Tighe&Bond
Engineers | Environmental Specialists

N-1023-56
August 16, 2016

Kimberly Tisa
Environmental Protection Agency
5 Post Office Square, Suite 100
Mail Code: OSRR07-2
Boston, MA 02109-3912

Re: Modified Self-Implementing PCB Cleanup Plan
NSTAR Station 292
48 Elliot Street
Newton, MA

Dear Ms. Tisa:

On behalf of NSTAR Electric d/b/a Eversource Energy (Eversource) Tighe & Bond has prepared this Modified Self-Implementing PCB Remediation Waste Cleanup Plan (Modified PCB Cleanup Plan) for on-going renovation activities at an electrical substation located at 48 Eliot Street in Newton, Massachusetts. The proposed additional renovation activities include the installation of a new capacitor bank and associated underground electrical conduits. For your reference, a Site Locus Map (Figure 1), a Massachusetts Geographic Information Systems (MassGIS) Priority Resource Map (Figure 2) and a Site Plans (Figures 3 and 4) are included in Appendix A.

This Modified PCB Cleanup Plan has been prepared in accordance with the U.S. Environmental Protection Agency (U.S. EPA) *Self-implementing On-site Cleanup and Disposal of PCB Remediation Waste* procedure at 40 CFR §761.61(a). The initial PCB Cleanup Plan was submitted to U S EPA in June 2012 and approved on August 16, 2012. A Modified PCB Cleanup Plan was submitted to U.S. EPA on August 16, 2013 for the replacement of two existing power transformers and installation of associated underground electrical conduits.

Release History

NSTAR undertook an initial expansion and renovation of the existing Station 292 facility from 2007 to 2012. During construction activities, electrical equipment at the Substation was assessed to determine if leaks may have occurred, and whether soil and/or groundwater remediation was necessary. The work to expand and renovate the facility included the installation of updated electrical equipment, including concrete foundations and associated underground conduit lines. During renovation activities, trap rock and soils were excavated in order to install underground utility conduits and equipment foundations.

Tighe & Bond prepared and submitted a *PCB Cleanup Plan* in November 2007 in accordance with the U.S. EPA *Self-implementing On-site Cleanup and Disposal of PCB Remediation Waste* procedure at 40 CFR §761.61(a). U.S. EPA issued approval to conduct PCB cleanup and disposal on January 9, 2008. The SIP Completion Statement report was submitted to the U.S. EPA on June 20, 2011.

A Utility Release Abatement Measure (URAM) Notification report and Release Notification Form (RNF) were submitted to the Massachusetts Department of Environmental Protection (MassDEP) on June 1, 2007. *URAM Status Reports* were submitted to MassDEP on September 21, 2007, March 26, 2008, September 22, 2008 and March 9, 2009. A second RTN, 3-26965 was assigned to the site at this time to address overall site response actions

as NSTAR is also the owner of the property. According to MassDEP, this second RTN is "associated" with the initial RTN but the two are not formally "linked". The response actions needed to implement construction activities were implemented under the URAM (RTN 3-26848). Construction activities were completed in August 2009 and a URAM Completion Report was submitted to MassDEP on September 8, 2009 for RTN 3-26848. According to MassDEP, additional response actions needed at the site post construction will be implemented under RTN 3-26965. In addition, a *Phase I Initial Site Investigation (Phase I), Phase II Scope of Work (SOW) and Tier Classification* Report was submitted to MassDEP on May 13, 2008, under RTN 3-26965. A *Phase II Comprehensive Site Assessment (CSA) and Phase III Remedial Action Alternative Analysis (RAAA) Completion Statement* was submitted to MassDEP under RTN 3-26965 on May 17, 2010. The *Notice of AUL* was recorded with the Middlesex County Registry of Deeds, Southern District on May 3, 2011 and a *Class C-1 Response Action Outcome Statement* was submitted to MassDEP on May 5, 2011. On May 18, 2016, a Permanent Solution Station (PSS) with Conditions was submitted to MassDEP.

