES / PARCEL D-1 Date: 7/21/16
Project Address: CBI # 149831 SESF Job # 69995-1
Inspection Location: HUNTERS POINT — S.I
Inspection(s) Performed: COMPACTION - TESTING
Document(s) Reviewed:

Inspection Report:

ON-SITE MID-MORNING AS REQUESTED FOR WORK CONDUCTED BY CBI. MET WITH SAM HOPSTONE FOR JOB-SITE OVERVIEW AND PROJECT DETAILS. TESTING OF FINISH AGG BASE LOCATED AT THE SOUTHPIER ACHIEVED REQ. 95% DENSITY'S @ OPT. MOISTURES THROUGHOUT MARKED LOCATIONS AS DIRECTED.

BLD. 274
ASTM = D1556
ASTM = D2216

Work ☒ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material ☒ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material Tested ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required) _____

Attachments: _____

Name: ANDREW HAWICHORST

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: [signature]
Certification # _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: GEOTECHNICAL - SERVICES - PARCEL D-1 Date: 7/21/16
Project Address: CB1 # 149831 SESF Job # 69995-1
Inspection Location: HUNTERS POINT — S.F.
Inspection(s) Performed: COMPACTION - TESTING
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf) Dry	Density (pcf) Max	% Rel. Compaction Field	% Rel. Compaction Spec.	Pass	Fail
									☐	☐
		REF: SOUTH PARCEL							☐	☐
01	#1	EAST	FAR	9.9	120.6	125.9	96	95	☑	☐
									☐	☐
02			FAR	10.2	119.7		95	95	☑	☐
									☐	☐
03			FAR	9.8	121.6		96	95	☑	☐
		WEST							☐	☐
04			FAR	9.7	120.4		96	95	☑	☐
									☐	☐
05			FAR	10.1	119.8		95	95	☑	☐
		R.D. 274.							☐	☐
06	/		FAR	9.8	122.3	/	97	95	☑	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#1	BROWN A.B. / RESISTANCE BERNDED PLUG.		8.5	125.9

Work ☒ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material ☒ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material Tested ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A

In Compliance: Notified (Required): _____

ASTM. D1557
GAGE # 7740

Attachments: None

Name: ANDREW HAWTHORST

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2524

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY SPECIAL INSPECTION REPORT

Project Name: GEOTECHNICAL-SERVICES PARCEL D-1 Date: 3/8/16
Project Address: _____ C.B.I.# 149831 SESF Job # 69995-1
Inspection Location: HUNTERS POINT — S.F. / GUNMOCK
Inspection(s) Performed: COMPACTION-TESTING / SAMPLING
Document(s) Reviewed: _____

Inspection Report:

ON-SITE IN THE MORNING AS REQUESTED. MET WITH C.B.I.. FOR JOB-SITE DETAILS AND LOCATIONS. TESTING LOCATION AT THE GUNMOCK AREA @ ARC: # 2. SAMPLING OF MATERIAL (CONCRETE PT) CONDUCTED @ GUNMOCK AREA FOR FUTURE TESTING OF BACKFILL.

Work ☒ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material ☒ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material Tested ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A

~~Work Not~~ In Compliance: Notified (Required) _____

ASTM-D1557
GAGE # 7740

Attachments: _____

Name: ANDREW HOWICHORST

Signature: _____

Certification # _____

Emp. ID: 2324 Page 1 of 2

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

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(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: GEOTECHNICAL SERVICES PARCEL D-1 Date: 8/8/16
Project Address: C.B.I. # 149831 SESF Job # 69995-1
Inspection Location: HUNTERS POINT — S.F. / GUNNOCK
Inspection(s) Performed: COMPACTION - TESTING / SAMPLING
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
		GUNNOCK AREA							☐	☐
		STA # 1005							☐	☐
01	#2	EAST	T.2	12.6	114.6	119.2	96	95	☒	☐
		TEST #2							☐	☐
									☐	☐
02		WEST		13.2	113.9	119.2	96	95	☒	☐
									☐	☐
		NORTHEAST							☐	☐
03	#1	FINISH A.B.	FAB	9.6	121.3	125.9	96	95	☒	☐
									☐	☐
									☐	☐
01	#1	ARC: #2	-3'	10.2	120.4	125.9	96	95	☒	☐
									☐	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#2	BROWN SILTY SAND w/ GRVL.		12.0	119.2
#1	BROWN A.R. / BRISBANE BERNARD P.L.		8.5	125.9

Work ☒ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material ☒ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material Tested ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A

~~Work Not~~ In Compliance:
ASTM - D1557
EARTH 7740

Notified (Required): _____

Attachments: None

Name: ANDREW HAWVERMORSE

Signature: _____

Certification #: _____

Emp. ID: 2324

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

SMITH-EMERY SAN FRANCISCO
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(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: GEOTECHNICAL SERVICES / PARCEL D-1 Date: 8/18/16
Project Address: CBPI #149831 SESF Job # 69995-1
Inspection Location: HUNTERS PT. — GUN-MOLE
Inspection(s) Performed: COMPACTION-TESTING
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf) Dry	Density (pcf) Max	% Rel. Compaction Field	% Rel. Compaction Spec.	Pass	Fail
									☐	☐
		SOUTH							☐	☐
		GUN-MOLE							☐	☐
01	#1		A.B	10.2	122.8	125.9	97	95	☑	☐
		VERIFY							☐	☐
		PLOT PLAN							☐	☐
02		DATE 8/18/16	A.B	9.8	123.7		98	95	☑	☐
									☐	☐
									☐	☐
03			A.B	10.3	121.8		96	95	☑	☐
									☐	☐
									☐	☐
04			A.B	10.2	122.4		97	95	☑	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#1	BROWN A.B.		8.5	125.9

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

~~Work~~ Not In Compliance: Notified (Required): _____
ASTM - D1557
GAGE # 7740

Attachments: None

Name: ANDREW HAWVICHORST

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: [signature]
Certification #: _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
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(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 8/18/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunter's Point SF/Gunmole
Inspection(s) Performed: Soils - Compaction
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
									☐	☐
		South Gun-Mole							☐	☐
01	#1		A.B.	10.2	122.8	125.9	97	95	☑	☐
		Verify							☐	☐
		Plot Plan							☐	☐
02	#1	Dated 8/18/16	A.B.	9.8	123.7	125.9	98	95	☑	☐
									☐	☐
			A.B.	10.3	121.5	125.9	96	95	☑	☐
03	#1								☐	☐
									☐	☐
04	#1		A.B.	10.2	122.4	125.9	97	95	☑	☐
									☐	☐
									☐	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#1	Brown A.B.		8.5	125.9

Work ☑ WAS ☐ WAS NOT Inspected In Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None Name: Andrew Hawvihorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324 Page 1 of 1

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 8/22/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters Point/South Pier & Triangle
Inspection(s) Performed: _____
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
01	#3	Ref: South Pier	S6	14.7	114.8	119.2	96	95	☑	☐
02	#3	Plot-Plan	S6	15.2	115.2	119.2	96	95	☑	☐
03	#3	Dated 08/22/2016	S6	14.9	115.4	119.2	96	95	☑	☐
04	#3		S6	13.9	114.9	119.2	96	95	☑	☐
05	#3		S6	14.2	113.9	119.2	95	95	☑	☐
06	#3		S6	15.6	115.4	119.2	96	95	☑	☐
07	#3		S6	16.2	116.2	119.2	97	95	☑	☐
08	#3		S6	15.7	114.8	119.2	96	95	☑	☐
									☐	☐
									☐	☐
01	#3	Ref triangle	S6	14.8	115.4	119.2	96	95	☑	☐
02	#3		S6	15.1	114.0	119.2	96	95	☑	☐
03	#3		S6	14.9	114.8	119.2	96	95	☑	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#3	Brown Silty Sandy Clay And Gravel		13.6	119.2

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None
Name: Andrew Hawvihorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY SPECIAL INSPECTION REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 8/22/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters Point/South Pier & Triangle
Inspection(s) Performed:
Document(s) Reviewed:

Inspection Report:

On site in the morning for continued compaction testing. Material from Candlestick Pt. achieved req. 95% density and opt. moistures throughout marked location. (Plot Plan)

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required) _____

Attachments: None Name: Andrew Hawvihorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification # _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 8/22/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters Point/South Pier & Triangle
Inspection(s) Performed: _____
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
01	#3	Ref: South Pier	S6	14.7	114.8	119.2	96	95	☑	☐
02	#3	Plot-Plan	S6	15.2	115.2	119.2	96	95	☑	☐
03	#3	Dated 08/22/2016	S6	14.9	115.4	119.2	96	95	☑	☐
04	#3		S6	13.9	114.9	119.2	96	95	☑	☐
05	#3		S6	14.2	113.9	119.2	95	95	☑	☐
06	#3		S6	15.6	115.4	119.2	96	95	☑	☐
07	#3		S6	16.2	116.2	119.2	97	95	☑	☐
08	#3		S6	15.7	114.8	119.2	96	95	☑	☐
									☐	☐
									☐	☐
01	#3	Ref triangle	S6	14.8	115.4	119.2	96	95	☑	☐
02	#3		S6	15.1	114.0	119.2	96	95	☑	☐
03	#3		S6	14.9	114.8	119.2	96	95	☑	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#3	Brown Silty Sandy Clay And Gravel		13.6	119.2

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None
Name: Andrew Hawvihorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 8/22/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters Point/South Pier & Triangle
Inspection(s) Performed: _____
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
01	#3	Ref: South Pier	S6	14.7	114.8	119.2	96	95	☑	☐
02	#3	Plot-Plan	S6	15.2	115.2	119.2	96	95	☑	☐
03	#3	Dated 08/22/2016	S6	14.9	115.4	119.2	96	95	☑	☐
04	#3		S6	13.9	114.9	119.2	96	95	☑	☐
05	#3		S6	14.2	113.9	119.2	95	95	☑	☐
06	#3		S6	15.6	115.4	119.2	96	95	☑	☐
07	#3		S6	16.2	116.2	119.2	97	95	☑	☐
08	#3		S6	15.7	114.8	119.2	96	95	☑	☐
									☐	☐
									☐	☐
01	#3	Ref triangle	S6	14.8	115.4	119.2	96	95	☑	☐
02	#3		S6	15.1	114.0	119.2	96	95	☑	☐
03	#3		S6	14.9	114.8	119.2	96	95	☑	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#3	Brown Silty Sandy Clay And Gravel		13.6	119.2

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None
Name: Andrew Hawvihorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 8/22/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters Point/South Pier & Triangle
Inspection(s) Performed: _____
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
01	#3	Ref: South Pier	S6	14.7	114.8	119.2	96	95	☑	☐
02	#3	Plot-Plan	S6	15.2	115.2	119.2	96	95	☑	☐
03	#3	Dated 08/22/2016	S6	14.9	115.4	119.2	96	95	☑	☐
04	#3		S6	13.9	114.9	119.2	96	95	☑	☐
05	#3		S6	14.2	113.9	119.2	95	95	☑	☐
06	#3		S6	15.6	115.4	119.2	96	95	☑	☐
07	#3		S6	16.2	116.2	119.2	97	95	☑	☐
08	#3		S6	15.7	114.8	119.2	96	95	☑	☐
									☐	☐
									☐	☐
01	#3	Ref triangle	S6	14.8	115.4	119.2	96	95	☑	☐
02	#3		S6	15.1	114.0	119.2	96	95	☑	☐
03	#3		S6	14.9	114.8	119.2	96	95	☑	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#3	Brown Silty Sandy Clay And Gravel		13.6	119.2

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None
Name: Andrew Hawvihorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: GEOTECHNICAL - SERVICES PARCEL D-1 Date: 8/23/16
Project Address: _____ CBRE 147831 SESF Job # 69995-1
Inspection Location: HUNTERS PT. SOUTH PIER / GUNNOCK
Inspection(s) Performed: COMPACTION - TESTING
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf) Dry	Density (pcf) Max	% Rel. Compaction Field	% Rel. Compaction Spec.	Pass	Fail
									☐	☐
01	#3	RRF: SOUTH PIER (ASTM-D1556)	F.G.	18.9	118.3	119.2	98	95	☑	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
02	#1	ARCH 4	-18"	9.2	121.2	125.9	96	95	☑	☐
									☐	☐
03	"	"	A.B.	10.2	122.4	"	96	95	☑	☐
									☐	☐
04	"	"	A.B.	10.4	123.2	"	96	95	☑	☐
									☐	☐
									☐	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#1	BROWN A.B.		8.5	125.9
#3	BROWN SILTY SANDY CLAY / GRAVEL		13.6	119.2

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

~~**Work Not** In Compliance:~~
ASTM - D1556
ASTM - D1557
ASTM - 2216
GAGE # 7240

Notified (Required): _____

Attachments: None

Name: ALVARO MANJARREZ

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
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(415) 642-7326
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DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 8/22/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters Point/South Pier & Triangle
Inspection(s) Performed: _____
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
01	#3	Ref: South Pier	S6	14.7	114.8	119.2	96	95	☑	☐
02	#3	Plot-Plan	S6	15.2	115.2	119.2	96	95	☑	☐
03	#3	Dated 08/22/2016	S6	14.9	115.4	119.2	96	95	☑	☐
04	#3		S6	13.9	114.9	119.2	96	95	☑	☐
05	#3		S6	14.2	113.9	119.2	95	95	☑	☐
06	#3		S6	15.6	115.4	119.2	96	95	☑	☐
07	#3		S6	16.2	116.2	119.2	97	95	☑	☐
08	#3		S6	15.7	114.8	119.2	96	95	☑	☐
									☐	☐
									☐	☐
01	#3	Ref triangle	S6	14.8	115.4	119.2	96	95	☑	☐
02	#3		S6	15.1	114.0	119.2	96	95	☑	☐
03	#3		S6	14.9	114.8	119.2	96	95	☑	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#3	Brown Silty Sandy Clay And Gravel		13.6	119.2

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None
Name: Andrew Hawvihorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
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LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 8/31/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters PT-Arc. Area
Inspection(s) Performed: _____
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
									☐	☐
01	#1	Arc #15	-18"	10.4	121.2	125.9	96	95	☑	☐
02	#1	Arc #15	-3"	9.8	119.8	125.9	95	95	☑	☐
03	#1	Arc #15	A.B.	10.6	122.6	125.9	97	95	☑	☐
									☐	☐
04	#1	Arc #8	-18"	11.2	121.7	125.9	96	95	☑	☐
05	#1	Arc #8	A.B.	10.9	122.4	125.9	97	95	☑	☐
									☐	☐
06	#1	Arc #9	-3'	9.8	120.4	125.9	95	95	☑	☐
07	#1	Arc #9	-18"	10.4	122.7	125.9	97	95	☑	☐
08	#1	Arc #9	A.B.	11.6	123.2	125.9	97	95	☑	☐
									☐	☐
09	#1	Arc #17	A.B.	10.8	123.9	125.9	97	95	☑	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#1	Brown A.B./Brisbane Bernard Pile		8.5	125.9

Work ☑ WAS ☐ WAS NOT Inspected In Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None Name: Andrew Hawvihorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324 Page 1 of 1

(b) (4)

SMITH-EMERY SAN FRANCISCO
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LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 8/31/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters PT-Arc. Area
Inspection(s) Performed: _____
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
									☐	☐
01	#1	Arc #15	-18"	10.4	121.2	125.9	96	95	☑	☐
02	#1	Arc #15	-3"	9.8	119.8	125.9	95	95	☑	☐
03	#1	Arc #15	A.B.	10.6	122.6	125.9	97	95	☑	☐
									☐	☐
04	#1	Arc #8	-18"	11.2	121.7	125.9	96	95	☑	☐
05	#1	Arc #8	A.B.	10.9	122.4	125.9	97	95	☑	☐
									☐	☐
06	#1	Arc #9	-3'	9.8	120.4	125.9	95	95	☑	☐
07	#1	Arc #9	-18"	10.4	122.7	125.9	97	95	☑	☐
08	#1	Arc #9	A.B.	11.6	123.2	125.9	97	95	☑	☐
									☐	☐
09	#1	Arc #17	A.B.	10.8	123.9	125.9	97	95	☑	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#1	Brown A.B./Brisbane Bernard Pile		8.5	125.9

Work ☑ WAS ☐ WAS NOT Inspected In Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None
Name: Andrew Hawvihorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324 Page 1 of 1

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
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LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 9/1/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters PT-Triangle
Inspection(s) Performed: _____
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
									☐	☐
01	#4	Ref: Plot - Plan	S.G.	12.4	117.4	122.8	96	95	☑	☐
		Dated 09/01/2016							☐	☐
02	#4		S.G.	11.9	118.6	122.8	96	95	☑	☐
									☐	☐
03	#4		S.G.	12.2	117.9	122.8	96	95	☑	☐
									☐	☐
04	#4		S.G.	11.8	116.9	122.8	95	95	☑	☐
									☐	☐
05	#4		S.G.	11.7	117.6	122.8	96	95	☑	☐
									☐	☐
									☐	☐
									☐	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#4	Brown Silty Sandy Clay w/ Gravel		10.4	122.8

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None

Name: Andrew Howvihorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
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LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 9/6/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters Point - Gunmole / Triangle
Inspection(s) Performed: _____
Document(s) Reviewed: _____

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
01	#1	Gunmole Ref: Arc #13	A.B.	10.2	121.6	125.9	96	95	☑	☐
02	#1	Gunmole Ref: Arc #15	A.B.	9.8	120.9	125.9	96	95	☑	☐
03	#1	East #18	A.B.	9.7	122.3	125.9	97	95	☑	☐
04	#1	East #21	A.B.	10.4	121.6	125.9	96	95	☑	☐
05	#1	West Arc# 2	A.B.	9.1	120.4	125.9	95	95	☑	☐
06	#1	Wesr Arc #21	A.B.	9.3	121.7	125.9	96	95	☑	☐
									☐	☐
		Triangle							☐	☐
01	#4	Ref: Plot Plan	S.G.	11.7	118.4	122.8	96	95	☑	☐
02	#4	9/6/2016	S.G.	12.4	117.9	122.8	95	95	☑	☐
03	#4		S.G.	11.9	119.3	122.8	97	95	☑	☐
04	#4		S.G.	11.8	117.7	122.8	95	95	☑	☐
05	#4		S.G.	12.2	118.4	122.8	96	95	☑	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#1	Brown A.B. / Brisbane Bernard Pile		8.5	125.9
#4	Brown Silty Sandy Clay w/ Gravel		10.4	122.8

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None Name: Andrew Hawvichorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324 Page 1 of 1

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
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Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 9/7/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters Point-Gunmole
Inspection(s) Performed: _____
Document(s) Reviewed: _____

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
01	#1		FAB	9.4	121.6	125.9	96	95	☑	☐
02	#1	Ref: Plot-Plan	FAB	10.2	120.4	125.9	95	95	☑	☐
03	#1	1-15	FAB	9.8	122.8	125.9	97	95	☑	☐
04	#1	Dated 9/6/16	FAB	9.6	123.4	125.9	97	95	☑	☐
05	#1		FAB	8.9	122.9	125.9	97	95	☑	☐
06	#1		FAB	9.1	121.7	125.9	96	95	☑	☐
07	#1		FAB	10.7	122.9	125.9	97	95	☑	☐
08	#1		FAB	9.8	119.7	125.9	95	95	☑	☐
09	#1		FAB	9.7	121.6	125.9	96	95	☑	☐
10	#1		FAB	8.9	122.8	125.9	97	95	☑	☐
11	#1		FAB	9.1	121.6	125.9	96	95	☑	☐
12	#1		FAB	8.9	120.4	125.9	95	95	☑	☐
13	#1		FAB	9.3	120.9	125.9	95	95	☑	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#1	Brown A.B./Brisbane Bernard Pile		8.5	125.9

Work ☐ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☐ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A
Material ☐ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A
Material Tested ☐ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None Name: Andrew Hawvichorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324 Page 1 of 1

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1940 Oakdale Ave, San Francisco, CA 94124
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LEA #56

DSA File # _____
DSA Appl. # _____
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Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 9/7/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters Point-Gunmole
Inspection(s) Performed: _____
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
#15	#1		FAB	9.1	121.6	125.9	96	95	☑	☐
#16	#1	Ref: Plot-Plan	FAB	8.9	122.4	125.9	97	95	☑	☐
		1-15							☐	☐
		Dated 09/06/2016							☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#1	Brown A.B./ Brisbane Bernard Pile		8.5	125.9

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None Name: Andrew Hawvichorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324 Page 1 of 1

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 9/8/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters point/Gunmole
Inspection(s) Performed: _____
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
16	#1	Northwest	A.B.	10.4	121.4	125.9	96	95	☑	☐
17	#1	Quadrant	A.B.	11.6	120.9	125.9	96	95	☑	☐
18	#1	Ref: Plot-Plan	A.B.	11.9	119.8	125.9	95	95	☑	☐
19	#1	9/8/2016	A.B.	10.1	122.4	125.9	97	95	☑	☐
20	#1		A.B.	9.8	121.7	125.9	96	95	☑	☐
21	#1		A.B.	10.4	123.6	125.9	97	95	☑	☐
22	#1		A.B.	11.6	122.9	125.9	97	95	☑	☐
23	#1		A.B.	11.9	121.7	125.9	96	95	☑	☐
24	#1		A.B.	10.4	123.2	125.9	97	95	☑	☐
25	#1		A.B.	11.2	121.6	125.9	96	95	☑	☐
26	#1		A.B.	9.9	122.7	125.9	97	95	☑	☐
27	#1		A.B.	10.4	119.6	125.9	95	95	☑	☐
28	#1		A.B.	11.6	121.3	125.9	96	95	☑	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#1	Brown A.B./ Brisbane Bernard Pile		8.5	125.9

Work ☑ WAS ☐ WAS NOT Inspected In Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None Name: Andrew Hawvichorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324 Page 1 of 1

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 9/8/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters Point
Inspection(s) Performed: _____
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
29	#1	Northeast	A.B.	10.6	122.8	125.9	97	95	☑	☐
30	#1	Quadrant	A.B.	11.2	121.7	125.9	96	95	☑	☐
31	#1	Ref: Plot-Plan	A.B.	11.9	123.4	125.9	97	95	☑	☐
		9/8/2016							☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#1	Brown A.B./ Brisbane Bernard Pile		8.5	125.9

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None Name: Andrew Hawvichorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324 Page 1 of 1

(b) (4)

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 9/6/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters Point - Gunmole / Triangle
Inspection(s) Performed: _____
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
01	#1	Gunmole Ref: Arc #13	A.B.	10.2	121.6	125.9	96	95	☑	☐
02	#1	Gunmole Ref: Arc #15	A.B.	9.8	120.9	125.9	96	95	☑	☐
03	#1	East #18	A.B.	9.7	122.3	125.9	97	95	☑	☐
04	#1	East #21	A.B.	10.4	121.6	125.9	96	95	☑	☐
05	#1	West Arc# 2	A.B.	9.1	120.4	125.9	95	95	☑	☐
06	#1	Wesr Arc #21	A.B.	9.3	121.7	125.9	96	95	☑	☐
									☐	☐
		Triangle							☐	☐
01	#4	Ref: Plot Plan	S.G.	11.7	118.4	122.8	96	95	☑	☐
02	#4	9/6/2016	S.G.	12.4	117.9	122.8	95	95	☑	☐
03	#4		S.G.	11.9	119.3	122.8	97	95	☑	☐
04	#4		S.G.	11.8	117.7	122.8	95	95	☑	☐
05	#4		S.G.	12.2	118.4	122.8	96	95	☑	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#1	Brown A.B. / Brisbane Bernard Pile		8.5	125.9
#4	Brown Silty Sandy Clay w/ Gravel		10.4	122.8

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None Name: Andrew Hawvichorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 9/7/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters Point-Gunmole
Inspection(s) Performed: _____
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
01	#1		FAB	9.4	121.6	125.9	96	95	☑	☐
02	#1	Ref: Plot-Plan	FAB	10.2	120.4	125.9	95	95	☑	☐
03	#1	1-15	FAB	9.8	122.8	125.9	97	95	☑	☐
04	#1	Dated 9/6/16	FAB	9.6	123.4	125.9	97	95	☑	☐
05	#1		FAB	8.9	122.9	125.9	97	95	☑	☐
06	#1		FAB	9.1	121.7	125.9	96	95	☑	☐
07	#1		FAB	10.7	122.9	125.9	97	95	☑	☐
08	#1		FAB	9.8	119.7	125.9	95	95	☑	☐
09	#1		FAB	9.7	121.6	125.9	96	95	☑	☐
10	#1		FAB	8.9	122.8	125.9	97	95	☑	☐
11	#1		FAB	9.1	121.6	125.9	96	95	☑	☐
12	#1		FAB	8.9	120.4	125.9	95	95	☑	☐
13	#1		FAB	9.3	120.9	125.9	95	95	☑	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#1	Brown A.B./Brisbane Bernard Pile		8.5	125.9

Work ☐ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☐ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A
Material ☐ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A
Material Tested ☐ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None
Name: Andrew Hawvichorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324 Page 1 of 1

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 9/7/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters Point-Gunmole
Inspection(s) Performed: _____
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
#15	#1		FAB	9.1	121.6	125.9	96	95	☑	☐
#16	#1	Ref: Plot-Plan	FAB	8.9	122.4	125.9	97	95	☑	☐
		1-15							☐	☐
		Dated 09/06/2016							☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#1	Brown A.B./ Brisbane Bernard Pile		8.5	125.9

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None
Name: Andrew Hawvichorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324 Page 1 of 1

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 9/8/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters point/Gunmole
Inspection(s) Performed: _____
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
16	#1	Northwest	A.B.	10.4	121.4	125.9	96	95	☑	☐
17	#1	Quadrant	A.B.	11.6	120.9	125.9	96	95	☑	☐
18	#1	Ref: Plot-Plan	A.B.	11.9	119.8	125.9	95	95	☑	☐
19	#1	9/8/2016	A.B.	10.1	122.4	125.9	97	95	☑	☐
20	#1		A.B.	9.8	121.7	125.9	96	95	☑	☐
21	#1		A.B.	10.4	123.6	125.9	97	95	☑	☐
22	#1		A.B.	11.6	122.9	125.9	97	95	☑	☐
23	#1		A.B.	11.9	121.7	125.9	96	95	☑	☐
24	#1		A.B.	10.4	123.2	125.9	97	95	☑	☐
25	#1		A.B.	11.2	121.6	125.9	96	95	☑	☐
26	#1		A.B.	9.9	122.7	125.9	97	95	☑	☐
27	#1		A.B.	10.4	119.6	125.9	95	95	☑	☐
28	#1		A.B.	11.6	121.3	125.9	96	95	☑	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#1	Brown A.B./ Brisbane Bernard Pile		8.5	125.9

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None
Name: Andrew Hawvichorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324 Page 1 of 1

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 9/8/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters Point
Inspection(s) Performed: _____
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
29	#1	Northeast	A.B.	10.6	122.8	125.9	97	95	☑	☐
30	#1	Quadrant	A.B.	11.2	121.7	125.9	96	95	☑	☐
31	#1	Ref: Plot-Plan	A.B.	11.9	123.4	125.9	97	95	☑	☐
		9/8/2016							☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#1	Brown A.B./ Brisbane Bernard Pile		8.5	125.9

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None
Name: Andrew Hawvichorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324 Page 1 of 1

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 9/9/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters Point/Triangle
Inspection(s) Performed: _____
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
									☐	☐
01	#4	Ref: Plot-Plan	S.G.	11.6	117.4	122.8	95	95	☑	☐
		Dated 9/9/2016							☐	☐
02	#4	Triangle	S.G.	12.2	118.6	122.8	96	95	☑	☐
		South-East							☐	☐
03	#4	Quadrant	S.G.	12.7	116.9	122.8	95	95	☑	☐
									☐	☐
04	#4		S.G.	10.9	118.7	122.8	96	95	☑	☐
									☐	☐
05	#4		S.G.	11.2	117.7	122.8	95	95	☑	☐
									☐	☐
									☐	☐
									☐	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#4	Brown Silty Sandy Clay w/ Gravel		10.4	122.8

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None Name: Andrew Hawvichorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324 Page 1 of 1

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 9/12/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters Point/Gunmole and South Pier
Inspection(s) Performed: _____
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
		REF: Gunmole							☐	☐
01	#1	Arc #11	-30	9.1	121.6	125.9	96	95	☑	☐
02	#1	Arc #11	-18"	9.6	120.4	125.9	95	95	☑	☐
03	#1	Arc #11	A.B.	10.2	119.8	125.9	95	95	☑	☐
04	#1	Arc #11	A.B.	9.8	122.3	125.9	96	95	☑	☐
05	#1	Arc #14	A.B.	9.7	121.7	125.9	96	95	☑	☐
									☐	☐
06	#1	Arc #20	A.B.	10.6	120.4	125.9	95	95	☑	☐
									☐	☐
07	#1	Arc #32	A.B.	9.8	122.3	125.9	96	95	☑	☐
08	#1	South Pier	-18"	9.7	121.6	125.9	96	95	☑	☐
09	#1	Gabion-Repair	A.B.	10.2	122.9	125.9	96	95	☑	☐
10	#1		A.B.	10.4	123.2	125.9	97	95	☑	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#1	Brown A.B./Brisbane Bernard Pile		8.5	125.9

Work ☐ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☐ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A
Material ☐ WAS ☐ WAS NOT Sampled and Tested In Accordance with the Requirements of ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A
Material Tested ☐ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None
Name: Andrew Hawvichorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 9/12/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters Point/Gunmole and South Pier
Inspection(s) Performed: _____
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
		REF: Gunmole							☐	☐
01	#1	Arc #11	-30	9.1	121.6	125.9	96	95	☑	☐
02	#1	Arc #11	-18"	9.6	120.4	125.9	95	95	☑	☐
03	#1	Arc #11	A.B.	10.2	119.8	125.9	95	95	☑	☐
04	#1	Arc #11	A.B.	9.8	122.3	125.9	96	95	☑	☐
05	#1	Arc #14	A.B.	9.7	121.7	125.9	96	95	☑	☐
									☐	☐
06	#1	Arc #20	A.B.	10.6	120.4	125.9	95	95	☑	☐
									☐	☐
07	#1	Arc #32	A.B.	9.8	122.3	125.9	96	95	☑	☐
08	#1	South Pier	-18"	9.7	121.6	125.9	96	95	☑	☐
09	#1	Gabion-Repair	A.B.	10.2	122.9	125.9	96	95	☑	☐
10	#1		A.B.	10.4	123.2	125.9	97	95	☑	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#1	Brown A.B./Brisbane Bernard Pile		8.5	125.9

Work ☐ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☐ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A
Material ☐ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A
Material Tested ☐ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None
Name: Andrew Hawvichorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324 Page 1 of 1

SMITH-EMERY SAN FRANCISCO
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LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 9/13/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters Point/Triangle
Inspection(s) Performed: _____
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
									☐	☐
		Triangle							☐	☐
		REF: Plot Plan							☐	☐
01	#4		S.G.	11.7	118.4	122.8	96	95	☑	☐
									☐	☐
02	#4		S.G.	12.2	117.6	122.8	96	95	☑	☐
									☐	☐
03	#4		S.G.	13.4	118.4	122.8	96	95	☑	☐
									☐	☐
04	#4		S.G.	12.9	119.7	122.8	97	95	☑	☐
									☐	☐
05	#4		S.G.	11.7	118.4	122.8	96	95	☑	☐
									☐	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#4	Brown Silty Sandy Clay w/ Gravel		10.4	122.8

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None
Name: Andrew Hawvichorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324 Page 1 of 1

SMITH-EMERY SAN FRANCISCO
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(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY SPECIAL INSPECTION REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 9/14/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters Point/Gunmole
Inspection(s) Performed: _____
Document(s) Reviewed: _____

Inspection Report:

Performed sand-cone tests at Gunmole South & middle S.IC: REF: crane tower.

Work ☐ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☐ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A
Material ☐ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A
Material Tested ☐ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required) _____

Attachments: _____ Name: Andrew Hawvichorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification # _____
Emp. ID: 2324 Page ___ of ___

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LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY SPECIAL INSPECTION REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 9/15/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters Point/Gunmole/Triangle
Inspection(s) Performed: _____
Document(s) Reviewed: _____

Inspection Report:

2 Sand-Cone test conducted
1 Gunmole North
1 Triangle-North

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required) _____

Attachments: _____ Name: Andrew Hawvichorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification # _____
Emp. ID: 2324 Page ___ of ___

SECO Job No: 69995-1

INSPECTION REPORT

Report No.: **INSP-9**
Date: 9/29/2016

To: CB&I FEDERAL SERVICES, LLC
ACCOUNTS PAYABLE
1230 COLUMBIA STREET, STE. 120
SAN DIEGO, CA 92101

Distributed To:
EMAIL: CB & I FEDERAL SERVICES

Subject: **GEOTECHNICAL SERVICES PARCEL D-1, CBI# 149831**

HUNTERS POINT, SAN FRANCISCO, CA
CONTRACT #: CBI# 149831

Attached are inspection reports for the week ending 9/16/2016 for the subject project:

Report By	Report Dated	Report Title
HAWVICHORST, ANDREW	09/15/2016	Daily Inspection Report for 9/12/2016 thru 9/15/2016

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LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 9/12/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters Point/Gunmole and South Pier
Inspection(s) Performed: _____
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
		REF: Gunmole							☐	☐
01	#1	Arc #11	-30	9.1	121.6	125.9	96	95	☑	☐
02	#1	Arc #11	-18"	9.6	120.4	125.9	95	95	☑	☐
03	#1	Arc #11	A.B.	10.2	119.8	125.9	95	95	☑	☐
04	#1	Arc #11	A.B.	9.8	122.3	125.9	96	95	☑	☐
05	#1	Arc #14	A.B.	9.7	121.7	125.9	96	95	☑	☐
									☐	☐
06	#1	Arc #20	A.B.	10.6	120.4	125.9	95	95	☑	☐
									☐	☐
07	#1	Arc #32	A.B.	9.8	122.3	125.9	96	95	☑	☐
08	#1	South Pier	-18"	9.7	121.6	125.9	96	95	☑	☐
09	#1	Gabion-Repair	A.B.	10.2	122.9	125.9	96	95	☑	☐
10	#1		A.B.	10.4	123.2	125.9	97	95	☑	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#1	Brown A.B./Brisbane Bernard Pile		8.5	125.9

Work ☐ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☐ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A
Material ☐ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A
Material Tested ☐ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None
Name: Andrew Hawvichorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324 Page 1 of 1

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 9/13/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters Point/Triangle
Inspection(s) Performed: _____
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
									☐	☐
		Triangle							☐	☐
		REF: Plot Plan							☐	☐
01	#4		S.G.	11.7	118.4	122.8	96	95	☑	☐
									☐	☐
02	#4		S.G.	12.2	117.6	122.8	96	95	☑	☐
									☐	☐
03	#4		S.G.	13.4	118.4	122.8	96	95	☑	☐
									☐	☐
04	#4		S.G.	12.9	119.7	122.8	97	95	☑	☐
									☐	☐
05	#4		S.G.	11.7	118.4	122.8	96	95	☑	☐
									☐	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#4	Brown Silty Sandy Clay w/ Gravel		10.4	122.8

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None

Name: Andrew Hawvichorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
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LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY SPECIAL INSPECTION REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 9/14/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters Point/Gunmole
Inspection(s) Performed: _____
Document(s) Reviewed: _____

Inspection Report:

Performed sand-cone tests at Gunmole South & middle S.IC: REF: crane tower.

Work ☐ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☐ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A
Material ☐ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A
Material Tested ☐ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required) _____

Attachments: _____ Name: Andrew Hawvichorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification # _____
Emp. ID: 2324 Page ___ of ___

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
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DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY SPECIAL INSPECTION REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 9/15/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters Point/Gunmole/Triangle
Inspection(s) Performed: _____
Document(s) Reviewed: _____

Inspection Report:

2 Sand-Cone test conducted
1 Gunmole North
1 Triangle-North

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required) _____

Attachments: _____ Name: Andrew Hawvichorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification # _____
Emp. ID: 2324 Page ___ of ___

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DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 9/23/2016
Project Address: _____ SESF Job # 69995-1
Inspection Location: Hunters Point/ Gunmole
Inspection(s) Performed: _____
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
									☐	☐
									☐	☐
		REF: Plot Plan							☐	☐
01	#4	Dated 09/23/2016	S.G.	11.7	121.3	122.8	98	95	☑	☐
02	#4	Tests 29-38	S.G.	12.2	120.9	122.8	98	95	☑	☐
03	#4		S.G.	11.9	118.6	122.8	97	95	☑	☐
04	#4		S.G.	11.6	117.4	122.8	96	95	☑	☐
05	#4		S.G.	10.4	118.9	122.8	97	95	☑	☐
06	#4		S.G.	12.6	121.3	122.8	98	95	☑	☐
07	#4		S.G.	10.6	119.4	122.8	97	95	☑	☐
08	#4		S.G.	10.9	118.7	122.8	97	95	☑	☐
09	#4		S.G.	10.7	119.6	122.8	97	95	☑	☐
10	#1	Arc #14	FAB	9.1	122.4	125.9	97	95	☑	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#4	Brown Silty Sandy Clay w/ Gravel		10.4	122.8
#1	Brown A.B.		8.5	125.9

Work ☑ WAS ☐ WAS NOT Inspected In Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None Name: Andrew Hawvichorst

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324 Page 1 of 1

(b) (4)

(b) (4)

(b) (4)

(b) (4)

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DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: GEOTECHNICAL - SERVICES PARCEL D-1 Date: 11/15/16
Project Address: CBPI# N9831 SESF Job # 69995-1
Inspection Location: GUNMOLE PIER TEST 1-39 / PG 3 27-39
Inspection(s) Performed: _____
Document(s) Reviewed: _____

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf) Dry	Density (pcf) Max	% Rel. Compaction Field	% Rel. Compaction Spec.	Pass	Fail
27	#5	CONT:	FAB		121.6	126.9	95	95	☑	☐
28		GUNMOLE			122.8		96	95	☑	☐
29		PIER			121.9		95	95	☑	☐
30		27-39			120.4		95	95	☑	☐
31					121.6		95	95	☑	☐
32					122.8		96	95	☑	☐
33					122.7		96	95	☑	☐
34					121.6		95	95	☑	☐
35					120.4		95	95	☑	☐
36					121.3		95	95	☑	☐
37					122.8		96	95	☑	☐
38					123.7		96	95	☑	☐
39					123.4		96	95	☑	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#5	DARK BROWN A.B.		10.5	126.9

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None

Name: ANDREW HAWKEHORST

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: [signature]
Certification #: _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: GEOTECHNICAL SERVICES PARCEL P-1 Date: 11/15/16
Project Address: CBQE 149831 SESF Job # 69995-1
Inspection Location: GUNWALE PIER TESTS 1-39 / Pg 2 14-26
Inspection(s) Performed: _____
Document(s) Reviewed: _____

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
14	#5	CAST:	FAIR	11.8	122.6	126.9	96	95	☒	☐
15		GUNWALE		11.9	123.7		96	95	☒	☐
16		PIER		12.2	122.4		96	95	☒	☐
17		TEST 14-26		11.7	121.6		95	95	☒	☐
18				12.4	120.4		95	95	☒	☐
19				10.9	121.8		95	95	☒	☐
20				10.8	122.6		96	95	☒	☐
21				11.6	121.7		95	95	☒	☐
22				11.9	122.9		96	95	☒	☐
23				12.3	123.6		96	95	☒	☐
24				12.4	120.4		95	95	☒	☐
25				11.7	121.8		95	95	☒	☐
26	/		/	11.9	122.6	/	96	95	☒	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#5	DARK-BROWN A.B.		10.5	126.9

Work ☒ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material ☒ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material Tested ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None

Name: ANDREW HAJDUCHOWSKI

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324 Page 1 of 2

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: GEOTECHNICAL SERVICES PARCEL D-1 Date: 11/15/16
Project Address: _____ CBI# 149831 SESF Job # 69995-1
Inspection Location: GUNMOUR PIER TEST [redacted] 1-39 / Pg 1. 1-13
Inspection(s) Performed: COMPACTION-TESTING
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
01	#5	GUNMOUR	FAB	11.2	121.4	126.9	95	95	☒	☐
02		PIER		12.4	120.9		95	95	☒	☐
03		TEST 1-39		11.7	122.7		96	95	☒	☐
04		REF: PLOT-PLAN		10.9	121.6		95	95	☒	☐
05				12.4	122.4		96	95	☒	☐
06				12.6	121.7		95	95	☒	☐
07				11.2	120.9		95	95	☒	☐
08				11.7	121.4		95	95	☒	☐
09				10.9	120.4		95	95	☒	☐
10				10.9	122.6		96	95	☒	☐
11				11.4	121.7		95	95	☒	☐
12				12.8	123.6		96	95	☒	☐
13	/	/	/	12.6	122.8	/	96	95	☒	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#5	DARK-BROWN A.B.		10.5	126.9

Work ☒ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material ☒ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material Tested ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

ASTM - D1557
6AGR N 7740

FAB = FINISH AGG BASE

Attachments: None

Name: ANDREW HRWIECHORST

Signature: _____

Certification #: _____

Emp. ID: 2324

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: GEOTECHNICAL-SERV. PACKET D-1 Date: 11/16/16
Project Address: CBRE# 149831 SESF Job # 69995-1
Inspection Location: SOUTH PIER.
Inspection(s) Performed: COMPACTION-TESTING
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
01	#5		TOP	11.2	121.6	126.9	96	95	☑	☐
02		SOUTH-PIER		12.4	122.8		96	95	☑	☐
03		REF: PLOT-PLAN		11.9	123.2		97	95	☑	☐
04		11/16/16		11.8	121.6		96	95	☑	☐
05				13.2	120.8		95	95	☑	☐
06				12.8	122.4		96	95	☑	☐
07				12.2	123.5		97	95	☑	☐
01				11.6	122.8		96	95	☑	☐
09				11.9	121.2		96	95	☑	☐
10				12.4	122.3		96	95	☑	☐
11				11.8	122.6		96	95	☑	☐
12	/	/	/	12.6	121.7	/	96	95	☑	☐
									☐	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#5	DARK-BROWN A.B.		10.5	126.9

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

~~Work~~ Not In Compliance:
ASTM-D1557
GAGE # 7240

Notified (Required): _____

Attachments: None

Name: ANDREW HALVICHORST

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: GEOTECHNICAL-SERV. PARCEL P-1 Date: 11/17/16
Project Address: CBDI # 19831 SESF Job # 69995-1
Inspection Location: GUNMOLE PIER H.P. — S.F.
Inspection(s) Performed: COMPACTION - TESTING / TEST LOCATIONS 40 - 60
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf) Dry	Density (pcf) Max	% Rel. Compaction Field	% Rel. Compaction Spec.	Pass	Fail
40	#5	REF:	FOB	11.6	122.6	126.9	96	95	☑	☐
41		PLOT-PLAN.		12.8	123.7		97	95	☑	☐
42				11.9	124.2		97	95	☑	☐
43				11.8	121.6		96	95	☒	☐
44				12.4	120.9		95	95	☒	☐
45				12.2	120.8		95	95	☒	☐
46				11.7	121.7		96	95	☒	☐
47				11.8	122.4		96	95	☒	☐
48				13.2	121.6		96	95	☒	☐
49				12.9	120.7		95	95	☒	☐
50				12.6	122.8		96	95	☒	☐
51				11.4	123.4		97	95	☒	☐
52				11.9	122.8		96	95	☒	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#5	DARK-BROWN A.B.		10.5	126.9

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

~~Work Not~~ In Compliance: Notified (Required): _____

ASTM - D1557
GAGE #7740

Attachments: None

Name: ANDREW HAWVICHORST

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: [signature]
Certification #: _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: GEOTECHNICAL-SERV: PARCEL D-1 Date: 11/17/16
Project Address: CBPI 149831 SESF Job # 69995-1
Inspection Location: GUNMOLE PIER.
Inspection(s) Performed: COMPACTION-TESTING / TEST 40-60
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
53	#5	PLOT. PLAN.	FAB	11.6	121.7	126.9	96	95	☒	☐
54		Pg. 2 of 2		12.4	120.9		95	95	☒	☐
55				12.6	122.8		96	95	☒	☐
56				11.9	123.6		97	95	☒	☐
57				11.8	122.8		96	95	☒	☐
58				12.2	123.7		97	95	☒	☐
59				12.6	122.9		96	95	☒	☐
60				11.8	121.6		96	95	☒	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#5	DARK BROWN A.B.		10.5	126.9

Work ☒ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material ☒ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material Tested ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A

~~Work~~ Not In Compliance: Notified (Required): _____

Attachments: None

Name: ANDREW HAWKINSON

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: [signature]
Certification #: _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: GEOTECHNICAL - SERV: PARCEL D-1 Date: 11/18/16
Project Address: CBI 149831 SESF Job # 69995-1
Inspection Location: GUNNUCK PIER. — S.F.
Inspection(s) Performed: COMPACTION-TESTING / TEST 61-74
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
									☐	☐
61	#5	REF: PLOT PLAN	FAB	12.2	121.6	126.9	96	95	☑	☐
62		TEST 61-74		11.9	120.9		95	95	☑	☐
63				11.8	122.8		96	95	☑	☐
64				10.9	123.6		97	95	☑	☐
65				11.6	122.7		96	95	☑	☐
66				12.8	121.6		96	95	☑	☐
67				11.9	121.5		96	95	☑	☐
68				11.7	122.4		96	95	☑	☐
69				12.2	123.2		97	95	☑	☐
70				11.6	122.9		96	95	☑	☐
71				10.8	121.4		96	95	☑	☐
72	/	/	/	11.2	120.8	/	95	95	☑	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#5	DARK-BROWN A.B.		10.5	126.9

Work ☒ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material ☒ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material Tested ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

ASTM - D1557
GAGE # 7740

Attachments: None

Name: ANDREW HALVERSHORST

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: GEOTECHNICAL-SERV: PARCEL D-1 Date: 11/18/16
Project Address: CBPI 149831 SESF Job # 69995-1
Inspection Location: GUNMULE PIER. — S.F.
Inspection(s) Performed: COMPACTION - TESTING
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf) Dry	Density (pcf) Max	% Rel. Compaction Field	% Rel. Compaction Spec.	Pass	Fail
									☐	☐
									☐	☐
73	#5		FAB	11.6	121.6	126.9	96	95	☑	☐
		PLOT - PLAN.							☐	☐
		GUNMULE							☐	☐
		PIER							☐	☐
		61/74							☐	☐
									☐	☐
									☐	☐
74	/	/	FAB	12.2	122.7	/	96	95	☑	☐
									☐	☐
									☐	☐
									☐	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#5	DARK-BROWN A.B.		10.5	126.9

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

~~Work Not~~ In Compliance:
ASTM - D1557
GAGE #7740

Notified (Required): _____

Attachments: None

Name: ANDREW HAWVICHORST

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: [signature]
Certification #: _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: GEOTECHNICAL SERVICES PARCEL D-1 Date: 11/15/16
Project Address: CBP# N9831 SESF Job # 69995-1
Inspection Location: GUNNISON PIER TEST 1-39 / PG 3 27-39
Inspection(s) Performed: _____
Document(s) Reviewed: _____

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
27	#5	CONT:	FOR		121.6	126.9	95	95	☑	☐
28		GUNNISON			122.8		96	95	☑	☐
29		PIER			121.9		95	95	☑	☐
30		27-39			120.4		95	95	☑	☐
31					121.6		95	95	☑	☐
32					122.8		96	95	☑	☐
33					122.7		96	95	☑	☐
34					121.6		95	95	☑	☐
35					120.4		95	95	☑	☐
36					121.3		95	95	☑	☐
37					122.8		96	95	☑	☐
38					123.7		96	95	☑	☐
39	/		/		123.4	/	96	95	☑	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#5	DARK BROWN A.B.		10.5	126.9

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None

Name: ANDREW HAWKEHORST

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: GEOTECHNICAL-SERVICES PARCEL D-1 Date: 11/15/16
Project Address: CBQE 149831 SESF Job # 69995-1
Inspection Location: GUNWALE PIER TESTS 1-39 / Pg 2 14-26
Inspection(s) Performed: _____
Document(s) Reviewed: _____

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
14	#5	CULT:	FAIR	11.8	122.6	126.9	96	95	☒	☐
15		GUNWALE		11.9	123.7		96	95	☒	☐
16		PIER		12.2	122.4		96	95	☒	☐
17		TEST 14-26		11.7	121.6		95	95	☒	☐
18				12.4	120.4		95	95	☒	☐
19				10.9	121.8		95	95	☒	☐
20				10.8	122.6		96	95	☒	☐
21				11.6	121.7		95	95	☒	☐
22				11.9	123.9		96	95	☒	☐
23				12.3	123.6		96	95	☒	☐
24				12.4	120.4		95	95	☒	☐
25				11.7	121.8		95	95	☒	☐
26	/		/	11.9	122.6	/	96	95	☒	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#5	DARK-BROWN A.B.		10.5	126.9

Work ☒ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material ☒ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material Tested ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None

Name: ANDREW HALVERSON

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: GEOTECHNICAL SERVICES PARCEL D-1 Date: 11/15/16
Project Address: _____ CBI#149831 SESF Job # 69995-1
Inspection Location: GUNMOUR PIER TEST 1-39 / Pg 1. 1-13
Inspection(s) Performed: COMPACTION-TESTING
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf) Dry	Density (pcf) Max	% Rel. Compaction Field	% Rel. Compaction Spec.	Pass	Fail
01	#5	GUNMOUR	FAB	11.2	121.4	126.9	95	95	☒	☐
02		PIER		12.4	120.9		95	95	☒	☐
03		TEST 1-39		11.7	122.7		96	95	☒	☐
04		REF: PLOT-PLAN		10.9	121.6		95	95	☒	☐
05				12.4	122.4		96	95	☒	☐
06				12.6	121.7		95	95	☒	☐
07				11.2	120.9		95	95	☒	☐
08				11.7	121.4		95	95	☒	☐
09				10.9	120.4		95	95	☒	☐
10				10.9	122.6		96	95	☒	☐
11				11.4	121.7		95	95	☒	☐
12				12.8	123.6		96	95	☒	☐
13	/	/	/	12.6	122.8	/	96	95	☒	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#5	DARK BROWN A.B.		10.5	126.9

Work ☒ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material ☒ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material Tested ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A

~~Work~~ Not In Compliance: Notified (Required): _____

ASTM - D1557
6AGRN 7240

FAB = FINISH AGG BASE

Attachments: None

Name: ANDREW HAWKEHORST

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____

Certification #: _____

Emp. ID: 2324 Page 1 of 1

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: GEOTECHNICAL-SERV. PIER D-1 Date: 11/16/16
Project Address: CBRE# 149831 SESF Job # 69995-1
Inspection Location: SOUTH PIER.
Inspection(s) Performed: COMPACTION-TESTING
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
01	#5		TOP	11.2	121.6	126.9	96	95	☑	☐
02		SOUTH-PIER		12.4	122.8		96	95	☑	☐
03		REF: PLOT-PLAN		11.9	123.2		97	95	☑	☐
04		11/16/16		11.8	121.6		96	95	☑	☐
05				13.2	120.8		95	95	☑	☐
06				12.8	122.4		96	95	☑	☐
07				12.2	123.5		97	95	☑	☐
01				11.6	122.8		96	95	☑	☐
09				11.9	121.2		96	95	☑	☐
10				12.4	122.3		96	95	☑	☐
11				11.8	122.6		96	95	☑	☐
12	″	″	″	12.6	121.7	″	96	95	☑	☐
									☐	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#5	DARK-BROWN A.B.		10.5	126.9

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

~~Work~~ Not In Compliance:
ASTM-D1557
GAGE # 7240

Notified (Required): _____

Attachments: None

Name: ANDREW HALVORSEN

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: GEOTECHNICAL-SERV: PARCEL P-1 Date: 11/17/16
Project Address: CBD & MASS SESF Job # 6999S-1
Inspection Location: GUNNOCK PARK H.P. — S.F.
Inspection(s) Performed: COMPACTION-TESTING / TEST LOCATIONS 40-60
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
40	#5	REF:	FGS	11.6	122.6	126.9	96	95	☑	☐
41		PLOT-PLAN.		12.9	123.7		97	95	☑	☐
42				11.9	124.2		97	95	☑	☐
43				11.8	121.6		96	95	☑	☐
44				12.4	120.9		95	95	☑	☐
45				12.2	120.8		95	95	☑	☐
46				11.7	121.7		96	95	☑	☐
47				11.8	122.4		96	95	☑	☐
48				13.2	121.6		96	95	☑	☐
49				12.9	120.7		95	95	☑	☐
50				12.6	122.8		96	95	☑	☐
51				11.4	123.4		97	95	☑	☐
52	/	/	/	11.9	122.8	/	96	95	☑	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#5	DARK-BROWN S.B.		10.5	126.9

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

~~Work Not~~ **In Compliance:**
ASTM-D1557
GAGE #7740

Notified (Required): _____

Attachments: None

Name: ANDREW VANVLECKHORST

Signature: _____

Certification #: _____

Emp. ID: 2324

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: GEOTECHNICAL-SERV: PARCEL D-1 Date: 11/17/16
Project Address: CBPI 149831 SESF Job # 69995-1
Inspection Location: GUNMOLE PIER.
Inspection(s) Performed: COMPACTION-TESTING / TEST 40-60
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf) Dry	Density (pcf) Max	% Rel. Compaction Field	% Rel. Compaction Spec.	Pass	Fail
53	#5	PLOT. PLAN.	FAB	11.6	121.7	126.9	96	95	☒	☐
54		Pg. 2 of 2		12.4	120.9		95	95	☒	☐
55				12.6	122.8		96	95	☒	☐
56				11.9	123.6		97	95	☒	☐
57				11.8	122.8		96	95	☒	☐
58				12.2	123.7		97	95	☒	☐
59				12.6	122.9		96	95	☒	☐
60				11.8	121.6		96	95	☒	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#5	DARK BROWN A.B.		10.5	126.9

Work ☒ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material ☒ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material Tested ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A

~~Work~~ Not In Compliance: Notified (Required): _____

Attachments: None

Name: ANDREW HAWVICHORST

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: [signature]
Certification #: _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: GEOTECHNICAL - SERV: PARCEL B-1 Date: 11/18/16
Project Address: CBI 149831 SESF Job # 69995-1
Inspection Location: GUNNUCK PIER. — S.F.
Inspection(s) Performed: COMPACTION - TESTING / TEST 61-74
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf) Dry	Density (pcf) Max	% Rel. Compaction Field	% Rel. Compaction Spec.	Pass	Fail
									☐	☐
61	#5	REF: PLOT PLAN	FAB	12.2	121.6	126.9	96	95	☑	☐
62		TEST 61-74		11.9	120.9		95	95	☑	☐
63				11.8	122.8		96	95	☑	☐
64				10.9	123.6		97	95	☑	☐
65				11.6	122.7		96	95	☑	☐
66				12.8	121.6		96	95	☑	☐
67				11.9	121.5		96	95	☑	☐
68				11.7	122.4		96	95	☑	☐
69				12.2	123.2		97	95	☑	☐
70				11.6	122.9		96	95	☑	☐
71				10.8	121.4		96	95	☑	☐
72	/	/	/	11.2	120.8	/	95	95	☑	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#5	DARK-BROWN A.B.		10.5	126.9

Work ☒ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material ☒ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material Tested ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A

~~Work~~ Not In Compliance:
ASTM - D1557
GAGE # 7740

Notified (Required): _____

Attachments: None

Name: ANDREW HALVERSHORST

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324 Page 1 of 2

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: GEOTECHNICAL-SRVC: PARCEL D-1 Date: 11/18/16
Project Address: CBDI 149831 SESF Job # 69995-1
Inspection Location: GUNNISON PIER. ——— S.F.
Inspection(s) Performed: COMPACTION - TESTING
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
									☐	☐
									☐	☐
73	#5		FAR	11.6	121.6	126.9	96	95	☑	☐
	|	PLOT - PLAN.				|			☐	☐
	|	GUNNISON				|			☐	☐
	|	PIER.				|			☐	☐
	|	61/74				|			☐	☐
	|	|				|			☐	☐
	|	|				|			☐	☐
74	/	/	FAR	12.2	122.7	/	96	95	☑	☐
									☐	☐
									☐	☐
									☐	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#5	DARK-BROWN S.M.		10.5	126.9

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

~~Work Not~~ In Compliance: Notified (Required): _____

ASTM - D1557
GAGE #7740

Attachments: None

Name: ANDREW HAWTHORNE

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324 Page 1 of 1

(b) (4)

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: GEOTECHNICAL SERVICES PARCEL D-1 Date: 11/15/16
Project Address: _____ CBID#149831 SESF Job # 69995-1
Inspection Location: GUNNOUR PIER TEST 1-39 / Pg 1. 1-13
Inspection(s) Performed: COMPACTION - TESTING
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf) Dry	Density (pcf) Max	% Rel. Compaction Field	% Rel. Compaction Spec.	Pass	Fail
01	#5	GUNNOUR	FAB	11.2	121.4	126.9	95	95	☑	☐
02		PIER		12.4	120.9		95	95	☑	☐
03		TEST 1-39		11.7	122.7		96	95	☑	☐
04		REF: PLOT-PLAN		10.9	121.6		95	95	☑	☐
05				12.4	122.4		96	95	☑	☐
06				12.6	121.7		95	95	☑	☐
07				11.2	120.9		95	95	☑	☐
08				11.7	121.4		95	95	☑	☐
09				10.9	120.4		95	95	☑	☐
10				10.9	122.6		96	95	☑	☐
11				11.4	121.9		95	95	☑	☐
12				12.8	123.6		96	95	☑	☐
13	/	/	/	12.6	122.8	/	96	95	☑	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#5	DARK BROWN A.B.		10.5	126.9

Work ☒ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material ☒ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material Tested ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

ASTM - D1557
6AGR N 7240

FAB = FINISH AGG BASE

Attachments: None

Name: ANDREW HAWTHORST

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____

Certification #: _____

Emp. ID: 2324 Page 1 of 1

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: GEOTECHNICAL-SERVICES PARCEL D-1 Date: 11/15/16
Project Address: CBQE 149831 SESF Job # 69995-1
Inspection Location: GUNMOLE PIER TESTS 1-39 / Pg 2 14-26
Inspection(s) Performed: _____
Document(s) Reviewed: _____

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf) Dry	Density (pcf) Max	% Rel. Compaction Field	% Rel. Compaction Spec.	Pass	Fail
14	#5	CONT:	FAB	11.8	122.6	126.9	96	95	☒	☐
15		GUNMOLE		11.9	123.7		96	95	☒	☐
16		PIER		12.2	122.4		96	95	☒	☐
17		TEST 14-26		11.7	121.6		95	95	☒	☐
18				12.4	120.4		95	95	☒	☐
19				10.9	121.8		95	95	☒	☐
20				10.8	122.6		96	95	☒	☐
21				11.6	121.7		95	95	☒	☐
22				11.9	122.9		96	95	☒	☐
23				12.3	123.6		96	95	☒	☐
24				12.4	120.4		95	95	☒	☐
25				11.7	121.8		95	95	☒	☐
26	/		/	11.9	122.6	/	96	95	☒	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#5	DARK-BROWN A.B.		10.5	126.9

Work ☒ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material ☒ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material Tested ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None

Name: ANDREW HAWKEHORST

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: [signature]
Certification #: _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: GEOTECHNICAL SERVICES PARCEL D-1 Date: 11/15/16
Project Address: CBPI# N9831 SESF Job # 69995-1
Inspection Location: GUNMOLE PIER TEST 1-39 / Pg 3 27-39
Inspection(s) Performed: _____
Document(s) Reviewed: _____

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf) Dry	Density (pcf) Max	% Rel. Compaction Field	% Rel. Compaction Spec.	Pass	Fail
27	#5	CONT:	FAB		121.6	126.9	95	95	☑	☐
28		GUNMOLE			122.8		96	95	☑	☐
29		PIER			121.9		95	95	☑	☐
30		27-39			120.4		95	95	☑	☐
31					121.6		95	95	☑	☐
32					122.8		96	95	☑	☐
33					122.7		96	95	☑	☐
34					121.6		95	95	☑	☐
35					120.4		95	95	☑	☐
36					121.3		95	95	☑	☐
37					122.8		96	95	☑	☐
38					123.7		96	95	☑	☐
39					123.4		96	95	☑	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#5	DARK BROWN A.B.		10.5	126.9

Work ☒ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None

Name: ANDREW HAWKEHORST

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: [signature]
Certification #: _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: GEOTECHNICAL-SERV. PARCEL D-1 Date: 11/16/16
Project Address: CBRI# 149831 SESF Job # 69995-1
Inspection Location: SOUTH PIER.
Inspection(s) Performed: COMPACTION - TESTING
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf) Dry	Density (pcf) Max	% Rel. Compaction Field	% Rel. Compaction Spec.	Pass	Fail
01	#5		FAB	11.2	121.6	126.9	96	95	☒	☐
02		SOUTH-PIER		12.4	122.8		96	95	☒	☐
03		REF: PLOT-PLAN		11.9	123.2		97	95	☒	☐
04		11/16/16		11.8	121.6		96	95	☒	☐
05				13.2	120.8		95	95	☒	☐
06				12.8	122.4		96	95	☒	☐
07				12.7	123.8		97	95	☒	☐
08				11.6	122.8		96	95	☒	☐
09				11.9	121.7		96	95	☒	☐
10				12.4	122.3		96	95	☒	☐
11				11.8	122.6		96	95	☒	☐
12				12.6	121.7		96	95	☒	☐
									☐	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#5	DARK-BROWN A.B.		10.5	126.9

Work ☒ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material ☒ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material Tested ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance:
ASTM - D1557
GAGE # 7740

Notified (Required): _____

Attachments: None

Name: ANDREW HAWVICHORST

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: [signature]
Certification #: _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: GEOTECHNICAL - SERV. PARCEL D-1 Date: 11/17/16
Project Address: CBDI # 19831 SESF Job # 69995-1
Inspection Location: GUNMOCK PIKE H.P. — S.F.
Inspection(s) Performed: COMPACTION - TESTING / TEST LOCATIONS 40 - 60
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf) Dry	Density (pcf) Max	% Rel. Compaction Field	% Rel. Compaction Spec.	Pass	Fail
40	#5	REF:	FOB	11.6	122.6	126.9	96	95	☑	☐
41		PLOT - PLAN.		12.8	123.7		97	95	☑	☐
42				11.9	124.2		97	95	☑	☐
43				11.8	121.6		96	95	☑	☐
44				12.4	120.9		95	95	☑	☐
45				12.2	120.8		95	95	☑	☐
46				11.7	121.7		96	95	☑	☐
47				11.8	122.4		96	95	☑	☐
48				12.2	121.6		96	95	☑	☐
49				12.9	120.7		95	95	☑	☐
50				12.6	122.8		96	95	☑	☐
51				11.4	123.4		97	95	☑	☐
52				11.9	122.8		96	95	☑	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#5	DARK-BROWN A.B.		10.5	126.9

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance:
ASTM - D1557
GAGE #7740

Notified (Required): _____

Attachments: None

Name: ANDREW HAWVICHORST

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: [signature]
Certification #: _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: GEOTECHNICAL-SERV: PARCEL D-1 Date: 11/17/16
Project Address: CBPI 149831 SESF Job # 69995-1
Inspection Location: GUNWALE PIER.
Inspection(s) Performed: COMPACTION TESTING / TEST 40-60
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
53	#5	PLOT. PLAN.	FAB	11.6	121.7	126.9	96	95	☒	☐
54		Pg. 2 of 2		12.4	120.9		95	95	☒	☐
55				12.6	122.8		96	95	☒	☐
56				11.9	127.6		97	95	☒	☐
57				11.8	122.8		96	95	☒	☐
58				12.2	123.7		97	95	☒	☐
59				12.6	122.9		96	95	☒	☐
60				11.8	121.6		96	95	☒	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐
									☐	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#5	DARK BROWN A.B.		10.5	126.9

Work ☒ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material ☒ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material Tested ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: None

Name: AMARAN HAUVICHORST

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: [signature]
Certification #: _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: GEOTECHNICAL - SERV: PARCEL D-1 Date: 11/18/16
Project Address: CBPI 149831 SESF Job # 69995-1
Inspection Location: GUNMUCK PIER. — S.F.
Inspection(s) Performed: COMPACTION - TESTING / TEST 61-74
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf) Dry	Density (pcf) Max	% Rel. Compaction Field	% Rel. Compaction Spec.	Pass	Fail
									☐	☐
61	#5	REF: PLOT PLAN	FAB	12.2	121.6	126.9	96	95	☑	☐
62		TEST 61-74		11.9	120.9		95	95	☑	☐
63				11.8	122.8		96	95	☑	☐
64				10.9	123.6		97	95	☑	☐
65				11.6	122.7		96	95	☑	☐
66				12.8	121.6		96	95	☑	☐
67				11.9	121.5		96	95	☑	☐
68				11.7	122.4		96	95	☑	☐
69				12.2	123.2		97	95	☑	☐
70				11.6	122.9		96	95	☑	☐
71				10.8	121.4		96	95	☑	☐
72	/	/	/	11.2	120.8	/	95	95	☑	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#5	DARK-BROWN A.B.		10.5	126.9

Work ☒ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material ☒ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material Tested ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance:
ASTM - D1557
GAGE # 7740

Notified (Required): _____

Attachments: None

Name: ANDREW HAUVECHORST

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: [signature]
Certification #: _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: GEOTECHNICAL - SERV: PIER 70 D-1 Date: 11/18/16
Project Address: CASE MF831 SESF Job # 69995-1
Inspection Location: CRANDALL PIER. S.F.
Inspection(s) Performed: COMPACTION - TESTING
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf) Dry	Density (pcf) Max	% Rel. Compaction Field	% Rel. Compaction Spec.	Pass	Fail
									☐	☐
									☐	☐
73	#5		P&S	11.6	121.6	126.9	96	95	☑	☐
		DIST - PIER.							☐	☐
		CRANDALL							☐	☐
		PIER 2							☐	☐
		61 / 74							☐	☐
									☐	☐
									☐	☐
74	/	/	P&S	12.2	122.7	/	96	95	☑	☐
									☐	☐
									☐	☐
									☐	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
#5	DARK - BROWN D.P.		10.5	126.9

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance:
ASTM - D1557
GAGE # 73140

Notified (Required): _____

Attachments: None

Name: ANDREW HAUERHORST

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # N/A
DSA Appl. # N/A
OSHPD # N/A
Permit # N/A

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 12/12/2016
Project Address: Hunters Point, San Francisco SESF Job # 69995-1
Inspection Location: Area between buildings and seawall
Inspection(s) Performed: Soils - Compaction
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
1	1	See Map	FAB	13.64	120.5	126.9	95	95	☑	☐
2	"	See Map	"	13.32	121.7	"	96	"	☑	☐
3	"	See Map	"	12.92	122.7	"	97	"	☑	☐
4	"	See Map	"	12.53	123.0	"	97	"	☑	☐
5	"	See Map	"	11.78	125.6	"	99	"	☑	☐
6	"	See Map	"	14.64	119.9	"	95	"	☑	☐
7	"	See Map	"	14.59	120.3	"	95	"	☑	☐
8	"	See Map	"	13.72	120.9	"	95	"	☑	☐
9	"	See Map	"	14.24	120.8	"	95	"	☑	☐
10	"	See Map	"	14.68	120.5	"	95	"	☑	☐
11	"	See Map	"	14.34	120.3	"	95	"	☑	☐
12	"	See Map	"	12.61	124.1	"	98	"	☑	☐
13	"	See Map	"	13.02	124.3	"	98	"	☑	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
5	Dark brown AB Brisbane	R2AB	10.5	126.9

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: _____ Name: Matthew Barnes I.

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: Matthew Barnes I.
Certification #: _____
Emp. ID: 2851 Page ___ of ___

(b) (4)

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # N/A
DSA Appl. # N/A
OSHPD # N/A
Permit # N/A

DAILY - COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 12/12/2016
Project Address: Hunters Point, San Francisco SESF Job # 69995-1
Inspection Location: Area between buildings and seawall
Inspection(s) Performed: Soils - Compaction
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
1	1	See Map	FAB	13.64	120.5	126.9	95	95	☑	☐
2	"	See Map	"	13.32	121.7	"	96	"	☑	☐
3	"	See Map	"	12.92	122.7	"	97	"	☑	☐
4	"	See Map	"	12.53	123.0	"	97	"	☑	☐
5	"	See Map	"	11.78	125.6	"	99	"	☑	☐
6	"	See Map	"	14.64	119.9	"	95	"	☑	☐
7	"	See Map	"	14.59	120.3	"	95	"	☑	☐
8	"	See Map	"	13.72	120.9	"	95	"	☑	☐
9	"	See Map	"	14.24	120.8	"	95	"	☑	☐
10	"	See Map	"	14.68	120.5	"	95	"	☑	☐
11	"	See Map	"	14.34	120.3	"	95	"	☑	☐
12	"	See Map	"	12.61	124.1	"	98	"	☑	☐
13	"	See Map	"	13.02	124.3	"	98	"	☑	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
5	Dark brown AB Brisbane	R2AB	10.5	126.9

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Attachments: _____ Name: Matthew Barnes I.

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: Matthew Barnes I.
Certification #: _____
Emp. ID: 2851 Page ___ of ___

Hot Mix Asphalt--Mixture Testing

(b) (4)

(b) (4)

(b) (4)

(b) (4)

(b) (4)

LaBelle Marvin

PAVEMENT ANALYSIS, DESIGN, TESTING, & INSPECTION SERVICES

Date	12/5/2016	Sample ID:	Rec'd 12/2/16
Project No.	41928-2	Date Tested	12/7/2016
Client	Smith Emery J.N. 69995-1 HP	Tester:	J. Galland
Material/Plant	Parcel D-1, Gunmole Westside, GraniteRock S.S.F. 1/2" Med. A.C. 15% RAP,10:20am, 301.00 tons. 296F		

Reflux Extraction ASTM D 2172

Start Weight A:	**781.7**
Start Weight B:	**726.5**
Start Weight Total:	**1508.2**
Final Weight :	**1422.8**
Fines Correction	**5.1**
Adjusted Final Wt. :	**1427.9**
% Binder by DWA	**5.6**

Sieve Analysis CT 202

Start Weight:		**1427.9**	**Sieve Analysis**		
Sieve Size		**Cumulative Weight Retained**	**Percent Retained**	**Percent Passing**	**Contract Compliance Specified Limits**
37.5 mm	1-1/2"	0.0	0.0	**100.0**	
25.0 mm	1"	0.0	0.0	**100.0**	
19.0 mm	3/4"	0.0	0.0	**100.0**	
12.5 mm	1/2"	50.8	3.6	**96.4**	
9.5 mm	3/8"	177.5	12.4	**87.6**	
4.75 mm	No. 4	562.3	39.4	**60.6**	
2.36 mm	No. 8	851.1	59.6	**40.4**	
1.18 mm	No. 16	1012.6	70.9	**29.1**	
0.60 mm	No. 30	1129.7	79.1	**20.9**	
0.30 mm	No. 50	1226.0	85.9	**14.1**	
0.15 mm	No. 100	1292.9	90.5	**9.5**	
0.075mm	No. 200	1319.5	92.4	**7.6**	

LaBelle Marvin

PAVEMENT ANALYSIS, DESIGN, TESTING, & INSPECTION SERVICES

Date	12/5/2016	Sample ID:	Rec'd 12/2/16
Project No.	41928-2	Date Tested	12/7/2016
Client	Smith Emery J.N. 69995-1 HP	Tester:	J. Galland
Material/Plant	Parcel D-1, Gunmole Westside, GraniteRock S.S.F. 1/2" Med. A.C. 15% RAP, 2:50pm, 289F		

Reflux Extraction ASTM D 2172

Start Weight A:	**761.7**
Start Weight B:	**767.7**
Start Weight Total:	**1529.4**
Final Weight :	**1442.0**
Fines Correction	**4.3**
Adjusted Final Wt. :	**1446.3**
% Binder by DWA	**5.7**

Sieve Analysis CT 202

Start Weight:		**1446.3**		**Sieve Analysis**	
Sieve Size		**Cumulative Weight Retained**	**Percent Retained**	**Percent Passing**	**Contract Compliance Specified Limits**
37.5 mm	1-1/2"	0.0	0.0	**100.0**	
25.0 mm	1"	0.0	0.0	**100.0**	
19.0 mm	3/4"	0.0	0.0	**100.0**	
12.5 mm	1/2"	47.0	3.2	**96.8**	
9.5 mm	3/8"	198.7	13.7	**86.3**	
4.75 mm	No. 4	604.0	41.8	**58.2**	
2.36 mm	No. 8	832.3	57.5	**42.5**	
1.18 mm	No. 16	988.2	68.3	**31.7**	
0.60 mm	No. 30	1125.5	77.8	**22.2**	
0.30 mm	No. 50	1238.9	85.7	**14.3**	
0.15 mm	No. 100	1315.5	91.0	**9.0**	
0.075mm	No. 200	1344.2	92.9	**7.1**	

(b) (4)

(b) (4)

(b) (4)

(b) (4)

SMITH-EMERY SAN FRANCISCO
An Independent Commercial Testing Laboratory

1940 Oakdale Avenue
San Francisco, CA 94124
(415) 642-7326
Fax (415) 642-7055

791 East Washington Blvd.
Los Angeles, California 90021
(213) 749-3411
Fax (213) 746-7228

February 3, 2017

SESF File No. 69995-1
SESF Report No. 17-033

CB&I Federal Services, LLC
1230 Columbia Street, Suite 1200
San Diego, CA 92101

Attention: Mr. Sam Hopstone

RE: HPNS Parcel D-1

SUBJECT: Report of Tests

TEST STANDARDS: CTM 202 (Sieve Analysis), ASTM D2172 (Extraction), and CTM 366 (Stability)

SOURCE: Two samples of ½" Medium HMAC 15% Rap were collected by a Smith-Emery representative and delivered to our laboratory on November 29, 2016.

REPORT OF TESTS

In compliance with your request, we have conducted the subject tests with the results presented below.

Sample Number	Description	Source
11-29-16-01	½" Medium HMAC 15% Rap	Gunmole Westside
11-29-16-02	½" Medium HMAC 15% Rap	Gunmole Westside

CTM 202 (Sieve Analysis)
Please see attached.

ASTM D2172 (Extraction)
Please see attached.

CTM 366 (Stability)
01= 5,267 lbs.

Respectfully submitted,
SMITH-EMERY SAN FRANCISCO

Patrick Morrison

Pat Morrison
Digitally signed by Pat Morrison
DN: cn=Pat Morrison, o=Smith Emery SF, ou=SESF GeoServices, email=pmorrison@smithemerysf.com, c=US
Date: 2017.02.03 17:01:13 -08'00'

PATRICK MORRISON, P.G. #7174, C.E.G. #2643
Professional Geologist
Certified Engineering Geologist

Attachments: CTM 202, D2172, and ASTM D Detailed Reports

LaBelle Marvin

PAVEMENT ANALYSIS, DESIGN, TESTING, & INSPECTION SERVICES

Date	12/2/2016	Sample ID:	Lab # 161140
Project No.	41928	Date Tested	12/2/2016
Client	Smith Emery J.N. 6995-1 HPNS	Tester:	D. Baker
Material/Plant	1/2" Med. A.C., 11/29/2016		

Reflux Extraction ASTM D 2172

Start Weight A:	**802.2**
Start Weight B:	**822.6**
Start Weight Total:	**1624.8**
Final Weight :	**1531.2**
Fines Correction	**5.0**
Adjusted Final Wt. :	**1536.2**
% Binder by DWA	**5.8**

Sieve Analysis CT 202

Start Weight:		**1536.2**		**Sieve Analysis**	
Sieve Size		**Cumulative Weight Retained**	**Percent Retained**	**Percent Passing**	**Contract Compliance Specified Limits**
37.5 mm	1-1/2"	0.0	0.0	**100.0**	
25.0 mm	1"	0.0	0.0	**100.0**	
19.0 mm	3/4"	0.0	0.0	**100.0**	
12.5 mm	1/2"	33.7	2.2	**97.8**	
9.5 mm	3/8"	153.4	10.0	**90.0**	
4.75 mm	No. 4	588.3	38.3	**61.7**	
2.36 mm	No. 8	866.7	56.4	**43.6**	
1.18 mm	No. 16	1064.9	69.3	**30.7**	
0.60 mm	No. 30	1205.3	78.5	**21.5**	
0.30 mm	No. 50	1315.4	85.6	**14.4**	
0.15 mm	No. 100	1392.2	90.6	**9.4**	
0.075mm	No. 200	1424.7	92.7	**7.3**	

LaBelle Marvin

PAVEMENT ANALYSIS, DESIGN, TESTING, & INSPECTION SERVICES

Date	12/5/2016	Sample ID:	Rec'd 12/1/16
Project No.	41928-1	Date Tested	12/3/2016
Client	Smith Emery J.N. 6995-1 HPNS	Tester:	D. Baker
Material/Plant	Parcel D-1, Gunmole Westside, 9:30am, 296F, GraniteRock S.S.F.		

Reflux Extraction ASTM D 2172

Start Weight A:	**751.3**
Start Weight B:	**813.8**
Start Weight Total:	**1565.1**
Final Weight :	**1480.5**
Fines Correction	**2.3**
Adjusted Final Wt. :	**1482.8**
% Binder by DWA	**5.6**

Sieve Analysis CT 202

Start Weight:		**1482.8**		**Sieve Analysis**	
Sieve Size		**Cumulative Weight Retained**	**Percent Retained**	**Percent Passing**	**Contract Compliance Specified Limits**
37.5 mm	1-1/2"	0.0	0.0	**100.0**	
25.0 mm	1"	0.0	0.0	**100.0**	
19.0 mm	3/4"	0.0	0.0	**100.0**	
12.5 mm	1/2"	16.8	1.1	**98.9**	
9.5 mm	3/8"	125.1	8.4	**91.6**	
4.75 mm	No. 4	605.0	40.8	**59.2**	
2.36 mm	No. 8	870.0	58.7	**41.3**	
1.18 mm	No. 16	1044.3	70.4	**29.6**	
0.60 mm	No. 30	1170.1	78.9	**21.1**	
0.30 mm	No. 50	1273.0	85.9	**14.1**	
0.15 mm	No. 100	1346.0	90.8	**9.2**	
0.075mm	No. 200	1370.8	92.4	**7.6**	

SMITH-EMERY SAN FRANCISCO
An Independent Commercial Testing Laboratory

1940 Oakdale Avenue
San Francisco, CA 94124
(415) 642-7326
Fax (415) 642-7055

791 East Washington Blvd.
Los Angeles, California 90021
(213) 749-3411
Fax (213) 746-7228

February 3, 2017

SESF File No. 69995-1
SESF Report No. 17-031R

CB&I Federal Services, LLC
1230 Columbia Street, Suite 1200
San Diego, CA 92101

Attention: Mr. Sam Hopstone

RE: HPNS Parcel D-1

SUBJECT: Report of Tests
TEST STANDARDS: CTM 202 (Sieve Analysis) and ASTM D2172 (Extraction)

SOURCE: (11) samples of ½" Medium HMAC 15% Rap from were collected by a Smith-Emery representative and delivered to our laboratory between November 30 and December 21st, 2016.

REPORT OF TESTS
In compliance with your request, we have conducted the subject tests with the results presented below.

Sample Number	Description	Source
11-30-16-01	½" Medium HMAC 15% Rap	2:50 P.M.
12-01-16-0A	½" Medium HMAC 15% Rap	301.00 Tons 10:20 A.M.
12-01-16-0B	½" Medium HMAC 15% Rap	674.00 Tons 3:10 P.M.
12-02-16-01	½" Medium HMAC 15% Rap	318.54 Tons
12-19-16-01	½" Medium HMAC 15% Rap	Load #8 10:15 A.M.
12-19-16-02	½" Medium HMAC 15% Rap	809.00 Tons 2:50 P.M.
12-19-16-03	½" Medium HMAC 15% Rap	1373 Tons Load #56.
12-20-16-01	½" Medium HMAC 15% Rap	713.00 Tons Load #29.
12-20-16-02	½" Medium HMAC 15% Rap	2020 Tons Load #83.
12-21-16-0A	½" Medium HMAC 15% Rap	339.00Tons Load #14
12-21-16-0B	½" Medium HMAC 15% Rap	1121 Tons Load #46

CTM 202 (Sieve Analysis)
Please see attached.

ASTM D2172 (Extraction)
Please see attached.