A *RAM Plan* was submitted to the Massachusetts Department of Environmental Protection (MassDEP) on July 29, 2016 to manage soils during planned construction activities.

Site Background

The property consists of a 3.63-acre parcel of land located in a mixed residential and commercial setting. The property is an active (energized) electrical distribution substation that is undergoing renovation activities.

The property has been developed as an electrical substation since 1955. The property maintains two control house buildings, electrical switchgear, high voltage oil-filled power transformers and a network of aboveground and underground cables, including an oil-filled 115 kV pipe-type cable system. The buildings and electrical equipment are surrounded by a chain-link fence. NSTAR personnel enter the substation occasionally to perform routine inspections and to accompany contractors during renovations. The eastern end of the property consists of a paved and gravel parking area, which is also surrounded by a locked chain-link fence.

NSTAR undertook an initial expansion and renovation of the existing Station 292 facility from 2007 to 2012. During construction activities, electrical equipment at the Substation was assessed to determine if leaks had occurred, and whether soil and/or groundwater remediation was necessary. The work to expand and renovate the facility included the installation of updated electrical equipment, including concrete foundations and associated underground electrical conduit lines. During renovation activities, trap rock and soils were excavated in order to install underground utility conduits and equipment foundations.

NSTAR completed additional construction renovation activities in 2014, which included the replacement of two existing power transformers and the installation of underground electrical conduits.

Soil Assessment Activities (April 2007 through July 2013)

The following sections summarize the previous renovation activities conducted at the site between April 2007 and July 2013. Soil assessment activities were conducted at the site between April 26, 2007 and July 18, 2013 and consisted of the following:

- Collection of 146 soil samples for PCBs and five samples for extractable petroleum hydrocarbons (EPH) analysis from the Eastern Release Area;

- Collection of 118 soil samples for PCBs and 25 samples for EPH analysis adjacent to

Transformers 14B, 14C, 24C, 24D, 110A and 110D;

- Collection of 29 soil samples for PCB analysis from various electrical conduit routes throughout the site.

Copies of the laboratory analytical reports were included in the *RAM Completion Statement* submitted to MassDEP on October 14, 2014 for renovation activities previously completed at the site. For additional information and laboratory analytical results pertaining to historical assessment activities, refer to the June 1, 2007 *URAM Notification Report* and September 21, 2007, March 26, 2008, September 22, 2008 and March 9, 2009 *URAM Status Reports*.

Completed Construction Activities (July 2012 and August 2014)

Construction activities included: the replacement of transformers T-110A, T-110B and T-110C, installation of two constant voltage transformers (CVTs), installation of a cable oil pump plant and heat exchanger and associated underground oil return line, and construction of new conduits from the existing switch gear equipment to the new transformers T-110A, T-110B and T-110C. The concrete encased conduits and oil return line were installed at an approximate depth of 5 feet below existing grade, with an average excavation width of 3 feet wide. The excavation area for the Pump Plant and Heat Exchanger foundations measured approximately 40 feet by 10 feet and 60 feet by 15 feet, respectively, and were completed to an approximate depth of 4 feet below grade. The two CVT foundations measured approximately 4 feet by 4 feet and were completed to an approximate depth of 6 feet below grade. A summary of the construction activities completed at the Site is summarized below:

- The installation of approximately 345 feet of new electrical duct bank (sample locations Trench-1 through Trench-23) from the existing switch gear to the new Transformer 110A;

- The installation of two foundations (sample locations Foundation-1 and Foundation-2) for the constant voltage transformers (CVTs) and circuit breakers associated with T-110A;

- The installation of approximately 200 feet of new electrical conduit from the PTC pump plant and heat exchanger to the existing electrical bus work location (samples locations Trench-24 through Trench-36);

- The installation of the pump plant and heat exchanger foundations (sample locations Foundation-3 through Foundation-8);

- The installation of approximately 30 feet of new piping from the PTC pump plant and heat exchanger to the existing electrical bus (sample locations Trench 40);

- The installation of approximately 60 feet of the new electrical conduit from the PTC pump plant and heat exchanger to the existing electrical bus (sample locations Trench 37 through Trench 39);

- Construction of one duct bank measuring 60 linear feet from the existing switchgear to existing Transformer 110A (renamed T-110B, sample locations Trench 41 through Trench-44);

- Construction of one duct bank measuring 50 linear feet from the existing switchgear to the existing manhole (sample locations Trench-45, Trench-48 and Trench-52);

- Construction of one duct bank measuring 110 linear feet from the existing switchgear to existing Transformer 110C (sample locations Trench-46 through Trench-51 and Trench-53 through Trench-58);

- Modification of the concrete foundations for Transformers 110A and 110C, consisting of pouring the new concrete foundation of the existing structures); and

- Replacement of Transformers T-110A (to be renamed T-110B) and T-110C.

The approximately 500 to 600 cubic yards of soil associated with the above construction activities were used for backfill around the foundations or behind the concrete block retaining wall on the northwest corner or the slope on the eastern side of the Station property, within the existing AUL boundary.

Modified PCB Cleanup Plan Activities

Additional station upgrade activities are being proposed for the Fall and Winter of 2016. A summary of the construction activities to be completed at the site is provided below:

- The installation of three electrical duct bank trenches measuring approximately 300 linear feet by 3 feet wide and 5 feet deep

- Construction of two duct banks measuring approximately 150 linear feet from the proposed capacitor bank to the existing manholes 12 & 13,

- Construction of one duct bank measuring approximately 150 linear feet from the proposed capacitor bank to the existing switch gear,

- The installation of a capacitor bank concrete foundation measuring approximately 30 feet long by 30 feet wide to a maximum depth of 7 feet BSG

Recent Soil Assessment Results

To determine the residual PCB concentrations within the limits of the capacitor bank foundation and electrical conduit route 31 soil borings (Trench-59 through Trench-89) were advanced by a Clean Harbors Environmental Services (CHES) out of Weymouth, Massachusetts between April 13 and 16, 2016. The soil borings were advanced to an approximate depth of eight feet below grade along the proposed electric conduit route using a vacuum excavation truck. Twenty-six (26) soil samples (10 grab soil samples from the capacitor bank foundation and 16 composite soil samples were collected from the soil borings and submitted to ESS Laboratory of Cranston, Rhode Island (ESS) for PCB analyses.

To evaluate soil management options, the soil samples collected from the 31 soil borings were composited into 16 composite soil samples and submitted to ESS for disposal characterization analyses. The soil samples were analyzed for RCRA 8 metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver), total petroleum hydrocarbons (TPH), polychlorinated biphenyls (PCBs), semi-volatile organic compounds (SVOCs), volatile organic compounds (VOCs), and conductivity and for waste characteristics (corrosivity, reactivity, and flashpoint) analyses in accordance with landfill acceptance criteria pursuant to Massachusetts Department of Environmental Protection (MassDEP) Policy Comm-97-001. The laboratory analytical results are presented in Tables 1 and 2 in Appendix C. Copies of the laboratory reports for these samples are included in Appendix D.

Laboratory analytical results indicate that one sample, Trench-63 (0-5 foot depth interval) had a PCB detection that was above the applicable S-3/GW-3 standards. PCBs detections

exceeding the laboratory detection limit, as well as the exceedance of the MassDEP's S-3/GW-3 standards are shown below:

- PCBs in sample Disp-2 (comprised of samples Trench 61, 62 and 63) were detected at a concentration of 9.84 mg/kg (ppm), which exceeds the applicable S-3/GW-3 criteria of 4 mg/kg (ppm) and the Comm-97-001 acceptance criteria of 2 mg/kg (ppm) for Unlined and Lined Landfills. Therefore the excess soil associated with those samples will be managed at an Out-of-State Subtitle D Landfill permitted to accept TSCA regulated waste: PCB concentrations ≤50 mg/kg in accordance with the PCB Cleanup Plan.