Respectfully submitted,
SMITH-EMERY SAN FRANCISCO

Patrick Morrison Pat Morrison Digitally signed by Pat Morrison DN: cn=Pat Morrison, o=Smith Emery SF, ou=SESF GeoServices, email=pmorrison@smithemerysf.com, c=US Date: 2017.02.03 18:00:07 -08'00'

PATRICK MORRISON, P.G. #7174, C.E.G. #2643
Professional Geologist
Certified Engineering Geologist

Attachments: CTM 202 and D2172 Detailed Reports

LaBelle Marvin

PAVEMENT ANALYSIS, DESIGN, TESTING, & INSPECTION SERVICES

Date	12/30/2016	Sample ID:	Lab #161227
Project No.	41928-3	Date Tested	12/29/2016
Client	Smith Emery J.N. 6995-1 HPNS	Tester:	D. Linstrom
Material/Plant	Parcel D-1, GraniteRock S.S.F.		
	1/2" Med AC 15% Rap, 11/30/16, 2:50 pm, 296F		

Reflux Extraction ASTM D 2172

Start Weight A:	**790.5**
Start Weight B:	**785.7**
Start Weight Total:	**1576.2**
Final Weight :	**1488.4**
Fines Correction	**5.8**
Adjusted Final Wt. :	**1494.2**
% Binder by DWA	**5.5**

Sieve Analysis CT 202

Start Weight:		**1494.2**	**Sieve Analysis**		
Sieve Size		**Cumulative Weight Retained**	**Percent Retained**	**Percent Passing**	**Contract Compliance Specified Limits**
37.5 mm	1-1/2"	0.0	0.0	**100.0**	
25.0 mm	1"	0.0	0.0	**100.0**	
19.0 mm	3/4"	0.0	0.0	**100.0**	
12.5 mm	1/2"	32.8	2.2	**97.8**	
9.5 mm	3/8"	193.7	13.0	**87.0**	
4.75 mm	No. 4	665.2	44.5	**55.5**	
2.36 mm	No. 8	888.8	59.5	**40.5**	
1.18 mm	No. 16	1039.7	69.6	**30.4**	
0.60 mm	No. 30	1173.2	78.5	**21.5**	
0.30 mm	No. 50	1284.6	86.0	**14.0**	
0.15 mm	No. 100	1359.9	91.0	**9.0**	
0.075mm	No. 200	1392.8	93.2	**6.8**	

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PAVEMENT ANALYSIS, DESIGN, TESTING, & INSPECTION SERVICES

Date	12/28/2016	Sample ID:	Lab #161221-A
Project No.	41928-3	Date Tested	12/27/2016
Client	Smith Emery J.N. 6995-1 HPNS	Tester:	D. Linstrom
Material/Plant	Parcel D-1, GraniteRock S.S.F.		
	1/2" Med AC 15% Rap, 12/1/16, 10:20 am, 301 tons, 296F		

Reflux Extraction ASTM D 2172

Start Weight A:	**790.9**
Start Weight B:	**758.6**
Start Weight Total:	**1549.5**
Final Weight :	**1462.0**
Fines Correction	**5.2**
Adjusted Final Wt. :	**1467.2**
% Binder by DWA	**5.6**

Sieve Analysis CT 202

Start Weight:		**1467.2**	**Sieve Analysis**		
Sieve Size		**Cumulative Weight Retained**	**Percent Retained**	**Percent Passing**	**Contract Compliance Specified Limits**
37.5 mm	1-1/2"	0.0	0.0	**100.0**	
25.0 mm	1"	0.0	0.0	**100.0**	
19.0 mm	3/4"	0.0	0.0	**100.0**	
12.5 mm	1/2"	35.8	2.4	**97.6**	
9.5 mm	3/8"	212.7	14.5	**85.5**	
4.75 mm	No. 4	598.1	40.8	**59.2**	
2.36 mm	No. 8	885.1	60.3	**39.7**	
1.18 mm	No. 16	1044.1	71.2	**28.8**	
0.60 mm	No. 30	1161.2	79.1	**20.9**	
0.30 mm	No. 50	1260.0	85.9	**14.1**	
0.15 mm	No. 100	1328.9	90.6	**9.4**	
0.075mm	No. 200	1355.2	92.4	**7.6**	

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PAVEMENT ANALYSIS, DESIGN, TESTING, & INSPECTION SERVICES

Date	12/28/2016	Sample ID:	Lab #161221-B
Project No.	41928-3	Date Tested	12/27/2016
Client	Smith Emery J.N. 6995-1 HPNS	Tester:	D. Linstrom
Material/Plant	Parcel D-1, GraniteRock S.S.F.		
	1/2" Med AC 15% Rap, 12/1/16, 3:10 pm, 674 tons, 291F		

Reflux Extraction ASTM D 2172

Start Weight A:	**767.5**
Start Weight B:	**787.2**
Start Weight Total:	**1554.7**
Final Weight :	**1465.7**
Fines Correction	**5.6**
Adjusted Final Wt. :	**1471.3**
% Binder by DWA	**5.7**

Sieve Analysis CT 202

Start Weight:		**1471.3**	**Sieve Analysis**		
Sieve Size		**Cumulative Weight Retained**	**Percent Retained**	**Percent Passing**	**Contract Compliance Specified Limits**
37.5 mm	1-1/2"	0.0	0.0	**100.0**	
25.0 mm	1"	0.0	0.0	**100.0**	
19.0 mm	3/4"	0.0	0.0	**100.0**	
12.5 mm	1/2"	76.0	5.2	**94.8**	
9.5 mm	3/8"	227.0	15.4	**84.6**	
4.75 mm	No. 4	570.4	38.8	**61.2**	
2.36 mm	No. 8	870.1	59.1	**40.9**	
1.18 mm	No. 16	1050.0	71.4	**28.6**	
0.60 mm	No. 30	1172.4	79.7	**20.3**	
0.30 mm	No. 50	1269.9	86.3	**13.7**	
0.15 mm	No. 100	1342.7	91.3	**8.7**	
0.075mm	No. 200	1368.5	93.0	**7.0**	

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PAVEMENT ANALYSIS, DESIGN, TESTING, & INSPECTION SERVICES

Date	12/28/2016	Sample ID:	Rec'd 12/23/16
Project No.	41928-3	Date Tested	12/27/2016
Client	Smith Emery J.N. 6995-1 HPNS	Tester:	D. Linstrom
Material/Plant	Parcel D-1, GraniteRock RWC		
	1/2" HMAC, Hunter's Point, Gunmole East, 12/2/16, Load 13, 9:25 am 318.54 tons		

Reflux Extraction ASTM D 2172

Start Weight A:	**764.6**
Start Weight B:	**803.4**
Start Weight Total:	**1568.0**
Final Weight :	**1474.7**
Fines Correction	**6.1**
Adjusted Final Wt. :	**1480.8**
% Binder by DWA	**5.9**

Sieve Analysis CT 202

Start Weight:		**1480.8**	**Sieve Analysis**		
Sieve Size		**Cumulative Weight Retained**	**Percent Retained**	**Percent Passing**	**Contract Compliance Specified Limits**
37.5 mm	1-1/2"	0.0	0.0	**100.0**	
25.0 mm	1"	0.0	0.0	**100.0**	
19.0 mm	3/4"	0.0	0.0	**100.0**	
12.5 mm	1/2"	3.7	0.2	**99.8**	
9.5 mm	3/8"	115.3	7.8	**92.2**	
4.75 mm	No. 4	490.5	33.1	**66.9**	
2.36 mm	No. 8	768.0	51.9	**48.1**	
1.18 mm	No. 16	985.7	66.6	**33.4**	
0.60 mm	No. 30	1149.6	77.6	**22.4**	
0.30 mm	No. 50	1276.8	86.2	**13.8**	
0.15 mm	No. 100	1355.1	91.5	**8.5**	
0.075mm	No. 200	1380.1	93.2	**6.8**	

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PAVEMENT ANALYSIS, DESIGN, TESTING, & INSPECTION SERVICES

Date	12/30/2016	Sample ID:	Rec'd 12/23/16
Project No.	41928-3	Date Tested	12/29/2016
Client	Smith Emery J.N. 6995-1 HPNS	Tester:	D. Linstrom
Material/Plant	Parcel D-1, GraniteRock S.S.F.		
	12/19/16, 1/2" Med AC 15% Rap, 2:50 pm, 809 Tons, 297F		

Reflux Extraction ASTM D 2172

Start Weight A:	**818.7**
Start Weight B:	**802.6**
Start Weight Total:	**1621.3**
Final Weight :	**1531.5**
Fines Correction	**3.8**
Adjusted Final Wt. :	**1535.3**
% Binder by DWA	**5.6**

Sieve Analysis CT 202

Start Weight:		**1535.3**	**Sieve Analysis**		
Sieve Size		**Cumulative Weight Retained**	**Percent Retained**	**Percent Passing**	**Contract Compliance Specified Limits**
37.5 mm	1-1/2"	0.0	0.0	**100.0**	
25.0 mm	1"	0.0	0.0	**100.0**	
19.0 mm	3/4"	0.0	0.0	**100.0**	
12.5 mm	1/2"	3.1	0.2	**99.8**	
9.5 mm	3/8"	158.7	10.3	**89.7**	
4.75 mm	No. 4	717.3	46.7	**53.3**	
2.36 mm	No. 8	936.3	61.0	**39.0**	
1.18 mm	No. 16	1106.6	72.1	**27.9**	
0.60 mm	No. 30	1237.4	80.6	**19.4**	
0.30 mm	No. 50	1347.5	87.8	**12.2**	
0.15 mm	No. 100	1416.4	92.3	**7.7**	
0.075mm	No. 200	1446.4	94.2	**5.8**	

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PAVEMENT ANALYSIS, DESIGN, TESTING, & INSPECTION SERVICES

Date	12/30/2016	Sample ID:	Lab #161234
Project No.	41928-3	Date Tested	12/29/2016
Client	Smith Emery J.N. 6995-1 HPNS	Tester:	D. Linstrom
Material/Plant	Parcel D-1, GraniteRock RWC 12/19/16, Load 56, 2:30 pm, 1373 tons, 296F		

Reflux Extraction ASTM D 2172

Start Weight A:	**741.0**
Start Weight B:	**758.8**
Start Weight Total:	**1499.8**
Final Weight :	**1413.9**
Fines Correction	**6.1**
Adjusted Final Wt. :	**1420.0**
% Binder by DWA	**5.6**

Sieve Analysis CT 202

Start Weight:		**1420**	**Sieve Analysis**		
Sieve Size		**Cumulative Weight Retained**	**Percent Retained**	**Percent Passing**	**Contract Compliance Specified Limits**
37.5 mm	1-1/2"	0.0	0.0	**100.0**	
25.0 mm	1"	0.0	0.0	**100.0**	
19.0 mm	3/4"	0.0	0.0	**100.0**	
12.5 mm	1/2"	25.8	1.8	**98.2**	
9.5 mm	3/8"	137.9	9.7	**90.3**	
4.75 mm	No. 4	499.4	35.2	**64.8**	
2.36 mm	No. 8	743.1	52.3	**47.7**	
1.18 mm	No. 16	946.1	66.6	**33.4**	
0.60 mm	No. 30	1101.7	77.6	**22.4**	
0.30 mm	No. 50	1220.8	86.0	**14.0**	
0.15 mm	No. 100	1293.8	91.1	**8.9**	
0.075mm	No. 200	1322.6	93.1	**6.9**	

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PAVEMENT ANALYSIS, DESIGN, TESTING, & INSPECTION SERVICES

Date	12/30/2016	Sample ID:	Lab #161238
Project No.	41928-3	Date Tested	12/29/2016
Client	Smith Emery J.N. 6995-1 HPNS	Tester:	D. Linstrom
Material/Plant	Parcel D-1, GraniteRock S.S.F. 12/19/16, Load 8, 10:15 am, 286F		

Reflux Extraction ASTM D 2172

Start Weight A:	**734.4**
Start Weight B:	**816.0**
Start Weight Total:	**1550.4**
Final Weight :	**1465.8**
Fines Correction	**5.6**
Adjusted Final Wt. :	**1471.4**
% Binder by DWA	**5.4**

Sieve Analysis CT 202

Start Weight:		**1471.4**	**Sieve Analysis**		
Sieve Size		**Cumulative Weight Retained**	**Percent Retained**	**Percent Passing**	**Contract Compliance Specified Limits**
37.5 mm	1-1/2"	0.0	0.0	**100.0**	
25.0 mm	1"	0.0	0.0	**100.0**	
19.0 mm	3/4"	0.0	0.0	**100.0**	
12.5 mm	1/2"	25.7	1.7	**98.3**	
9.5 mm	3/8"	157.4	10.7	**89.3**	
4.75 mm	No. 4	535.2	36.4	**63.6**	
2.36 mm	No. 8	783.8	53.3	**46.7**	
1.18 mm	No. 16	978.2	66.5	**33.5**	
0.60 mm	No. 30	1127.5	76.6	**23.4**	
0.30 mm	No. 50	1247.9	84.8	**15.2**	
0.15 mm	No. 100	1322.5	89.9	**10.1**	
0.075mm	No. 200	1354.1	92.0	**8.0**	

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PAVEMENT ANALYSIS, DESIGN, TESTING, & INSPECTION SERVICES

Date	12/28/2016	Sample ID:	Lab #161236
Project No.	41928-3	Date Tested	12/28/2016
Client	Smith Emery J.N. 6995-1 HPNS	Tester:	D. Linstrom
Material/Plant	Parcel D-1, GraniteRock Redwood City		
	12/20/16, Load 29, 10:04 am, 713 Tons, 292F		

Reflux Extraction ASTM D 2172

Start Weight A:	**763.5**
Start Weight B:	**763.5**
Start Weight Total:	**1527.0**
Final Weight :	**1440.7**
Fines Correction	**4.8**
Adjusted Final Wt. :	**1445.5**
% Binder by DWA	**5.6**

Sieve Analysis CT 202

Start Weight:		**1445.5**		**Sieve Analysis**	
Sieve Size		**Cumulative Weight Retained**	**Percent Retained**	**Percent Passing**	**Contract Compliance Specified Limits**
37.5 mm	1-1/2"	0.0	0.0	**100.0**	
25.0 mm	1"	0.0	0.0	**100.0**	
19.0 mm	3/4"	0.0	0.0	**100.0**	
12.5 mm	1/2"	15.8	1.1	**98.9**	
9.5 mm	3/8"	133.5	9.2	**90.8**	
4.75 mm	No. 4	518.7	35.9	**64.1**	
2.36 mm	No. 8	763.3	52.8	**47.2**	
1.18 mm	No. 16	958.8	66.3	**33.7**	
0.60 mm	No. 30	1108.0	76.7	**23.3**	
0.30 mm	No. 50	1226.5	84.8	**15.2**	
0.15 mm	No. 100	1303.1	90.1	**9.9**	
0.075mm	No. 200	1330.5	92.0	**8.0**	

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PAVEMENT ANALYSIS, DESIGN, TESTING, & INSPECTION SERVICES

Date	12/28/2016	Sample ID:	Lab #161237
Project No.	41928-3	Date Tested	12/28/2016
Client	Smith Emery J.N. 6995-1 HPNS	Tester:	D. Linstrom
Material/Plant	Parcel D-1, GraniteRock Redwood City		
	12/20/16, Load 83, 3:15 pm, 2020 Tons, 291F		

Reflux Extraction ASTM D 2172

Start Weight A:	**753.6**
Start Weight B:	**715.5**
Start Weight Total:	**1469.1**
Final Weight :	**1383.5**
Fines Correction	**5.1**
Adjusted Final Wt. :	**1388.6**
% Binder by DWA	**5.8**

Sieve Analysis CT 202

Start Weight:		**1388.6**		**Sieve Analysis**	
Sieve Size		**Cumulative Weight Retained**	**Percent Retained**	**Percent Passing**	**Contract Compliance Specified Limits**
37.5 mm	1-1/2"	0.0	0.0	**100.0**	
25.0 mm	1"	0.0	0.0	**100.0**	
19.0 mm	3/4"	0.0	0.0	**100.0**	
12.5 mm	1/2"	34.6	2.5	**97.5**	
9.5 mm	3/8"	126.6	9.1	**90.9**	
4.75 mm	No. 4	467.8	33.7	**66.3**	
2.36 mm	No. 8	710.6	51.2	**48.8**	
1.18 mm	No. 16	910.8	65.6	**34.4**	
0.60 mm	No. 30	1064.7	76.7	**23.3**	
0.30 mm	No. 50	1185.7	85.4	**14.6**	
0.15 mm	No. 100	1260.0	90.7	**9.3**	
0.075mm	No. 200	1284.1	92.5	**7.5**	

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PAVEMENT ANALYSIS, DESIGN, TESTING, & INSPECTION SERVICES

Date	12/28/2016	Sample ID:	Lab #161235-A
Project No.	41928-3	Date Tested	12/28/2016
Client	Smith Emery J.N. 6995-1 HPNS	Tester:	D. Linstrom
Material/Plant	Parcel D-1, GraniteRock Redwood City		
	12/21/16, 1/2" Med AC 15% Rap, Load 46, 2:20 pm, 1121 Tons, 289F		

Reflux Extraction ASTM D 2172

Start Weight A:	**825.2**
Start Weight B:	**849.3**
Start Weight Total:	**1674.5**
Final Weight :	**1587.8**
Fines Correction	**4.0**
Adjusted Final Wt. :	**1591.8**
% Binder by DWA	**5.2**

Sieve Analysis CT 202

Start Weight:		**1591.8**	**Sieve Analysis**		
Sieve Size		**Cumulative Weight Retained**	**Percent Retained**	**Percent Passing**	**Contract Compliance Specified Limits**
37.5 mm	1-1/2"	0.0	0.0	**100.0**	
25.0 mm	1"	0.0	0.0	**100.0**	
19.0 mm	3/4"	0.0	0.0	**100.0**	
12.5 mm	1/2"	47.0	3.0	**97.0**	
9.5 mm	3/8"	238.6	15.0	**85.0**	
4.75 mm	No. 4	710.9	44.7	**55.3**	
2.36 mm	No. 8	951.6	59.8	**40.2**	
1.18 mm	No. 16	1126.7	70.8	**29.2**	
0.60 mm	No. 30	1262.0	79.3	**20.7**	
0.30 mm	No. 50	1381.5	86.8	**13.2**	
0.15 mm	No. 100	1464.7	92.0	**8.0**	
0.075mm	No. 200	1494.3	93.9	**6.1**	

LaBelle Marvin

PAVEMENT ANALYSIS, DESIGN, TESTING, & INSPECTION SERVICES

Date	12/30/2016	Sample ID:	Lab #161235-B
Project No.	41928-3	Date Tested	12/29/2016
Client	Smith Emery J.N. 6995-1 HPNS	Tester:	D. Linstrom
Material/Plant	Parcel D-1, GraniteRock S. San Francisco		
	12/21/16, 1/2" Med AC 15% Rap, Load 14, 2:45 pm, 339 Tons, 292F		

Reflux Extraction ASTM D 2172

Start Weight A:	**753.9**
Start Weight B:	**795.7**
Start Weight Total:	**1549.6**
Final Weight :	**1463.4**
Fines Correction	**4.3**
Adjusted Final Wt. :	**1467.7**
% Binder by DWA	**5.6**

Sieve Analysis CT 202

Start Weight:		**1467.7**	**Sieve Analysis**		
Sieve Size		**Cumulative Weight Retained**	**Percent Retained**	**Percent Passing**	**Contract Compliance Specified Limits**
37.5 mm	1-1/2"	0.0	0.0	**100.0**	
25.0 mm	1"	0.0	0.0	**100.0**	
19.0 mm	3/4"	0.0	0.0	**100.0**	
12.5 mm	1/2"	33.1	2.3	**97.7**	
9.5 mm	3/8"	214.8	14.6	**85.4**	
4.75 mm	No. 4	577.2	39.3	**60.7**	
2.36 mm	No. 8	854.7	58.2	**41.8**	
1.18 mm	No. 16	1047.6	71.4	**28.6**	
0.60 mm	No. 30	1184.5	80.7	**19.3**	
0.30 mm	No. 50	1288.6	87.8	**12.2**	
0.15 mm	No. 100	1349.8	92.0	**8.0**	
0.075mm	No. 200	1374.4	93.6	**6.4**	

SMITH-EMERY SAN FRANCISCO
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1940 Oakdale Avenue
San Francisco, CA 94124
(415) 642-7326
Fax (415) 642-7055

791 East Washington Blvd.
Los Angeles, California 90021
(213) 749-3411
Fax (213) 746-7228

February 15, 2017

SESF File No. 69995-1
SESF Report No. 17-041

CB&I Federal Services, LLC
1230 Columbia Street, Suite 1200
San Diego, CA 92101

Attention: Mr. Sam Hopstone

RE: HPNS Parcel D-1

SUBJECT: Report of Tests
TEST STANDARDS: CTM 202 (Sieve Analysis) and ASTM D2172 (Extraction)

SOURCE: (14) samples of ½" Medium HMAC 15% Rap from were collected by a Smith-Emery representative and delivered to our laboratory between December 2 and December 22st, 2016.

REPORT OF TESTS
In compliance with your request, we have conducted the subject tests with the results presented below.

Sample Number	Description	Source
12-02-16-03	½" Medium HMAC 15% Rap	809.00 Tons
12-02-16-04	½" Medium HMAC 15% Rap	1364.33 Tons
12-02-16-05	½" Medium HMAC 15% Rap	Load #9
12-02-16-06	½" Medium HMAC 15% Rap	Load #13
12-19-16-04	½" Medium HMAC 15% Rap	Load #19A
12-19-16-05	½" Medium HMAC 15% Rap	Load #19B
12-19-16-06	½" Medium HMAC 15% Rap	534.00 Tons
12-21-16-0C	½" Medium HMAC 15% Rap	Load #5
12-21-16-0D	½" Medium HMAC 15% Rap	Load #11A
12-21-16-0E	½" Medium HMAC 15% Rap	Load #11B
12-21-16-0F	½" Medium HMAC 15% Rap	Unmarked
12-22-16-01	½" Medium HMAC 15% Rap	Load #5
12-22-16-02	½" Medium HMAC 15% Rap	Load #13A
12-22-16-03	½" Medium HMAC 15% Rap	Load #13B

CTM 202 (Sieve Analysis)
Please see attached.

ASTM D2172 (Extraction)
Please see attached.

Respectfully submitted,
SMITH-EMERY SAN FRANCISCO

Patrick Morrison

Pat Morrison
D gitally s gned by Pat Morrison
DN cn=Pat Morrison o=Smith Emery SF ou=SESF GeoServ ces email=pmorrison@smithemerysf co m c=US
Date 2017 02 15 13 11 28 08 00'

PATRICK MORRISON, P.G. #7174, C.E.G. #2643
Professional Geologist
Certified Engineering Geologist

Attachments: CTM 202 and D2172 Detailed Reports

LaBelle Marvin

PAVEMENT ANALYSIS, DESIGN, TESTING, & INSPECTION SERVICES

Date	02/10/17
Project No.	41928-4
Client	Smith-Emery P/N 69995-1
Material/Plant	1/2" AC Med 15% RAP, Granite Rock-South San Francisco
Sample ID:	Hunters Point Parcel D-1, 12/2/17 2:50 PM, 297F, 809.0 Tons

Date Tested 2/10/2017
Tester: j. galland / d. linstrom

Quantative Extraction of Bitumen From Bituminous Paving Mixtures ASTM D 2172 Method B / AASHTO T164 Method B

Solvent Method

		Upper	Lower
A.	Weight of Rack Assembly	682.0	681.8
B.	Weight of Rack Assembly & Filter	698.7	698.1
C.	Weight of Rack, Filter & Sample Before	1455.3	1495.0
D.	Wt. of Sample Before Extraction Total	1553.5	
E.	Wt. of Dry Sample Before Extraction Total	1553.5	
F.	Weight of Rack, Filter & Sample After	1419.0	1455.4
G.	Tare Weight of Centrifuge Cup	237.13	
H.	Weight of Centrifuge Cup and Mineral Matter	239.99	
I.	Weight of Mineral Matter	2.86	
J.	Weight of Sample After Extraction Total	1480.5	
K.	Total Weight Loss of Sample	73.0	Specification
L.	%Total Binder by DWA	**4.93**	
M.	%Total Binder by TWM	**4.70**	

A.C. Moisture

Tare Weight	500.0
Tare + Asphalt Before	1000.0
Tare + Asphalt After	1000.0
Weight Loss	0.00
Percent Moisture	**0.00**

*Samples Dried To Constant Weight Prior To Testing

Sieve Analysis ASTM D5444

Start Weight:		1480.5			
Sieve Size		Cumulative Weight Retained	Percent Retained	Percent Passing	Contract Compliance Specified Limits
37.5 mm	1-1/2"	0.0	0.0	**100.0**	
25.0 mm	1"	0.0	0.0	**100.0**	
19.0 mm	3/4"	0.0	0.0	**100.0**	
12.5 mm	1/2"	19.6	1.3	**98.7**	
9.5 mm	3/8"	155.4	10.5	**89.5**	
4.75 mm	No. 4	731.6	49.4	**50.6**	
2.36 mm	No. 8	919.6	62.1	**37.9**	
1.18 mm	No. 16	1075.5	72.6	**27.4**	
0.60 mm	No. 30	1198.4	80.9	**19.1**	
0.30 mm	No. 50	1302.0	87.9	**12.1**	
0.15 mm	No. 100	1367.2	92.3	**7.7**	
0.075mm	No. 200	1391.6	94.0	**6.0**	

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PAVEMENT ANALYSIS, DESIGN, TESTING, & INSPECTION SERVICES

Date	02/13/17
Project No.	41928-4
Client	Smith-Emery P/N 69995-1
Material/Plant	1/2" AC Med 15% RAP, Granite Rock-Redwood City
Sample ID:	Hunters Point Parcel D-1, 12/2/17 3:20 PM, 294F, 1364.33 Tons

Date Tested 2/13/2017
Tester: J. Galland

Quantative Extraction of Bitumen From Bituminous Paving Mixtures ASTM D 2172 Method B / AASHTO T164 Method B

Solvent Method

		Upper	Lower
A.	Weight of Rack Assembly	383.5	381.4
B.	Weight of Rack Assembly & Filter	399.7	398.3
C.	Weight of Rack, Filter & Sample Before	1151.4	1224.6
D.	Wt. of Sample Before Extraction Total	1578.0	
E.	Wt. of Dry Sample Before Extraction Total	1578.0	
F.	Weight of Rack, Filter & Sample After	1112.3	1180.3
G.	Tare Weight of Centrifuge Cup	234.58	
H.	Weight of Centrifuge Cup and Mineral Matter	239.19	
I.	Weight of Mineral Matter	4.61	
J.	Weight of Sample After Extraction Total	1499.2	
K.	Total Weight Loss of Sample	78.8	Specification
L.	%Total Binder by DWA	**5.26**	
M.	%Total Binder by TWM	**4.99**	

A.C. Moisture

Tare Weight	500.0
Tare + Asphalt Before	1000.0
Tare + Asphalt After	1000.0
Weight Loss	0.00
Percent Moisture	**0.00**

*Samples Dried To Constant Weight Prior To Testing

Sieve Analysis ASTM D5444

Start Weight:		1499.2			
Sieve Size		Cumulative Weight Retained	Percent Retained	Percent Passing	Contract Compliance Specified Limits
37.5 mm	1-1/2"	0.0	0.0	**100.0**	
25.0 mm	1"	0.0	0.0	**100.0**	
19.0 mm	3/4"	0.0	0.0	**100.0**	
12.5 mm	1/2"	14.2	0.9	**99.1**	
9.5 mm	3/8"	140.0	9.3	**90.7**	
4.75 mm	No. 4	655.5	43.7	**56.3**	
2.36 mm	No. 8	874.9	58.4	**41.6**	
1.18 mm	No. 16	1043.3	69.6	**30.4**	
0.60 mm	No. 30	1180.3	78.7	**21.3**	
0.30 mm	No. 50	1292.6	86.2	**13.8**	
0.15 mm	No. 100	1362.5	90.9	**9.1**	
0.075mm	No. 200	1391.8	92.8	**7.2**	

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PAVEMENT ANALYSIS, DESIGN, TESTING, & INSPECTION SERVICES

Date	2/10/17
Project No.	41928-4
Client	Smith-Emery P/N 69995-1
Material/Plant	1/2" HMAC, Granite Rock-South San Francisco, Gun Mole East
Sample ID:	Hunters Point Parcel D-1, 12/2/17 9:30 AM, Load 9, 215.97 Tons

Date Tested 2/10/2017

Tester: j. Galland/ d. linstrom

Quantative Extraction of Bitumen From Bituminous Paving Mixtures ASTM D 2172 Method B / AASHTO T164 Method B

Solvent Method

		Upper	Lower
A.	Weight of Rack Assembly	383.5	381.4
B.	Weight of Rack Assembly & Filter	400.7	397.5
C.	Weight of Rack, Filter & Sample Before	1137.2	1193.5
D.	Wt. of Sample Before Extraction Total	1532.5	
E.	Wt. of Dry Sample Before Extraction Total	1532.5	
F.	Weight of Rack, Filter & Sample After	1096.0	1150.9
G.	Tare Weight of Centrifuge Cup	226.18	
H.	Weight of Centrifuge Cup and Mineral Matter	230.53	
I.	Weight of Mineral Matter	4.35	
J.	Weight of Sample After Extraction Total	1453.1	
K.	Total Weight Loss of Sample	79.5	Specification
L.	%Total Binder by DWA	**5.47**	
M.	%Total Binder by TWM	**5.18**	

A.C. Moisture

Tare Weight	500.0
Tare + Asphalt Before	1000.0
Tare + Asphalt After	1000.0
Weight Loss	0.00
Percent Moisture	**0.00**

*Samples Dried To Constant Weight Prior To Testing

Sieve Analysis ASTM D5444

Start Weight:		1453.1			
Sieve Size		Cumulative Weight Retained	Percent Retained	Percent Passing	Contract Compliance Specified Limits
37.5 mm	1-1/2"	0.0	0.0	**100.0**	
25.0 mm	1"	0.0	0.0	**100.0**	
19.0 mm	3/4"	0.0	0.0	**100.0**	
12.5 mm	1/2"	11.8	0.8	**99.2**	
9.5 mm	3/8"	122.6	8.4	**91.6**	
4.75 mm	No. 4	570.8	39.3	**60.7**	
2.36 mm	No. 8	854.1	58.8	**41.2**	
1.18 mm	No. 16	1029.1	70.8	**29.2**	
0.60 mm	No. 30	1152.4	79.3	**20.7**	
0.30 mm	No. 50	1250.5	86.1	**13.9**	
0.15 mm	No. 100	1319.3	90.8	**9.2**	
0.075mm	No. 200	1350.0	92.9	**7.1**	

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PAVEMENT ANALYSIS, DESIGN, TESTING, & INSPECTION SERVICES

Date	02/13/17
Project No.	41928-4
Client	Smith-Emery P/N 69995-1
Material/Plant	1/2" HMAC, Granite Rock-Redwood City, Gun Mole East
Sample ID:	Hunters Point Parcel D-1, 12/2/17 9:25 AM, Load 13, 318.54 Tons

Date Tested 2/13/2017

Tester: D.Linstrom/J.Galland

Quantative Extraction of Bitumen From Bituminous Paving Mixtures ASTM D 2172 Method B / AASHTO T164 Method B

Solvent Method

		Upper	Lower
A.	Weight of Rack Assembly	682.1	681.9
B.	Weight of Rack Assembly & Filter	698.9	697.4
C.	Weight of Rack, Filter & Sample Before	1447.7	1462.8
D.	Wt. of Sample Before Extraction Total	1514.2	
E.	Wt. of Dry Sample Before Extraction Total	1514.2	
F.	Weight of Rack, Filter & Sample After	1408.5	1413.0
G.	Tare Weight of Centrifuge Cup	238.59	
H.	Weight of Centrifuge Cup and Mineral Matter	243.06	
I.	Weight of Mineral Matter	4.47	
J.	Weight of Sample After Extraction Total	1429.7	
K.	Total Weight Loss of Sample	84.5	Specification
L.	%Total Binder by DWA	**5.91**	
M.	%Total Binder by TWM	**5.58**	

A.C. Moisture

Tare Weight	500.0
Tare + Asphalt Before	1000.0
Tare + Asphalt After	1000.0
Weight Loss	0.00
Percent Moisture	**0.00**

*Samples Dried To Constant Weight Prior To Testing

Sieve Analysis ASTM D5444

Start Weight:		1429.7			
Sieve Size		**Cumulative Weight Retained**	**Percent Retained**	**Percent Passing**	**Contract Compliance Specified Limits**
37.5 mm	1-1/2"	0.0	0.0	**100.0**	
25.0 mm	1"	0.0	0.0	**100.0**	
19.0 mm	3/4"	0.0	0.0	**100.0**	
12.5 mm	1/2"	22.5	1.6	**98.4**	
9.5 mm	3/8"	91.2	6.4	**93.6**	
4.75 mm	No. 4	439.3	30.7	**69.3**	
2.36 mm	No. 8	726.2	50.8	**49.2**	
1.18 mm	No. 16	939.1	65.7	**34.3**	
0.60 mm	No. 30	1101.5	77.0	**23.0**	
0.30 mm	No. 50	1226.0	85.8	**14.2**	
0.15 mm	No. 100	1302.4	91.1	**8.9**	
0.075mm	No. 200	1333.3	93.3	**6.7**	

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PAVEMENT ANALYSIS, DESIGN, TESTING, & INSPECTION SERVICES

Date	02/13/17
Project No.	41928-4
Client	Smith-Emery P/N 69995-1
Material/Plant	1/2" AC Med 15% RAP, Granite Rock-Redwood City, 161238-X
Sample ID:	Hunters Point Parcel D-1, 12/19/17 9:45 AM, 292F, Load 19, 'A'

Date Tested 2/13/2017

Tester: D.Linstrom /J.Galland

Quantative Extraction of Bitumen From Bituminous Paving Mixtures ASTM D 2172 Method B / AASHTO T164 Method B

Solvent Method

		Upper	Lower
A.	Weight of Rack Assembly	682.1	681.9
B.	Weight of Rack Assembly & Filter	699.2	697.9
C.	Weight of Rack, Filter & Sample Before	1459.2	1462.1
D.	Wt. of Sample Before Extraction Total	1524.2	
E.	Wt. of Dry Sample Before Extraction Total	1524.2	
F.	Weight of Rack, Filter & Sample After	1416.2	1419.0
G.	Tare Weight of Centrifuge Cup	237.11	
H.	Weight of Centrifuge Cup and Mineral Matter	241.39	
I.	Weight of Mineral Matter	4.28	
J.	Weight of Sample After Extraction Total	1442.4	
K.	Total Weight Loss of Sample	81.8	Specification
L.	%Total Binder by DWA	**5.67**	
M.	%Total Binder by TWM	**5.37**	

A.C. Moisture

Tare Weight	500.0
Tare + Asphalt Before	1000.0
Tare + Asphalt After	1000.0
Weight Loss	0.00
Percent Moisture	**0.00**

*Samples Dried To Constant Weight Prior To Testing

Sieve Analysis ASTM D5444

Start Weight:		1442.4			
Sieve Size		Cumulative Weight Retained	Percent Retained	Percent Passing	Contract Compliance Specified Limits
37.5 mm	1-1/2"	0.0	0.0	**100.0**	
25.0 mm	1"	0.0	0.0	**100.0**	
19.0 mm	3/4"	0.0	0.0	**100.0**	
12.5 mm	1/2"	29.8	2.1	**97.9**	
9.5 mm	3/8"	134.9	9.4	**90.6**	
4.75 mm	No. 4	471.2	32.7	**67.3**	
2.36 mm	No. 8	717.4	49.7	**50.3**	
1.18 mm	No. 16	942.0	65.3	**34.7**	
0.60 mm	No. 30	1114.1	77.2	**22.8**	
0.30 mm	No. 50	1241.5	86.1	**13.9**	
0.15 mm	No. 100	1315.0	91.2	**8.8**	
0.075mm	No. 200	1344.0	93.2	**6.8**	

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PAVEMENT ANALYSIS, DESIGN, TESTING, & INSPECTION SERVICES

Date	2/10/17
Project No.	41928-4
Client	Smith-Emery P/N 69995-1
Material/Plant	1/2" AC Med 15% RAP, Granite Rock-Redwood City, 161238-X
Sample ID:	Hunters Point Parcel D-1, 12/19/17 9:45 AM, 292F, Load 19, 'B'

Date Tested 2/8/2017
Tester: J. Galland

Quantative Extraction of Bitumen From Bituminous Paving Mixtures ASTM D 2172 Method B / AASHTO T164 Method B

Solvent Method

		Upper	Lower
A.	Weight of Rack Assembly	681.9	681.9
B.	Weight of Rack Assembly & Filter	699.2	697.8
C.	Weight of Rack, Filter & Sample Before	1476.6	1469.1
D.	Wt. of Sample Before Extraction Total	1548.7	
E.	Wt. of Dry Sample Before Extraction Total	1548.7	
F.	Weight of Rack, Filter & Sample After	1433.3	1427.0
G.	Tare Weight of Centrifuge Cup	226.23	
H.	Weight of Centrifuge Cup and Mineral Matter	230.56	
I.	Weight of Mineral Matter	4.33	
J.	Weight of Sample After Extraction Total	1467.6	
K.	Total Weight Loss of Sample	81.1	Specification
L.	%Total Binder by DWA	**5.52**	
M.	%Total Binder by TWM	**5.23**	

A.C. Moisture

Tare Weight	500.0
Tare + Asphalt Before	1000.0
Tare + Asphalt After	1000.0
Weight Loss	0.00
Percent Moisture	**0.00**

*Samples Dried To Constant Weight Prior To Testing

Sieve Analysis ASTM D5444

Start Weight:		1467.6			
Sieve Size		Cumulative Weight Retained	Percent Retained	Percent Passing	Contract Compliance Specified Limits
37.5 mm	1-1/2"	0.0	0.0	**100.0**	
25.0 mm	1"	0.0	0.0	**100.0**	
19.0 mm	3/4"	0.0	0.0	**100.0**	
12.5 mm	1/2"	24.5	1.7	**98.3**	
9.5 mm	3/8"	161.0	11.0	**89.0**	
4.75 mm	No. 4	497.0	33.9	**66.1**	
2.36 mm	No. 8	745.5	50.8	**49.2**	
1.18 mm	No. 16	963.6	65.7	**34.3**	
0.60 mm	No. 30	1133.4	77.2	**22.8**	
0.30 mm	No. 50	1261.8	86.0	**14.0**	
0.15 mm	No. 100	1336.1	91.0	**9.0**	
0.075mm	No. 200	1367.7	93.2	**6.8**	

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PAVEMENT ANALYSIS, DESIGN, TESTING, & INSPECTION SERVICES

Date	2/10/17
Project No.	41928-4
Client	Smith-Emery P/N 69995-1
Material/Plant	1/2" AC Med 15% RAP, Granite Rock-South San Francisco, 161234-X
Sample ID:	Hunters Point Parcel D-1, 12/19/17 2:45 PM, 289F, 534.0 Tons

Date Tested 2/10/2017

Tester: j. galland/ d. linstrom

Quantative Extraction of Bitumen From Bituminous Paving Mixtures ASTM D 2172 Method B / AASHTO T164 Method B

Solvent Method

		Upper	Lower
A.	Weight of Rack Assembly	679.8	684.0
B.	Weight of Rack Assembly & Filter	695.8	700.5
C.	Weight of Rack, Filter & Sample Before	1462.9	1467.1
D.	Wt. of Sample Before Extraction Total	1533.7	
E.	Wt. of Dry Sample Before Extraction Total	1533.7	
F.	Weight of Rack, Filter & Sample After	1422.8	1427.1
G.	Tare Weight of Centrifuge Cup	238.67	
H.	Weight of Centrifuge Cup and Mineral Matter	241.75	
I.	Weight of Mineral Matter	3.08	
J.	Weight of Sample After Extraction Total	1456.7	
K.	Total Weight Loss of Sample	77.0	Specification
L.	%Total Binder by DWA	**5.29**	
M.	%Total Binder by TWM	**5.02**	

A.C. Moisture

Tare Weight	500.0
Tare + Asphalt Before	1000.0
Tare + Asphalt After	1000.0
Weight Loss	0.00
Percent Moisture	**0.00**

*Samples Dried To Constant Weight Prior To Testing

Sieve Analysis ASTM D5444

Start Weight:		1456.7			
Sieve Size		Cumulative Weight Retained	Percent Retained	Percent Passing	Contract Compliance Specified Limits
37.5 mm	1-1/2"	0.0	0.0	**100.0**	
25.0 mm	1"	0.0	0.0	**100.0**	
19.0 mm	3/4"	0.0	0.0	**100.0**	
12.5 mm	1/2"	27.2	1.9	**98.1**	
9.5 mm	3/8"	148.5	10.2	**89.8**	
4.75 mm	No. 4	540.4	37.1	**62.9**	
2.36 mm	No. 8	800.0	54.9	**45.1**	
1.18 mm	No. 16	1010.9	69.4	**30.6**	
0.60 mm	No. 30	1162.7	79.8	**20.2**	
0.30 mm	No. 50	1277.8	87.7	**12.3**	
0.15 mm	No. 100	1345.4	92.4	**7.6**	
0.075mm	No. 200	1372.9	94.2	**5.8**	

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PAVEMENT ANALYSIS, DESIGN, TESTING, & INSPECTION SERVICES

Date	02/10/17
Project No.	41928-4
Client	Smith-Emery P/N 69995-1
Material/Plant	1/2" AC Med 15% RAP, Granite Rock-South San Francisco
Sample ID:	Hunters Point Parcel D-1, 12/21/17 9:10 AM, 289F, 120.73 Tons, Load 5

Date Tested 2/10/2017

Tester: j. galland / d. linstrom

Quantative Extraction of Bitumen From Bituminous Paving Mixtures ASTM D 2172 Method B / AASHTO T164 Method B

Solvent Method

		Upper	Lower
A.	Weight of Rack Assembly	679.7	683.8
B.	Weight of Rack Assembly & Filter	697.1	700.9
C.	Weight of Rack, Filter & Sample Before	1455.7	1493.5
D.	Wt. of Sample Before Extraction Total	1551.2	
E.	Wt. of Dry Sample Before Extraction Total	1551.2	
F.	Weight of Rack, Filter & Sample After	1413.0	1447.7
G.	Tare Weight of Centrifuge Cup	238.72	
H.	Weight of Centrifuge Cup and Mineral Matter	242.97	
I.	Weight of Mineral Matter	4.25	
J.	Weight of Sample After Extraction Total	1467.0	
K.	Total Weight Loss of Sample	84.3	Specification
L.	%Total Binder by DWA	**5.74**	
M.	%Total Binder by TWM	**5.43**	

A.C. Moisture

Tare Weight	500.0
Tare + Asphalt Before	1000.0
Tare + Asphalt After	1000.0
Weight Loss	0.00
Percent Moisture	**0.00**

*Samples Dried To Constant Weight Prior To Testing

Sieve Analysis ASTM D5444

Start Weight:		1467.0			
Sieve Size		Cumulative Weight Retained	Percent Retained	Percent Passing	Contract Compliance Specified Limits
37.5 mm	1-1/2"	0.0	0.0	**100.0**	
25.0 mm	1"	0.0	0.0	**100.0**	
19.0 mm	3/4"	0.0	0.0	**100.0**	
12.5 mm	1/2"	16.1	1.1	**98.9**	
9.5 mm	3/8"	130.3	8.9	**91.1**	
4.75 mm	No. 4	548.6	37.4	**62.6**	
2.36 mm	No. 8	820.7	55.9	**44.1**	
1.18 mm	No. 16	1012.9	69.0	**31.0**	
0.60 mm	No. 30	1159.7	79.1	**20.9**	
0.30 mm	No. 50	1273.6	86.8	**13.2**	
0.15 mm	No. 100	1344.7	91.7	**8.3**	
0.075mm	No. 200	1374.9	93.7	**6.3**	

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PAVEMENT ANALYSIS, DESIGN, TESTING, & INSPECTION SERVICES

Date	02/14/17
Project No.	41928-4
Client	Smith-Emery P/N 69995-1
Material/Plant	1/2" AC Med 15% RAP, Granite Rock-Redwood City
Sample ID:	Hunters Point Parcel D-1, 12/21/17 9:40 AM, 296F, 273 Tons, Load 11, 'A'

Date Tested 2/14/2017

Tester: J. Galland

Quantative Extraction of Bitumen From Bituminous Paving Mixtures ASTM D 2172 Method B / AASHTO T164 Method B

Solvent Method

		Upper	Lower
A.	Weight of Rack Assembly	679.6	683.8
B.	Weight of Rack Assembly & Filter	695.9	699.6
C.	Weight of Rack, Filter & Sample Before	1472.4	1468.7
D.	Wt. of Sample Before Extraction Total	1545.6	
E.	Wt. of Dry Sample Before Extraction Total	1545.6	
F.	Weight of Rack, Filter & Sample After	1428.0	1425.3
G.	Tare Weight of Centrifuge Cup	226.15	
H.	Weight of Centrifuge Cup and Mineral Matter	231.80	
I.	Weight of Mineral Matter	5.65	
J.	Weight of Sample After Extraction Total	1463.5	
K.	Total Weight Loss of Sample	82.2	Specification
L.	%Total Binder by DWA	**5.61**	
M.	%Total Binder by TWM	**5.32**	

A.C. Moisture

Tare Weight	500.0
Tare + Asphalt Before	1000.0
Tare + Asphalt After	1000.0
Weight Loss	0.00
Percent Moisture	**0.00**

*Samples Dried To Constant Weight Prior To Testing

Sieve Analysis ASTM D5444

Start Weight:		1463.5			
Sieve Size		Cumulative Weight Retained	Percent Retained	Percent Passing	Contract Compliance Specified Limits
37.5 mm	1-1/2"	0.0	0.0	**100.0**	
25.0 mm	1"	0.0	0.0	**100.0**	
19.0 mm	3/4"	0.0	0.0	**100.0**	
12.5 mm	1/2"	10.4	0.7	**99.3**	
9.5 mm	3/8"	125.7	8.6	**91.4**	
4.75 mm	No. 4	480.5	32.8	**67.2**	
2.36 mm	No. 8	750.0	51.2	**48.8**	
1.18 mm	No. 16	960.8	65.7	**34.3**	
0.60 mm	No. 30	1120.2	76.5	**23.5**	
0.30 mm	No. 50	1240.6	84.8	**15.2**	
0.15 mm	No. 100	1316.0	89.9	**10.1**	
0.075mm	No. 200	1350.7	92.3	**7.7**	

LaBelle Marvin

PAVEMENT ANALYSIS, DESIGN, TESTING, & INSPECTION SERVICES

Date	2/10/17		
Project No.	41928-4	Date Tested	2/8/2017
Client	Smith-Emery P/N 69995-1	Tester:	J. Galland
Material/Plant	1/2" AC Med 15% RAP, Granite Rock-Redwood City		
Sample ID:	Hunters Point Parcel D-1, 12/21/17 9:40 AM, 296F, 273 Tons, Load 11, 'B'		

Quantative Extraction of Bitumen From Bituminous Paving Mixtures ASTM D 2172 Method B / AASHTO T164 Method B

Solvent Method

		Upper	Lower
A.	Weight of Rack Assembly	683.9	679.6
B.	Weight of Rack Assembly & Filter	700.3	695.5
C.	Weight of Rack, Filter & Sample Before	1454.1	1470.5
D.	Wt. of Sample Before Extraction Total	1528.8	
E.	Wt. of Dry Sample Before Extraction Total	1528.8	
F.	Weight of Rack, Filter & Sample After	1408.5	1425.5
G.	Tare Weight of Centrifuge Cup	234.65	
H.	Weight of Centrifuge Cup and Mineral Matter	240.74	
I.	Weight of Mineral Matter	6.09	
J.	Weight of Sample After Extraction Total	1444.3	
K.	Total Weight Loss of Sample	84.5	Specification
L.	%Total Binder by DWA	**5.85**	
M.	%Total Binder by TWM	**5.53**	

A.C. Moisture

Tare Weight	500.0
Tare + Asphalt Before	1000.0
Tare + Asphalt After	1000.0
Weight Loss	0.00
Percent Moisture	**0.00**

*Samples Dried To Constant Weight Prior To Testing

Sieve Analysis ASTM D5444

Start Weight:		1444.3			
Sieve Size		Cumulative Weight Retained	Percent Retained	Percent Passing	Contract Compliance Specified Limits
37.5 mm	1-1/2"	0.0	0.0	**100.0**	
25.0 mm	1"	0.0	0.0	**100.0**	
19.0 mm	3/4"	0.0	0.0	**100.0**	
12.5 mm	1/2"	27.5	1.9	**98.1**	
9.5 mm	3/8"	113.0	7.8	**92.2**	
4.75 mm	No. 4	491.0	34.0	**66.0**	
2.36 mm	No. 8	744.2	51.5	**48.5**	
1.18 mm	No. 16	950.9	65.8	**34.2**	
0.60 mm	No. 30	1106.2	76.6	**23.4**	
0.30 mm	No. 50	1223.6	84.7	**15.3**	
0.15 mm	No. 100	1297.5	89.8	**10.2**	
0.075mm	No. 200	1331.8	92.2	**7.8**	