- The PCBs concentrations in the remaining 15 disposal samples were not detected above the Comm 97-001 soil re-use Standard of ≤2 mg/kg and can be disposed at a Massachusetts Unlined or Lined Landfill in accordance with the PCB Cleanup Plan.

Management of Remediation Waste

PCB remediation waste with PCB concentrations greater than 1 mg/kg and less than 50 mg/kg (soil, trap rock and/or concrete) removed from the Site will be disposed of in accordance with §761.61(a)(5)(i)(B)*(2)(ii)*. PCB remediation waste with PCB concentrations greater than 50 mg/kg will be disposed of in accordance with §761.61(a)(5)(i)(B)*(2)(iii)* at either a TSCA Approved or RCRA Subtitle C Landfill. PCB remediation waste with PCB concentrations less than 1 mg/kg will be disposed of at an in-state landfill pursuant to MassDEP Policy Comm-97-001.

Based on the disposal characterization results, approximately 875 cubic yards of soil will be disposed at an approved Massachusetts Lined Landfill Facility (Waste Management Taunton or Fitchburg Landfills) and 125 cubic yards at an Out-of-State Subtitle D Landfill (Waste Management Turnkey).

If you have any questions or comments relative to this correspondence, please feel free to contact Michael E. Martin at (508) 564-7285 at your convenience.

Very truly yours,

TIGHE & BOND, INC.

Michael E. Martin
Project Manager

Paul G. Beaulieu, LSP
Associate

Copy: Michael J. Zylich – NSTAR Environmental Affairs Department
File

Appendices

Appendix A Figures
Appendix B U.S. EPA PCB Cleanup Plan Approval
Appendix C Laboratory Tables
Appendix D Laboratory Reports

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APPENDIX A

FIGURE 1
SITE LOCATION MAP

NSTAR Station 292
48 Elliot Street
Newton, Massachusetts

1:24,000
0 1,000 2,000
Feet

N

Tighe&Bond

Based on USGS Topographic Map for Newton, MA Quadrangle. Revised 1985. Circles indicate 500-foot and half-mile radii.

April 2016

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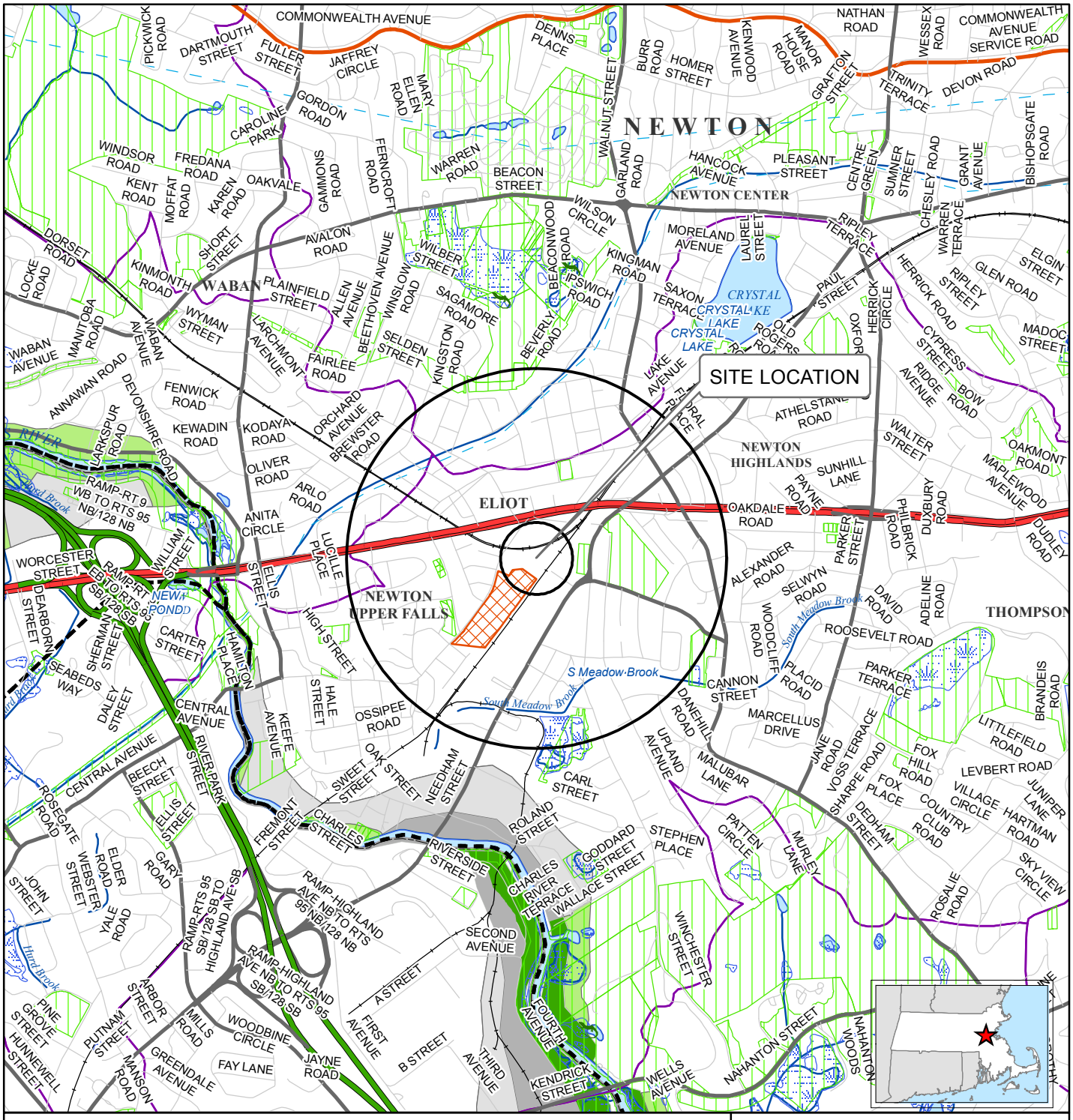