LaBelle Marvin

PAVEMENT ANALYSIS, DESIGN, TESTING, & INSPECTION SERVICES

Date	02/10/17
Project No.	41928-4
Client	Smith-Emery P/N 69995-1
Material/Plant	1/2", Granite Rock
Sample ID:	Hunters Point Parcel D-1, 12/21/17

Date Tested 2/10/2017
Tester: D. Linstrom

Quantative Extraction of Bitumen From Bituminous Paving Mixtures ASTM D 2172 Method B / AASHTO T164 Method B

Solvent Method

		Upper	Lower
A.	Weight of Rack Assembly	679.8	684.0
B.	Weight of Rack Assembly & Filter	695.7	700.1
C.	Weight of Rack, Filter & Sample Before	1479.0	1505.9
D.	Wt. of Sample Before Extraction Total	1589.1	
E.	Wt. of Dry Sample Before Extraction Total	1589.1	
F.	Weight of Rack, Filter & Sample After	1436.3	1457.7
G.	Tare Weight of Centrifuge Cup	226.16	
H.	Weight of Centrifuge Cup and Mineral Matter	230.66	
I.	Weight of Mineral Matter	4.50	
J.	Weight of Sample After Extraction Total	1502.7	
K.	Total Weight Loss of Sample	86.4	Specification
L.	%Total Binder by DWA	**5.75**	
M.	%Total Binder by TWM	**5.44**	

A.C. Moisture

Tare Weight	500.0
Tare + Asphalt Before	1000.0
Tare + Asphalt After	1000.0
Weight Loss	0.00
Percent Moisture	**0.00**

*Samples Dried To Constant Weight Prior To Testing

Sieve Analysis ASTM D5444

Start Weight:		1502.7			
Sieve Size		Cumulative Weight Retained	Percent Retained	Percent Passing	Contract Compliance Specified Limits
37.5 mm	1-1/2"	0.0	0.0	**100.0**	
25.0 mm	1"	0.0	0.0	**100.0**	
19.0 mm	3/4"	0.0	0.0	**100.0**	
12.5 mm	1/2"	49.7	3.3	**96.7**	
9.5 mm	3/8"	150.5	10.0	**90.0**	
4.75 mm	No. 4	537.8	35.8	**64.2**	
2.36 mm	No. 8	813.4	54.1	**45.9**	
1.18 mm	No. 16	1024.5	68.2	**31.8**	
0.60 mm	No. 30	1170.5	77.9	**22.1**	
0.30 mm	No. 50	1280.8	85.2	**14.8**	
0.15 mm	No. 100	1356.4	90.3	**9.7**	
0.075mm	No. 200	1388.7	92.4	**7.6**	

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PAVEMENT ANALYSIS, DESIGN, TESTING, & INSPECTION SERVICES

Date	02/13/17		
Project No.	41928-4	Date Tested	2/13/2017
Client	Smith-Emery P/N 69995-1	Tester:	J. Galland/D. Baker
Material/Plant	1/2" AC Med 15% RAP, Granite Rock-South San Francisco		
Sample ID:	Hunters Point Parcel D-1, 12/22/17 9:10 AM, 289F, 120.73 Tons, Load 5		

Quantative Extraction of Bitumen From Bituminous Paving Mixtures ASTM D 2172 Method B / AASHTO T164 Method B

Solvent Method

		Upper	Lower
A.	Weight of Rack Assembly	383.5	381.4
B.	Weight of Rack Assembly & Filter	400.3	398.2
C.	Weight of Rack, Filter & Sample Before	1172.1	1170.3
D.	Wt. of Sample Before Extraction Total	1543.9	
E.	Wt. of Dry Sample Before Extraction Total	1543.9	
F.	Weight of Rack, Filter & Sample After	1128.7	1126.7
G.	Tare Weight of Centrifuge Cup	234.62	
H.	Weight of Centrifuge Cup and Mineral Matter	236.63	
I.	Weight of Mineral Matter	2.01	
J.	Weight of Sample After Extraction Total	1458.9	
K.	Total Weight Loss of Sample	85.0	Specification
L.	%Total Binder by DWA	**5.83**	
M.	%Total Binder by TWM	**5.50**	

A.C. Moisture

Tare Weight	500.0
Tare + Asphalt Before	1000.0
Tare + Asphalt After	1000.0
Weight Loss	0.00
Percent Moisture	**0.00**

*Samples Dried To Constant Weight Prior To Testing

Sieve Analysis ASTM D5444

Start Weight:		1458.9			
Sieve Size		Cumulative Weight Retained	Percent Retained	Percent Passing	Contract Compliance Specified Limits
37.5 mm	1-1/2"	0.0	0.0	**100.0**	
25.0 mm	1"	0.0	0.0	**100.0**	
19.0 mm	3/4"	0.0	0.0	**100.0**	
12.5 mm	1/2"	30.7	2.1	**97.9**	
9.5 mm	3/8"	166.3	11.4	**88.6**	
4.75 mm	No. 4	540.7	37.1	**62.9**	
2.36 mm	No. 8	818.5	56.1	**43.9**	
1.18 mm	No. 16	1016.0	69.6	**30.4**	
0.60 mm	No. 30	1160.2	79.5	**20.5**	
0.30 mm	No. 50	1271.0	87.1	**12.9**	
0.15 mm	No. 100	1341.1	91.9	**8.1**	
0.075mm	No. 200	1367.1	93.7	**6.3**	

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PAVEMENT ANALYSIS, DESIGN, TESTING, & INSPECTION SERVICES

Date	02/14/17
Project No.	41928-4
Client	Smith-Emery P/N 69995-1
Material/Plant	1/2" AC Med 15% RAP, Granite Rock-Redwood City
Sample ID:	Hunters Point Parcel D-1, 12/22/17 8:45 AM, 292F, 324 Tons, Load 13, 'A'

Date Tested 2/14/2017
Tester: J.Galland / D. Baker

Quantative Extraction of Bitumen From Bituminous Paving Mixtures ASTM D 2172 Method B / AASHTO T164 Method B

Solvent Method

		Upper	Lower
A.	Weight of Rack Assembly	682.1	682.1
B.	Weight of Rack Assembly & Filter	697.5	698.7
C.	Weight of Rack, Filter & Sample Before	1461.1	1489.7
D.	Wt. of Sample Before Extraction Total	1554.6	
E.	Wt. of Dry Sample Before Extraction Total	1554.6	
F.	Weight of Rack, Filter & Sample After	1416.9	1443.6
G.	Tare Weight of Centrifuge Cup	237.13	
H.	Weight of Centrifuge Cup and Mineral Matter	242.31	
I.	Weight of Mineral Matter	5.18	
J.	Weight of Sample After Extraction Total	1469.5	
K.	Total Weight Loss of Sample	85.1	Specification
L.	%Total Binder by DWA	**5.79**	
M.	%Total Binder by TWM	**5.48**	

A.C. Moisture

Tare Weight	500.0
Tare + Asphalt Before	1000.0
Tare + Asphalt After	1000.0
Weight Loss	0.00
Percent Moisture	**0.00**

*Samples Dried To Constant Weight Prior To Testing

Sieve Analysis ASTM D5444

Start Weight:		1469.5			
Sieve Size		Cumulative Weight Retained	Percent Retained	Percent Passing	Contract Compliance Specified Limits
37.5 mm	1-1/2"	0.0	0.0	**100.0**	
25.0 mm	1"	0.0	0.0	**100.0**	
19.0 mm	3/4"	0.0	0.0	**100.0**	
12.5 mm	1/2"	27.1	1.8	**98.2**	
9.5 mm	3/8"	130.4	8.9	**91.1**	
4.75 mm	No. 4	500.5	34.1	**65.9**	
2.36 mm	No. 8	747.9	50.9	**49.1**	
1.18 mm	No. 16	962.5	65.5	**34.5**	
0.60 mm	No. 30	1128.3	76.8	**23.2**	
0.30 mm	No. 50	1258.1	85.6	**14.4**	
0.15 mm	No. 100	1340.1	91.2	**8.8**	
0.075mm	No. 200	1372.0	93.4	**6.6**	

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PAVEMENT ANALYSIS, DESIGN, TESTING, & INSPECTION SERVICES

Date	2/10/17
Project No.	41928-4
Client	Smith-Emery P/N 69995-1
Material/Plant	1/2" AC Med 15% RAP, Granite Rock-Redwood City
Sample ID:	Hunters Point Parcel D-1, 12/22/17 8:45 AM, 292F, 324 Tons, Load 13, 'B'

Date Tested 2/8/2017

Tester: J. Galland

Quantative Extraction of Bitumen From Bituminous Paving Mixtures ASTM D 2172 Method B / AASHTO T164 Method B

Solvent Method

		Upper	Lower
A.	Weight of Rack Assembly	383.5	381.4
B.	Weight of Rack Assembly & Filter	399.7	397.8
C.	Weight of Rack, Filter & Sample Before	1183.8	1193.5
D.	Wt. of Sample Before Extraction Total	1579.8	
E.	Wt. of Dry Sample Before Extraction Total	1579.8	
F.	Weight of Rack, Filter & Sample After	1139.7	1147.1
G.	Tare Weight of Centrifuge Cup	237.19	
H.	Weight of Centrifuge Cup and Mineral Matter	241.20	
I.	Weight of Mineral Matter	4.01	
J.	Weight of Sample After Extraction Total	1493.3	
K.	Total Weight Loss of Sample	86.5	Specification
L.	%Total Binder by DWA	**5.79**	
M.	%Total Binder by TWM	**5.47**	

A.C. Moisture

Tare Weight	500.0
Tare + Asphalt Before	1000.0
Tare + Asphalt After	1000.0
Weight Loss	0.00
Percent Moisture	**0.00**

*Samples Dried To Constant Weight Prior To Testing

Sieve Analysis ASTM D5444

Start Weight:		1493.3			
Sieve Size		Cumulative Weight Retained	Percent Retained	Percent Passing	Contract Compliance Specified Limits
37.5 mm	1-1/2"	0.0	0.0	**100.0**	
25.0 mm	1"	0.0	0.0	**100.0**	
19.0 mm	3/4"	0.0	0.0	**100.0**	
12.5 mm	1/2"	23.0	1.5	**98.5**	
9.5 mm	3/8"	118.9	8.0	**92.0**	
4.75 mm	No. 4	458.0	30.7	**69.3**	
2.36 mm	No. 8	721.5	48.3	**51.7**	
1.18 mm	No. 16	958.8	64.2	**35.8**	
0.60 mm	No. 30	1133.9	75.9	**24.1**	
0.30 mm	No. 50	1269.7	85.0	**15.0**	
0.15 mm	No. 100	1354.8	90.7	**9.3**	
0.075mm	No. 200	1387.8	92.9	**7.1**	

SMITH-EMERY SAN FRANCISCO
An Independent Commercial Testing Laboratory

1940 Oakdale Avenue
San Francisco, CA 94124
(415) 642-7326
Fax (415) 642-7055

791 East Washington Blvd.
Los Angeles, California 90021
(213) 749-3411
Fax (213) 746-7228

February 15, 2017

SESF File No. 69995-1
SESF Report No. 17-039

CB&I Federal Services, LLC
1230 Columbia Street, Suite 1200
San Diego, CA 92101

Attention: Mr. Sam Hopstone

RE: HPNS Parcel D-1

SUBJECT: Report of Tests

TEST STANDARD: CTM 366 (Stability)

SOURCE: (25) samples of ½" Medium HMAC 15% Rap from the subject project collected by a Smith-Emery representative and delivered to our laboratory between November 29 and December 22, 2016.

REPORT OF TESTS
In compliance with your request, we have conducted the subject tests with the results presented below.

Sample Numbers	Description
11-29-16-01 through 12-22-19-04	½" Medium HMAC 15%

CTM 366 (Stability)
Please see the attached.

Respectfully submitted,
SMITH-EMERY SAN FRANCISCO

Patrick Morrison

Pat Morrison
D gital y signed by Pat Morr son
DN: cn=Pat Morrison o=Sm th Emery SF ou=SESF GeoServices ema l=pmorrison@sm themerysf com c=US
Date: 2017 02 15 15:37:34 08 00

PATRICK MORRISON, P.G. #7174, C.E.G. #2643
Professional Geologist
Certified Engineering Geologist

Attachment: CTM 366 Detailed Report

SMITH-EMERY SAN FRANCISCO

Proj./Job No.: 69995-1
Lab. No.: 17-039

Date Received: 11/29 to 12/22/2016
Date Tested: 2/13 - 14/2017

Client: CB&I

Equipment Used: Cox & Sons

Project: HPNS Parcel D-1
Location: Various Areas November 29 to December 22, 2016

Subject: Stability
Standard: CTM 366

Source: GraniteRock
Sampled at: Various Areas

Report of Tests

ID	HVEEM Stability			Stability
	Sample No.	Sample Date	Height	
2:50 PM	11-30-16-01	11/30/2016	2.50	53
301 Tons	12-01-16-0A	12/1/2016	2.50	55
674 Tons	12-01-16-0B	12/1/2016	2.50	57
318.54	12-02-16-01	12/2/2016	2.50	47
809 Tons	12-02-16-03	12/2/2016	2.50	55
1364.33 Tons	12-02-16-04	12/2/2016	2.50	46
Load #9	12-02-16-05	12/2/2016	2.50	50
Load #13	12-02-16-06	12/2/2016	2.50	53
Load #8	12-19-16-01	12/19/2016	2.50	55
809.00 Tons	12-19-16-02	12/19/2016	2.50	56
1373 Tons	12-19-16-03	12/19/2016	2.50	53
Load #19A	12-19-16-04	12/19/2016	2.50	49
Load #19B	12-19-16-05	12/19/2016	2.50	49
534.00 Tons	12-19-16-06	12/19/2016	2.50	51
713.00 Tons	12-20-16-01	12/20/2016	2.50	46
2020 Tons	12-20-16-02	12/20/2016	2.50	56
339.00 Tons	12-21-16-0A	12/21/2016	2.50	55
1121 Tons	12-21-16-0B	12/21/2016	2.50	51
Load #5	12-21-16-0C	12/21/2016	2.50	49
Load #11A	12-21-16-0D	12/21/2016	2.50	48
Load #11B	12-21-16-0E	12/21/2016	2.50	57
Unmarked	12-21-16-0F	12/21/2016	2.50	59
Load #5	12-22-16-01	12/21/2016	2.50	53
Load #13A	12-22-16-02	12/21/2016	2.50	48
Load #13B	12-22-16-03	12/21/2016	2.50	51

Remarks: n/a
Mix: 1/2" A.C Med. w/ 15% RAP
Test Temperatu 140.0

Tested by: J. Maduras
Date: 2/15/2017

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1940 Oakdale Avenue
San Francisco, CA 94124
(415) 642-7326
Fax (415) 642-7055

791 East Washington Blvd.
Los Angeles, California 90021
(213) 749-3411
Fax (213) 746-7228

Proj./Job No.: 69995-1
Lab. No.: 170150

Date Received: 12/29/2017
Date Tested: 1/18/2017

Equipment Used:
Cox & Sons
14/380210

Project: HPNS Parcel D-1
Location: Various Gunmole

Subject: (Asphalt Concrete)
Standard: CTM 308
Source: Samples Molded in the Laboratory
Sampled at: Various Gunmole

Report of Test

Sample No.	Weight of Sample, grams			Bulk Volume	Bulk Volume	Bulk	Unit Weight
	In Air	In Water	SSD in Air	(cc)	(cc)	Sp. Gravity	(pcf)
30A	722.1	408.2	725.5	3.4	313.9	2.300	143.2
30B	769.2	435.7	773.4	4.2	333.5	2.306	143.6
31A	700.2	400.1	701.6	1.4	300.1	2.333	145.2
31B	708.1	403.2	709.3	1.2	304.9	2.322	144.5
32A	730.6	410.9	732.3	1.7	319.7	2.285	142.2
32B	722.2	405.9	724.1	1.9	316.3	2.283	142.1
33A	644.9	366.4	647.9	3.0	278.5	2.316	144.1
33B	667.4	377.8	671.4	4.0	289.6	2.305	143.4
34A	685.6	384.1	690.4	4.8	301.5	2.274	141.5
34B	693.1	390.4	696.5	3.4	302.7	2.290	142.5
35A	570.5	326.3	573.8	3.3	244.2	2.336	145.4
35B	509.7	290.3	512.9	3.2	219.4	2.323	144.6
36A	932.9	532.4	935.5	2.6	400.5	2.329	145.0
36B	893.8	509.5	895.8	2.0	384.3	2.326	144.8
						2.31	144.0

Bulk S.P. Gravity of Paraffin Wax 1

Remarks: 1/2" Med HMAC 15%Rap
Mix:
Extraction:
Moisture:

Tested by: JM
Date: 1/23/2017

ALL REPORTS ARE SUBMITTED AS THE CONFIDENTIAL PROPERTY OF CLIENTS. AUTHORIZATION FOR PUBLICATION OF OUR REPORT, CONCLUSIONS, OR EXTRACTS FROM OR REGARDING THEM IS RESERVED PENDING OUR WRITTEN APPROVAL AS A MUTUAL PROTECTION TO CLIENTS, THE PUBLIC AND OURSELVES.

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SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # N/A
DSA Appl. # N/A
OSHPD # N/A
Permit # N/A

DAILY SPECIAL INSPECTION REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 11/29/2016
Project Address: Hunters Point, Gun Mole, South Pier and Triangle SESF Job # 69995-1
Inspection Location: New asphalt paving
Inspection(s) Performed: Coring Hot Mix Asphalt - Compaction Hot Mix Asphalt - Sampling
Document(s) Reviewed:

Inspection Report:

Coring, sampling and Nuclear gage testing of 1/2" GraniteRock Hot Mix Asphalt alongside Smith-Emery inspector Andrew H. Core locations provided by CBi. Bulk hot mix AC samples delivered in the morning and afternoon to SF lab for testing. See report of SE inspector Andrew H for further AC details.

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required)

Attachments:

Name: Matthew Barnes I.

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: Matthew Barnes I.
Certification #
Emp. ID: 2851 Page ___ of ___

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - HMA COMPACTION TEST REPORT

Project Name: GEOTECHNICAL-SERV: RNRCH D-1 CSLC # 149831 Date: 11/29/16
Project Address: HUNTERS PT. SESF Job # 69995-1
Inspection Location: GUNNOCK — EAST / SOUTH-END.
Inspection(s) Performed: COMPACTION-TESTING
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	Density (pcf)		% Rel. Compaction		Pass	Fail
				Field	Max	Field	Spec.		
								☐	☐
01		GUNNOCK	S.C.	145.6	152.0	96	95	☑	☐
02		EASTERN - SIDE		146.2		96	95	☑	☐
03				144.9		95	95	☑	☐
04				145.4		95	95	☑	☐
05				147.3		97	95	☑	☐
06				148.9		97	95	☑	☐
07				146.7		96	95	☑	☐
08		/		148.4		97	95	☑	☐
09		SOUTH-END		147.6		97	95	☑	☐
10				146.7		96	95	☑	☐
11		/	/	145.8	/	96	95	☑	☐
								☐	☐

HMA Type #	HMA Description	Max Density (pcf)
	1/2 MED A.C. 15% RAP. (GRANITEROCK S.S.F.)	152.0

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

TEMPS = 7:45 = 278°
10:15 = 282°
2:30 289°
4:15 = 292°

S.C. = SURFACE COURSE

Attachments: _____ Name: ANDREW HAUSCHORST

Signature: _____
Certification #: _____
Emp. ID: 2324 Page 1 of 1

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # N/A
DSA Appl. # N/A
OSHPD # N/A
Permit # N/A

DAILY SPECIAL INSPECTION REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 11/30/2016
Project Address: Hunters Point, Gun Mole, South Pier and Triangle SESF Job # 69995-1
Inspection Location: New asphalt paving
Inspection(s) Performed: Coring Hot Mix Asphalt - Compaction Hot Mix Asphalt - Sampling
Document(s) Reviewed:

Inspection Report:

Coring, sampling and Nuclear gage testing of 1/2" GraniteRock Hot Mix Asphalt alongside Smith-Emery inspector Andrew H. Core locations provided by CBi. Bulk hot mix AC samples delivered in the morning and afternoon to SF lab for testing. See report of SE inspector Andrew H for further AC details.

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required)

Attachments:

Name: Matthew Barnes I.

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: Matthew Barnes I.
Certification #
Emp. ID: 2851 Page ___ of ___

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - HMA COMPACTION TEST REPORT

Project Name: GEOTECHNICAL - SERV: PARCEL D-1 CBRI 149831 Date: 11/30/16
Project Address: HUNTERS PT. SESF Job # 69995-1
Inspection Location: GUNWALE-WEST / SOUTH PIER-EAST - SOUTH-END-WEST / TRIANGLE SOUTHSIDE
Inspection(s) Performed: COMPACTION-TESTING
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	Density (pcf) Field	Density (pcf) Max	% Rel. Compaction Field	% Rel. Compaction Spec.	Pass	Fail
								☐	☐
		SOUTH PIER-WEST	S.C.		152.0			☐	☐
01				146		96	95	☑	☐
02				145.9		96	95	☑	☐
03				146.2		96	95	☑	☐
04				148.4		97	95	☑	☐
05		/	/	145.4	/	95	95	☑	☐
		TRIANGLE SOUTH-SIDE	S.C.		152.0			☐	☐
								☐	☐
06				145.5		95	95	☑	☐
07				144.9		95	95	☑	☐
08				146.7		96	95	☑	☐
09		/	/	145.9	/	95	95	☑	☐

HMA Type #	HMA Description	Max Density (pcf)
	½ MED A.C. 15% RAP (GRANITEROCK S.S.F.	

Work ☒ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material ☒ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material Tested ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

S.C. = SURFACE COURSE

pg 2 CONT:

Attachments: _____ Name: ANDREW HOUVECHORST

Signature: _____
Certification #: _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - HMA COMPACTION TEST REPORT

Project Name: GEOTECHNICAL-SERV: PARCEL D-1 CB[illegible] 149831 Date: 11/30/16
Project Address: HUNTERS PT. SESF Job # 69995.1
Inspection Location: GUNNOLIE-WEST / SOUTH PIER EAST, SOUTHERN, WEST
Inspection(s) Performed: COMPACTION - TESTING TRENCHER - SOUTHERN
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	Density (pcf) Field	Density (pcf) Max	% Rel. Compaction Field	% Rel. Compaction Spec.	Pass	Fail
		GUNNOLIE-WEST	S.C.					☐	☐
01				145.9	152.0	96	95	☑	☐
02				144.8		95	95	☑	☐
03				146.2		96	95	☑	☐
04				147.4		97	95	☑	☐
05		/		147.5		97	95	☑	☐
06		SOUTH PIER - EAST		145.9		96	95	☑	☐
07				146.8		97	95	☑	☐
08				145.5		96	95	☑	☐
09		/		149.6		97	95	☑	☐
10		SOUTH PIER SOUTHERN		148.4		97	95	☑	☐
11				145.7		96	95	☑	☐
12		/	/	146.4	/	96	95	☑	☐

HMA Type #	HMA Description	Max Density (pcf)
	1/2 MED A.C. 15% RAP (GRANITE ROCK S.S.F.)	152.0

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance:

Notified (Required): _____

TEMPS: 8:15 = 279°
9:50 = 280°
1:15 = 282°
3:40 = 289°

S.C. = SURFACE COURSE

Attachments: _____

Name: ANDREW HAVLICHORST

Signature: [signature]

Certification #: _____

Emp. ID: 2324 Page 1 of 1

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # N/A
DSA Appl. # N/A
OSHPD # N/A
Permit # N/A

DAILY SPECIAL INSPECTION REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 12/1/2016
Project Address: Hunters Point, Gun Mole, South Pier and Triangle SESF Job # 69995-1
Inspection Location: New asphalt paving
Inspection(s) Performed: Coring Hot Mix Asphalt - Compaction Hot Mix Asphalt - Sampling
Document(s) Reviewed:

Inspection Report:

Coring, sampling and Nuclear gage testing of 1/2" GraniteRock Hot Mix Asphalt alongside Smith-Emery inspector Andrew H. Core locations provided by CBi. Bulk hot mix AC samples delivered in the morning and afternoon to SF lab for testing. See report of SE inspector Andrew H for further AC details.

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required) _____

Attachments: _____ Name: Matthew Barnes I.

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: Matthew Barnes I.
Certification # _____
Emp. ID: 2851 Page ___ of ___

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - HMA COMPACTION TEST REPORT

Project Name: GEOTECHNICAL-SERV: PARCEL D-1 CB/I 149851 Date: 12/1/16
Project Address: HUNTERS PT. SESF Job # 69995-1
Inspection Location: TRIANGLE AREA / EXT. BLDG. PERIMETER
Inspection(s) Performed: COMPACTION-TESTING
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	Density (pcf) Field	Density (pcf) Max	% Rel. Compaction Field	% Rel. Compaction Spec.	Pass	Fail
01		REF: TRIANGLE	S.C.	145.6	152.0	96	95	☑	☐
02		EXT. BLDG.		146.7		96	95	☑	☐
03		PERIMETER		145.9		96	95	☑	☐
04				144.9		95	95	☑	☐
05				146.7		96	95	☑	☐
06				147.2		97	95	☑	☐
07				145.4		96	95	☑	☐
08				146.7		96	95	☑	☐
09				145.9		96	95	☑	☐
10				147.4		97	95	☑	☐
11				144.8		95	95	☑	☐
12				145.7		96	95	☑	☐
13				146.2		96	95	☑	☐

HMA Type #	HMA Description	Max Density (pcf)
	½ MED A.C. 15% RAP (GRANITEROCK @ S.S.F.)	152.0

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

TEMPS:
7:30 = 279°
9:20 = 296°
2:15 = 298°
4:30 = 297°

S.C. = SURFACE-COURSE

Attachments: _____ Name: ANDREW HAWVICHORST

Signature: [signature]
Certification #: _____
Emp. ID: 2324 Page 1 of 1

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # N/A
DSA Appl. # N/A
OSHPD # N/A
Permit # N/A

DAILY SPECIAL INSPECTION REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 12/2/2016
Project Address: Hunters Point, Gun Mole, South Pier and Triangle SESF Job # 69995-1
Inspection Location: New asphalt paving
Inspection(s) Performed: Coring Hot Mix Asphalt - Compaction Hot Mix Asphalt - Sampling
Document(s) Reviewed:

Inspection Report:

Coring, sampling and Nuclear gage testing of 1/2" GraniteRock Hot Mix Asphalt alongside Smith-Emery inspector Andrew H. Core locations provided by CBi. Bulk hot mix AC samples delivered in the morning and afternoon to SF lab for testing. See report of SE inspector Andrew H for further AC details.

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required) _____

Attachments: _____ Name: Matthew Barnes I.

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: Matthew Barnes I.
Certification # _____
Emp. ID: 2851 Page ___ of ___

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - HMA COMPACTION TEST REPORT

Project Name: GEOTECHNICAL - SERV: PARCEL D-1 CB/I# 149831 Date: 12/2/16
Project Address: HUNTERS PT. SESF Job # 69995-1
Inspection Location: GUNMOLE (EASTERN-SIDE
Inspection(s) Performed: COMPACTION-TESTING
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	Density (pcf) Field	Density (pcf) Max	% Rel. Compaction Field	% Rel. Compaction Spec.	Pass	Fail
01		REF: GUNMOLE	S.C.	146.4	152.0	96	95	☑	☐
02		EASTERN-SIDE	S.C.	145.8		96	95	☑	☐
03			S.C.	147.6		97	95	☑	☐
04			S.C.	148.2		98	95	☑	☐
05			S.C.	145.7		96	95	☑	☐
06				144.9		95	95	☑	☐
07				145.4		96	95	☑	☐
08				146.8		96	95	☑	☐
09				147.3		97	95	☑	☐
10				147.8		97	95	☑	☐
11				145.4		96	95	☑	☐
12				145.6		96	95	☑	☐
13				146.2		96	95	☑	☐

HMA Type #	HMA Description	Max Density (pcf)
	1/2 MED A.C. 15% RAP (GRANITEROCK B.W.C.	152.0
	1/2 MED A.C. 15% RAP (GRANITEROCK SSF	152.0

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance:

Notified (Required): _____

Temps 7:15 = 286°
8:45 = 296°
12:40 = 298°
2:15 = 295°

S.C. = SURFACE-COURSE

Attachments: _____

Name: ANDREW MAWVICHORSS

Signature: [signature]
Certification #: _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # N/A
DSA Appl. # N/A
OSHPD # N/A
Permit # N/A

DAILY SPECIAL INSPECTION REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 12/19/2016
Project Address: Hunters Point, Gun Mole, South Pier and Triangle SESF Job # 69995-1
Inspection Location: New asphalt paving
Inspection(s) Performed: Coring Hot Mix Asphalt - Compaction
Document(s) Reviewed:

Inspection Report:

Nuclear gage testing and coring of 1/2" GraniteRock Hot Mix Asphalt pavement alongside Smith-Emery inspector Andrew H.

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required) _____

Attachments: _____ Name: Matthew Barnes I.

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: Matthew Barnes I.
Certification # _____
Emp. ID: 2851 Page ___ of ___

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - HMA COMPACTION TEST REPORT

Project Name: GEOTECHNICAL - SERVICES PARCEL D-1 Date: 12/19/16
Project Address: CBDI# 149831 SESF Job # 69995-1
Inspection Location: GUNMOLE PIER. — MIDDLE SECTION
Inspection(s) Performed: COMPACTION - TESTING
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	Density (pcf) Field	Density (pcf) Max	% Rel. Compaction Field	% Rel. Compaction Spec.	Pass	Fail
01		GUNMOLE	S.C.	146.8	152.0	96	95	☒	☐
02		PIER		145.9		96	95	☒	☐
03		MIDDLE SECTION		146.7		96	95	☒	☐
04		12/19/16		147.2		97	95	☒	☐
05				146.3		96	95	☒	☐
06				145.9		96	95	☒	☐
07				146.6		96	95	☒	☐
08				147.2		97	95	☒	☐
09				145.8		96	95	☒	☐
10				145.6		96	95	☒	☐
11				144.9		95	95	☒	☐
12				145.4		96	95	☒	☐
13				146.7		96	95	☒	☐

HMA Type #	HMA Description	Max Density (pcf)
	1/2" A.C. MED: 15% RAP.	152.0

Work ☒ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material ☒ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material Tested ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A

In Compliance:

ASTM - D1559
GAGE # 7740

S.C. SURFACE - COURSE

Notified (Required): _____

Temps A.M.		Temps P.M.	
1	296°	6	289°
2	295°	7	288°
3	289°	8	291°
4	291°	9	284°
5	292°	10	286°

Attachments: _____

Name: ANDREW HAWVICHORST

Signature: [signature]

Certification #: _____

Emp. ID: 2324

(b) (4)

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # N/A
DSA Appl. # N/A
OSHPD # N/A
Permit # N/A

DAILY SPECIAL INSPECTION REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 12/19/2016
Project Address: Hunters Point, Gun Mole, South Pier and Triangle SESF Job # 69995-1
Inspection Location: New asphalt paving
Inspection(s) Performed: Coring Hot Mix Asphalt - Compaction
Document(s) Reviewed:

Inspection Report:

Nuclear gage testing and coring of 1/2" GraniteRock Hot Mix Asphalt pavement alongside Smith-Emery inspector Andrew H.

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required) _____

Attachments: _____ Name: Matthew Barnes I.

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: Matthew Barnes I.
Certification # _____
Emp. ID: 2851 Page ___ of ___

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # N/A
DSA Appl. # N/A
OSHPD # N/A
Permit # N/A

DAILY SPECIAL INSPECTION REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 12/20/2016
Project Address: Hunters Point, Gun Mole, South Pier and Triangle SESF Job # 69995-1
Inspection Location: New asphalt paving
Inspection(s) Performed: Coring Hot Mix Asphalt - Compaction
Document(s) Reviewed:

Inspection Report:

Nuclear gage testing and coring of 1/2" GraniteRock Hot Mix Asphalt pavement alongside Smith-Emery inspector Andrew H.

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required)

Attachments:

Name: Matthew Barnes I.

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: Matthew Barnes I.
Certification #
Emp. ID: 2851 Page ___ of ___

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # N/A
DSA Appl. # N/A
OSHPD # N/A
Permit # N/A

DAILY SPECIAL INSPECTION REPORT

Project Name: Geotechnical Services Parcel D-1, CB1# 149831 Date: 12/21/2016
Project Address: Hunters Point, Gun Mole, South Pier and Triangle SESF Job # 69995-1
Inspection Location: New asphalt paving
Inspection(s) Performed: Coring Hot Mix Asphalt - Compaction
Document(s) Reviewed:

Inspection Report:

Nuclear gage testing and coring of 1/2" GraniteRock Hot Mix Asphalt pavement alongside Smith-Emery inspector Andrew H.

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required) _____

Attachments: _____ Name: Matthew Barnes I.

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: Matthew Barnes I.
Certification # _____
Emp. ID: 2851 Page ___ of ___

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # N/A
DSA Appl. # N/A
OSHPD # N/A
Permit # N/A

DAILY SPECIAL INSPECTION REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 12/22/2016
Project Address: Hunters Point, Gun Mole, South Pier and Triangle SESF Job # 69995-1
Inspection Location: New asphalt paving
Inspection(s) Performed: Coring Hot Mix Asphalt - Compaction
Document(s) Reviewed:

Inspection Report:

Nuclear gage testing and coring of 1/2" GraniteRock Hot Mix Asphalt pavement alongside Smith-Emery inspector Andrew H.

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required) _____

Attachments: _____ Name: Matthew Barnes I.

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: Matthew Barnes I.
Certification # _____
Emp. ID: 2851 Page ___ of ___

(b) (4)

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # N/A
DSA Appl. # N/A
OSHPD # N/A
Permit # N/A

DAILY SPECIAL INSPECTION REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 12/27/2016
Project Address: Hunters Point, Gun Mole, South Pier and Triangle SESF Job # 69995-1
Inspection Location: New asphalt paving
Inspection(s) Performed: Coring Hot Mix Asphalt - Compaction
Document(s) Reviewed:

Inspection Report:

Nuclear gage testing and coring of 1/2" GraniteRock Hot Mix Asphalt pavement alongside Smith-Emery inspector Andrew H.

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
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Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Complianee: Notified (Required)

Attachments:

Name: Matthew Barnes I.

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: Matthew Barnes I.
Certification #
Emp. ID: 2851 Page ___ of ___

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # N/A
DSA Appl. # N/A
OSHPD # N/A
Permit # N/A

DAILY SPECIAL INSPECTION REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 12/28/2016
Project Address: Hunters Point, Gun Mole, South Pier and Triangle SESF Job # 69995-1
Inspection Location: New asphalt paving
Inspection(s) Performed: Coring Hot Mix Asphalt - Compaction
Document(s) Reviewed:

Inspection Report:

Nuclear gage testing and coring of 1/2" GraniteRock Hot Mix Asphalt pavement alongside Smith-Emery inspector Andrew H.

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required)

Attachments:

Name: Matthew Barnes I.

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: Matthew Barnes I.
Certification #
Emp. ID: 2851 Page ___ of ___

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # N/A
DSA Appl. # N/A
OSHPD # N/A
Permit # N/A

DAILY SPECIAL INSPECTION REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 12/29/2016
Project Address: Hunters Point, Gun Mole, South Pier and Triangle SESF Job # 69995-1
Inspection Location: New asphalt paving
Inspection(s) Performed: Coring Hot Mix Asphalt - Compaction
Document(s) Reviewed:

Inspection Report:

Nuclear gage testing and coring of 1/2" GraniteRock Hot Mix Asphalt pavement alongside Smith-Emery inspector Andrew H.

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
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Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required) _____

Attachments: _____ Name: Matthew Barnes I.

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: Matthew Barnes I.
Certification # _____
Emp. ID: 2851 Page ___ of ___

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # N/A
DSA Appl. # N/A
OSHPD # N/A
Permit # N/A

DAILY SPECIAL INSPECTION REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 12/30/2016
Project Address: Hunters Point, Gun Mole, South Pier and Triangle SESF Job # 69995-1
Inspection Location: New asphalt paving
Inspection(s) Performed: Coring Hot Mix Asphalt - Compaction
Document(s) Reviewed:

Inspection Report:

Nuclear gage testing and coring of 1/2" GraniteRock Hot Mix Asphalt pavement alongside Smith-Emery inspector Andrew H.

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
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Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required) _____

Attachments: _____ Name: Matthew Barnes I.

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: Matthew Barnes I.
Certification # _____
Emp. ID: 2851 Page ___ of ___

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY SPECIAL INSPECTION REPORT

Project Name: GEOTECHNICAL - SERVICES H.P. PARCEL D-1 Date: 12/23/16
Project Address: _____ CGDI # 149951 SESF Job # 69995-1
Inspection Location: GUNNOCK PIER
Inspection(s) Performed: CORING & COMPACTION - TESTING
Document(s) Reviewed: _____

Inspection Report:

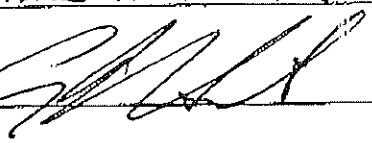
ON-SITE IN THE MORNING AS REQUESTED BY CGDI. CORING OF LOCATIONS AT GUNNOCK PIER VIA PLOT-PLAN LAYOUT. (MAP.)

Work ☐ WAS ☐ WAS NOT Inspected In Accordance with the Requirements of ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☐ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A
Material ☐ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A
Material Tested ☐ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required) _____

Attachments: _____

Name: ANDREW HAUTECHORST

Signature: 

Certification # _____

Emp. ID: 2324 Page 1 of 1

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY SPECIAL INSPECTION REPORT

Project Name: GEOTECHNICAL - SERVICES H.P. PARCEL D-1 Date: 12/28/16
Project Address: CB PI 149831 SESF Job # 69995-1
Inspection Location: GUNMOLE PIER
Inspection(s) Performed: CORING & COMPACTION - TESTING
Document(s) Reviewed:

Inspection Report:

ON-SITE IN THE MORNING FOR CONTINUED, CORING OF A.C. WORK LOCATED AT THE GUNMOLE PIER. REF, PLOT PLAN. DATED 12/28

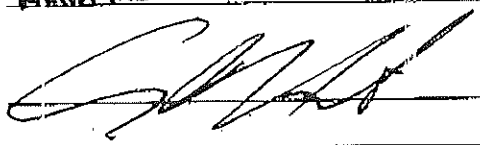
Work ☐ WAS ☐ WAS NOT Inspected In Accordance with the Requirements of ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☐ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A
Material ☐ WAS ☐ WAS NOT Sampled and Tested In Accordance with the Requirements of ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A
Material Tested ☐ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required) _____

Attachments: _____

Name: ANDREW HAUVICHORST

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District



Signature: [signature]
Certification # _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY SPECIAL INSPECTION REPORT

Project Name: GEOTECHNICAL SERVICES H.P. TRACK 04 Date: 12/29/16
Project Address: CSUF 149831 SESF Job # 69995-1
Inspection Location: GUNMOLE PIER
Inspection(s) Performed: CORING & COMPACTION TESTING
Document(s) Reviewed:

Inspection Report:

CONTINUED CORING & N.G. TESTING AT GUNMOLE PIER.

Work ☐ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☐ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A
Material ☐ WAS ☐ WAS NOT Sampled and Tested In Accordance with the Requirements of ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A
Material Tested ☐ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required) _____

Attachments: _____

Name: ANDREW MALOVICHOS

Signature:

Certification # _____

Emp. ID: 2324

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY SPECIAL INSPECTION REPORT

Project Name: GEOTECHNICAL-SERVICES W.P. PARCEL D-1 Date: 12/30/16
Project Address: CSDL # 149931 SESF Job # 69995-1
Inspection Location: GUNMOLE PIER
Inspection(s) Performed: CORING & N.G TESTING
Document(s) Reviewed:

Inspection Report:

ON-SITE IN THE A.M., FOR CONTINUED N. GAGE TESTING AND N.C. CORED CONCRETE AT GUNMOLE PIER

Work ☐ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☐ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A
Material ☐ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A
Material Tested ☐ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☐ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required) _____

Attachments: _____

Name: ANDREW HOWVECHORST

Signature:

Certification # _____

Emp. ID: 2324 Page 1 of 1

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

SMITH-EMERY SAN FRANCISCO
An Independent Commercial Testing Laboratory

1940 Oakdale Avenue
San Francisco, CA 94124
(415) 642-7326
Fax (415) 642-7055

791 East Washington Blvd.
Los Angeles, California 90021
(213) 749-3411
Fax (213) 746-7228

February 3, 2017

SESF File No. 69995-1
SESF Report No. 17-017

CB&I Federal Services, LLC
1230 Columbia Street, Suite 1200
San Diego, CA 92101

Attention: Mr. Sam Hopstone

RE: HPNS Parcel D-1

SUBJECT: Report of Tests

TEST STANDARDS: CTM 308 (Core Densities and Thicknesses)

SOURCE: (156) core samples were collected by a Smith-Emery representative and delivered to our laboratory between November 29, 2016 and January 6, 2017. At least (28) additional samples have been previously reported. and there are at least (16) more that will be reported under separate cover.

REPORT OF TESTS

In compliance with your request, we have conducted the subject tests with the results attached.

Respectfully submitted,
SMITH-EMERY SAN FRANCISCO

Patrick Morrison

Pat Morrison

Digitally s gned by Pat Morrison
DN: cn=Pat Morrison, o=Smith Emery SF, ou=SESF GeoServ ces, email=pmorrison@sm themerysf c om, c=US
Date: 2017 02 03 16 16 38 08'00'

PATRICK MORRISON, P.G. #7174, C.E.G. #2643
Professional Geologist
Certified Engineering Geologist

Attachments: CTM 308 Detailed Reports

SMITH-EMERY SAN FRANCISCO
An Independent Commercial Testing Laboratory

1940 Oakdale Avenue
San Francisco, CA 94124
(415) 642-7326
Fax (415) 642-7055

791 East Washington Blvd.
Los Angeles, California 90021
(213) 749-3411
Fax (213) 746-7228

Proj./Job No.: 69995-1
Lab. No.: 170150

Date Received: 12/22/2016
Date Tested: 1/18/2017

Equipment Used:
Cox & Sons
14/380210

Project: HPNS Parcel D-1
Location: Various Gunmole
Sampled 12-19-2016 and 12-20-2016
Subject: Hveem(Asphalt Concrete)
Standard: CTM 308
Source: Samples cored in field.
Sampled at: Various Gunmole

Report of Test

Sample No.	Thickness	Weight of Sample, grams			Bulk Volume	Bulk Volume	Bulk	Unit Weight
	Inches	In Air	In Water	SSD in Air	(cc)	(cc)	Sp. Gravity	(pcf)
1	2.9	905.1	520.9	907.3	2.2	384.2	2 356	146.6
2	2.9	1261.6	727.1	1263.6	2.0	534.5	2 360	146.9
3	2.6	857.1	490.8	865.8	8.7	366.3	2 340	145.6
8	2.6	728.9	415.5	730.3	1.4	313.4	2 326	144.8
9	2.5	880.5	501.3	888.5	8.0	379.2	2 322	144.5
11	2.7	914	529.3	916.1	2.1	384.7	2 376	147.9
12	2.7	961.4	555.3	962.5	1.1	406.1	2 367	147.3
13	2.7	960.9	552	963.4	2.5	408.9	2 350	146.3
14	2.6	960.3	555.2	962.3	2.0	405.1	2 371	147.5
15	2.5	882.7	504.7	890.1	7.4	378.0	2 335	145.3
Average							2.35	146.4

Bulk S.P. Gravity of Paraffin Wax 1

Remarks: 1/2" Med HMAC 15%Rap
Mix:
Extraction:
Moisture:

Tested by: WH
Date: 1/30/2017

ALL REPORTS ARE SUBMITTED AS THE CONFIDENTIAL PROPERTY OF CLIENTS. AUTHORIZATION FOR PUBLICATION OF OUR REPORT, CONCLUSIONS, OR EXTRACTS FROM OR REGARDING THEM IS RESERVED PENDING OUR WRITTEN APPROVAL AS A MUTUAL PROTECTION TO CLIENTS, THE PUBLIC AND OURSELVES.