LEGEND

- NHESP Certified Vernal Pools
- Community Public Water Supply - Surface Water
- Community Public Water Supply - Groundwater
- Non-Community Non-Transient Public Water Supply
- Non-Community Transient Public Water Supply
- Non-Potential Drinking Water Source Area - High Yield
- Non-Potential Drinking Water Source Area - Medium Yield
- Potentially Productive Medium Yield Aquifer
- Potentially Productive High Yield Aquifer
- EPA Designated Sole Source Aquifer
- DEP Approved Wellhead Protection Area (Zone II)
- DEP Interim Wellhead Protection Area (IWPA)
- NHESP Priority Habitats for Rare Species
- NHESP Estimated Habitats for Rare Wildlife
- Public Surface Water Supply Protection Area (Zone A)
- Protected and Recreational Open Space
- Area of Critical Environmental Concern (ACEC)
- Solid Waste Landfill
- Public Surface Water Supply (PSWS)
- Inland Wetlands (MA DEP)
- Coastal Wetlands (MA DEP)
- Waterbodies
- Major Drainage Basin
- Sub Drainage Basin
- Limited Access Highway
- Multi-Lane Highway, NOT Limited Access
- Other Numbered Highway
- Major Road - Collector
- Minor Street or Road
- Town Boundary
- County Boundary
- Quad Sheet Boundary
- Track or Trail
- Train
- Powerline
- Pipeline
- Aquaduct

1:24,000

0 1,000 2,000

Feet

N

FIGURE 2
PRIORITY RESOURCE MAP

NSTAR Station 292
48 Elliot Street
Newton, Massachusetts

Data source: Office of Geographic and Environmental Information(MassGIS), Commonwealth of Massachusetts Executive Office of Environmental Affairs.
Circles indicate 500-foot and half-mile radii.
Data valid as of December 2015.

April 2016

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N-1023-56

Proposed Soil Sample Locations

Soil Samples (T&B July2013)

SamplePoints (TRC January 2013)

Sample Points (T&B July/August 2012)

Concrete Dust Sample July 2013

Sample Location

Well

Area Subject to Permanent Solution

Parcel Boundary

0 25 50
Feet

NSTAR Station 292
48 Elliot Street
Newton, Massachusetts

April 2016

FIGURE 3
SOIL MANAGEMENT PLAN

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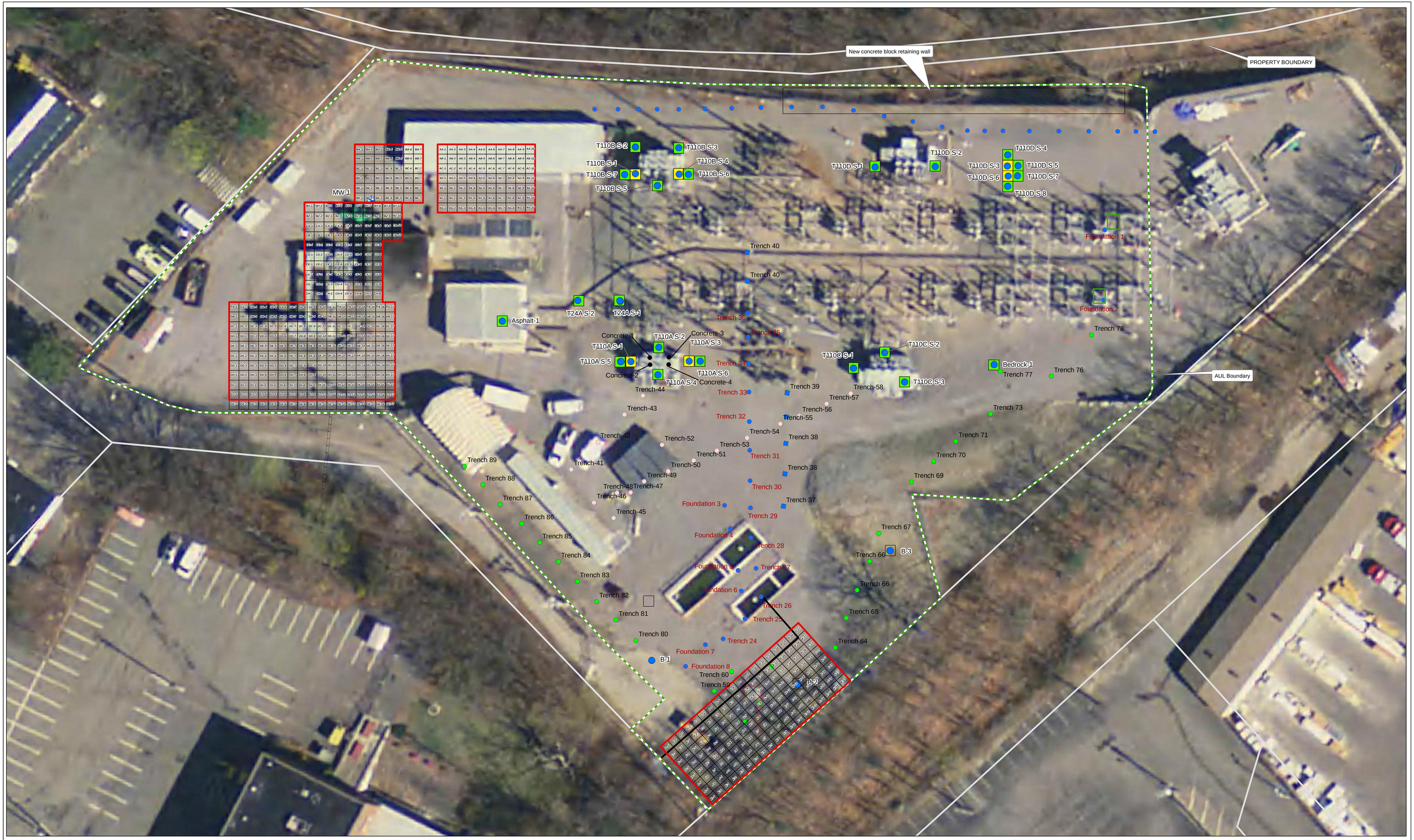