(b) (4)

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SMITH-EMERY SAN FRANCISCO
An Independent Commercial Testing Laboratory

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San Francisco, CA 94124
(415) 642-7326
Fax (415) 642-7055

791 East Washington Blvd.
Los Angeles, California 90021
(213) 749-3411
Fax (213) 746-7228

February 3, 2017

SESF File No. 69995-1
SESF Report No. 17-034

CB&I Federal Services, LLC
1230 Columbia Street, Suite 1200
San Diego, CA 92101

Attention: Mr. Sam Hopstone

RE: HPNS Parcel D-1

SUBJECT: Report of Tests

TEST STANDARDS: CTM 308 (Core Densities and Thicknesses)

SOURCE: (15) additional core samples were collected by a Smith-Emery representative and delivered to our laboratory between November 19 and 20, 2016.

REPORT OF TESTS

In compliance with your request, we have conducted the subject tests with the results attached.

Respectfully submitted,
SMITH-EMERY SAN FRANCISCO

Patrick Morrison

Pat Morrison
Dig tal y s gned by Pat Morrison
DN cn=Pat Morr son o=Smith Emery SF ou=SESF GeoServices ema l=pmorrison@sm themerysf co m c=US
Date 2017 02 03 19 03 23 08'00'

PATRICK MORRISON, P.G. #7174, C.E.G. #2643
Professional Geologist
Certified Engineering Geologist

Attachments: CTM 308 Detailed Reports

(b) (4)

SMITH-EMERY SAN FRANCISCO
An Independent Commercial Testing Laboratory

1940 Oakdale Avenue
San Francisco, CA 94124
(415) 642-7326
Fax (415) 642-7055

791 East Washington Blvd.
Los Angeles, California 90021
(213) 749-3411
Fax (213) 746-7228

February 3, 2017

SESF File No. 69995-1
SESF Report No. 16-508/538

CB&I Federal Services, LLC
1230 Columbia Street, Suite 1200
San Diego, CA 92101

Attention: Mr. Sam Hopstone

RE: HPNS Parcel D-1

SUBJECT: Report of Tests

TEST STANDARDS: CTM 308 (Core Densities and Thicknesses)

SOURCE: (28) additional core samples were collected by a Smith-Emery representative and delivered to our laboratory between November 29, 2016 and January 6, 2017.

REPORT OF TESTS

In compliance with your request, we have conducted the subject tests with the results attached.

Respectfully submitted,
SMITH-EMERY SAN FRANCISCO

Patrick Morrison

Pat Morrison

Digitally signed by Pat Morrison
DN: cn=Pat Morrison, o=Smith-Emery SF, ou=SESF GeoServices, email=pmorrison@smithemerysf.com, c=US
Date: 2017.02.03 18:18:10 -08'00'

PATRICK MORRISON, P.G. #7174, C.E.G. #2643
Professional Geologist
Certified Engineering Geologist

Attachments: CTM 308 Detailed Reports

(b) (4)

(b) (4)

SMITH-EMERY SAN FRANCISCO
An Independent Commercial Testing Laboratory

1940 Oakdale Avenue
San Francisco, CA 94124
(415) 642-7326
Fax (415) 642-7055

791 East Washington Blvd.
Los Angeles, California 90021
(213) 749-3411
Fax (213) 746-7228

February 13, 2017

SESF File No. 69995-1
SESF Report No. 17-034R

CB&I Federal Services, LLC
1230 Columbia Street, Suite 1200
San Diego, CA 92101

Attention: Mr. Sam Hopstone

RE: HPNS Parcel D-1

SUBJECT: Report of Tests

TEST STANDARDS: CTM 308 (Core Densities and Thicknesses)

SOURCE: (49) additional core samples were collected by a Smith-Emery representative and delivered to our laboratory between November 19 and 20, 2016.

REPORT OF TESTS
In compliance with your request, we have conducted the subject tests with the results attached.

Respectfully submitted,
SMITH-EMERY SAN FRANCISCO

Patrick Morrison

Pat Morrison
Digitally s gned by Pat Morr son
DN: cn Pat Morrison o Smith Emery SF ou SESF GeoServices email pmorrison@smithemerysf.com c US
Date: 2017 02 13 16:34:26 08 00

PATRICK MORRISON, P.G. #7174, C.E.G. #2643
Professional Geologist
Certified Engineering Geologist

Attachments: CTM 308 Detailed Reports

SMITH-EMERY LABORATORIES
An Independent Commercial Testing Laboratory, Established 1904
1195 N. Tustin Anahiem, California 92807 ◆ Tel. (714) 238-6133 ◆ Fax (714) 238-6144

Proj./Job No.: 69995-1
Lab. No.: 170150

Date Received: 12/29/2016
Date Tested: 1/18/2017

Equipment Used:
AND GP
14703421

Project: HPNS Parcel D-1
Location: Various South Pier and Gunmole
Sampled 12/19/17 and 12/20/17
Subject: Core Densities
Standard: CTM 308
Source: Samples cored in field.
Sampled at: Various South Pier and Gunmole

Report of Test

Sample No.	Thickness	Weight of Sample, grams			Bulk Volume	Bulk Volume	Bulk	Unit Weight
	Inches	In Air	In Water	SSD in Air	(cc)	(cc)	Sp. Gravity	(pcf)
13B	3.2	709.6	406.1	712.4	2.8	303.5	2.338	145.5
14B	2.9	663.1	379.4	666.4	3.3	283.7	2.337	145.5
12A	2.8	732.2	415.0	735.6	3.4	317.2	2.308	143.7
28A	3.0	765.5	440.0	767.9	2.4	325.5	2.352	146.4
13A	2.7	868.2	578.3	870.3	2.1	289.9	2.360	146.9
29A	2.8	684.2	353.6	686.9	2.7	330.6	2.392	148.9
30B	2.9	790.7	441.3	793.1	2.4	349.4	2.234	139.0
30A	3.0	780.5	485.8	783.6	3.1	294.7	2.364	147.1
29B	2.9	696.6	355.5	699.3	2.7	341.1	2.462	153.3
27	3.0	839.9	487.7	842.3	2.4	352.2	2.385	148.4
12B	3.0	746.9	427.7	748.9	2.0	319.2	2.340	145.6
28B	2.7	769.4	440.5	771.3	1.9	328.9	2.339	145.6
14A	2.8	786.0	445.8	789.9	3.9	340.2	2.310	143.8
14B	2.7	781.6	449.8	785.2	3.6	331.8	2.356	146.6
13A	2.8	872.0	512.2	876.3	4.3	359.8	2.424	150.8
Average							2.33	146.5

Bulk S.P. Gravity of Paraffin Wax 1

Remarks: 1/2" Med HMAC 15%Rap
Mix:
Extraction:
Moisture:

Tested by: WH
Date: 2/3/2017

SMITH-EMERY LABORATORIES
An Independent Commercial Testing Laboratory, Established 1904
1195 N. Tustin Anahiem, California 92807 ◆ Tel. (714) 238-6133 ◆ Fax (714) 238-6144

Proj./Job No.: 69995-1
Lab. No.: 170150

Date Received: 12/29/2016
Date Tested: 1/18/2017

Equipment Used:
AND GP
14703421

Project: HPNS Parcel D-1
Location: Various South Pier and Gunmole
Sampled 12/19/17 and 12/20/17
Subject: Core Densities
Standard: CTM 308
Source: Samples cored in field.
Sampled at: Various South Pier and Gunmole

Report of Test

Sample No.	Thickness	Weight of Sample, grams			Bulk Volume	Bulk Volume	Bulk	Unit Weight
	Inches	In Air	In Water	SSD in Air	(cc)	(cc)	Sp. Gravity	(pcf)
16A	3.0	845.5	486.6	849.1	3.6	358.9	2.356	146.6
16B	3.0	839.1	477.4	842.3	3.2	361.7	2.320	144.4
26A	2.9	821.0	475.5	825.6	4.6	345.5	2.376	147.9
27B	2.8	844.6	480.0	847.8	3.2	364.6	2.317	144.2
17A	2.7	672.4	322.9	677.8	5.4	349.5	2.397	149.2
26B	2.9	837.6	539.6	840.1	2.5	298.0	2.365	147.2
24A	2.8	704.8	402.7	707.1	2.3	302.1	2.304	143.4
24B	2.8	696.1	376.8	699.2	3.1	319.3	2.323	144.6
25A	2.8	741.8	419.9	744.8	3.0	321.9	2.304	143.4
25B	2.9	716.1	407.9	720.1	4.0	308.2	2.323	144.6
17B	3.0	654.3	376.5	658.1	3.8	277.8	2.355	146.6
23A	2.9	652.0	375.5	655.6	3.6	276.5	2.358	146.8
15A	2.7	747.3	419.1	750.9	3.6	328.2	2.277	141.7
23B	2.9	641.7	359.4	645.9	4.2	282.3	2.273	141.5
18A	2.9	728.8	423.8	732.3	3.5	305.0	2.390	148.7
Average							2.35	145.4

Bulk S.P. Gravity of Paraffin Wax 1

Remarks: 1/2" Med HMAC 15%Rap
Mix:
Extraction:
Moisture:

Tested by: WH
Date: 2/3/2017

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1195 N. Tustin Anahiem, California 92807 ◆ Tel. (714) 238-6133 ◆ Fax (714) 238-6144

Proj./Job No.: 69995-1
Lab. No.: 170150

Date Received: 12/29/2016
Date Tested: 1/18/2017

Equipment Used:
AND GP
14703421

Project: HPNS Parcel D-1
Location: Various Gunmole
Sampled 12/19/16 and 12/20/16
Subject: Core Densities
Standard: CTM 308
Source: Samples cored in field.
Sampled at: Various South Pier and Gunmole

Report of Test

Sample No.	Thickness	Weight of Sample, grams			Bulk Volume	Bulk Volume	Bulk	Unit Weight
	Inches	In Air	In Water	SSD in Air	(cc)	(cc)	Sp. Gravity	(pcf)
22A	2.8	615.6	344.9	619.3	3.7	270.7	2.274	141.5
15B	2.8	762.0	433.8	766.3	4.3	328.2	2.322	144.5
19A	2.7	790.1	444.1	794.3	4.2	346.0	2.284	142.1
19B	2.8	766.0	437.5	769.4	3.4	328.5	2.332	145.1
18B	2.8	764.4	435.3	767.3	2.9	329.1	2.323	144.6
22B	2.9	626.7	358.1	630.0	3.3	268.6	2.333	145.2
Average							2.29	143.8

Bulk S.P. Gravity of Paraffin Wax 1

Remarks: 1/2" Med HMAC 15%Rap
Mix:
Extraction:
Moisture:

Tested by: WH
Date: 2/3/2017

SMITH-EMERY LABORATORIES

An Independent Commercial Testing Laboratory, Established 1904

1195 N. Tustin Anahiem, California 92807 ◆ Tel. (714) 238-6133 ◆ Fax (714) 238-6144

Proj./Job No.: 69995-1
Lab. No.: 170150

Date Received: 12/22/2016
Date Tested: 2/13/2017

Equipment Used:
AND GP
14703421

Project: HPNS Parcel D-1
Location: Various South Pier and Gunmole

Subject: Hveem(Asphalt Concrete)
Standard: CTM 308
Source: Samples cored in field.
Sampled at: Various South Pier and Gunmole

Report of Test

Sample No.	Thickness Inches	Weight of Sample, grams In Air	In Water	SSD in Air	Bulk Volume (cc)	Bulk Volume (cc)	Bulk Sp. Gravity	Unit Weight (pcf)
1	2.5	983.9	570.4	989.0	0.1	418.5	2.350	146.6
2	2.9	1173.4	685.1	1175.6	0.0	490.5	2.392	149.3
3	2.0	711.3	407.2	714.0	0.0	306.8	2.318	144.6
4	2.6	993.8	576.7	996.8	0.0	420.1	2.366	147.6
5	2.6	989.0	571.5	992.7	0.1	421.1	2.348	146.5
6	2.2	834.5	478.1	839.5	0.1	361.3	2.309	144.0
7	2.3	897.5	519.6	900.9	0.1	381.2	2.354	146.9
8	2.8	1154.8	681.9	1156.1	0.0	474.2	2.435	151.9
9	2.4	932.4	537.6	936.1	0.1	398.4	2.340	146.0
10	2.5	1004.1	579.7	1007.1	0.0	427.4	2.349	146.6
11	3.2	1263.6	730.1	1267.0	0.1	536.8	2.353	146.8
12	2.2	878.8	510.6	882.1	0.1	371.4	2.365	147.5
13	2.0	797.6	459.1	805.3	0.1	346.1	2.304	143.7
Averange							2.35	146.8

Bulk S.P. Gravity of Paraffin Wax 1

Remarks: 1/2" Med HMAC 15%Rap
Mix:
Extraction:
Moisture:

Tested by: JM

Date: 2/13/2017

SMITH-EMERY SAN FRANCISCO
An Independent Commercial Testing Laboratory

1940 Oakdale Avenue
San Francisco, CA 94124
(415) 642-7326
Fax (415) 642-7055

791 East Washington Blvd.
Los Angeles, California 90021
(213) 749-3411
Fax (213) 746-7228

February 23, 2017

SESF File No. 69995-1
SESF Report No. 16-508/538R

CB&I Federal Services, LLC
1230 Columbia Street, Suite 1200
San Diego, CA 92101

Attention: Mr. Sam Hopstone

RE: HPNS Parcel D-1

SUBJECT: Report of Tests

TEST STANDARDS: CTM 308 (Core Densities and Thicknesses)

SOURCE: (28) additional core samples were collected by a Smith-Emery representative and delivered to our laboratory between November 29, 2016 and January 6, 2017.

REPORT OF TESTS

In compliance with your request, we have conducted the subject tests with the results attached.

Respectfully submitted,
SMITH-EMERY SAN FRANCISCO

Patrick Morrison

Pat Morrison

Dig tally s gned by Pat Morrison
DN: cn=Pat Morrison o=Smith Emery SF ou=SESF GeoServ ces email=pmorr son@smithemerysf c om c=US
Date: 2017 02 23 13:31:22 08 00

PATRICK MORRISON, P.G. #7174, C.E.G. #2643
Professional Geologist
Certified Engineering Geologist

Attachments: CTM 308 Detailed Reports

SMITH-EMERY LABORATORIES

An Independent Commercial Testing Laboratory, Established 1904

1195 N. Tustin Anahiem, California 92807 ◆ Tel. (714) 238-6133 ◆ Fax (714) 238-6144

Proj./Job No.: 69995-1
Lab. No.: 161220

Date Received: 11/30/2016
Date Tested: 12/1/2016

Equipment Used:
AND GP
14703421
Caliper 14/1380210

Project: HPNS
Location: Triangle, South Pier and Gunmole

Subject: Cores(Asphalt Concrete)
Standard: CTM 308
Source: Samples Cored in the Field
Sampled at: Triangle, South Pier and Gunmole

Report of Test

Sample No.	Thickness Inches	Weight of Sample, grams In Air	In Water	SSD in Air	Bulk Volume (cc)	Bulk Volume (cc)	Bulk Sp. Gravity	Unit Weight (pcf)
GM#1	2.4	1264.8	731.2	1267.4	2.6	533.6	2.370	147.5
GM#2	2.6	1174	685.3	1175.6	1.6	488.7	2.402	149.5
GM#3	2.4	713.6	409.9	717.6	4.0	303.7	2.350	146.2
GM#4	2.3	1213.6	702.3	1215.7	2.1	511.3	2.374	147.7
GM#5	2.5	1259.7	725.9	1276.1	16.4	533.8	2.360	146.9
GM#6	2.6	1169.8	681.1	1172.5	2.7	488.7	2.394	149.0
TR#7	2.7	805.9	469.1	808	2.1	336.8	2.393	148.9
SP#8	2.4	1260.3	727.7	1265.8	5.5	532.6	2.366	147.3
SP#9	2.9	883.1	514	885.1	2.0	369.1	2.393	148.9
SP#10	2.6	1002.7	578.6	1004.9	2.2	424.1	2.364	147.2
SP#11	2.5	1156	682.5	1157.3	1.3	473.5	2.441	152.0
SP#12	2.6	1161.4	675.8	1163.9	2.5	485.6	2.392	148.9
SP#13	2.7	1256.2	731.3	1258.7	2.5	524.9	2.393	149.0
TR#14	2.7	815.4	480.1	818.4	3.0	335.3	2.432	151.4
TR#15	2.7	1267.5	734.1	1268.7	1.2	533.4	2.39	148.5
Average							2.37	148.6

Bulk S.P. Gravity of Paraffin Wax 1

Remarks:
Mix: 1/2" Med. HMAC
Extraction:
Moisture:

Tested by: Will Harris
Date: 2/23/2017

SMITH-EMERY LABORATORIES

An Independent Commercial Testing Laboratory, Established 1904

1195 N. Tustin Anahiem, California 92807 ◆ Tel. (714) 238-6133 ◆ Fax (714) 238-6144

Proj./Job No.: 69995-1
Lab. No.: 161140

Date Received: 11/29/2016
Date Tested: 11/30/2016

Equipment Used:
AND GP
14703421
Caliper 14/1380210

Project: HPNS
Location: Gunmole Various

Subject: Cores(Asphalt Concrete)
Standard: CTM 308
Source: Samples cored in field.
Sampled at: indexed below

Report of Test

Sample No.	Thickness	Weight of Sample, grams			Bulk Volume	Bulk Volume	Bulk	Unit Weight
	Inches	In Air	In Water	SSD in Air	(cc)	(cc)	Sp. Gravity	(pcf)
GM#1	2.7	1264.8	731.2	1267.4	2.6	533.6	2.370	147.5
GM#2	2.6	1174.0	685.3	1175.6	1.6	488.7	2.402	149.5
GM#3	2.6	713.6	409.9	717.6	4.0	303.7	2.350	146.2
GM#4	2.5	1266.7	733.4	1268.4	1.7	533.3	2.375	147.8
GM#5	2.8	715.8	411.9	719.5	3.7	303.9	2.355	146.6
GM#6	2.7	1259.3	734	1261.8	2.5	525.3	2.397	149.2
GM#7	2.9	1165.2	676.8	1167	1.8	488.4	2.386	148.5
GM#8	2.5	1155.5	682	1156.7	1.2	473.5	2.440	151.9
GM#9	2.5	936.0	540.8	938.1	2.1	395.2	2.368	147.4
GM#10	2.5	1006.4	581.2	1008	1.6	425.2	2.367	147.3
GM#11	2.7	1264.8	731.2	1267.4	2.6	533.6	2.370	147.5
GM#12	2.9	880.7	511	882	1.3	369.7	2.382	148.3
GM#13	2.5	801.3	465.8	804.3	3.0	335.5	2.388	148.7
Average							2.37	147.8

Bulk S.P. Gravity of Paraffin Wax 1

Remarks:
Mix: 1/2" Med HMA
Extraction:
Moisture:

Tested by: Will Harris
Date: 2/23/2017

Hot Mix Asphalt—Compaction

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - HMA COMPACTION TEST REPORT

Project Name: GEOTECHNICAL-SERV: RNRCH D-1 CSLC # 149831 Date: 11/29/16
Project Address: HUNTERS PT. SESF Job # 69995-1
Inspection Location: GUNNOCK — EAST / SOUTH-END.
Inspection(s) Performed: COMPACTION-TESTING
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	Density (pcf)		% Rel. Compaction		Pass	Fail
				Field	Max	Field	Spec.		
								☐	☐
01		GUNNOCK	S.C.	145.6	152.0	96	95	☑	☐
02		EASTERN - SIDE		146.2		96	95	☑	☐
03				144.9		95	95	☑	☐
04				145.4		95	95	☑	☐
05				147.3		97	95	☑	☐
06				148.9		97	95	☑	☐
07				146.7		96	95	☑	☐
08		/		148.4		97	95	☑	☐
09		SOUTH-END		147.6		97	95	☑	☐
10				146.7		96	95	☑	☐
11		/	/	145.8	/	96	95	☑	☐
								☐	☐

HMA Type #	HMA Description	Max Density (pcf)
	1/2 MED A.C. 15% RAP. (GRANITEROCK S.S.F.)	152.0

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

TEMPS = 7:45 = 278°
10:15 = 282°
2:30 289°
4:15 = 292°

S.C. = SURFACE COURSE

Attachments: _____ Name: ANDREW HAUSCHORST

Signature: _____
Certification #: _____
Emp. ID: 2324 Page 1 of 1

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - HMA COMPACTION TEST REPORT

Project Name: GEOTECHNICAL - SERV: PARCEL D-1 CBRI 149831 Date: 11/30/16
Project Address: HUNTERS PT. SESF Job # 69995-1
Inspection Location: GUNWALE-WEST / SOUTH PIER-EAST - SOUTH-END-WEST / TRIANGLE SOUTHSIDE
Inspection(s) Performed: COMPACTION-TESTING
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	Density (pcf) Field	Density (pcf) Max	% Rel. Compaction Field	% Rel. Compaction Spec.	Pass	Fail
								☐	☐
		SOUTH PIER-WEST	S.C.		152.0			☐	☐
01				146		96	95	☑	☐
02				145.9		96	95	☑	☐
03				146.2		96	95	☑	☐
04				148.4		97	95	☑	☐
05		/	/	145.4	/	95	95	☑	☐
		TRIANGLE SOUTH-SIDE	S.C.		152.0			☐	☐
								☐	☐
06				145.5		95	95	☑	☐
07				144.9		95	95	☑	☐
08				146.7		96	95	☑	☐
09		/	/	145.9	/	95	95	☑	☐

HMA Type #	HMA Description	Max Density (pcf)
	½ MED A.C. 15% RAP (GRANITEROCK S.S.F.	

Work ☒ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material ☒ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material Tested ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

S.C. = SURFACE COURSE

pg 2 CONT:

Attachments: _____ Name: ANDREW HOUVECHORST

Signature: _____
Certification #: _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - HMA COMPACTION TEST REPORT

Project Name: GEOTECHNICAL-SERV: PARCEL D-1 CB[illegible] 149831 Date: 11/30/16
Project Address: HUNTERS PT. SESF Job # 69995.1
Inspection Location: GUNNOLIE-WEST / SOUTH PIER EAST, SOUTHERN, WEST
Inspection(s) Performed: COMPACTION - TESTING TRENCHER - SOUTHERN
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	Density (pcf) Field	Density (pcf) Max	% Rel. Compaction Field	% Rel. Compaction Spec.	Pass	Fail
		GUNNOLIE-WEST	S.C.					☐	☐
01				145.9	152.0	96	95	☑	☐
02				144.8		95	95	☑	☐
03				146.2		96	95	☑	☐
04				147.4		97	95	☑	☐
05		/		147.5		97	95	☑	☐
06		SOUTH PIER - EAST		145.9		96	95	☑	☐
07				146.8		97	95	☑	☐
08				145.5		96	95	☑	☐
09		/		149.6		97	95	☑	☐
10		SOUTH PIER SOUTHERN		148.4		97	95	☑	☐
11				145.7		96	95	☑	☐
12		/	/	146.4	/	96	95	☑	☐

HMA Type #	HMA Description	Max Density (pcf)
	1/2 MED A.C. 15% RAP (GRANITE ROCK S.S.F.)	152.0

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance:

Notified (Required): _____

TEMPS: 8:15 = 279°
9:50 = 280°
1:15 = 282°
3:40 = 289°

S.C. = SURFACE COURSE

Attachments: _____

Name: ANDREW HAVLICHORST

Signature: [signature]

Certification #: _____

Emp. ID: 2324 Page 1 of 1

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - HMA COMPACTION TEST REPORT

Project Name: GEOTECHNICAL-SERV: PARCEL D-1 CB/I 149851 Date: 12/1/16
Project Address: HUNTERS PT. SESF Job # 69995-1
Inspection Location: TRIANGLE AREA / EXT. BLDG. PERIMETER
Inspection(s) Performed: COMPACTION-TESTING
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	Density (pcf) Field	Density (pcf) Max	% Rel. Compaction Field	% Rel. Compaction Spec.	Pass	Fail
01		REF: TRIANGLE	S.C.	145.6	152.0	96	95	☑	☐
02		EXT. BLDG.		146.7		96	95	☑	☐
03		PERIMETER		145.9		96	95	☑	☐
04				144.9		95	95	☑	☐
05				146.7		96	95	☑	☐
06				147.2		97	95	☑	☐
07				145.4		96	95	☑	☐
08				146.7		96	95	☑	☐
09				145.9		96	95	☑	☐
10				147.4		97	95	☑	☐
11				144.8		95	95	☑	☐
12				145.7		96	95	☑	☐
13				146.2		96	95	☑	☐

HMA Type #	HMA Description	Max Density (pcf)
	½ MED A.C. 15% RAP (GRANITEROCK @ S.S.F.)	152.0

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

TEMPS:
7:30 = 279°
9:20 = 296°
2:15 = 298°
4:30 = 297°

S.C. = SURFACE-COURSE

Attachments: _____ Name: ANDREW HAWVICHORST

Signature: [signature]
Certification #: _____
Emp. ID: 2324 Page 1 of 1

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - HMA COMPACTION TEST REPORT

Project Name: GEOTECHNICAL - SERV: PARCEL D-1 CB/I# 149831 Date: 12/2/16
Project Address: HUNTERS PT. SESF Job # 69995-1
Inspection Location: GUNMOLE (EASTERN-SIDE
Inspection(s) Performed: COMPACTION-TESTING
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	Density (pcf) Field	Density (pcf) Max	% Rel. Compaction Field	% Rel. Compaction Spec.	Pass	Fail
01		REF: GUNMOLE	S.C.	146.4	152.0	96	95	☑	☐
02		EASTERN-SIDE	S.C.	145.8		96	95	☑	☐
03			S.C.	147.6		97	95	☑	☐
04			S.C.	148.2		98	95	☑	☐
05			S.C.	145.7		96	95	☑	☐
06				144.9		95	95	☑	☐
07				145.4		96	95	☑	☐
08				146.8		96	95	☑	☐
09				147.3		97	95	☑	☐
10				147.8		97	95	☑	☐
11				145.4		96	95	☑	☐
12				145.6		96	95	☑	☐
13				146.2		96	95	☑	☐

HMA Type #	HMA Description	Max Density (pcf)
	1/2 MED A.C. 15% RAP (GRANITEROCK B.W.C.	152.0
	1/2 MED A.C. 15% RAP (GRANITEROCK SSF	152.0

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance:

Notified (Required): _____

Temps 7:15 = 286°
8:45 = 296°
12:40 = 298°
2:15 = 295°

S.C. = SURFACE-COURSE

Attachments: _____

Name: ANDREW MAWVICHORSS

Signature: [signature]
Certification #: _____
Emp. ID: 2324

(b) (4)

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # N/A
DSA Appl. # N/A
OSHPD # N/A
Permit # N/A

DAILY SPECIAL INSPECTION REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 11/29/2016
Project Address: Hunters Point, Gun Mole, South Pier and Triangle SESF Job # 69995-1
Inspection Location: New asphalt paving
Inspection(s) Performed: Coring Hot Mix Asphalt - Compaction Hot Mix Asphalt - Sampling
Document(s) Reviewed:

Inspection Report:

Coring, sampling and Nuclear gage testing of 1/2" GraniteRock Hot Mix Asphalt alongside Smith-Emery inspector Andrew H. Core locations provided by CBi. Bulk hot mix AC samples delivered in the morning and afternoon to SF lab for testing. See report of SE inspector Andrew H for further AC details.

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required)

Attachments:

Name: Matthew Barnes I.

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: Matthew Barnes I.
Certification #
Emp. ID: 2851 Page ___ of ___

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # N/A
DSA Appl. # N/A
OSHPD # N/A
Permit # N/A

DAILY SPECIAL INSPECTION REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 11/30/2016
Project Address: Hunters Point, Gun Mole, South Pier and Triangle SESF Job # 69995-1
Inspection Location: New asphalt paving
Inspection(s) Performed: Coring Hot Mix Asphalt - Compaction Hot Mix Asphalt - Sampling
Document(s) Reviewed:

Inspection Report:

Coring, sampling and Nuclear gage testing of 1/2" GraniteRock Hot Mix Asphalt alongside Smith-Emery inspector Andrew H. Core locations provided by CBi. Bulk hot mix AC samples delivered in the morning and afternoon to SF lab for testing. See report of SE inspector Andrew H for further AC details.

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required) _____

Attachments: _____ Name: Matthew Barnes I.

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: Matthew Barnes I.
Certification # _____
Emp. ID: 2851 Page ___ of ___

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # N/A
DSA Appl. # N/A
OSHPD # N/A
Permit # N/A

DAILY SPECIAL INSPECTION REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 12/1/2016
Project Address: Hunters Point, Gun Mole, South Pier and Triangle SESF Job # 69995-1
Inspection Location: New asphalt paving
Inspection(s) Performed: Coring Hot Mix Asphalt - Compaction Hot Mix Asphalt - Sampling
Document(s) Reviewed:

Inspection Report:

Coring, sampling and Nuclear gage testing of 1/2" GraniteRock Hot Mix Asphalt alongside Smith-Emery inspector Andrew H. Core locations provided by CBi. Bulk hot mix AC samples delivered in the morning and afternoon to SF lab for testing. See report of SE inspector Andrew H for further AC details.

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required)

Attachments:

Name: Matthew Barnes I.

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: Matthew Barnes I.
Certification #
Emp. ID: 2851 Page ___ of ___

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # N/A
DSA Appl. # N/A
OSHPD # N/A
Permit # N/A

DAILY SPECIAL INSPECTION REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 12/2/2016
Project Address: Hunters Point, Gun Mole, South Pier and Triangle SESF Job # 69995-1
Inspection Location: New asphalt paving
Inspection(s) Performed: Coring Hot Mix Asphalt - Compaction Hot Mix Asphalt - Sampling
Document(s) Reviewed:

Inspection Report:

Coring, sampling and Nuclear gage testing of 1/2" GraniteRock Hot Mix Asphalt alongside Smith-Emery inspector Andrew H. Core locations provided by CBi. Bulk hot mix AC samples delivered in the morning and afternoon to SF lab for testing. See report of SE inspector Andrew H for further AC details.

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required) _____

Attachments: _____ Name: Matthew Barnes I.

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: Matthew Barnes I.
Certification # _____
Emp. ID: 2851 Page ___ of ___

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - HMA COMPACTION TEST REPORT

Project Name: GEOTECHNICAL-SERV: PARCEL D-1 CSU# 149831 Date: 11/29/16
Project Address: HUNTERS PT. SESF Job # 69995-1
Inspection Location: GUNNOCK — EAST / SOUTH-END.
Inspection(s) Performed: COMPACTION-TESTING
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	Density (pcf) Field	Density (pcf) Max	% Rel. Compaction Field	% Rel. Compaction Spec.	Pass	Fail
								☐	☐
01		GUNNOCK	S.C.	145.6	152.0	96	95	☑	☐
02		EASTERN - SIDE		146.2		96	95	☑	☐
03				144.9		95	95	☑	☐
04				145.4		95	95	☑	☐
05				147.3		97	95	☑	☐
06				146.9		97	95	☑	☐
07				146.7		96	95	☑	☐
08				146.4		97	95	☑	☐
09		SOUTH-END		147.6		97	95	☑	☐
10				146.7		96	95	☑	☐
11				145.8		96	95	☑	☐
								☐	☐

HMA Type #	HMA Description	Max Density (pcf)
1	1/2 INCH A.C. 15% RAP. (GRANITEROCK S.S.F.)	152.0

Work ☑ WAS ☐ WAS NOT Inspected In Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested In Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance:

Notified (Required): _____

TEMPS = 7:45 = 276°
10:15 = 282°
2:30 289°
4:15 = 292°

S.C. = SURFACE COURSE

Attachments: _____

Name: ANDREW HAVIRCHOREST

Signature: _____

Certification #: _____

Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - HMA COMPACTION TEST REPORT

Project Name: GEOTECHNICAL - SERV: PARCEL D-1 CBI 149831 Date: 11/30/16
Project Address: HUNTERS PT. SESF Job # 69995-1
Inspection Location: GUNWALE-WEST / SOUTH PIER-EAST - SOUTH-END-WEST / TRIANGLE SOUTHSIDE
Inspection(s) Performed: COMPACTION-TESTING
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	Density (pcf) Field	Density (pcf) Max	% Rel. Compaction Field	% Rel. Compaction Spec.	Pass	Fail
								☐	☐
		SOUTH PIER-WEST	S.C.		152.0			☐	☐
01				146		96	95	☑	☐
02				145.9		96	95	☑	☐
03				146.2		96	95	☑	☐
04				146.4		97	95	☑	☐
05		/	/	145.4	/	95	95	☑	☐
		TRIANGLE SOUTH-SIDE	S.C.		152.0			☐	☐
								☐	☐
06				145.5		95	95	☑	☐
07				144.9		95	95	☑	☐
08				146.1		96	95	☑	☐
09		/	/	145.9	/	95	95	☑	☐

HMA Type #	HMA Description	Max Density (pcf)
	½ MED A.C. 15% RAP (GRANITEROCK S.S.F.	

Work ☒ WAS ☐ WAS NOT Inspected In Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material ☒ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material Tested ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

S.C. = SURFACE COURSE

pg 2 CONT:

Attachments: _____ Name: ANDREW HOUVENHORST

Signature: _____
Certification #: _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - HMA COMPACTION TEST REPORT

Project Name: GEOTECHNICAL SERV: PARCEL D-1 CB# 149831 Date: 11/30/16
Project Address: HUNTERS PT. SESF Job # 69995.1
Inspection Location: GUNNOUR - WEST / SOUTH PIER EAST, SOUTHEAST, WEST
Inspection(s) Performed: COMPACTION - TESTING TRENCH - SOUTHEAST
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	Density (pcf)		% Rel. Compaction		Pass	Fail
				Field	Max	Field	Spec.		
		GUNNOUR - WEST	S.C.					☐	☐
01				145.9	152.0	96	95	☑	☐
02				144.8		95	95	☑	☐
03				146.2		96	95	☑	☐
04				142.4		93	95	☑	☐
05				147.5		97	95	☑	☐
06		SOUTH PIER - EAST		145.9		96	95	☑	☐
07				146.8		97	95	☑	☐
08				145.5		96	95	☑	☐
09				149.6		97	95	☑	☐
10		SOUTH PIER SOUTHEAST		148.4		97	95	☑	☐
11				145.7		96	95	☑	☐
12				146.4		96	95	☑	☐

HMA Type #	HMA Description	Max Density (pcf)
	½ HMA A.C. 15% RAP (GRANITE ROCK S.S.F.)	152.0

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance:

Notified (Required): _____

TEMPS: 8:15 = 279°
9:50 = 280°
11:15 = 282°
3:40 = 289°

S.C. = SURFACE COURSE

Attachments: _____

Name: ANDREW HAVLICHORST

Signature: _____

Certification #: _____

Emp. ID: 2824 Page 1 of 1

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - HMA COMPACTION TEST REPORT

Project Name: GEOTECHNICAL-SERV: PARCEL D-1 CO# 14985 Date: 12/1/16
Project Address: HUNTERS PT. SESF Job # 69995-1
Inspection Location: TRIANGLE AREA / PART. BLDG. DESICCATOR
Inspection(s) Performed: COMPACTION-TESTING
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	Density (pcf)		% Rel. Compaction		Pass	Fail
				Field	Max	Field	Spec.		
01		REF: TRIANGLE	S.C.	145.6	152.0	96	95	☑	☐
02		PART. BLDG.		146.7		96	95	☑	☐
03		DESICCATOR		145.9		96	95	☑	☐
04				144.9		95	95	☑	☐
05				146.3		96	95	☑	☐
06				147.2		97	95	☑	☐
07				145.4		96	95	☑	☐
08				146.7		96	95	☑	☐
09				145.9		96	95	☑	☐
10				147.4		97	95	☑	☐
11				144.8		95	95	☑	☐
12				145.7		96	95	☑	☐
13		/	/	146.2	/	96	95	☑	☐

HMA Type #	HMA Description	Max Density (pcf)
	½ MED A.C. 15% RAP (GRANITEROCK #S.S.F.)	152.0

Work ☑ WAS ☐ WAS NOT Inspected In Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested In Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance:

Notified (Required): _____

TEMPS:
7:30 = 279°
9:20 = 296°
2:15 = 298°
4:30 = 297°

S.C.=SURFACE-COURSE

Attachments: _____

Name: ANDREW HANVECKORST

Signature: _____

Certification #: _____

Emp. ID: 2324 Page 1 of 1

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - HMA COMPACTION TEST REPORT

Project Name: GEOTECHNICAL - SERV: PARCEL D-1 CB/I# 149831 Date: 12/2/16
Project Address: HUNTERS PT. SESF Job # 69995-1
Inspection Location: GUNMOLE (EASTERN-SIDE
Inspection(s) Performed: COMPACTION-TESTING
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	Density (pcf) Field	Density (pcf) Max	% Rel. Compaction Field	% Rel. Compaction Spec.	Pass	Fail
01		REF: GUNMOLE	S.C.	146.4	152.0	96	95	☑	☐
02		EASTERN-SIDE	S.C.	145.8		96	95	☑	☐
03			S.C.	147.6		97	95	☑	☐
04			S.C.	148.2		98	95	☑	☐
05			S.C.	145.7		96	95	☑	☐
06				144.9		95	95	☑	☐
07				145.4		96	95	☑	☐
08				146.8		96	95	☑	☐
09				147.3		97	95	☑	☐
10				147.8		97	95	☑	☐
11				145.4		96	95	☑	☐
12				145.6		96	95	☑	☐
13				146.2		96	95	☑	☐

HMA Type #	HMA Description	Max Density (pcf)
	1/2 MED A.C. 15% RAP (GRANITEROCK RWG	152.0
	1/2 MED A.C. 15% RAP (GRANITEROCK SSF	152.0

Work ☑ WAS ☐ WAS NOT Inspected In Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested In Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required): _____

Temps 7:15 = 286°
8:45 = 296°
12:40 = 299°
2:15 = 295°

S.C. = SURFACE-COURSE

Attachments: _____ Name: ANDREW MAUVICHORSE

Signature: [signature]
Certification #: _____
Emp. ID: 2324 Page 1 of 1

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # N/A
DSA Appl. # N/A
OSHPD # N/A
Permit # N/A

DAILY - HMA COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 12/19/2016
Project Address: Hunters Point, San Francisco SESF Job # 69995-1
Inspection Location: Gunmole
Inspection(s) Performed: Hot Mix Asphalt - Placement Hot Mix Asphalt - Compaction Coring
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	Density (pcf)		% Rel. Compaction		Pass	Fail
				Field	Max	Field	Spec.		
1	784	Gunmole	SC	141.2	148.0	95	95	☑	☐
2	"	Gunmole	"	144.1	"	97	"	☑	☐
3	"	Gunmole	"	142.3	"	96	"	☑	☐
8	"	Gunmole	"	141.7	"	96	"	☑	☐
9	"	Gunmole	"	141.0	"	96	"	☑	☐
11	"	Gunmole	"	142.3	"	96	"	☑	☐
12	"	Gunmole	"	141.5	"	96	"	☑	☐
13	"	Gunmole	"	141.9	"	96	"	☑	☐
14	"	Gunmole	"	142.7	"	96	"	☑	☐
15	"	Gunmole	"	140.5	"	95	"	☑	☐
								☐	☐
								☐	☐
								☐	☐

HMA Type #	HMA Description	Max Density (pcf)
784	1/2" Med Rap 15 HMAC (GraniteRock South San Francisco)	148.0

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required) _____

Attachments: _____

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Name: Matthew Barnes I.
Signature: Matthew Barnes I.
Certification # _____
Emp. ID: 2851 Page ___ of ___

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # N/A
DSA Appl. # N/A
OSHPD # N/A
Permit # N/A

DAILY - HMA COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 12/20/2016
Project Address: Hunters Point, San Francisco SESF Job # 69995-1
Inspection Location: South Pier
Inspection(s) Performed: Hot Mix Asphalt - Placement Hot Mix Asphalt - Compaction Coring
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	Density (pcf)		% Rel. Compaction		Pass	Fail
				Field	Max	Field	Spec.		
12 A/B	784	South Pier	SC	141.5	148.0	95	95	☑	☐
13 A/B	"	South Pier	"	140.9	"	95	"	☑	☐
14 A/B	"	South Pier	"	141.3	"	95	"	☑	☐
15 A/B	"	South Pier	"	142.0	"	96	"	☑	☐
16 A/B	"	South Pier	"	141.6	"	96	"	☑	☐
17 A/B	"	South Pier	"	141.3	"	95	"	☑	☐
18 A/B	"	South Pier	"	142.8	"	97	"	☑	☐
19 A/B	"	South Pier	"	140.4	"	95	"	☑	☐
22 A/B	"	South Pier	"	140.9	"	95	"	☑	☐
23 A/B	"	South Pier	"	141.7	"	96	"	☑	☐
24 A/B	"	South Pier	"	142.3	"	97	"	☑	☐
25 A/B	"	South Pier	"	141.8	"	96	"	☑	☐
26 A/B	"	South Pier	"	140.5	"	95	"	☑	☐

HMA Type #	HMA Description	Max Density (pcf)
784	1/2" Med Rap 15 HMAC (GraniteRock South San Francisco)	148.0

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required) _____

Attachments: _____

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Name: Matthew Barnes I.
Signature: Matthew Barnes I
Certification # _____
Emp. ID: 2851 Page ___ of ___

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - HMA COMPACTION TEST REPORT

Project Name: GEOTECHNICAL-SERVICES PARCEL D-1 Date: 12/20/16
Project Address: CBPI# 149831 SESF Job # 69995-1
Inspection Location: GUNMOLE PIER — WEST-SIDE
Inspection(s) Performed: COMPACTION-TESTING
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	Density (pcf) Field	Density (pcf) Max	% Rel. Compaction Field	% Rel. Compaction Spec.	Pass	Fail
01		GUNMOLE PIER	S.C.	145.4	152.0	95	95	☒	☐
02		WESTERN SECTION.		147.2		97	95	☒	☐
03				146.9		96	95	☒	☐
04				144.8		95	95	☒	☐
05				145.4		95	95	☒	☐
06				147.0		97	95	☒	☐
07				146.7		96	95	☒	☐
08				145.4		95	95	☒	☐
09				146.7		96	95	☒	☐
10				144.9		95	95	☒	☐
11				146.2		96	95	☒	☐
12				145.6		95	95	☒	☐
13				146.2		96	95	☒	☐

HMA Type #	HMA Description	Max Density (pcf)
	1/2" A.C. MED: 15% RAP.	152.0

Work ☒ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material ☒ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material Tested ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A

In Compliance:
ASTM-D1559
GAGE # 7740

S.C. SURFACE-COURSE

Notified (Required): _____

Temps A.M.	Temps P.M.
1 297°	6 288°
2 296°	7 289°
3 289°	8 292°
4 291°	09 289°
5 296°	10 291°

Attachments: _____

Name: ANDREW HAUVECHORST

Signature: [signature]
Certification #: _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # N/A
DSA Appl. # N/A
OSHPD # N/A
Permit # N/A

DAILY SPECIAL INSPECTION REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 12/20/2016
Project Address: Hunters Point, Gun Mole, South Pier and Triangle SESF Job # 69995-1
Inspection Location: New asphalt paving
Inspection(s) Performed: Coring Hot Mix Asphalt - Compaction
Document(s) Reviewed:

Inspection Report:

Nuclear gage testing and coring of 1/2" GraniteRock Hot Mix Asphalt pavement alongside Smith-Emery inspector Andrew H.