- Sample Locations
- Monitoring Well
- Property Boundary
- Road/Driveway
- Buildings
- Railroad
- Gate
- Concrete Berm
- Buried Conduit / Wall
- Concrete / Asphalt Pad
- Soil Samples (T&B July2013)
- SamplePoints (TRC January 2013)
- Sample Points (T&B July/August 2012)
- Concrete Dust Sample July 2013
- Proposed Soil Sample Locations
- Area Subject to Permanent Solution/AUL Boundary
- Retaining wall

FIGURE 4

NSTAR Station 292
48 Elliot Street
Newton, Massachusetts

Tighe&Bond

April 2016

0 20
Feet

N-0733

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APPENDIX B

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
5 POST OFFICE SQUARE, SUITE 100
BOSTON, MASSACHUSETTS 02109-3912

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

AUG 16 2012

Daniel Watton, Principal Environmental Engineer
NSTAR Electric
One NSTAR Way
Westwood, Massachusetts 02090

Re: PCB Cleanup and Disposal Approval under §§ 761.61(a) and (c)
NSTAR Station 292
Newton, Massachusetts

Dear Mr. Watton:

This is in response to the NSTAR Electric (NSTAR) Notification[1] to address *PCB remediation waste* (i.e., soils, and trap rock) on the property known as the NSTAR Station 292, located at 48 Elliot Street, Newton, Massachusetts. The Site contains *PCB remediation waste* that exceeds the allowable PCB levels for unrestricted use under the federal PCB regulations at 40 CFR § 761.61(a). NSTAR has requested an approval to clean up and dispose of the *PCB remediation waste* located at the Site under the PCB self-implementing cleanup and disposal option (SIDP) at 40 CFR § 761.61(a).

NSTAR is conducting renovations at the Site which include: replacement of Transformers T-110A, T-110B and T-110C and, installation of a cable oil pump plant and heat exchanger and associated underground oil return line, and new conduits from the existing switch gear equipment to the new transformers. With the exception of the replacement transformer T-110A, which will occur outside of the Notice of Activity and Use Limitation (AUL) area, the renovations are limited to the boundary of the AUL. The current transformer T-110A will remain on-site but in a backup capacity.

NSTAR has determined that the Site meets the definition for a *low occupancy area* under § 761.3 which would allow wastes with less than or equal to (≤) 25 part per million (ppm) PCBs to remain on-site with an AUL.

[1] The notification was submitted by Tighe and Bond, on behalf of NSTAR to satisfy the notification requirements under 40 CFR § 761.61(a). Information was submitted dated June 2012 (Self-Implementing PCB Cleanup Plan (SIDP); August 9, 2012 (Response to EPA Comments); August 13, 2012 (email response to EPA question on sampling); and August 14, 2012 (email response to clarification question on concrete disposition). These submittals shall be referred to as the "Notification".

NSTAR is proposing to use *PCB remediation waste* (i.e., soils, and trap rock) ≤ 25 ppm as backfill within the portion of the Site covered by the AUL. Any waste that cannot be used on-site as backfill (i.e., excess soils, trap rock) will be disposed of as a greater than or equal to (≥) 50 ppm waste in a TSCA approved disposal facility or RCRA hazardous waste landfill.

NSTAR is not proposing to collect post excavation verification samples based on the characterization data and the fact that all of the work will occur within the AUL area. Based on the results of the sampling, and proposed plan, it appears that the sampling was reasonable to determine PCB concentrations at the site, thus EPA may approve the sampling under § 761.61(c).

NSTAR may proceed with its PCB cleanup and disposal under 40 CFR §§ 761.61(a) and (c); its Notification; and this Approval, subject to the conditions of Attachment 1. Please be aware that this Approval does not release NSTAR from any applicable requirements of federal, state or local law to the cleanup of other non-PCB contaminants.