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required) _____

Attachments: _____ Name: Matthew Barnes I.

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: Matthew Barnes I.
Certification # _____
Emp. ID: 2851 Page ___ of ___

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # N/A
DSA Appl. # N/A
OSHPD # N/A
Permit # N/A

DAILY - HMA COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 12/21/2016
Project Address: Hunters Point, San Francisco SESF Job # 69995-1
Inspection Location: South Pier
Inspection(s) Performed: Hot Mix Asphalt - Placement Hot Mix Asphalt - Compaction Coring
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	Density (pcf)		% Rel. Compaction		Pass	Fail
				Field	Max	Field	Spec.		
27 A/B	784	South Pier	SC	141.8	148.0	96	95	☑	☐
28 A/B	"	South Pier	"	142.5	"	96	"	☑	☐
29 A/B	"	South Pier	"	142.1	"	96	"	☑	☐
30 A/B	"	South Pier	"	141.5	"	96	"	☑	☐
								☐	☐
								☐	☐
								☐	☐
								☐	☐
								☐	☐
								☐	☐
								☐	☐
								☐	☐
								☐	☐

HMA Type #	HMA Description	Max Density (pcf)
784	1/2" Med Rap 15 HMAC (GraniteRock South San Francisco)	148.0

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required) _____

Attachments: _____

Name: Matthew Barnes I.

Signature: Matthew Barnes I

Certification # _____

Emp. ID: 2851 Page ___ of ___

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - HMA COMPACTION TEST REPORT

Project Name: GEOTECHNICAL - SERVICES PIER D-1 Date: 12/21/16
Project Address: _____ CB Pt # 149851 SESF Job # 69995-1
Inspection Location: SOUTH PIER 1 TRIANGLE
Inspection(s) Performed: COMPACTION-TESTING
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	Density (pcf)		% Rel. Compaction		Pass	Fail
				Field	Max	Field	Spec.		
01		SOUTH PIER 1	SC	144.8	152.0	95	95	☒	☐
02		TRIANGLE		145.4		95	95	☒	☐
03				146.3		96	95	☒	☐
04				144.9		95	95	☒	☐
05				145.3		95	95	☒	☐
06				146.7		96	95	☒	☐
07				145.2		95	95	☒	☐
08				144.7		95	95	☒	☐
09				145.4		95	95	☒	☐
10				146.2		96	95	☒	☐
11				145.5		95	95	☒	☐
12				149.6		96	95	☒	☐
13				145.4		95	95	☒	☐

HMA Type #	HMA Description	Max Density (pcf)
	½" MED A.C. 15% RAP	152.0

Work ☒ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material ☒ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material Tested ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A

In Compliance:
ASTM-D1557
GAGE # 7740

SC. SURFACE-COURSE

Notified (Required): _____

Temps AM	Temps PM
1 241°	6 298°
2 285°	7 290°
3 290°	8 269°
4 249	9 292°
5 294°	10 292°

Attachments: _____

Name: ANDREW HAWKHORST

Signature: _____

Certification #: _____

Emp. ID: 2324 Page 1 of 1

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # N/A
DSA Appl. # N/A
OSHPD # N/A
Permit # N/A

DAILY SPECIAL INSPECTION REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 12/21/2016
Project Address: Hunters Point, Gun Mole, South Pier and Triangle SESF Job # 69995-1
Inspection Location: New asphalt paving
Inspection(s) Performed: Coring Hot Mix Asphalt - Compaction
Document(s) Reviewed:

Inspection Report:

Nuclear gage testing and coring of 1/2" GraniteRock Hot Mix Asphalt pavement alongside Smith-Emery inspector Andrew H.

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required) _____

Attachments: _____ Name: Matthew Barnes I.

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: Matthew Barnes I.
Certification # _____
Emp. ID: 2851 Page ___ of ___

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: GEOTECHNICAL - STRUCTS PHASE D-1 Date: 12/22/16
Project Address: CBQE M9831 SESF Job # 69925-1
Inspection Location: TRIANGLE
Inspection(s) Performed: COMPACTION - TESTING
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
01		TRIANGLE	S.G.		145.4	152.5	95	95	☑	☐
02					146.2		96	95	☑	☐
03					144.9		95	95	☑	☐
04					144.8		95	95	☑	☐
05					146.5		96	95	☑	☐
06					145.4		95	95	☑	☐
07					145.3		95	95	☑	☐
08					146.2		96	95	☑	☐
09					144.9		95	95	☑	☐
10					146.6		95	95	☑	☐
11					145.9		95	95	☑	☐
12					144.9		95	95	☑	☐
13		/	/		146.2	/	96	95	☑	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
	1/2" A.C. MIX 15% RAP / GRANITE ROCK			152.5

Work ☒ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material ☒ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material Tested ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A

In Compliance:
ASTM-D1557
Week #7740

Notified (Required): _____

Temps A.M.
1 289°
2 291°
3 298°
4 290°
5 292°

Temps P.M.
6 293°
7 290°
8 289°
9 288°
10 291°

Attachments: None

Name: ANDREW MAVRICHOROS

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # N/A
DSA Appl. # N/A
OSHPD # N/A
Permit # N/A

DAILY SPECIAL INSPECTION REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 12/22/2016
Project Address: Hunters Point, Gun Mole, South Pier and Triangle SESF Job # 69995-1
Inspection Location: New asphalt paving
Inspection(s) Performed: Coring Hot Mix Asphalt - Compaction
Document(s) Reviewed:

Inspection Report:

Nuclear gage testing and coring of 1/2" GraniteRock Hot Mix Asphalt pavement alongside Smith-Emery inspector Andrew H.

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required)

Attachments:

Name: Matthew Barnes I.

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: Matthew Barnes I.
Certification #
Emp. ID: 2851 Page ___ of ___

(b) (4)

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - HMA COMPACTION TEST REPORT

Project Name: GEOTECHNICAL - SERVICES PARCEL D-1 Date: 12/19/16
Project Address: CBDI# 149831 SESF Job # 69995-1
Inspection Location: GUNMOLE PIER. — MIDDLE SECTION
Inspection(s) Performed: COMPACTION - TESTING
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	Density (pcf) Field	Density (pcf) Max	% Rel. Compaction Field	% Rel. Compaction Spec.	Pass	Fail
01		GUNMOLE	S.C.	146.8	152.0	96	95	☒	☐
02		PIER		145.9		96	95	☒	☐
03		MIDDLE SECTION		146.7		96	95	☒	☐
04		12/19/16		147.2		97	95	☒	☐
05				146.3		96	95	☒	☐
06				145.9		96	95	☒	☐
07				146.6		96	95	☒	☐
08				147.2		97	95	☒	☐
09				145.8		96	95	☒	☐
10				145.6		96	95	☒	☐
11				144.9		95	95	☒	☐
12				145.4		96	95	☒	☐
13				146.7		96	95	☒	☐

HMA Type #	HMA Description	Max Density (pcf)
	1/2" A.C. MED: 15% RAP.	152.0

Work ☒ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material ☒ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material Tested ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A

In Compliance:

ASTM - D1559
GAGE # 7740

S.C. SURFACE - COURSE

Notified (Required): _____

Temps A.M.		Temps P.M.	
1	296°	6	289°
2	295°	7	288°
3	289°	8	291°
4	291°	9	284°
5	292°	10	286°

Attachments: _____

Name: ANDREW HAWVICHORST

Signature: [signature]

Certification #: _____

Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - HMA COMPACTION TEST REPORT

Project Name: GEOTECHNICAL-SERVICES PARCEL D-1 Date: 12/20/16
Project Address: CBPI# 149831 SESF Job # 69995-1
Inspection Location: GUNMOLE PIER — WEST-SIDE
Inspection(s) Performed: COMPACTION-TESTING
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	Density (pcf) Field	Density (pcf) Max	% Rel. Compaction Field	% Rel. Compaction Spec.	Pass	Fail
01		GUNMOLE PIER	S.C.	145.4	152.0	95	95	☑	☐
02		WESTERN SECTION.		147.2		97	95	☑	☐
03				146.9		96	95	☑	☐
04				144.8		95	95	☑	☐
05				145.4		95	95	☑	☐
06				147.0		97	95	☑	☐
07				146.7		96	95	☑	☐
08				145.4		95	95	☑	☐
09				146.7		96	95	☑	☐
10				144.9		95	95	☑	☐
11				146.2		96	95	☑	☐
12				145.6		95	95	☑	☐
13				146.2		96	95	☑	☐

HMA Type #	HMA Description	Max Density (pcf)
	1/2" A.C. MED: 15% RAP.	152.0

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

In Compliance:
ASTM-D1559
GAGE # 7740

S.C. SURFACE-COURSE

Notified (Required): _____

Temps A.M.	Temps P.M.
1 297°	6 288°
2 296°	7 289°
3 289°	8 292°
4 291°	09 289°
5 296°	10 291°

Attachments: _____

Name: ANDREW HAUVECHORST

Signature: [signature]
Certification #: _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - HMA COMPACTION TEST REPORT

Project Name: GEOTECHNICAL - SERVICES PIER D-1 Date: 12/21/16
Project Address: _____ CB Pt # 149851 SESF Job # 69995-1
Inspection Location: SOUTH PIER 1 TRIANGLE
Inspection(s) Performed: COMPACTION-TESTING
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	Density (pcf)		% Rel. Compaction		Pass	Fail
				Field	Max	Field	Spec.		
01		SOUTH PIER 1	SC	144.8	152.0	95	95	☒	☐
02		TRIANGLE		145.4		95	95	☒	☐
03				146.3		96	95	☒	☐
04				144.9		95	95	☒	☐
05				145.3		95	95	☒	☐
06				146.7		96	95	☒	☐
07				145.2		95	95	☒	☐
08				144.7		95	95	☒	☐
09				145.4		95	95	☒	☐
10				146.2		96	95	☒	☐
11				145.5		95	95	☒	☐
12				149.6		96	95	☒	☐
13				145.4		95	95	☒	☐

HMA Type #	HMA Description	Max Density (pcf)
	½" MED A.C. 15% RAP	152.0

Work ☒ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material ☒ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material Tested ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A

In Compliance:
ASTM-D1557
GAGE # 7740

SC. SURFACE-COURSE

Notified (Required): _____

Temps AM	Temps PM
1 241°	6 298°
2 285°	7 290°
3 290°	8 269°
4 249	9 292°
5 294°	10 292°

Attachments: _____

Name: ANDREW HAWKHORST

Signature: _____

Certification #: _____

Emp. ID: 2324 Page 1 of 1

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # _____
DSA Appl. # _____
OSHPD # _____
Permit # _____

DAILY - COMPACTION TEST REPORT

Project Name: GEOTECHNICAL - STRUCTS PHASE D-1 Date: 12/22/16
Project Address: CBQE M9831 SESF Job # 69925-1
Inspection Location: TRIANGLE
Inspection(s) Performed: COMPACTION - TESTING
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	% Moist	Density (pcf)		% Rel. Compaction		Pass	Fail
					Dry	Max	Field	Spec.		
01		TRIANGLE	S.G.		145.4	152.5	95	95	☑	☐
02					146.2		96	95	☑	☐
03					144.9		95	95	☑	☐
04					144.8		95	95	☑	☐
05					146.5		96	95	☑	☐
06					145.4		95	95	☑	☐
07					145.3		95	95	☑	☐
08					146.2		96	95	☑	☐
09					144.9		95	95	☑	☐
10					146.6		95	95	☑	☐
11					145.9		95	95	☑	☐
12					144.9		95	95	☑	☐
13		/	/		146.2	/	96	95	☑	☐

Soil Type #	Soil Type / Description	USCS Soil Class	Optimum Moisture (%)	Max Dry Density (pcf)
	1/2" A.C. MIX 15% RAP / GRANITE ROCK			152.5

Work ☒ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material ☒ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A
Material Tested ☒ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☒ JURISDICTION Approved Documents ☐ N/A

In Compliance:
ASTM-D1557
Week #7740

Notified (Required): _____

Temps A.M.
1 289°
2 291°
3 298°
4 290°
5 292°

Temps P.M.
6 293°
7 290°
8 289°
9 288°
10 291°

Attachments: None

Name: ANDREW MAVRICHOROS

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Signature: _____
Certification #: _____
Emp. ID: 2324

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # N/A
DSA Appl. # N/A
OSHPD # N/A
Permit # N/A

DAILY - HMA COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 12/27/2016
Project Address: Hunters Point, San Francisco SESF Job # 69995-1
Inspection Location: South Pier, Gunmole
Inspection(s) Performed: Hot Mix Asphalt - Placement Hot Mix Asphalt - Compaction Coring
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	Density (pcf)		% Rel. Compaction		Pass	Fail
				Field	Max	Field	Spec.		
1	784	South Pier	SC	142.3	148.0	96	95	☑	☐
2	"	South Pier	"	143.4	"	97	"	☑	☐
3	"	South Pier	"	142.7	"	96	"	☑	☐
4	"	South Pier	"	143.6	"	97	"	☑	☐
5	"	South Pier	"	141.5	"	96	"	☑	☐
6	"	South Pier	"	143.2	"	97	"	☑	☐
7	"	South Pier	"	141.7	"	96	"	☑	☐
67B	"	Gunmole	"	141.3	"	95	"	☑	☐
								☐	☐
								☐	☐
								☐	☐
								☐	☐
								☐	☐

HMA Type #	HMA Description	Max Density (pcf)
784	1/2" Med Rap 15 HMAC (GraniteRock South San Francisco)	148.0

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required) _____

Attachments: _____

Name: Matthew Barnes I.

Signature: Matthew Barnes I

Certification # _____

Emp. ID: 2851 Page ___ of ___

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # N/A
DSA Appl. # N/A
OSHPD # N/A
Permit # N/A

DAILY - HMA COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 12/28/2016
Project Address: Hunters Point, San Francisco SESF Job # 69995-1
Inspection Location: South Pier, Gunmole
Inspection(s) Performed: Hot Mix Asphalt - Placement Hot Mix Asphalt - Compaction Coring
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	Density (pcf)		% Rel. Compaction		Pass	Fail
				Field	Max	Field	Spec.		
8	784	South Pier	SC	142.0	148.0	96	95	☑	☐
9	"	South Pier	"	141.5	"	97	"	☑	☐
10	"	South Pier	"	141.9	"	96	"	☑	☐
11	"	South Pier	"	142.3	"	97	"	☑	☐
12 A/B	"	South Pier	"	142.5	"	96	"	☑	☐
13 A/B	"	South Pier	"	141.3	"	97	"	☑	☐
14 A/B	"	South Pier	"	140.4	"	96	"	☑	☐
15 A/B	"	South Pier	"	141.5	"	95	"	☑	☐
16 A/B	"	South Pier	"	142.1	"	96	"	☑	☐
17 A/B	"	South Pier	"	141.0	"	95	"	☑	☐
18 A/B	"	South Pier	"	140.8	"	95	"	☑	☐
19 A/B	"	South Pier	"	140.6	"	95	"	☑	☐
22 A/B	"	South Pier	"	141.3	"	95	"	☑	☐

HMA Type #	HMA Description	Max Density (pcf)
784	1/2" Med Rap 15 HMAC (GraniteRock South San Francisco)	148.0

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required) _____

Attachments: _____

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Name: Matthew Barnes I.
Signature: Matthew Barnes I
Certification # _____
Emp. ID: 2851 Page ___ of ___

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # N/A
DSA Appl. # N/A
OSHPD # N/A
Permit # N/A

DAILY - HMA COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 12/28/2016
Project Address: Hunters Point, San Francisco SESF Job # 69995-1
Inspection Location: South Pier
Inspection(s) Performed: Hot Mix Asphalt - Placement Hot Mix Asphalt - Compaction Coring
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	Density (pcf)		% Rel. Compaction		Pass	Fail
				Field	Max	Field	Spec.		
23 A/B	784	South Pier	SC	140.4	148.0	95	95	☑	☐
24 A/B	"	South Pier	"	141.9	"	96	"	☑	☐
25 A/B	"	South Pier	"	142.1	"	96	"	☑	☐
26 A/B	"	South Pier	"	142.4	"	96	"	☑	☐
27 A/B	"	South Pier	"	141.3	"	96	"	☑	☐
28 A/B	"	South Pier	"	141.8	"	96	"	☑	☐
29 A/B	"	South Pier	"	142.3	"	96	"	☑	☐
30 A/B	"	South Pier	"	141.6	"	96	"	☑	☐
								☐	☐
								☐	☐
								☐	☐
								☐	☐
								☐	☐

HMA Type #	HMA Description	Max Density (pcf)
784	1/2" Med Rap 15 HMAC (GraniteRock South San Francisco)	148.0

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required) _____

Attachments: _____

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Name: Matthew Barnes I.
Signature: Matthew Barnes I
Certification # _____
Emp. ID: 2851 Page ___ of ___

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # N/A
DSA Appl. # N/A
OSHPD # N/A
Permit # N/A

DAILY - HMA COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 12/29/2016
Project Address: Hunters Point, San Francisco SESF Job # 69995-1
Inspection Location: Gunmole
Inspection(s) Performed: Hot Mix Asphalt - Placement Hot Mix Asphalt - Compaction Coring
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	Density (pcf)		% Rel. Compaction		Pass	Fail
				Field	Max	Field	Spec.		
20 A/B	784	Gunmole	SC	140.2	148.0	95	95	☑	☐
21 A/B	"	Gunmole	"	141.3	"	95	"	☑	☐
31 A/B	"	Gunmole	"	141.7	"	96	"	☑	☐
32 A/B	"	Gunmole	"	141.1	"	95	"	☑	☐
33 A/B	"	Gunmole	"	140.9	"	95	"	☑	☐
34 A/B	"	Gunmole	"	141.7	"	96	"	☑	☐
35 A/B	"	Gunmole	"	141.9	"	96	"	☑	☐
36 A/B	"	Gunmole	"	142.3	"	96	"	☑	☐
37 A/B	"	Gunmole	"	140.6	"	95	"	☑	☐
38 A/B	"	Gunmole	"	140.9	"	95	"	☑	☐
39 A/B	"	Gunmole	"	141.6	"	96	"	☑	☐
40 A/B	"	Gunmole	"	141.3	"	95	"	☑	☐
41 A/B	"	Gunmole	"	141.9	"	96	"	☑	☐

HMA Type #	HMA Description	Max Density (pcf)
784	1/2" Med Rap 15 HMAC (GraniteRock South San Francisco)	148.0

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required) _____

Attachments: _____

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Name: Matthew Barnes I.
Signature: Matthew Barnes I
Certification # _____
Emp. ID: 2851 Page ___ of ___

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # N/A
DSA Appl. # N/A
OSHPD # N/A
Permit # N/A

DAILY - HMA COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 12/29/2016
Project Address: Hunters Point, San Francisco SESF Job # 69995-1
Inspection Location: Gunmole
Inspection(s) Performed: Hot Mix Asphalt - Placement Hot Mix Asphalt - Compaction Coring
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	Density (pcf)		% Rel. Compaction		Pass	Fail
				Field	Max	Field	Spec.		
42 A/B	784	Gunmole	SC	142.5	148.0	96	95	☑	☐
43 A/B	"	Gunmole	"	141.3	"	95	"	☑	☐
44 A/B	"	Gunmole	"	143.0	"	97	"	☑	☐
45 A/B	"	Gunmole	"	141.1	"	95	"	☑	☐
46 A/B	"	Gunmole	"	140.5	"	95	"	☑	☐
47 A/B	"	Gunmole	"	140.3	"	95	"	☑	☐
48 A/B	"	Gunmole	"	140.9	"	95	"	☑	☐
49 A/B	"	Gunmole	"	142.3	"	96	"	☑	☐
50 A/B	"	Gunmole	"	141.7	"	96	"	☑	☐
								☐	☐
								☐	☐
								☐	☐
								☐	☐

HMA Type #	HMA Description	Max Density (pcf)
784	1/2" Med Rap 15 HMAC (GraniteRock South San Francisco)	148.0

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required) _____

Attachments: _____

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Name: Matthew Barnes I.
Signature: Matthew Barnes I
Certification # _____
Emp. ID: 2851 Page ___ of ___

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # N/A
DSA Appl. # N/A
OSHPD # N/A
Permit # N/A

DAILY - HMA COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 12/30/2016
Project Address: Hunters Point, San Francisco SESF Job # 69995-1
Inspection Location: Gunmole
Inspection(s) Performed: Hot Mix Asphalt - Placement Hot Mix Asphalt - Compaction Coring
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	Density (pcf)		% Rel. Compaction		Pass	Fail
				Field	Max	Field	Spec.		
51 A/B	784	Gunmole	SC	140.4	148.0	95	95	☑	☐
52 A/B	"	Gunmole	"	142.1	"	96	"	☑	☐
53 A/B	"	Gunmole	"	140.6	"	95	"	☑	☐
54 A/B	"	Gunmole	"	143.2	"	97	"	☑	☐
55 A/B	"	Gunmole	"	142.4	"	96	"	☑	☐
56 A/B	"	Gunmole	"	141.0	"	95	"	☑	☐
57 A/B	"	Gunmole	"	144.1	"	97	"	☑	☐
58 A/B	"	Gunmole	"	141.5	"	96	"	☑	☐
59 A/B	"	Gunmole	"	140.9	"	95	"	☑	☐
60 A/B	"	Gunmole	"	143.6	"	97	"	☑	☐
61 A/B	"	Gunmole	"	141.3	"	96	"	☑	☐
62 A/B	"	Gunmole	"	142.8	"	97	"	☑	☐
63 A/B	"	Gunmole	"	140.6	"	95	"	☑	☐

HMA Type #	HMA Description	Max Density (pcf)
784	1/2" Med Rap 15 HMAC (GraniteRock South San Francisco)	148.0

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required) _____

Attachments: _____

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Name: Matthew Barnes I.
Signature: Matthew Barnes I
Certification # _____
Emp. ID: 2851 Page ___ of ___

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # N/A
DSA Appl. # N/A
OSHPD # N/A
Permit # N/A

DAILY - HMA COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 12/30/2016
Project Address: Hunters Point, San Francisco SESF Job # 69995-1
Inspection Location: Gunmole
Inspection(s) Performed: Hot Mix Asphalt - Placement Hot Mix Asphalt - Compaction Coring
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	Density (pcf)		% Rel. Compaction		Pass	Fail
				Field	Max	Field	Spec.		
64 A/B	784	Gunmole	SC	141.7	148.0	96	95	☑	☐
65 A/B	"	Gunmole	"	142.3	"	96	"	☑	☐
66 A/B	"	Gunmole	"	142.0	"	96	"	☑	☐
67 A/B	"	Gunmole	"	141.8	"	96	"	☑	☐
68 A/B	"	Gunmole	"	141.5	"	96	"	☑	☐
69 A/B	"	Gunmole	"	141.9	"	96	"	☑	☐
70 A/B	"	Gunmole	"	142.5	"	96	"	☑	☐
71 A/B	"	Gunmole	"	141.0	"	95	"	☑	☐
72 A/B	"	Gunmole	"	141.3	"	96	"	☑	☐
73 A/B	"	Gunmole	"	141.1	"	95	"	☑	☐
74 A/B	"	Gunmole	"	141.8	"	96	"	☑	☐
75 A/B	"	Gunmole	"	141.5	"	96	"	☑	☐
								☐	☐

HMA Type #	HMA Description	Max Density (pcf)
784	1/2" Med Rap 15 HMAC (GraniteRock South San Francisco)	148.0

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required) _____

Attachments: _____

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Name: Matthew Barnes I.
Signature: Matthew Barnes I
Certification # _____
Emp. ID: 2851 Page ___ of ___

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # N/A
DSA Appl. # N/A
OSHPD # N/A
Permit # N/A

DAILY - HMA COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 1/4/2017
Project Address: Hunters Point, San Francisco SESF Job # 69995-1
Inspection Location: South Pier
Inspection(s) Performed: Hot Mix Asphalt - Placement Hot Mix Asphalt - Compaction Coring
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	Density (pcf)		% Rel. Compaction		Pass	Fail
				Field	Max	Field	Spec.		
1 A/B	784	South Pier	SC	140.7	148.0	95	95	☑	☐
2 A/B	"	South Pier	"	142.1	"	96	"	☑	☐
3 A/B	"	South Pier	"	140.8	"	95	"	☑	☐
4 A/B	"	South Pier	"	140.1	"	95	"	☑	☐
5 A/B	"	South Pier	"	142.6	"	96	"	☑	☐
6 A/B	"	South Pier	"	145.6	"	98	"	☑	☐
7 A/B	"	South Pier	"	141.0	"	97	"	☑	☐
8 A/B	"	South Pier	"	144.4	"	98	"	☑	☐
								☐	☐
								☐	☐
								☐	☐
								☐	☐
								☐	☐

HMA Type #	HMA Description	Max Density (pcf)
784	1/2" Med Rap 15 HMAC (GraniteRock South San Francisco)	148.0

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required) _____

Attachments: _____

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Name: Matthew Barnes I.
Signature: Matthew Barnes I
Certification # _____
Emp. ID: 2851 Page ___ of ___

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # N/A
DSA Appl. # N/A
OSHPD # N/A
Permit # N/A

DAILY - HMA COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 1/5/2017
Project Address: Hunters Point, San Francisco SESF Job # 69995-1
Inspection Location: Triangle
Inspection(s) Performed: Hot Mix Asphalt - Placement Hot Mix Asphalt - Compaction Coring
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	Density (pcf)		% Rel. Compaction		Pass	Fail
				Field	Max	Field	Spec.		
1	784	Triangle	SC	141.1	148.0	96	95	☑	☐
2	"	Triangle	"	143.3	"	97	"	☑	☐
3	"	Triangle	"	141.7	"	96	"	☑	☐
4	"	Triangle	"	141.5	"	96	"	☑	☐
5	"	Triangle	"	142.2	"	96	"	☑	☐
6	"	Triangle	"	143.9	"	97	"	☑	☐
7	"	Triangle	"	141.7	"	96	"	☑	☐
8	"	Triangle	"	140.3	"	95	"	☑	☐
9	"	Triangle	"	145.7	"	98	"	☑	☐
10	"	Triangle	"	141.1	"	95	"	☑	☐
								☐	☐
								☐	☐
								☐	☐

HMA Type #	HMA Description	Max Density (pcf)
784	1/2" Med Rap 15 HMAC (GraniteRock South San Francisco)	148.0

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

Work Not In Compliance: Notified (Required) _____

Attachments: _____

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Name: Matthew Barnes I.
Signature: Matthew Barnes I
Certification # _____
Emp. ID: 2851 Page ___ of ___

SMITH-EMERY SAN FRANCISCO
1940 Oakdale Ave, San Francisco, CA 94124
(415) 642-7326
LEA #56

DSA File # N/A
DSA Appl. # N/A
OSHPD # N/A
Permit # N/A

DAILY - HMA COMPACTION TEST REPORT

Project Name: Geotechnical Services Parcel D-1, CBI# 149831 Date: 1/6/2017
Project Address: Hunters Point, San Francisco SESF Job # 69995-1
Inspection Location: Triangle
Inspection(s) Performed: Hot Mix Asphalt - Placement Hot Mix Asphalt - Compaction Coring
Document(s) Reviewed:

Test #	Soil Type #	Location	Elev.	Density (pcf)		% Rel. Compaction		Pass	Fail
				Field	Max	Field	Spec.		
1	784	Triangle	SC	141.3	148.0	96	95	☑	☐
2	"	Triangle	"	143.0	"	97	"	☑	☐
3	"	Triangle	"	141.6	"	96	"	☑	☐
4	"	Triangle	"	141.5	"	96	"	☑	☐
5	"	Triangle	"	141.1	"	95	"	☑	☐
6	"	Triangle	"	142.5	"	96	"	☑	☐
7	"	Triangle	"	141.9	"	96	"	☑	☐
8 A/B	"	Triangle	"	140.9	"	95	"	☑	☐
9	"	Triangle	"	143.4	"	97	"	☑	☐
10	"	Triangle	"	141.4	"	95	"	☑	☐
								☐	☐
								☐	☐
								☐	☐

HMA Type #	HMA Description	Max Density (pcf)
784	1/2" Med Rap 15 HMAC (GraniteRock South San Francisco)	148.0

Work ☑ WAS ☐ WAS NOT Inspected in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Work Inspected ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material ☑ WAS ☐ WAS NOT Sampled and Tested in Accordance with the Requirements of ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A
Material Tested ☑ MET ☐ DID NOT MEET The Requirements of the ☐ DSA ☐ OSHPD ☑ JURISDICTION Approved Documents ☐ N/A

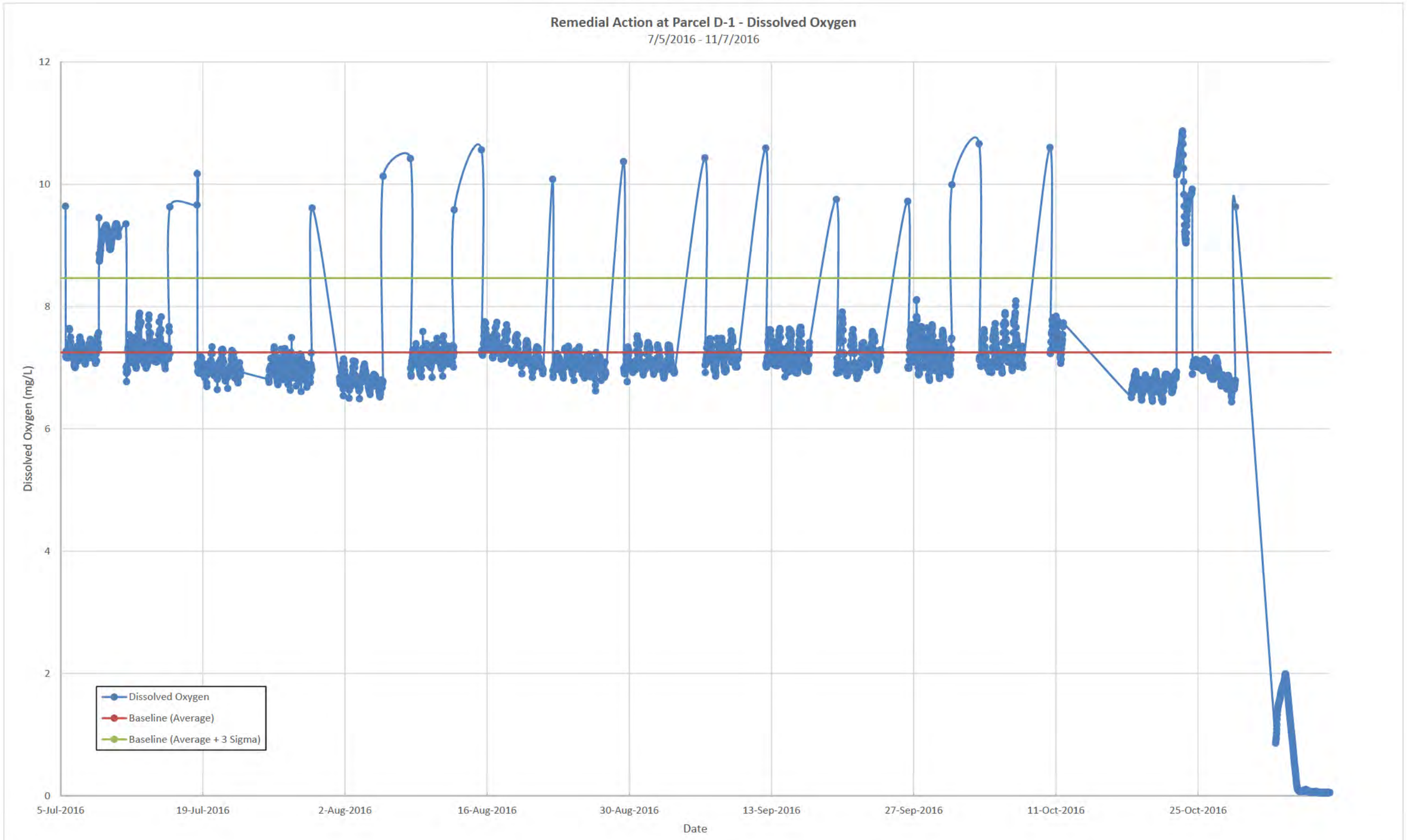
Work Not In Compliance: Notified (Required) _____

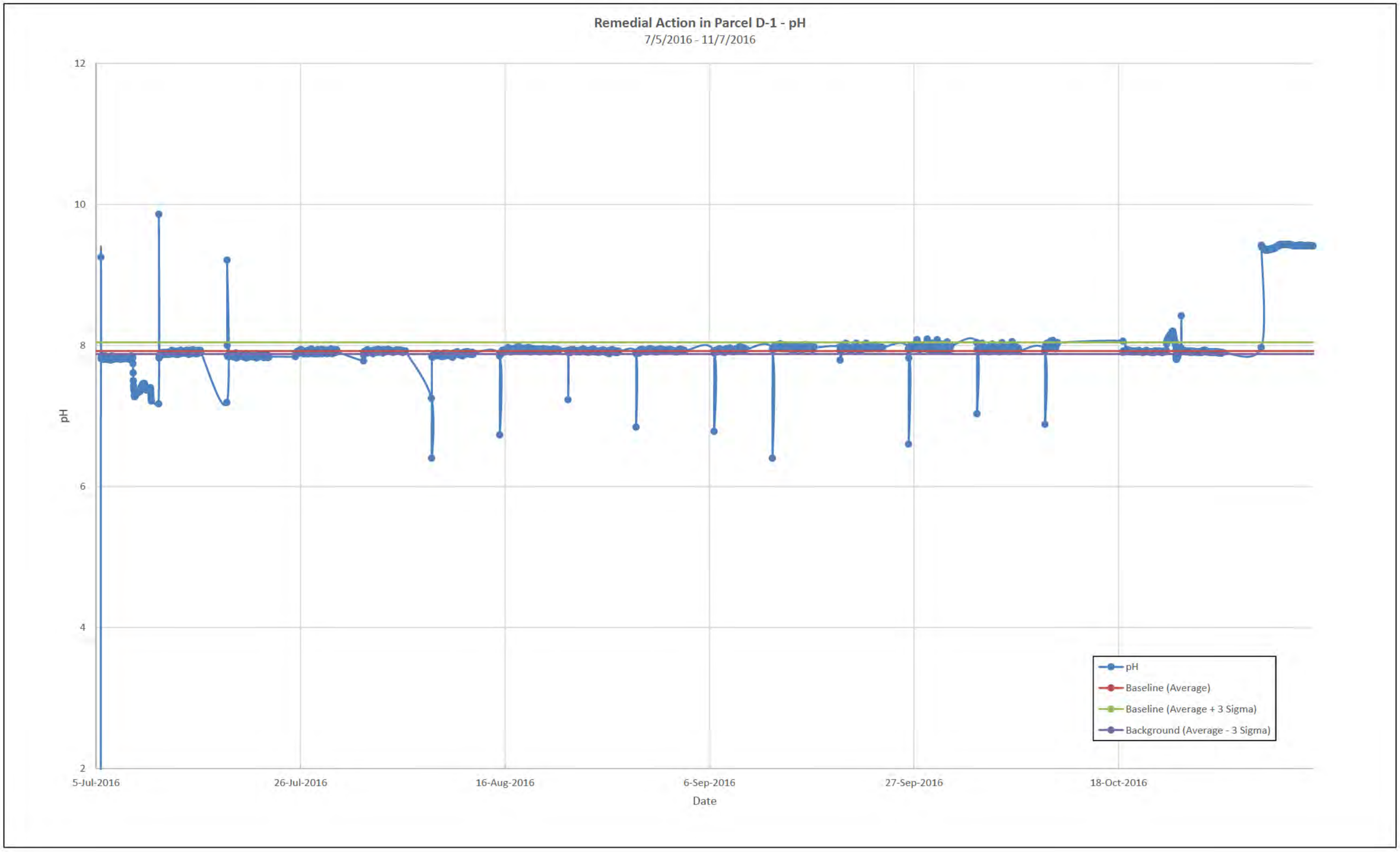
Attachments: _____

CC: DSA Regional Office
Project Architect
Structural Engineer
Project Inspector
School District

Name: Matthew Barnes I.
Signature: Matthew Barnes I
Certification # _____
Emp. ID: 2851 Page ___ of ___

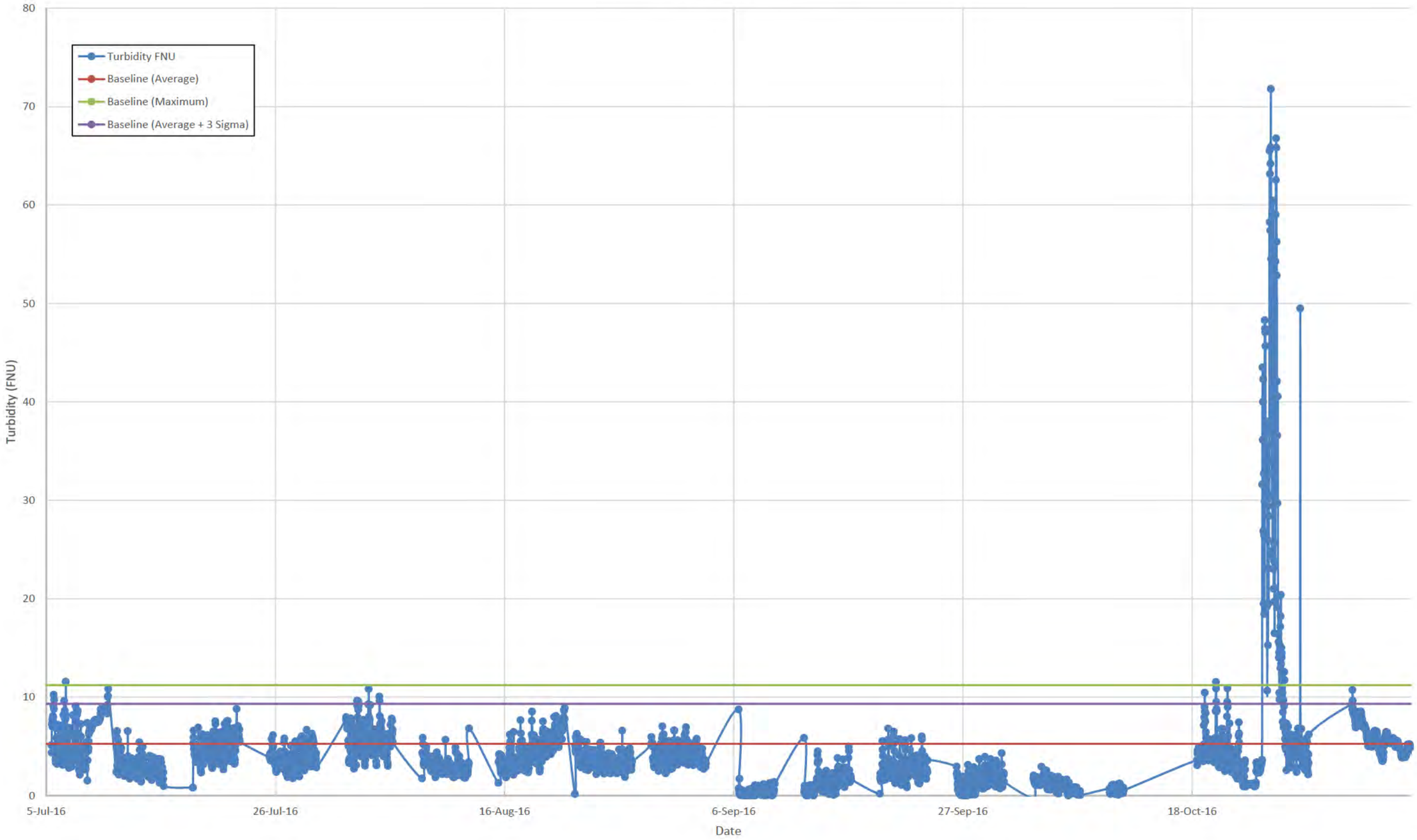
Appendix I
Water Quality Monitoring Results
(provided on electronic copy only)


Remedial Action at Parcel D-1 - Dissolved Oxygen
7/5/2016 - 11/7/2016
Dissolved Oxygen (mg/L)
12
10
8
6
4
2
0
5-Jul-2016
19-Jul-2016
2-Aug-2016
16-Aug-2016
30-Aug-2016
13-Sep-2016
27-Sep-2016
11-Oct-2016
25-Oct-2016
Date
Dissolved Oxygen
Baseline (Average)
Baseline (Average + 3 Sigma)


Remedial Action in Parcel D-1 - pH
7/5/2016 - 11/7/2016
12
10
8
6
4
2
pH
5-Jul-2016
26-Jul-2016
16-Aug-2016
6-Sep-2016
27-Sep-2016
18-Oct-2016
Date
pH
Baseline (Average)
Baseline (Average + 3 Sigma)
Background (Average - 3 Sigma)

Remedial Action in Parcel D-1 - Turbidity

7/5/2016 - 11/7/2016



Appendix J
Waste Data and Waste Manifests
(provided on electronic copy only)

REPUBLIC SERVICES, INC.

NON-HAZARDOUS SPECIAL WASTE & ASBESTOS MANIFEST

If waste is asbestos waste, complete Sections I, II, III and IV
If waste is NOT asbestos waste, complete Sections I, II and III

I. GENERATOR (Generator completes Ia-r)

a. Generator's US EPA ID Number	b. Manifest Document Number	c. Page 1 of
N/A	H-18193 A	1

d. Generator's Name and Location:	e. Generator's Mailing Address:
US Navy - BRAC-PMO-W (Hunters Point) 200 Fisher Ave, Hunters Point Shipyard San Francisco, CA 94124 f. Phone:415-743-4713	US Navy- BRAC-PMO- W (Hunters Point) 1 Ave of the Palms Suite 161 San Francsico, CA 94130 g. Phone:415-743-4713
If owner of the generating facility differs from the generator, provide: h. Owner's Name:	i. Owner's Phone No.:

j. Waste Profile #	k. Exp. Date	l. Waste Shipping Name and Description	m. Containers No.	m. Containers Type	n. Total Quantity	o. Unit Wt/Vol
42121617842	10/13/2017	Weathered Wood	01	DT	040	Y

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.

p. Generator Authorized Agent Name (Print)	q. Signature	r. Date
Mark Vennemeyer for D. Delong	[signature]	11-9-16

II. TRANSPORTER (Generator completes IIa-b and Transporter completes IIc-e)

a. Transporter's Name and Address: Intrinsic Transport
3250 Dutton Ave
Santa Rosa, CA 95407

b. Phone:

c. Driver Name (Print)	d. Signature	e. Date
CHAMKAUR SIDHU	Chamkaur Sidhu	11-9-16

III. DESTINATION (Generator complete IIIa-c and Destination Site completes IIId-g)

a. Disposal Facility and Site Address:	c. US EPA Number	d. Discrepancy Indication Space:
Keller Canyon Landfill 901 Bailey Rd. Pittsburg, CA 94565 b. Phone: 925-458-9800		

I herby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

e. Name of Authorized Agent (Print)	f. Signature	g. Date

IV. ASBESTOS (Generator completes IVa-f and Operator complete IVg-i)

a. Operator's Name and Address:	c. Responsible Agency Name and Address:
b. Phone:	d. Phone:

e. Special Handling Instructions and Additional Information:

f. ☐ Friable ☐ Non-Friable ☐ Both % Friable % Non-Friable

OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.

g. Operator's Name and Title (Print)	h. Signature	i. Date

*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both

H-18193 A

REPUBLIC SERVICES

NON-HAZARDOUS SPECIAL WASTE & ASBESTOS MANIFEST

3210705

If waste is asbestos waste, complete Sections I, II, III and IV
If waste is **NOT** asbestos waste, complete Sections I, II and III

I. GENERATOR (Generator completes Ia-r)

a. Generator's US EPA ID Number	b. Manifest Document Number	c. Page 1 of
NOT REQUIRED	H-18193	1

d. Generator's Name and Location:	e. Generator's Mailing Address:
US Navy-BRAC-PMO-W (Hunters Point) 200 Fisher Ave, Hunters Point Shipyard San Francisco, CA 94124	US Navy-BRAC-PMO-W (Hunters Point) 1 Ave of the Palms Suite 161 San Francisco, CA 94130
f. Phone: (415)743-4713	g. Phone: (415)743-4713
If owner of the generating facility differs from the generator, provide:	
h. Owner's Name:	i. Owner's Phone No.:

j. Waste Profile #	k. Exp. Date	l. Waste Shipping Name and Description	m. Containers No.	m. Containers Type	n. Total Quantity	o. Unit Wt/Vol
4212-161-7842	10/13/2017	Weathered Wood	01	DT	20	Y

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions. I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.

p. Generator Authorized Agent Name (Print)	q. Signature	r. Date
[illegible]	[signature]	11-7-16

II. TRANSPORTER (Generator completes IIa-b and Transporter completes IIc-e)

a. Transporter's Name and Address: Intrinsic Transport
3250 Dutton Ave.
Santa Rosa, CA 95407

b. Phone: (707) 578-0960

c. Driver Name (Print)	d. Signature	e. Date
[illegible]	[signature]	11-7-16

III. DESTINATION (Generator complete IIIa-c and Destination Site completes IIId-g)

a. Disposal Facility and Site Address:	c. US EPA Number	d. Discrepancy Indication Space:
Keller Canyon Landfill 901 Bailey Rd. b. Pittsburg, CA 94565-2309 (925) 458-9800		

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

e. Name of Authorized Agent (Print)	f. Signature	g. Date

IV. ASBESTOS (Generator completes IVa-f and Operator complete IVg-i)

a. Operator's Name and Address:	c. Responsible Agency Name and Address:
b. Phone:	d. Phone:

e. Special Handling Instructions and Additional Information:

f. ☐ Friable ☐ Non-Friable ☐ Both % Friable % Non-Friable

OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

g. Operator's Name and Title (Print)	h. Signature	i. Date

*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both

H-18193

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 281316
ANALYTICAL REPORT

CB&I	Project : 149831
4005 Port Chicago Highway	Location : HPNS Parcel D-1
Concord, CA 94520-1120	Level : III

Sample ID	Lab ID
HPNS-D1-WP-001	281316-001

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: _____ Date: 09/29/2016

Dina Ali
Project Manager
dina.ali@ctberk.com

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**281316**
Client:	**CB&I**
Project:	**149831**
Location:	**HPNS Parcel D-1**
Request Date:	**09/22/16**
Samples Received:	**09/22/16**

This data package contains sample and QC results for one product sample, requested for the above referenced project on 09/22/16. See attached cooler receipt form for any sample receipt problems or discrepancies.

PCBs (EPA 8082A):

All samples underwent sulfuric acid cleanup using EPA Method 3665A.

All samples underwent sulfur cleanup using the copper option in EPA Method 3660B.

HPNS-D1-WP-001 (lab # 281316-001) was diluted due to foaming.

No other analytical problems were encountered.

Chain of Custody

4005 Port Chicago Hwy
Concord, CA 94520

CHAIN OF CUSTODY

281316

Ref. Document # 149831-007

Project Manager: *Lisa Bersich*

(Name & phone #)

Send Report To: *Eddie Kalombo*
Phone/Fax Number: *415-987-0760*
Address: *4005 Port Chicago Hwy*
City: *Concord, CA, 94520*

Project Number: 149831
Project Name: HPNS - Parcel D-1
Project Location: HPNS
Purchase Order #: 202570
Shipment/Pickup Date: 9/22/2016
Waybill Number:
Lab Destination: Curtis & Tompkins, 2323 5th Street, Berkeley, CA 94710
Lab Contact Name / ph. #: Mike Dahlquist 510.204.2225

Sampler's Name(s): Eddie Kalombo

Sample ID	Location ID	Collection Information: Date	Time	Method	Matrix	# of containers	Preservative	Container Type: Beginning Depth	Ending depth	Analyses Requested: PCBs (EPA 8082)									Cooler Temperature
							ice	ice	ice	ice	ice	ice	ice	ice					
							16 oz Jar												
HPNS-D1-WP-001	B369 Generator	9/22	1030	G	WP	1	-	-	X										
Temp Blank																			X

Special Instructions: Report on Dry Weight Basis.

Turnaround Time: ☐ 24-hr ☐ 48-hr
Standard TAT -5-day ☐ 72-hr ☐ 5-day

Level of QC Required: II **III** IV Project Specific:

Relinquished By: Date: 9.22.16 Time: 1230
Received By: Date: 9/22 Time: 1230

Relinquished By: Date: Time:
Received By: Date: Time:

Method Codes
LF= low flow
G = Grab

Matrix Codes
DW = Drinking Water
SO =Soil
GW = Ground Water
BW= Blank Water
WW = Waste Water
WP=Waste Product

COOLER RECEIPT CHECKLIST Curtis & Tompkins, Ltd.

Login # 281316 Date Received 9/22/16 Number of coolers 1
Client CBJI Project HPNS Parcel-D

Date Opened 9/22 By (print) DTN (sign) [signature]
Date Logged in ↓ By (print) EL (sign) [signature]
Date Labeled ↓ By (print) ↓ (sign) ↓

1. Did cooler come with a shipping slip (airbill, etc) _____ YES ~~NO~~
Shipping info _____

2A. Were custody seals present? .... ☐ YES (circle) on cooler on samples ☒ ~~NO~~
How many _____ Name _____ Date _____
2B. Were custody seals intact upon arrival? _____ YES NO N/A
3. Were custody papers dry and intact when received? _____ YES NO
4. Were custody papers filled out properly (ink, signed, etc)? _____ YES NO
5. Is the project identifiable from custody papers? (If so fill out top of form) ___ YES NO
6. Indicate the packing in cooler: (if other, describe) _____

☐ Bubble Wrap ☐ Foam blocks ☐ Bags ☒ None
☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation: * Notify PM if temperature exceeds 6°C

Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C) 1.1

☐ Temperature blank(s) included? ☐ Thermometer# _____ ☒ IR Gun# A

☒ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? _____ YES ~~NO~~
If YES, what time were they transferred to freezer? _____
9. Did all bottles arrive unbroken/unopened? _____ ~~YES~~ NO
10. Are there any missing / extra samples? _____ YES ~~NO~~
11. Are samples in the appropriate containers for indicated tests? _____ ~~YES~~ NO
12. Are sample labels present, in good condition and complete? _____ ~~YES~~ NO
13. Do the sample labels agree with custody papers? _____ ~~YES~~ NO
14. Was sufficient amount of sample sent for tests requested? _____ ~~YES~~ NO
15. Are the samples appropriately preserved? _____ YES NO ~~N/A~~
16. Did you check preservatives for all bottles for each sample? _____ YES NO ~~N/A~~
17. Did you document your preservative check? (pH strip lot# _____) YES NO ~~N/A~~
18. Did you change the hold time in LIMS for unpreserved VOAs? _____ YES NO ~~N/A~~
19. Did you change the hold time in LIMS for preserved terracores? _____ YES NO ~~N/A~~
20. Are bubbles > 6mm absent in VOA samples? _____ YES NO ~~N/A~~
21. Was the client contacted concerning this sample delivery? _____ YES ~~NO~~
If YES, Who was called? _____ By _____ Date: _____

COMMENTS

_____
_____
_____
_____
_____
_____

Curtis & Tompkins, Ltd.

Detections Summary for 281316

Results for any subcontracted analyses are not included in this summary.

Client : CB&I
Project : 149831
Location : HPNS Parcel D-1

Client Sample ID : HPNS-D1-WP-001 Laboratory Sample ID : 281316-001

No Detections

Laboratory Job Number 281316

ANALYTICAL REPORT

PCBs

Matrix: Miscell.

Curtis & Tompkins, Ltd.

Polychlorinated Biphenyls (PCBs)

Lab #:	281316	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3580
Project#:	149831	Analysis:	EPA 8082A
Field ID:	HPNS-D1-WP-001	Sampled:	09/22/16
Units:	ug/Kg	Received:	09/22/16
Basis:	as received	Prepared:	09/23/16
Batch#:	239447	Analyzed:	09/23/16

Type: SAMPLE
Lab ID: 281316-001
Matrix: Miscell.
Diln Fac: 10.00

Analyte	Result	LOQ	DL
Aroclor-1016	3,600 U	5,000	1,800
Aroclor-1221	9,600 U	10,000	4,800
Aroclor-1232	4,800 U	5,000	2,300
Aroclor-1242	4,800 U	5,000	2,100
Aroclor-1248	4,800 U	5,000	2,300
Aroclor-1254	3,600 U	5,000	1,800
Aroclor-1260	3,600 U	5,000	1,200

Surrogate	%REC	Limits
TCMX	DO	44-130
Decachlorobiphenyl	DO	25-135

Type: BLANK
Lab ID: QC852905
Matrix: Oil
Diln Fac: 1.000

Analyte	Result	LOQ	DL
Aroclor-1016	360 U	500	180
Aroclor-1221	960 U	1,000	480
Aroclor-1232	480 U	500	230
Aroclor-1242	480 U	500	210
Aroclor-1248	480 U	500	230
Aroclor-1254	360 U	500	180
Aroclor-1260	360 U	500	120

Surrogate	%REC	Limits
TCMX	86	44-130
Decachlorobiphenyl	98	25-135

U= Not Detected at or above DL
DL= Detection Limit
DO= Diluted Out
LOQ= Limit of Quantitation

Curtis & Tompkins, Ltd.

Batch QC Report

Polychlorinated Biphenyls (PCBs)

Lab #:	281316	Location:	HPNS Parcel D-1
Client:	CB&I	Prep:	EPA 3580
Project#:	149831	Analysis:	EPA 8082A
Matrix:	Oil	Batch#:	239447
Units:	ug/Kg	Prepared:	09/23/16
Diln Fac:	1.000	Analyzed:	09/23/16

Type: BS Lab ID: QC852906

Analyte	Spiked	Result	%REC	Limits
Aroclor-1016	10,000	8,553	86	47-134
Aroclor-1260	10,000	10,430	104	53-140

Surrogate	%REC	Limits
TCMX	92	44-130
Decachlorobiphenyl	99	25-135

Type: BSD Lab ID: QC852907

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Aroclor-1016	10,000	8,249	82	47-134	4	35
Aroclor-1260	10,000	9,723	97	53-140	7	36

Surrogate	%REC	Limits
TCMX	81	44-130
Decachlorobiphenyl	96	25-135

RPD= Relative Percent Difference

Initial & Continuing Calibration Data

CURTIS & TOMPKINS INITIAL CALIBRATION FOR 281316 PCBS Miscell.: EPA 8082A

Inst : GC06
Calnum : 206375008001
Units : pg/uL

Name : 1660_260
Date : 16-SEP-2016 20:40
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	260_020	206375008020	PCB10_2	16-SEP-2016 20:40	S30525
L2	260_021	206375008021	PCB25_5	16-SEP-2016 21:06	S30526
L3	260_022	206375008022	PCB100_20	16-SEP-2016 21:33	S30527
L4	260_023	206375008023	PCB250_50	16-SEP-2016 21:59	S30528
L5	260_024	206375008024	PCB500_100	16-SEP-2016 22:26	S30529
L6	260_025	206375008025	PCB750_150	16-SEP-2016 22:52	S30530
L7	260_026	206375008026	PCB1000_200	16-SEP-2016 23:18	S30531

Analyte	Ch	L1	L2	L3	L4	L5	L6	L7	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	MxRSD	Flg
Aroclor-1016 Peak # 1	A	376.70	311.76	325.98	381.70	324.92	310.62	282.74	AVRG		0.00302		330.63	11	.99	20	
Aroclor-1016 Peak # 2	A	321.70	369.56	383.79	517.57	449.18	391.06	373.59	AVRG		0.00249		400.92	16	.99	20	
Aroclor-1016 Peak # 3	A	163.50	149.28	170.62	240.22	208.58	210.23	191.24	AVRG		0.00525		190.52	17	.99	20	
Aroclor-1016 Peak # 4	A	203.50	152.56	148.57	186.74	152.92	145.49	132.04	AVRG		0.00624		160.26	16	.99	20	
Aroclor-1016 Peak # 5	A	225.00	161.00	167.70	154.93	200.90	188.53	171.49	AVRG		0.00551		181.36	14	.99	20	
Aroclor-1260 Peak # 1	A	644.80	682.44	734.41	802.45	735.31	674.00	600.81	AVRG		0.00144		696.32	10	.99	20	
Aroclor-1260 Peak # 2	A	550.90	540.80	522.95	475.33	512.38	478.86	427.91	AVRG		0.00199		501.31	9	.99	20	
Aroclor-1260 Peak # 3	A	420.60	370.20	391.06	393.69	421.65	395.73	353.91	AVRG		0.00255		392.41	6	.99	20	
Aroclor-1260 Peak # 4	A	913.40	1017.3	873.98	975.76	954.89	883.27	782.73	AVRG		0.00109		914.47	8	.99	20	
Aroclor-1260 Peak # 5	A	322.20	278.52	321.00	278.14	403.16	376.30	339.96	AVRG		0.00302		331.33	14	.99	20	
TCMX	A	8986.0	7709.2	7939.1	8736.9	7647.0	7357.7	6886.1	AVRG		1.27E-4		7894.6	9	.99	20	
Decachlorobiphenyl	A	9996.5	8348.8	7893.6	7936.4	7624.9	6576.2	5788.3	AVRG		1.29E-4		7737.8	17	.99	20	
Aroclor-1016 Peak # 1	B	252.40	225.24	212.86	179.11	207.95	197.29	188.70	AVRG		0.00478		209.08	12	.99	20	
Aroclor-1016 Peak # 2	B	559.10	527.24	480.32	560.55	502.10	484.06	456.36	AVRG		0.00196		509.96	8	.99	20	
Aroclor-1016 Peak # 3	B	273.30	239.84	230.67	280.57	237.43	226.07	213.75	AVRG		0.00411		243.09	10	.99	20	
Aroclor-1016 Peak # 4	B	180.00	172.40	153.56	182.49	153.04	145.55	135.50	AVRG		0.00624		160.36	11	.99	20	
Aroclor-1016 Peak # 5	B	154.90	170.28	161.33	144.61	169.49	160.79	152.72	AVRG		0.00628		159.16	6	.99	20	
Aroclor-1260 Peak # 1	B	430.60	394.88	421.22	458.84	405.22	395.61	338.57	AVRG		0.00246		406.42	9	.99	20	
Aroclor-1260 Peak # 2	B	307.00	321.36	311.63	242.76	302.72	282.29	257.03	AVRG		0.00346		289.26	10	.99	20	
Aroclor-1260 Peak # 3	B	306.40	268.64	266.61	297.15	270.75	253.29	232.97	AVRG		0.00369		270.83	9	.99	20	
Aroclor-1260 Peak # 4	B	676.00	583.84	574.84	682.12	634.86	591.38	537.10	AVRG		0.00164		611.45	9	.99	20	
Aroclor-1260 Peak # 5	B	259.50	248.00	242.33	308.65	287.44	267.73	246.91	AVRG		0.00376		265.79	9	.99	20	
TCMX	B	7652.5	7479.6	7384.6	8962.8	7906.5	7702.0	7241.3	AVRG		1.29E-4		7761.3	7	.99	20	
Decachlorobiphenyl	B	9029.5	7663.8	7123.7	7398.2	6804.3	5830.8	5158.0	AVRG		1.43E-4		7001.2	18	.99	20	

Spiked Amounts / Drifts	Ch	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D	L6	%D	L7	%D
Aroclor-1016 Peak # 1	A	10.000	14	25.000	-6	100.00	-1	250.00	15	500.00	-2	750.00	-6	1000.0	-14
Aroclor-1016 Peak # 2	A	10.000	-20	25.000	-8	100.00	-4	250.00	**29**	500.00	12	750.00	-2	1000.0	-7
Aroclor-1016 Peak # 3	A	10.000	-14	25.000	**-22**	100.00	-10	250.00	**26**	500.00	9	750.00	10	1000.0	0
Aroclor-1016 Peak # 4	A	10.000	**27**	25.000	-5	100.00	-7	250.00	17	500.00	-5	750.00	-9	1000.0	-18
Aroclor-1016 Peak # 5	A	10.000	**24**	25.000	-11	100.00	-8	250.00	-15	500.00	11	750.00	4	1000.0	-5
Aroclor-1260 Peak # 1	A	10.000	-7	25.000	-2	100.00	5	250.00	15	500.00	6	750.00	-3	1000.0	-14
Aroclor-1260 Peak # 2	A	10.000	10	25.000	8	100.00	4	250.00	-5	500.00	2	750.00	-4	1000.0	-15
Aroclor-1260 Peak # 3	A	10.000	7	25.000	-6	100.00	0	250.00	0	500.00	7	750.00	1	1000.0	-10
Aroclor-1260 Peak # 4	A	10.000	0	25.000	11	100.00	-4	250.00	7	500.00	4	750.00	-3	1000.0	-14
Aroclor-1260 Peak # 5	A	10.000	-3	25.000	-16	100.00	-3	250.00	-16	500.00	**22**	750.00	14	1000.0	3
TCMX	A	2.0000	14	5.0000	-2	20.000	1	50.000	11	100.00	-3	150.00	-7	200.00	-13
Decachlorobiphenyl	A	2.0000	**29**	5.0000	8	20.000	2	50.000	3	100.00	-1	150.00	-15	200.00	**-25**
Aroclor-1016 Peak # 1	B	10.000	**21**	25.000	8	100.00	2	250.00	-14	500.00	-1	750.00	-6	1000.0	-10
Aroclor-1016 Peak # 2	B	10.000	10	25.000	3	100.00	-6	250.00	10	500.00	-2	750.00	-5	1000.0	-11
Aroclor-1016 Peak # 3	B	10.000	12	25.000	-1	100.00	-5	250.00	15	500.00	-2	750.00	-7	1000.0	-12
Aroclor-1016 Peak # 4	B	10.000	12	25.000	8	100.00	-4	250.00	14	500.00	-5	750.00	-9	1000.0	-16
Aroclor-1016 Peak # 5	B	10.000	-3	25.000	7	100.00	1	250.00	-9	500.00	6	750.00	1	1000.0	-4
Aroclor-1260 Peak # 1	B	10.000	6	25.000	-3	100.00	4	250.00	13	500.00	0	750.00	-3	1000.0	-17
Aroclor-1260 Peak # 2	B	10.000	6	25.000	11	100.00	8	250.00	-16	500.00	5	750.00	-2	1000.0	-11
Aroclor-1260 Peak # 3	B	10.000	13	25.000	-1	100.00	-2	250.00	10	500.00	0	750.00	-6	1000.0	-14
Aroclor-1260 Peak # 4	B	10.000	11	25.000	-5	100.00	-6	250.00	12	500.00	4	750.00	-3	1000.0	-12
Aroclor-1260 Peak # 5	B	10.000	-2	25.000	-7	100.00	-9	250.00	16	500.00	8	750.00	1	1000.0	-7
TCMX	B	2.0000	-1	5.0000	-4	20.000	-5	50.000	15	100.00	2	150.00	-1	200.00	-7
Decachlorobiphenyl	B	2.0000	**29**	5.0000	9	20.000	2	50.000	6	100.00	-3	150.00	-17	200.00	**-26**

KMH 09/17/16 : Corrected automatically drawn baseline in all levels.

KMH: 09/17/16 * JS1: 09/19/16 EAH: 09/19/16

Instrument amount = a0 + response * a1 + response^2 * a2; AVRG=Average response factor

206375008001

CURTIS & TOMPKINS 2ND SOURCE CALIBRATION SUMMARY FOR 281316 PCBS Miscell.
EPA 8082A

Inst : GC06 Name : 1660_260
Calnum : 206375008001 Cal Date : 16-SEP-2016

ICV 206375008028 (260_028 17-SEP-2016) stds: S30644

Analyte	Ch	Spiked	Quant	Units	%D	Max	Flags
Aroclor-1016	A	250.0	265.1	pg/uL	6	20	
Aroclor-1260	A	250.0	279.3	pg/uL	12	20	
Aroclor-1016	B	250.0	247.7	pg/uL	-1	20	
Aroclor-1260	B	250.0	263.2	pg/uL	5	20	

KMH: 09/17/16 * JCD: 09/19/16 EAH: 09/19/16

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 281316 PCBS Miscell.
EPA 8082A

Inst : GC06 Run Name : PCB500_100 IDF : 1.0
Seqnum : 206383573067.1 File : 266_067 Time : 23-SEP-2016 19:43
Cal : 206375008001 Caldate : 16-SEP-2016
Standards: S30881

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Aroclor-1016	A			500.0	457.8	pg/uL	-8	20	
Aroclor-1260	A			500.0	512.4	pg/uL	2	20	
TCMX	A	7894.6	6905.8	100.0	87.48	pg/uL	-13	20	
Decachlorobiphenyl	A	7737.8	7440.9	100.0	96.16	pg/uL	-4	20	
Aroclor-1016	B			500.0	439.1	pg/uL	-12	20	
Aroclor-1260	B			500.0	495.2	pg/uL	-1	20	
TCMX	B	7761.3	7118.3	100.0	91.71	pg/uL	-8	20	
Decachlorobiphenyl	B	7001.2	6669.0	100.0	95.26	pg/uL	-5	20	

KMH 09/25/16 : Corrected automatically drawn baseline. [general version]

Analyst: JS1 Date: 09/26/16 Reviewer: EAH Date: 09/29/16

CURTIS & TOMPKINS CONTINUING CALIBRATION FOR 281316 PCBS Miscell.
EPA 8082A

Inst : GC06 Run Name : PCB500_100 IDF : 1.0
Seqnum : 206383573077.1 File : 266_077 Time : 24-SEP-2016 00:07
Cal : 206375008001 Caldate : 16-SEP-2016
Standards: S30881

Analyte	Ch	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Aroclor-1016	A			500.0	461.7	pg/uL	-8	20	
Aroclor-1260	A			500.0	477.2	pg/uL	-5	20	
TCMX	A	7894.6	7420.9	100.0	94.00	pg/uL	-6	20	
Decachlorobiphenyl	A	7737.8	6294.1	100.0	81.34	pg/uL	-19	20	
Aroclor-1016	B			500.0	456.9	pg/uL	-9	20	
Aroclor-1260	B			500.0	467.0	pg/uL	-7	20	
TCMX	B	7761.3	7601.9	100.0	97.95	pg/uL	-2	20	
Decachlorobiphenyl	B	7001.2	5774.3	100.0	82.48	pg/uL	-18	20	

KMH 09/25/16 : Corrected automatically drawn baseline. [general version]

Analyst: JS1 Date: 09/26/16 Reviewer: EAH Date: 09/29/16

Logbooks & Sequences

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 206375008

Instrument : GC06 Begun : 09/16/16 10:08
Method : EPA 8082A SOP Version : pcb_rv11

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	260_001	X	HEX			09/16/16 10:08	1.0		
002	260_002	CCV	PCB250_50			09/16/16 10:35	1.0	1	
003	260_003	X	HEX			09/16/16 11:23	1.0		
004	260_004	X	HEX			09/16/16 11:49	1.0		
005	260_005	X	HEX			09/16/16 12:15	1.0		
006	260_006	IB	CALIB			09/16/16 12:42	1.0		
007	260_007	ICAL	PCB10_2			09/16/16 13:08	1.0	2	
008	260_008	ICAL	PCB25_5			09/16/16 13:35	1.0	3	
009	260_009	ICAL	PCB100_20			09/16/16 14:01	1.0	4	
010	260_010	ICAL	PCB250_50			09/16/16 14:27	1.0	1	
011	260_011	ICAL	PCB500_100			09/16/16 14:54	1.0	5	
012	260_012	ICAL	PCB750_150			09/16/16 15:20	1.0	6	
013	260_013	ICAL	PCB1000_200			09/16/16 15:47	1.0	7	
014	260_014	X	HEX			09/16/16 16:13	1.0		
015	260_015	ICV	PCB250_50			09/16/16 16:39	1.0	8	
016	260_016	X	HEX			09/16/16 18:54	1.0		
017	260_017	X	HEX			09/16/16 19:21	1.0		
018	260_018	X	HEX			09/16/16 19:47	1.0		
019	260_019	IB	CALIB			09/16/16 20:14	1.0		
020	260_020	ICAL	PCB10_2			09/16/16 20:40	1.0	2	
021	260_021	ICAL	PCB25_5			09/16/16 21:06	1.0	3	
022	260_022	ICAL	PCB100_20			09/16/16 21:33	1.0	4	
023	260_023	ICAL	PCB250_50			09/16/16 21:59	1.0	1	
024	260_024	ICAL	PCB500_100			09/16/16 22:26	1.0	5	
025	260_025	ICAL	PCB750_150			09/16/16 22:52	1.0	6	
026	260_026	ICAL	PCB1000_200			09/16/16 23:18	1.0	7	
027	260_027	X	HEX			09/16/16 23:45	1.0		
028	260_028	ICV	PCB250_50			09/17/16 00:11	1.0	8	
029	260_029	X	HEX			09/17/16 00:38	1.0		
030	260_030	X	PCB250_50			09/17/16 01:04	1.0	8	

KMH 09/17/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 30.

Standards used: 1=S30528 2=S30525 3=S30526 4=S30527 5=S30529 6=S30530 7=S30531 8=S30644

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 206383573

Instrument : GC06
Method : EPA 8082A

Begun : 09/22/16 08:53
SOP Version : pcb_rv11

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	266_001	X	HEX			09/22/16 08:53	1.0		
002	266_002	XCCV	PCB250_50			09/22/16 09:19	1.0	1	
003	266_003	CCV	PCB500_100			09/22/16 09:46	1.0	2	
004	266_004	CCV	AR2154_500			09/22/16 10:12	1.0	3	
005	266_005	SAMPLE	281238-001	Water	239364	09/22/16 10:55	1.0		
006	266_006	BLANK	QC852568	Water	239364	09/22/16 11:21	1.0		
007	266_007	BS	QC852569	Water	239364	09/22/16 11:48	1.0		
008	266_008	BSD	QC852570	Water	239364	09/22/16 12:14	1.0		
009	266_009	CCV	PCB500_100			09/22/16 12:40	1.0	2	
010	266_010	CHECK	PCBSURR			09/22/16 16:49	1.0	4	
011	266_011	X	PRIMER			09/22/16 17:15	1.0		
012	266_012	X	PRIMER			09/22/16 17:42	1.0		
013	266_013	X	HEX			09/22/16 18:08	1.0		
014	266_014	CCV	PCB500_100			09/22/16 18:34	1.0	2	
015	266_015	ICAL	AR2154_500			09/22/16 19:01	1.0	3	
016	266_016	ICAL	AR1248_250			09/22/16 19:27	1.0	5	
017	266_017	CCV	PCB500_100			09/22/16 19:54	1.0	2	
018	266_018	BLANK	QC851331	Soil	239047	09/22/16 20:20	1.0		
019	266_019	BS	QC851332	Soil	239047	09/22/16 20:46	1.0		
020	266_020	BSD	QC851333	Soil	239047	09/22/16 21:13	1.0		
021	266_021	SAMPLE	280781-001	Soil	239047	09/22/16 21:39	10.0		sh , diluted (client history), 3:PCB1260#1=1300
022	266_022	SAMPLE	280781-002	Soil	239047	09/22/16 22:06	10.0		sh , diluted (client history)
023	266_023	SAMPLE	280781-003	Soil	239047	09/22/16 22:32	10.0		sh , diluted (client history)
024	266_024	SAMPLE	280781-004	Soil	239047	09/22/16 22:58	10.0		sh , diluted (client history)
025	266_025	SAMPLE	280781-005	Soil	239047	09/22/16 23:25	10.0		sh , diluted (client history)
026	266_026	SAMPLE	280781-006	Soil	239047	09/22/16 23:51	10.0		sh , diluted (client history)
027	266_027	SAMPLE	280781-007	Soil	239047	09/23/16 00:18	10.0		sh , diluted (client history)
028	266_028	CCV	PCB500_100			09/23/16 00:44	1.0	2	
029	266_029	CCV	AR2154_500			09/23/16 01:10	1.0	3	
030	266_030	CCV	AR1248_250			09/23/16 01:37	1.0	5	
031	266_031	XCCV	PCB500_100			09/23/16 02:03	1.0	2	
032	266_032	SAMPLE	280781-008	Soil	239047	09/23/16 02:29	10.0		sh , diluted (client history)
033	266_033	SAMPLE	280781-009	Soil	239047	09/23/16 02:56	10.0		sh , diluted (client history)
034	266_034	SAMPLE	280781-010	Soil	239047	09/23/16 03:22	10.0		sh , diluted (client history)
035	266_035	SAMPLE	280781-011	Soil	239047	09/23/16 03:49	10.0		sh , diluted (client history)
036	266_036	SAMPLE	280781-012	Soil	239047	09/23/16 04:15	10.0		sh , diluted (client history)
037	266_037	SAMPLE	280781-013	Soil	239047	09/23/16 04:41	10.0		sh , diluted (client history)
038	266_038	SAMPLE	280781-014	Soil	239047	09/23/16 05:08	10.0		sh , diluted (client history)
039	266_039	XCCV	PCB500_100			09/23/16 05:34	1.0	2	
040	266_040	CCV	AR2154_500			09/23/16 06:00	1.0	3	
041	266_041	CCV	AR1248_250			09/23/16 06:27	1.0	5	
042	266_042	CCV	PCB500_100			09/23/16 06:53	1.0	2	
043	266_043	SAMPLE	280781-015	Soil	239047	09/23/16 07:20	10.0		sh , diluted (client history)
044	266_044	SAMPLE	280781-016	Soil	239047	09/23/16 07:46	10.0		sh , diluted (client history)
045	266_045	SAMPLE	280781-017	Soil	239047	09/23/16 08:12	10.0		sh , diluted (client history)
046	266_046	SAMPLE	280781-018	Soil	239047	09/23/16 08:39	10.0		sh , diluted (client history)
047	266_047	SAMPLE	280781-019	Soil	239047	09/23/16 09:05	10.0		sh , diluted (client history)
048	266_048	SAMPLE	280781-020	Soil	239047	09/23/16 09:32	10.0		sh , diluted (client history)
049	266_049	SAMPLE	280781-021	Soil	239090	09/23/16 09:58	10.0		sh , diluted (client history)
050	266_050	CCV	PCB500_100			09/23/16 10:24	1.0	2	
051	266_051	ICAL	AR2154_500			09/23/16 10:51	1.0	3	
052	266_052	CCV	AR1248_250			09/23/16 11:17	1.0	5	

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 206383573

Instrument : GC06 Begun : 09/22/16 08:53
Method : EPA 8082A SOP Version : pcb_rv11

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	266_053	CCV	PCB500_100			09/23/16 11:43	1.0	2	
054	266_054	SAMPLE	281095-013	Soil	239308	09/23/16 12:10	10.0		2:PCB1221#5=3400
055	266_055	SAMPLE	281095-016	Soil	239308	09/23/16 12:36	1.0		
056	266_056	SAMPLE	281095-018	Soil	239308	09/23/16 13:03	1.0		2:PCB1221#4=1200
057	266_057	SAMPLE	281095-019	Soil	239308	09/23/16 13:29	1.0		
058	266_058	SAMPLE	281095-020	Soil	239308	09/23/16 13:55	1.0		
059	266_059	CCV	AR2154_500			09/23/16 14:22	1.0	3	
060	266_060	CCV	PCB500_100			09/23/16 14:48	1.0	2	
061	266_061	X	AR2154_500			09/23/16 15:17	1.0	3	
062	266_062	SAMPLE	280781-016	Soil	239047	09/23/16 17:31	10.0		sh , diluted (client history)
063	266_063	SAMPLE	280781-019	Soil	239047	09/23/16 17:57	10.0		sh , diluted (client history)
064	266_064	CCV	AR2154_500			09/23/16 18:24	1.0	3	
065	266_065	CCV	AR2154_500			09/23/16 18:50	1.0	3	
066	266_066	X	HEX			09/23/16 19:16	1.0		
067	266_067	CCV	PCB500_100			09/23/16 19:43	1.0	2	
068	266_068	CCV	AR2154_500			09/23/16 20:09	1.0	6	
069	266_069	CCV	AR1248_250			09/23/16 20:35	1.0	5	
070	266_070	X	PCB500_100			09/23/16 21:02	1.0	2	
071	266_071	BLANK	QC852905	Oil	239447	09/23/16 21:28	1.0		
072	266_072	BS	QC852906	Oil	239447	09/23/16 21:55	1.0		
073	266_073	BSD	QC852907	Oil	239447	09/23/16 22:21	1.0		
074	266_074	SAMPLE	281312-001	Oil	239447	09/23/16 22:47	10.0		foamer
075	266_075	SAMPLE	281316-001	Miscell.	239447	09/23/16 23:14	10.0		foamer
076	266_076	SAMPLE	281340-001	Miscell.	239447	09/23/16 23:40	10.0		foamer
077	266_077	CCV	PCB500_100			09/24/16 00:07	1.0	2	
078	266_078	CCV	AR2154_500			09/24/16 00:33	1.0	6	
079	266_079	CCV	AR1248_250			09/24/16 00:59	1.0	5	
080	266_080	CCV	PCB500_100			09/24/16 01:26	1.0	2	

JS1 09/26/16 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 80.

Standards used: 1=S30528 2=S30881 3=S30792 4=S30964 5=S30578 6=S29814

Flags used: sh=out of sample hold

SAMPLE PREPARATION SUMMARY

Batch # : 239447 Analysis : PCB
Started By : ARW Prep Date : 23-SEP-2016 14:50 Finished By : ARW
Method : 3580 SOP Version : PCB_WASTE_rv6 Units : g
Spike #1 ID : S30591 Spike #2 ID : S30701

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
281312-001		Oil	.5011	25	1	49.89		1				PCB	
281316-001		Miscell.	.5004	25	1	49.96		1				PCB	
281340-001		Miscell.	.4986	25	1	50.14		1				PCB	
QC852905	BLANK	Oil	.5	25	1	50.0		1				PCB	
QC852906	BS	Oil	.5	25	1	50.0		1	1			PCB	
QC852907	BSD	Oil	.5	25	1	50.0		1	1			PCB	

JS1 09/26/16 : Matrix spikes were not performed for this analysis in batch 239447 due to insufficient sample amount.

Analyst: JS1 Date: 09/26/16 Reviewer: EAH Date: 09/26/16

PCB (8082) Soil Prep Log

Curtis & Tompkins, Ltd.

LIMS Batch No: 139447 ☐ EPA 3550b Sonication

LIMS Analysis PUBILL ☑ Other 3580

Date Extracted: 9/23/2016

Page 54

BK 3907

Sample #	Container ID	Sample Wt (g)	Final Vol (mL)	Comments
281312-001	A	0.5011	☑25.0 ☐	
281316-001	A	0.5004	☑25.0 ☐	
281340-001	✓	0.4986	☑25.0 ☐	
MB QC852905	MA	0.500	☑25.0 ☐	
LCS 6	1	0.500	☑25.0 ☐	
LCSD 7	✓	0.1000	☑25.0 ☐	
			☐ 25.0 ☐	
			☐ 25.0 ☐	
			☐ 25.0 ☐	
			☐ 25.0 ☐	
			☐ 25.0 ☐	
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			☐ 25.0 ☐	
			☐ 25.0 ☐	MC1 9-23-16

☑ MS/MSD not included due to: ☑ insufficent volume, or ☐ other (reason)

☑ Balance ID: 1171 Has been calibrated? ☑ Yes ☐ No

	Mfg & Lot # / LIMS # / Time	Initials / Date
Solvent-rinsed granular Na_2SO_4 weighed out for QC samples	NA	9/23/16
dried with CH_2Cl_2-rinsed ☐ granular Na_2SO_4 ☐ powder		
1.0 mL of surrogate solution was added to all samples	S30591D	
1.0 mL of matrix spiking solution was added to all spikes	S30701E	
1:1 CH_2Cl_2 (lot# FS160877):Acetone(lot#_____) was added to all 20.0mL hexane	✓	
Solvent added at (time)	1450	
☐ sonicated 3 times w/ ≥100mL ☐ soxhlet extractors on at:	NA	
Soxhlets off at:		
Extracts filtered through baked, CH_2Cl_2-rinsed powdered Na_2SO_4		
Solvent exchanged with Hexane, Lot#		
Concentrated to final volume in boiling H2O bath		
EPA 3665A Clean-up: vortexed w/ H_2SO_4 Lot#	FJ170524	
Centrifuged for 1 min; 5mL transferred to labelled vial	✓	
Relinquished to PCB group	✓	✓

Continued from page ____

Continued on page ____

Extraction Chemist / Date

9-23-16

Reviewed by / Date

REPORTING SUMMARY FOR 281316 PCBS Miscell.

Sample ID	Analyte	Inst ID	Ch	Date & Time
281316-001	Aroclor-1016	GC06	A	09/23/16 23:14
281316-001	Aroclor-1221	GC06	A	09/23/16 23:14
281316-001	Aroclor-1232	GC06	A	09/23/16 23:14
281316-001	Aroclor-1242	GC06	A	09/23/16 23:14
281316-001	Aroclor-1248	GC06	A	09/23/16 23:14
281316-001	Aroclor-1254	GC06	A	09/23/16 23:14
281316-001	Aroclor-1260	GC06	A	09/23/16 23:14
281316-001	TCMX	GC06	A	09/23/16 23:14
281316-001	Decachlorobiphenyl	GC06	A	09/23/16 23:14
QC852905	Aroclor-1016	GC06	A	09/23/16 21:28
QC852905	Aroclor-1221	GC06	A	09/23/16 21:28
QC852905	Aroclor-1232	GC06	A	09/23/16 21:28
QC852905	Aroclor-1242	GC06	A	09/23/16 21:28
QC852905	Aroclor-1248	GC06	A	09/23/16 21:28
QC852905	Aroclor-1254	GC06	A	09/23/16 21:28
QC852905	Aroclor-1260	GC06	A	09/23/16 21:28
QC852905	TCMX	GC06	A	09/23/16 21:28
QC852905	Decachlorobiphenyl	GC06	A	09/23/16 21:28
QC852906	Aroclor-1016	GC06	A	09/23/16 21:55
QC852906	Aroclor-1260	GC06	A	09/23/16 21:55
QC852906	TCMX	GC06	A	09/23/16 21:55
QC852906	Decachlorobiphenyl	GC06	A	09/23/16 21:55
QC852907	Aroclor-1016	GC06	A	09/23/16 22:21
QC852907	Aroclor-1260	GC06	A	09/23/16 22:21
QC852907	TCMX	GC06	A	09/23/16 22:21
QC852907	Decachlorobiphenyl	GC06	A	09/23/16 22:21

Dilutions for 281316 PCBS Miscell.
Curtis & Tompkins Laboratories

Type	Sample ID	IDFs
SAMPLE	281316-001	10X

Case Narrative Addendum: Manual Integrations for 281316 PCBS (Miscell.)

For CCV PCB500_100 (GC06 266_067):
Corrected automatically drawn baseline.

For CCV PCB500_100 (GC06 266_077):
Corrected automatically drawn baseline.

For BSD QC852907 (GC06 266_073):
Corrected automatically drawn baseline.

For Calibration GC06 (206375008001):
Corrected automatically drawn baseline in all levels.

For ICV PCB250_50 (GC06 260_028):
Corrected automatically drawn baseline.

CAS Registry Numbers for 281316 PCBS Miscell.
Curtis & Tompkins Laboratories

Analyte	CAS RN
Aroclor-1016	12674-11-2
Aroclor-1221	11104-28-2
Aroclor-1232	11141-16-5
Aroclor-1242	53469-21-9
Aroclor-1248	12672-29-6
Aroclor-1254	11097-69-1
Aroclor-1260	11096-82-5
Decachlorobiphenyl	2051-24-3
TCMX	877-09-8

Appendix K
Pre-Final and Final Inspection Checklists
(provided on electronic copy only)

Pre-FINAL INSPECTION

(This list may be addendum.)

CONTRACT # & TITLE: N62473-12-D-2005; CTO-003; Remedial Action in Parcel D-1

CONTRACTOR: CB&I Federal Services.

DATE OF INSPECTION: January 17, 2017

INSPECTION PARTY

NAME	TITLE	REPRESENTING
Christopher Hanif	QC Manager	CB&I
Doug Delong	CSO	Navy
G. Tom Ivey	CSO	Navy

1. The contractor hereby acknowledges the construction deficiencies listed below; conditions of workmanship and/or materials that do not comply with the contract requirements, and agrees to correct such deficiencies to meet contract requirements, at no additional cost to the Government, on or before close of project . This is not to be construed as a waiver of the warranty provisions of the contract.
2. Correction of the deficiencies listed below:

a. Construction Deficiencies:

#	Description	Location	Trade	Date completed \ Initials
1	Several vault openings in B306 are not covered & sealed	B306 Parcel D-1	Environmental	01.24.2017\CH
2	The exposed soil in a seam in B274 south side, requires additional mortar to cover/seal seam	B274 Parcel D-1	Environmental	01.24.2017\CH
3	Cracks in B369 require additional mortar(mortar not adhering to the surface)	Building 369 Parcel D-1	Environmental	01.24.2017\CH
4	The exposed soil in a seam in B369 east side entrance, requires additional mortar to cover/seal seam	Building 369 Parcel D-1	Environmental	01.24.2017\CH

b. Design Deficiencies: N/A

c. General Comments:

FINAL INSPECTION REPORT

CONTRACT # & TITLE: N62473-12-D-2005; CTO-003; Remedial Action in Parcel D-1

CONTRACTOR: CB&I Federal Services.

DATE OF INSPECTION: February 14, 2017 Address: Hunters Point Shipyard, San Francisco, CA

INSPECTION PARTY

NAME	TITLE	REPRESENTING
Christopher Hanif	PQCM	CB&I
Doug DeLong	CSO	Navy
G. Tom Ivey	CSO	Navy
Sean Orman	Construction Manager	CB&I

1. THE CONTRACTOR HEREBY ACKNOWLEDGES THE CONSTRUCTION DEFICIENCIES LISTED BELOW; CONDITIONS OF WORKMANSHIP AND/OR MATERIALS THAT DO NOT COMPLY WITH THE CONTRACT REQUIREMENTS, AND AGREES TO CORRECT SUCH DEFICIENCIES TO MEET CONTRACT REQUIREMENTS, AT NO ADDITIONAL COST TO THE GOVERNMENT, ON OR BEFORE CLOSE OF PROJECT . THIS IS NOT TO BE CONSTRUED AS A WAIVER OF THE WARRANTY PROVISIONS OF THE CONTRACT.

2. FINAL ACCEPTANCE IS APPROVED SUBJECT TO CORRECTION OF THE DEFICIENCIES LISTED BELOW:

a. CONSTRUCTION DEFICIENCIES: (Deficiencies from the pre-final inspection punch list have been addressed.)

b. DESIGN DEFICIENCIES: None

c. GENERAL COMMENTS: None

Signed: 02.15.2017
CONTRACTOR REPRESENTATIVE

N/A
ROICC REPRESENTATIVE

CSO REPRESENTATIVE

N/A
ROICC PROJECT ENGINEER

Appendix L
Fact Sheet
(DCN: APTIM-2005-0003-0051 | Date: May 2018)

Hunters Point Naval Shipyard

Completion of Phase I Remedial Action At Parcel D-1

Fact Sheet

May 2018

The purpose of this fact sheet is to update the community on the completed cleanup activities at Parcel D-1 at Hunters Point Naval Shipyard (HPNS) in San Francisco, California. The installation of the durable cover at Parcel D-1 has been divided into Phase I (discussed below) and Phase II which will be completed in the fall 2018 with a fact sheet to follow. Parcel D-1 is located in the southeastern portion of HPNS and is bounded by the San Francisco Bay on the eastern side. Parcel D-1 is 48.7 acres of which Phase I includes 22 acres. Parcel D-1 was used as an industrial support area which included shipping, ship repair, office, and commercial activities.

Remedial Action and Objectives

The Navy has recently completed a remedial action at Phase I in Parcel D-1 to address metals and organic pollutants in soil and soil gas. The remedial action included repairing existing building foundations, installation of an asphalt/concrete durable cover, and construction of a shoreline revetment. The durable cover provides a physical barrier, which prevents contact to contaminants in the underlying soil or soil gas.

Figure 1: Hunters Point Naval Shipyard Location

Cleanup Activities at Parcel D-1

During the Phase I cleanup activities on Parcel D-1, the Navy made repairs to five existing buildings by filling in cracks and holes in the foundations. The historical asphalt and concrete pavement on Parcel D-1 was too degraded to be used or saved, so the entire Phase I area was repaved with a new asphalt cover. A few isolated areas along the San Francisco Bay were also stabilized with a rip-rap or rock wall. The combination of building foundations, asphalt cover, and rip-rap has resulted in a continuous and intact cover over all the soil in the Phase I area. To ensure the covers remain in good condition and continue to protect future site users, the Navy will monitor and repair (if needed) the durable cover through their operation and maintenance (O&M) program.

Figure 2: Parcel and Phase Locations

Operation and Maintenance

The durable cover is currently part of the Navy's O&M program. O&M includes inspection of the pavement conditions, cracks in building foundations, settlement, accumulation of surface water, benchmark survey condition, and areas of vandalism. The inspection and subsequent repairs help to maintain the integrity of the durable cover for the continued protection of the surrounding community and environment.

Approved for public release, distribution unlimited.

Information and Resources

Program Information

For information on cleanup at HPNS contact:

Derek Robinson
BRAC Environmental Coordinator
(619) 524-6026
derek.j.robinson1@navy.mil

If you'd like to join the HPNS mailing list:

Email: info@sfhpns.com
HPNS Info Line: (415) 295-4742

Reports Are Available For Review

City of San Francisco Main Library
100 Larkin Street, 5th Floor
San Francisco, CA 94102
(415) 557-4400

Hunters Point Naval Shipyard Site Trailer
(near HPNS security entrance)
690 Hudson Avenue
San Francisco, CA 94124

Navy Website
www.bracpmo.navy.mil/hpns

Department of the Navy
BRAC Program Management Office West
33000 Nixie Way, Building 50, 2nd Deck
San Diego, CA 92147

Approved for public release, distribution unlimited.

Appendix M
Responses to Agency Comments on the Draft Remedial Action Completion Report

Response to Comments on the *Draft Remedial Action Completion Report, Remedial Action in Parcel D-1 (Excluding Phase II Durable Cover), Hunters Point Naval Shipyard, San Francisco, California*, January 2018, DCN: APTM-2005-0003-0044	
Comments by: Judy Huang, Remedial Project Manager, US EPA, comments dated March 2, 2018	
General Comments	**Response**
1. Section 5.0 (Ongoing Activities) does not discuss and/or reference the operation and maintenance (O&M) of the permanent fence and entry gate along Berth 15 of the Gun Mole Pier. Similarly, Section 7.0 (Certification Statement) indicates that the soil remedial action objective (RAO) was met for Parcel D-1 Phase I by the installation and maintenance of a durable over with no discussion of the permanent fence and entry gate. As a result, it is unclear if the soil RAO of preventing exposure to polycyclic aromatic hydrocarbons (PAHs) and metals in surface and subsurface soil by industrial workers and constructions workers at concentrations above remedial goals (RGs) has been and will continue to be met. Section 3.9.1 (Seawall Stabilization) and Field Work Variance 005 in Appendix A (Submittals) indicate that along Berth 15 of the Gun Mole Pier the durable cover was installed to the edge of the gabion baskets/interior sheet pile wall rather than the outer seawall and a permanent fence and an entry gate were installed surrounding the area beyond the gabion baskets/interior sheet pile to prevent access/exposure [see Photograph 92 in Appendix E (Photograph Log)]. Similarly, it is unclear whether the permanent fence and entry gate will be maintained following transfer, as Section 5.2 (Land Use Controls) indicates that fencing and signs are not requirements of the record of decision (ROD) and may not be necessary after the site is transferred and redeveloped. Please revise the Draft Remedial Action Completion Report, Remedial Action in Parcel D-1 (Excluding Phase II Durable Cover), Hunters Point Naval Shipyard, San Francisco, California, January 2018 (the RACR) to discuss and/or reference the O&M of the permanent fence and entry gate along Berth 15 of the Gun Mole Pier to ensure the soil RAO of preventing exposure to P AHs and metals in surface and subsurface soil by industrial workers and constructions workers at concentrations above RGs is met.	Fencing and signage are neither requirements of the *Final Record of Decision for Parcels D-1 and UC-1, Hunters Point Shipyard, San Francisco, California* (ROD; Navy, 2009) nor the *Final Design Basis Report, Parcel D 1, Hunters Point Shipyard, San Francisco, California* (DBR; ChaduxTt, 2011). Section 5.2, "Land Use Controls," was revised as follows to remove references to maintaining fencing and signage: "The LUC objectives for Parcel D-1 Phase I that apply to the cover design presented in the DBR (ChaduxTt, 2011a) include maintaining the integrity of the cover. The DBR included fencing and signs to control access as part of the remedy; however, fencing and signs are not requirements of the ROD (Navy, 2009) and are not necessary after the site is transferred and redeveloped. The LUCs are described in the *Land Use Control Remedial Design, Parcel D-1, Hunters Point Naval Shipyard, San Francisco, California* (LUC RD; ChaduxTt, 2011d). The current LUC RD will be revised to include additional requirements related to the discovery of radiological objects in the Parcel D-1 Phase II area." Please also see the response to the San Francisco Department of Public Health's Comment 2.
2. Section 3-7 (Air Monitoring) states, "None of the construction activities exceeded the established threshold limit values at any time during project execution;" however, Attachment 1 (Air Sampling Results) of Appendix D (Air Monitoring Results) indicates that several samples were not collected due to inclement conditions or the project site being closed for holidays. As such, it is unclear if the statement in Section 3.7 is accurate given these potential data gaps. Please revise Section 3.7 and Appendix D (Air	Air monitoring was performed in accordance with the Environmental Protection Plan (EPP) (Appendix B to the *Final Revision 1, Final Remedial Action Work Plan, Remedial Action in Parcel D-1, Hunters Point Naval Shipyard, San Francisco, California* [RAWP; CB&I, 2016]). EPP Section 6.3, "Air Monitoring," states: "[a]t the discretion of the on-site air monitoring personnel and due in part to safety concerns and equipment integrity issues, the air monitoring equipment may need to be shut down and protected during precipitation events. An air monitoring

Monitoring Results) to discuss the lack of air sampling during inclement conditions and holidays as potential data gaps.	station or individual units being inoperable shall not preclude RA activities at the associated work site." Air monitoring was performed when there was active work. There was no active work when the project site was shut down for holidays. These were not data gaps. Section 3.7, "Air Monitoring," was revised as follows: "Prior to commencing earthmoving activities, air monitoring stations were set up upwind and downwind of the construction activities at locations shown on Figure 4. Air monitoring was performed in accordance with the EPP (Appendix B to the RAWP; CB&I, 2016). The project monitored and sampled for particulate matter less than 10 microns in diameter, total suspended particulates (TSP), arsenic, lead, manganese, and asbestos during earthmoving activities. Data were not collected from November 24 through 28, 2016, because the site was shut down for the holidays; there was no site work during the holidays. Data were not collected on the following dates because of rain: • October 3, 2016 • October 14 through 17, 2016 • October 25, 2016 • October 27 through November 4, 2016 • November 21 through 23, 2016, and • December 6 through 22, 2016 Data were not collected on the following dates as described as follows: • June 21, 2016, downwind sample for TSP and metals: The sample filter blew away in the wind and was not able to be retrieved. • June 9, 2016 and November 7, 2016, downwind samples for asbestos: The sample filters were overloaded with non-fibrous particles making asbestos fiber counting not possible. TSP and particulate matter less than 10 microns in diameter

Response to Comments on the *Draft Remedial Action Completion Report, Remedial Action in Parcel D-1 (Excluding Phase II Durable Cover), Hunters Point Naval Shipyard, San Francisco, California*, January 2018, DCN: APTM-2005-0003-0044	
Comments by: Judy Huang, Remedial Project Manager, US EPA, comments dated March 2, 2018	
	results from the downwind sample location on these dates were below their respective action levels. • August 29, 2016, upwind sample for asbestos: The sample filter was damaged due to a spider web on the filter media. None of the construction activities exceeded the established threshold limit values at any time during project execution. Air monitoring results are provided in Appendix D." Appendix D was also revised to include this information.
3. Issues associated with the air monitoring are not noted in the main text or Section 5.0 (Air Monitoring Results) of Appendix D (Air Monitoring Results). For example, Table 4 (Asbestos Monitoring Results) of Attachment 1 (Air Sampling Results) of Appendix D (Air Monitoring Results) indicates that the air samples collected on 06/09/2016 (Downwind-22) and 11/07/2016 (Downwind- 22) were reported by the laboratory to be "Overloaded" and a sample results was not reported; however, the RACR does not discuss these samples or clarify the meaning of "overloaded." Similarly, Table 4 of Attachment I of Appendix D indicates that the sample filter on the air sample collected on 08/29/2016 (Upwind - 17) was reported by the laboratory to be "Damaged" and a sample result was not reported; however, the RACR does not discuss this sample or a potential cause of the damaged sample. Please revise the RACR to expand the discussions of issues encountered during the air monitoring.	Please see the response to EPA General Comment 2.
4. Section 3.9.2 (Existing Surface with No Asphalt) states, "Import fill met all geotechnical, chemical, and radiological requirements as specified in FWV [Field Work Variance] 001 (Appendix A). Chemical, radiological, and geotechnical testing results of import fill are included in Appendix G;" however, geotechnical testing results of the import fill are provided in Appendix H (Geotechnical Data) not Appendix G (Import Sampling Results and Data Validation). In addition, Appendix G notes that "for some semivolatile organic compounds (SVOCs), the laboratory detection limits were above the comparison criteria" and that "because this material is from a borrow source is [sic] located in a nonindustrial area and is not a site undergoing an environmental cleanup, it can be reasonably concluded these SVOCs are not present in the material" yet the main text does not discuss this issue or assumption. Please revise the RACR to reference Appendix H	Appendix G includes the geotechnical testing results for the import fill and aggregate base. Geotechnical testing results for the import fill and aggregate base are on pages 1428 through 1436 and 1705 through 1707, respectively, of the pdf. There were no required geotechnical tests for the rip rap. No changes were made to the text references. Section 3.9.2, "Existing Surface with No Asphalt," second paragraph was expanded as follows to address SVOC detection limits: "Parcel D-1 is generally flat, and some grading of the existing surface was required for preparation of the foundation surface for construction of new asphalt pavement. Low-lying areas were filled with clean import material to minimize the accumulation of stormwater. Import fill met all geotechnical, chemical, and radiological requirements as specified in FWV 001 (Appendix A).

for the geotechnical testing results of the import fill. In addition, please revise the main text to discuss the SVOC laboratory detection limits that exceeded the comparison criteria and the assumption that the SVOCs are not present in the backfill material.	Import fill was sampled and analyzed in accordance with the approved Final Backfill Acceptance Plan (Appendix E to the RAWP; CB&I 2016). SVOCs were analyzed using U.S. Environmental Protection Agency Method 8270, which is consistent with the California Department of Toxic Substances Control's *Information Advisory on Clean Import Fill Material* (California Department of Toxic Substances Control, 2001). Using the approved method, some SVOC compounds had laboratory detection limits above the import comparison criteria. The SVOCs were not detected and, because this material was from a borrow source located in a nonindustrial area and was not a site undergoing an environmental cleanup, it can be reasonably concluded these SVOCs are not present in the material. Chemical, radiological, and geotechnical testing results of import fill are included in Appendix G."
5. A note on 07 /22/16 BMP Inspection Form in Appendix C (Stormwater Management Paperwork) indicates that damaged sections of the turbidity curtain at Berth 19 required repair/replacement; however, the main text does not discuss this damage and/or repair. Please revise the RACR to discuss any issues encountered during the RA and how/when they were addressed and/or repaired.	Section 3.10, "Water Quality Monitoring," was revised to include the following sentences: "As part of the weekly BMP inspections, the turbidity curtain was routinely inspected (Appendix C). The turbidity curtain was adjusted and/or repaired as needed throughout the project."
Specific Comments	**Response**
1. Section 3.3, Utility Survey, Page 3-3: Section 3.3 indicates that a geophysical survey was performed to identify any subsurface utilities that may exist at Parcel D-1; however, the text does not indicate if any subsurface utilities were identified or what action was taken if utilities were identified. It should be noted that Sections 3.9.2 (Existing Surface with No Asphalt) and 3.9.4 (Existing Building Foundations) indicate that concrete utility vaults were located on the South Pier and Gun Mole Pier. Please revise Section 3 .3 to discuss the findings of the geophysical survey.	As presented within the RAWP (CB&I, 2016), the intent of the utility survey was to locate any potential active utilities. For clarity, the final sentence of the first paragraph to Section 3.3, "Utility Survey," was revised as follows: "The geophysical survey was conducted to identify any active subsurface utilities that may exist via ground-penetrating radar and/or an electromagnetic instrument." In addition, a summary paragraph was added to the end of Section 3.3 to read as follows: "With the exception of one live electrical line used to power the Gun Mole Crane aircraft warning light, encountered utility lines were determined to be inactive following consultation with the subject utility company and the CSO representative. The location of the

Response to Comments on the *Draft Remedial Action Completion Report, Remedial Action in Parcel D-1 (Excluding Phase II Durable Cover), Hunters Point Naval Shipyard, San Francisco, California*, January 2018, DCN: APTM-2005-0003-0044	
Comments by: Judy Huang, Remedial Project Manager, US EPA, comments dated March 2, 2018	
	remaining electrical conduit is shown on as-built drawing C4 (Appendix F)."
2. **Section 3.9.2, Existing Surface with No Asphalt, Page 3-7:** The text states that, "Site soils that did not meet the compaction requirements were reworked as needed;" however, the text does not discuss how the soils were reworked or if the soils were re-tested to ensure they meet the compaction requirements. Please revise Section 3.9.2 to discuss how the soils were reworked when they did not meet the compaction requirements and clarify if the soils were re-tested to ensure they met the compaction requirements.	Soils were reworked based on professional judgment in the field. Soils that were either too wet or too dry to meet the required compaction were moisture conditioned as necessary. Section 3.9.2, "Existing Surface with No Asphalt," was revised as follows: "Site soils that did not meet the compaction requirements were reworked and retested as necessary to achieve the required design specifications."
3. **Section 3.9.4, Existing Building Foundations, Pages 3-8 to 3-9:** Based on Photographs 55 through 57 of Appendix E (Photograph Log), concrete forms were required for the repair of building foundations at former Building 308 and 384; however, Section 3.9.4 only indicates that "The openings in the foundations of Buildings 306, 308, and 384 were covered with a concrete mix following the specifications in Section 03 30 00 of the DBR [Design Basis Report]." Similarly, Appendix F (Construction As-Builts) does not show the locations of these repairs. To ensure these repairs are adequately documented, please revise Section 3.9.4 to expand the discussion associated with the repairs at Buildings 308 and 384. In addition, please revise Appendix F to show the locations of these repairs.	For clarity, the following paragraph was added to Section 3.9.4, "Existing Building Foundations": "Building 308 contained a sump with several utility lines exiting the building footprint. While the floor of the concrete sump was visually observed to be intact, openings for the abandoned utility lines were sealed with concrete to minimize the potential migration of surface water." In addition, the end of the final paragraph to Section 3.9.4 was revised as follows: "The openings in the foundations of Buildings 306 and 308, and the former Building 384 foundation were covered with a concrete mix following the specifications in Section 03 30 00 of the DBR. Concrete forms were used during the repair at Building 308 and the former Building 384 foundation to provide a clean edge and to minimize the use of excess concrete. Photographs of the work in progress are included as Photographs 55 through 62 in the Photograph Log (Appendix E). The location of the concrete repairs are shown on as-built drawing C4 (Appendix F)."
4. **Figure 3, Construction Site Layout:** The existing monitoring wells, shown on Figure 3, are not labelled. As a result, the information presented on Table 1 (Monitoring Well Coordinates) cannot be correlated. While the monitoring wells are identified on Drawing C3 (Final Monitoring Wells and Gabion Repair Locations) of Appendix F (Construction As-Builts), please revise Figure 3 to label the existing monitoring wells.	Figure 4 (formerly Figure 3) was revised to label the existing monitoring wells.

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Comments by: Judy Huang, Remedial Project Manager, US EPA, comments dated March 2, 2018	
5. **Appendix E, Photograph Log, Photographs 4 and 29:** It is unclear how the water, observed behind the seawall at Berth 15 was managed, characterized, and disposed. Based on Photograph 4 of Appendix E, water was observed behind the seawall at Berth 15 but was subsequently removed prior to the filling of gabion baskets with rock at Berth 15, as shown in Photograph 29. It should be noted that Appendix J (Waste Data and Waste Manifests) does not include waste data or waste manifests associated with the disposal of water at Berth 15. Please revise the RACR to provide information regarding the management, characterization, and disposal of water observed behind the seawall at Berth 15.	The water shown in Photograph 4 is San Francisco Bay (Bay) water at high tide. Photograph 29 shows seawall stabilization during low tide. The Bay water was not removed. No changes were made to the text.
Minor Comments	**Response**
1. **Section 3.9.2, Existing Surface with No Asphalt, Page 3-6:** The third paragraph states, "Open utility vaults on the South Pier and Gum (sic) Mole Pier that could not be filled with import material were sealed prior to sub grade preparation;" however, "Gum Mole Pier" should be "Gun Mole Pier." Please revise the RACR to ensure "Gun Mole Pier" is utilized.	The typographical error was fixed.

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Comments by: Amy Brownell, Environmental Engineer, SFDPH, comments dated March 9, 2018	
General Comments	**Response**
1. Please refer to SFPDH comments dated February 2018 on the Navy's Response to SFDPH Comments on the Draft and Draft Final Removal Action Completion Report for Radiological Remediation and Support at Parcel D-1 Phase II. In the Navy's responses to comments on the Draft Report, the Navy has explained that the potential presence of radiological objects near the 1946 shoreline on Parcel D-1 Phase II will result in a subsequent document with an opportunity for review and comment (e.g. possibly a Memo to File) that will define required activity restrictions based on the possibility of buried radioactive objects below two feet. Since activity restrictions are part of Institutional Controls which are part of the remedy, it seems that the FFA Signatories cannot approve that the Parcel D-1 Phase II Radiological Remedy and Institutional Controls/Land Use Controls are complete. Please revise completion statements throughout this document to exclude the Parcel D-1 Phase II Radiological Remedy and Parcel D-1 Phase II Institutional Control/Land Use Control components of the remedy. Completion can be documented concurrent with completion of the Phase II Soil Remedy, which is already excluded from this report. Statements identified as requiring revision are provided with suggested revisions as follows: **a.** Page 1-1: This RACR also documents the completion of the remedial action (RA) to address potential chemicals of concern (COCs) in soil (excluding Phase II), groundwater, and radiologically impacted soil and structures **[(excluding Phase II)]** at Parcel D-1. **b.** Page 1-7: Section 4.0, "Demonstration of Completion"—Section 4.0 provides information to demonstrate completion of the RA described herein and the achievement of the RAOs **[for Parcel D-1 Phase I soil, Parcel D-1 Phase I and II groundwater, Phase I radiological remedy, and Phase I LUC objectives]** ~~**that were**~~ **identified in the ROD** ~~**through the installation and maintenance of the durable cover.**~~ **c.** Page 2-1: This RACR describes the Phase I durable cover component of the final remedy and documents the completion of the RA to address potential COCs in soil (excluding Phase II), groundwater, and radiologically impacted soil and structures **[(excluding Phase II)]** at Parcel D-1.	The text was revised throughout the document to clarify that the remedial action at Phase II is ongoing and not addressed in this RACR.

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Comments by: Amy Brownell, Environmental Engineer, SFDPH, comments dated March 9, 2018	
2. We appreciate the Navy including the statement "The DBR included fencing and signs to control access as part of the remedy; however, fencing and signs are not requirements of the ROD (Navy, 2009) and may not be necessary after the site is transferred and redeveloped." To further clarify this point, please change "may not be necessary" to "are not necessary." Fencing is not a component of the ROD required remedy and will not be maintained or replaced in kind post-development. Accordingly, in Section 5.2, please remove referenced LUC objective to prevent damage to any site security features (such as fencing and signs). Throughout the report, please also remove "Permanent" from all instances of the phrase "Permanent Fencing."	Section 5.2, "Land Use Controls," was revised as recommended. Further, the report was revised throughout to remove references to permanent fencing.
Specific Comments	**Response**
1. Section 1.1, Project Schedule, Page 1-2: Section 1.1 states "Operation and maintenance (O&M) began on February 6, 2017, and has a duration of one year." Should this instead state that O&M is ongoing or otherwise clarify that long-term O&M will be conducted as part of a separate contract by the Navy?	Section 1.1, "Project Schedule," was revised as follows: "Operation and maintenance (O&M) began on February 6, 2017."
2. Section 1.2.2, Site Description and History, Page 1-3: Section 1.2.2 states "…there is a thin layer of fill overlying bedrock…" Please qualify what is meant by "thin" by providing the range of fill thickness. It is our understanding that the fill is quite thick towards the shoreline.	This statement was repeated from the ROD (Navy, 2009). The sentence was revised as follows based on information included in the *Revised Final Feasibility Study for Parcel D, Hunters Point Shipyard, San Francisco, California* (SulTech, 2007): "In addition, there is a layer of fill (1 to over 120 feet thick) overlying bedrock (SulTech, 2007); groundwater may be present in the fill and in the bedrock."
3. Section 1.2.2, Site Description and History, Page 1-4: Section 1.2.2 describes the complexities of past groundwater flow patterns and acknowledges changed conditions due to discontinuation of pumping and removal of sanitary sewer and storm drain lines. Please consider simply describing current groundwater flow trends rather than describing former conditions no longer applicable to Parcel D-1.	Section 1.2.2, "Site Description and History," was revised to remove outdated groundwater flow information.
4. Section 1.2.3, Nature and Extent of Contamination, Page 1-4: Please define "these goals" in the statement "The remedy was selected to remove or leave in place and cover soil where contaminant concentrations exceed these goals to prevent human exposure."	Section 1.2.3, "Nature and Extent of Contamination," last sentence was revised as follows: "The remedy was selected to remove or leave in place and cover soil where contaminant concentrations exceeded remediation goals (RGs) to prevent human exposure."

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Comments by: Amy Brownell, Environmental Engineer, SFDPH, comments dated March 9, 2018	
5. **Section 1.2.3.1, Soil, Page 1-4:** Please revise the following sentence to clarify that the remedy has addressed these potential exposure concerns: "The COCs in soil at Parcel D-1 that pose a potential risk to human health based on current and reasonably anticipated future land uses include metals, VOC, semivolatile organic compounds, and radionuclides." For example, the statement could be revised as follows: "The COCs in soil at Parcel D-1 include metals, VOCs, polycyclic aromatic hydrocarbons (PAHs), semivolatile organic compounds, and radionuclides and have been addressed by the remedy in consideration of current and reasonably anticipated future land uses."	Section 1.2.3.1, "Soil," first sentence was revised as follows: "The COCs in soil at Parcel D-1 include metals, VOCs, semivolatile organic compounds (SVOCs), and radionuclides, and have been addressed by the remedy in consideration of current and reasonably anticipated future land uses."
6. **Section 1.2.3.1, Soil, Page 1-4 and 1-5:** Please identify and include report references for all removal actions at Parcel D-1 that the Navy has referred to as occurring post-1991. Please clarify whether the hotspot excavations were conducted as part of the remedy. For all actions please identify the target COCs and reference remediation standards (i.e., residential or other). Please also include and reference a figure that shows all soil removal action areas.	This RACR presents the specific tasks implemented during the installation of the Phase I durable cover portion of the final remedy. This RACR also documents the completion of the remedial action to address potential COCs in soil, groundwater, and radiologically impacted soil and structures at Parcel D-1 Phase I. The remedial action at Phase II is ongoing and not addressed in this RACR. It is not the intention of this report to detail removal and remedial actions performed at the site or repeat previously reported information. A figure showing the hot spot locations remediated as part of the Parcel D-1 RA is provided in the *Final Remedial Action Completion Report for Soil Hot Spot Locations at Parcels B, D-1, and G and Soil Stockpiles at Parcels D-1 and G* (ERRG, 2011). No changes were made to the text.
7. **Section 1.2.3.2, Radionuclides, Page 1-5:** Please include the full reference for the completion of the TCRA to demonstrate completion of the ROD selected remedy. Please identify contractors involved in the Parcel D-1 radiological work.	Section 1.2.3.2, "Radionuclides," was revised as follows: "The Navy identified radiologically impacted sites, including buildings, equipment, and infrastructure at Parcel D 1 associated with the former use of general radioactive materials and decontamination of ships used during atomic weapons testing in the South Pacific (Naval Sea Systems Command, 2004). The Navy performed a TCRA to address potential radioactive contamination in buildings, fill areas, former building sites, storm drains, and sanitary sewers at Parcel D 1 (Navy, 2006). The TCRA was completed in two phases. Navy contractors CB&I completed Phase I and Gilbane completed Phase II. The TCRA involved the following: • Surveying radiologically impacted structures and former building sites

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Comments by: Amy Brownell, Environmental Engineer, SFDPH, comments dated March 9, 2018	
	• Decontaminating (and demolishing if necessary) buildings and former building sites • Excavating radiologically impacted storm drain and sanitary sewer lines • Screening, separating, and disposing of radioactively contaminated excavated materials at an off site, low level radioactive waste (LLRW) facility The radionuclides of concern at Parcel D 1 include cesium-137, cobalt-60, plutonium-239, radium-226, strontium-90, thorium-232, tritium (hydrogen-3), and uranium-235. The cleanup associated with the TCRA for radionuclides meets the RGs established in the ROD (Navy, 2009) as presented in the *Final Radiological Removal Action Report, Radiological Surveys of Buildings and Ground Surfaces, and Storm Drain and Sanitary Sewer Removal, Parcel D-1, Phase 1, Hunters Point Naval Shipyard, San Francisco, California* (CB&I, 2014) and the *Removal Action Completion Report, Parcel D-1, Phase II Radiological Remediation and Support* (Gilbane, 2017). Consequently, the RD developed in the DBR (ChaduxTt, 2011a) does not include further remediation for radionuclides."
8. Section 1.2.3.3, Groundwater, Page 1-5: The first sentence of the first paragraph of Section 1.2.3.3 states "The COCs in groundwater at Parcel D-1 that pose a potential risk to human health based on current and reasonably anticipated future land uses include VOCs, especially chloroform." Please revise the first sentence as "The COCs in groundwater at Parcel D-1 include VOCs and metals and have been addressed by the remedy in consideration of current and reasonably anticipated future land uses." Please also include and reference a figure depicting the VOC and metals plumes and areas of prior treatment/remedial action.	The sentence was revised. It is not the intention of this report to detail all previous site data or repeat previously reported information. Groundwater plumes prior to treatment are presented in the *Final Parcels D-1 and G Groundwater Treatability Study Technical Report, IR-09, IR-33, and IR-71, Hunters Point Shipyard, San Francisco, California* (Alliance Compliance Group, 2010).
9. Section 1.2.3.3, Groundwater, Page 1-5: For clarity, please revise the last sentence of the first paragraph as **"[As a result of the treatability study,]** concentrations of VOCs in groundwater at Parcel D-1 ~~were~~ **[decreased to concentrations]** below the RGs established in the ROD."	The sentence was revised.
10. Section 1.2.3.3, Groundwater, Page 1-6: For clarity, please revise the following sentence "**[Therefore, the DBR proposed]**~~**However,**~~ monitoring	The sentence was revised.

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Comments by: Amy Brownell, Environmental Engineer, SFDPH, comments dated March 9, 2018	
for groundwater and soil gas ~~**is proposed**~~ to evaluate the potential for rebound in concentrations of VOCs after the treatability study."	
11. **Section 1.2.3.3, Groundwater, Page 1-6:** Could the following sentence be revised to state "The evaluation concluded that groundwater at Parcel D-1 did not pose a potential risk to saltwater aquatic organisms [and that no further action or monitoring was required for chromium VI and nickel]"? If true, also clarify in the following paragraph that the only metal remaining as a COC based on potential human health risk, and requiring monitoring, is arsenic. Please also present a current arsenic concentration trend plot.	The section was revised to remove this paragraph, which presented outdated information. Groundwater data are reported under the Basewide Groundwater Monitoring Program. The most recent report, *Final Semiannual Groundwater Monitoring Report, January 2017-June 2017, Hunters Point Naval Shipyard, San Francisco, California*, was issued by Trevet in December 2017. The next groundwater report is schedule to be issued on April 30, 2018 and will cover results from July through December 2017.
12. **Section 1.2.3.3, Groundwater, Page 1-6:** Section 1.2.3.3 states "The Final Remedial Action Monitoring Plan, Parcel D-1, Hunters Point Shipyard, San Francisco, California (Navy, 2011) objectives for these wells are to ensure that redevelopment does not mobilize metals that could migrate to San Francisco Bay and adversely impact ecological receptors." Please confirm and revise this statement. It is unlikely that the purpose of Navy wells is related to future redevelopment and more likely related to monitoring COC concentration trends pertaining to attainment of RGs. Further, this section previously states COCs in groundwater were confirmed not to pose a potential risk to saltwater aquatic organisms. **Section 1.2.3.3, Groundwater, Page 1-6:** Please include and reference a Parcel-wide figure to document completion of the groundwater remedy. Identify the groundwater wells currently subject to ongoing monitoring and present concentration data for the three previous rounds of groundwater monitoring for COCs (presumed limited to arsenic) subject to such ongoing monitoring.	Section 1.2.3.3, "Groundwater," was revised as follows: "The *Final Remedial Action Monitoring Plan, Parcel D-1, Hunters Point Shipyard, San Francisco, California* (ChaduxTt, 2011b) objectives for these wells are to monitor the potential migration of COCs into previously uncontaminated areas and potential migration toward San Francisco Bay and to monitor the changes in concentrations within a plume, including the effects of remedial actions and previous treatability studies." New Figure 3, "Parcel D-1 Map," was added to the report. Figure 3 shows groundwater monitoring wells currently monitored under the Basewide Groundwater Monitoring Program. Groundwater data are reported under the Basewide Groundwater Monitoring Program. The most recent report, *Final Semiannual Groundwater Monitoring Report, January 2017-June 2017, Hunters Point Naval Shipyard, San Francisco, California*, was issued by Trevet in December 2017. The next groundwater report is schedule to be issued on April 30, 2018, and will cover results from July through December 2017.
13. **Section 1.2.3.4, Soil Vapor, Page 1-6:** Please identify VOCs of concern exceeding soil gas action levels (SGALs) within the proposed VOC ARICs. Please include and reference figure depicting ARICs for VOCs in Parcel D-1.	Section 1.2.3.4, "Soil Vapor," was revised to include the following sentence: "VOCs exceeding soil gas action levels in Parcel D-1 included benzene, ethyl benzene, tetrachloroethene, trichloroethene, methylene chloride, and chloroform (Sealaska Environmental Services, 2013)."

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Comments by: Amy Brownell, Environmental Engineer, SFDPH, comments dated March 9, 2018	
	New Figure 3, "Parcel D-1 Map," was added to the report. Figure 3 shows the areas requiring institutional controls for soil vapor in Parcel D-1.
14. Soil RAOs, Page 1-8 and Table 2: Please revise the second bullet to reference establishment of SGALs and completion of a soil gas survey. For example, please see wording already agreed upon as included in the Parcel G RACR.	Section 2.0, "Remedial Action Objectives," Soil RAOs, second bullet and Table 2 were revised as follows and is consistent with the Final Parcel G RACR: "Prevent exposure to VOCs in soil gas at concentrations that would pose unacceptable risk via indoor inhalation of vapors. RGs for VOCs to address exposure via indoor inhalation of vapors <u>have been</u> superseded based on COC identification information from soil gas surveys. <u>A</u>ction levels <u>were</u> established for soil gas, <u>which</u> account for vapors from both soil and groundwater, and <u>were</u> calculated based on a cumulative risk level of 10^{-6} using the accepted methodology for risk assessments at HPNS."
15. Section 3.9, Durable Cover Installation, Page 3-5: Please revise the following sentence: "The selected remedy at Parcel D-1, as specified in the ROD (Navy, 2009) and detailed in the DBR (ChaduxTt, 2011a), **[includes]** ~~**is**~~ the installation of a durable cover intended to prevent human exposure to **[potential residual concentrations of COCs in]** the underlying ~~**potentially contaminated**~~ soil (Navy, 2009)." In this section, please also clarify that the completed portions are the Phase I areas only.	The text was revised as suggested. The text was revised throughout the document to clarify that the remedial action at Phase II is ongoing and not addressed in this RACR.
16. Section 3.9.1, Seawall Stabilization, Page 3-5: This section describes debris and refuse removal during installation of gabions along the shoreline. Please describe the type of debris and refuse encountered, characterization, and final disposition at an offsite disposal facility, as applicable. Please reference photos if available.	Debris typically consisted of non-descript waste materials, rubbish, and windblown debris including driftwood and other green waste. Debris and refuse removed from the site was in accordance with the Waste Management Plan (Appendix A to the RAWP; CB&I, 2016) and as described in Section 3.14 of this report. With the exception of the concrete, metal debris, and piping removed around the area of Berth 15, 17, and 19 (see Photographs 12, 14, and 21 in Appendix E) this waste stream was generally considered unsubstantial. Table 3 provides the summary of waste materials generated during this Phase I work. No changes were made to the text.
17. Section 5.2, Land Use Controls, Page 5-1: See general comment 1. In Section 5.2, please reference the Navy's future document pertaining to activity restrictions and areas requiring land use controls as related to the discovery of radiological objects near the Parcel D-1 Phase II shoreline.	Section 5.2, "Land Use Controls," was revised as follows: "The LUC objectives for Parcel D 1 <u>Phase I</u> that apply to the cover design presented in the DBR (ChaduxTt, 2011a) include maintaining the integrity of the cover. The DBR included fencing and signs to control access as part of the remedy; however, fencing and signs <u>are</u>

	not requirements of the ROD (Navy, 2009) and are not necessary after the site is transferred and redeveloped. The LUCs are described in the *Land Use Control Remedial Design, Parcel D 1, Hunters Point Naval Shipyard, San Francisco, California* (LUC RD; ChaduxTt, 2011d). The current LUC RD will be revised to include additional requirements related to the discovery of radiological objects in the Parcel D-1 Phase II area. Parcel D-1 is owned by the federal government under the jurisdiction of the Navy and is planned to be transferred to the CCSF. The *Amended Hunters Point Redevelopment Plan* (Former SFRA, 2010) contains scenarios that include residential reuses for portions of Parcel D-1. Residential uses could include dwelling units, live/work units, and group housing, as well as related institutional uses such as schools and child care facilities. The procedures to modify the durable cover are restricted throughout Parcel D-1 unless prior written approval for these activities is granted by the Federal Facilities Agreement (FFA) signatories. LUCs are described in detail in the LUC RD (ChaduxTt, 2011d), which will be revised to include additional requirements for Parcel D-1 Phase II. Modifications to the durable cover will require a revision of the *Final Post Construction Operation and Maintenance Plan, Remedial Action in Parcel D 1, Hunters Point Naval Shipyard, San Francisco, California* (APTIM, 2018) to account for changes in the inspections and repairs necessary to maintain the remedy. The activity and land use restrictions described in the LUC RD (ChaduxTt, 2011d) will be incorporated into the Quitclaim Deed and Covenant to Restrict Use of Property and will take effect upon transfer to the CCSF and issuance of those documents."
18. Section 7.0, Certification Statement, Page 7-0: See general comment 1. Please revise the certification statement as follows "I certify that this RACR memorializes completion of the construction activities to implement the RA at Parcel D-1 (excluding the Phase II durable cover, **[Phase II radiological remedy, and Phase II LUC objectives])** at the former HPNS, San Francisco, California. The RA was implemented pursuant to the ROD (Navy, 2009) and the DBR (ChaduxTt, 2011a), and in accordance with the RAWP (CB&I, 2016), with deviations noted herein. This RACR documents	The RA at Parcel D-1 Phase II is ongoing and is not addressed in this RACR. Section 7.0, "Certification Statement," first paragraph was revised as follows: "I certify that this RACR memorializes completion of the construction activities to implement the RA at Parcel D-1 Phase I at the former HPNS, San Francisco, California. The RA was implemented pursuant to the ROD (Navy, 2009) and the DBR

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Comments by: Amy Brownell, Environmental Engineer, SFDPH, comments dated March 9, 2018	
the achievement of the groundwater **[(Parcel D-1 Phases I and II)]** and radiologically impacted soil and structures RAOs achieved through proper implementation and satisfactory completion of the final remedy **(excluding Parcel D-1 Phase II)**. The soil RAO was met for Parcel D-1 Phase I by the installation and maintenance of a durable cover. The Parcel D-1 Phase II durable cover will be installed in 2018. The Navy is currently implementing monitoring and maintenance of the Parcel D-1 Phase I durable cover in accordance with the Final Preconstruction Operation and Maintenance Plan, Parcel D-1, Hunters Point Shipyard, San Francisco, California (ChaduxTt, 2011c) until the Post-Construction Operation and Maintenance Plan, Remedial Action in Parcel D-1, Hunters Point Naval Shipyard, San Francisco, California (APTIM, 2017) is finalized. The **[Parcel D-1 Phase I]** LUC objectives will be met by controlling site access until the time of property transfer. The activity and LUC described in the RD will be incorporated into the Quitclaim Deed and Covenant to Restrict Use of Property and will take effect upon transfer and issuance of those documents."	(ChaduxTt, 2011a), and in accordance with the RAWP (CB&I, 2016), with deviations noted herein. This RACR documents the achievement of the soil, groundwater, and radiologically impacted soil and structures RAOs for Parcel D-1 Phase I achieved through proper implementation and satisfactory completion of the final remedy. The RA at Parcel D-1 Phase II is ongoing and not addressed in this RACR."
19. Table 2, Demonstration of Completion of Remedial Action Objectives for Parcel D-1 (Excluding the Phase II Durable Cover): **a.** In the RAO Met column, please change entries to "Yes, Phase I only" where RAO is not yet met in Phase II areas. **b.** Under soil item 1, please also describe the removal action component of remedy if applicable to Phase I areas. **c.** Under soil item 2, please revise to state that the LUC objectives will be met by controlling site access until the time of property transfer consistent with certification statement. **d.** Under groundwater items 1 and 2, completion statements included in the table contradicts that included in the main text, which indicates RGs have been attained for VOCs. Please describe groundwater treatment and attainment of RGs as applicable.	The table was revised to only address the RA at Parcel D-1 Phase I. The RA at Parcel D-1 Phase II is ongoing and is not addressed in this RACR.
Minor Comments	**Response**
1. Please define ABC Layer.	ABC is defined in the acronyms and abbreviations list and on Page 3-7 (first use). ABC is defined as aggregate base course. No changes were made to the text.

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Comments by: David Tanouye, Engineering Geologist, SFRWQCB, comments dated March 6, 2018	
Specific Comments	**Response**
1. **Section 1.2.2, page 1-4** describes the complexity of groundwater flow at Parcel D-1. Please specify which aquifer zone is being discussed. We recommend including a water elevation map as a reference for conceptualizing groundwater conditions, such as figures found in the Basewide Groundwater Monitoring Program Reports.	Section 1.2.2, "Site Description and History," was revised to remove outdated groundwater flow information. Water elevation maps are included in the Basewide Groundwater Monitoring Program reports and are not included in this report.
2. **Figure 5** shows surface water flow direction at Parcel D-1 and documents the Manseau Street swale. Please confirm sediment and debris accumulation is being addressed in the swale, and specify which BMPs are being implemented for stormwater discharge into the swale drainage outlet (e.g. check dams, drainage outlet filter installation, etc.).	Drainage provisions, including the buildup of sediment and debris that might cause flow restriction through the referenced swale are addressed as part of the scheduled site O&M, which began on February 6, 2017. The O&M program, as presented in the *Final Post-Construction Operation and Maintenance Plan, Remedial Action in Parcel D-1, Hunters Point Naval Shipyard, San Francisco, California* (APTIM, 2018), will ensure that the remedy, including drainage features, are performing as intended. No changes were made to the text.

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Comments by: Nina Bacey, DTSC, comments dated March 5, 2018	
Specific Comments	**Response**
1. Section 1.0 - Indicates chemical hot spot removal occurred in 2011 and a soil gas survey was conducted in 2010. Also indicates that this RACR describes only the installation of the durable soil cover a Phase I of D-1. We recommend revising the title of the document so that it is clear that this RACR only describes the installation of the durable soil cover at Parcel D-1.	This RACR presents the specific tasks implemented during the installation of the Phase I durable cover portion of the final remedy. The report also documents the completion of the RA to address potential COCs in soil, groundwater, and radiologically impacted soil and structures at Parcel D-1 Phase I. The RA at Parcel D-1 Phase II is ongoing and is not addressed in this RACR. The RACR title was revised as follows: *Remedial Action Completion Report, Remedial Action in Parcel D-1 Phase I, Hunters Point Naval Shipyard, San Francisco, California*
2. Appendix F, Fact Sheet - In the first paragraph the fact sheet indicates Phase II durable cover will be completed in 2017/2018. DTSC requests the date be revised to a more concise date (e.g. summer 2018).	The fact sheet was revised.