This Approval only addresses cleanup and disposal of the *PCB remediation waste* identified in the Notification. In the event that NSTAR identifies concrete within the construction area that must be removed, NSTAR will conduct sampling in accordance with 40 CFR 761 Subpart O. If the concrete cannot be left on-site (i.e., PCB concentration greater than (>) 1 ppm) within the AUL area, it will be disposed of in a TSCA approved disposal facility or RCRA hazardous waste landfill (see Approval Condition 13).

In the event that NSTAR identifies other PCB-contaminated wastes subject to cleanup and disposal under the PCB regulations, NSTAR will be required to notify EPA and cleanup the PCB-contaminated wastes in accordance with 40 CFR Part 761 (see Approval Condition 1.)

Questions and correspondence regarding this Approval should be directed to:

Kimberly N. Tisa, PCB Coordinator (OSRR07-2)
United States Environmental Protection Agency
5 Post Office Square, Suite 100
Boston, Massachusetts 02109-3912
Telephone: (617) 918-1527
Facsimile: (617) 918-0527

EPA shall not consider this project complete until it has received all submittals required under this Approval. Please be aware that upon EPA receipt and review of the submittals, EPA may request any additional information necessary to establish that the work has been completed in accordance with 40 CFR Part 761, the Notification, and this Approval.

Sincerely,

James T. Owens III, Director
Office of Site Remediation & Restoration

Attachment 1- Approval Conditions
Attachment 2 – *Standard Operating Procedure for Sampling Porous Surfaces For Polychlorinated Biphenyls (PCBs), Rev. 4, May 5, 2011*

cc: Michael Martin, Tighe and Bond
MassDEP, Northeast Region RTN: 3-26965
File

ATTACHMENT 1:

PCB CLEANUP AND DISPOSAL APPROVAL CONDITIONS
NSTAR ELECTRICAL STATION 292
NEWTON, MASSACHUSETTS

GENERAL CONDITIONS

1. This Approval is granted under the authority of Section 6(e) of the Toxic Substances Control Act (TSCA), 15 U.S.C. § 2605(e), and the PCB regulations at 40 CFR Part 761, and applies solely to bulk *PCB remediation waste* (i.e., soil, trap rock, concrete) located at the Site as identified in the Notification.

2. NSTAR Electric and Gas (NSTAR) shall conduct on-site activities in accordance with the conditions of this Approval and with the Notification.

3. In the event that the cleanup plan described in the Notification differs from the conditions specified in this Approval, the conditions of this Approval shall govern.

4. The terms and abbreviations used herein shall have the meanings as defined in 40 CFR § 761.3 unless otherwise defined within this Approval.

5. NSTAR must comply with all applicable federal, state and local regulations in the storage, handling, and disposal of all PCB wastes, including PCBs, PCB Items and decontamination wastes generated under this Approval. In the event of a new spill during response actions, NSTAR shall contact EPA within 24 hours for direction on sampling and cleanup requirements.

6. NSTAR is responsible for the actions of all officers, employees, agents, contractors, subcontractors, and others who are involved in activities conducted under this Approval. If at any time NSTAR has or receives information indicating that NSTAR or any other person has failed, or may have failed, to comply with any provision of this Approval, it must report the information to EPA in writing within 24 hours of having or receiving the information.

7. This Approval does not constitute a determination by EPA that the transporters or disposal facilities selected by NSTAR are authorized to conduct the activities set forth in the Notification. NSTAR is responsible for ensuring that its selected transporters and disposal facilities are authorized to conduct these activities in accordance with all applicable federal, state and local statutes and regulations.

8. This Approval does not: 1) waive or compromise EPA's enforcement and regulatory authority; 2) release NSTAR from compliance with any applicable requirements of federal, state or local law; or 3) release NSTAR from liability for, or otherwise resolve, any violations of federal, state or local law.

NOTIFICATION AND CERTIFICATION CONDITIONS

9. This Approval may be revoked if the EPA does not receive written notification from NSTAR of its acceptance of the conditions of this Approval within 10 business days of receipt.

10. NSTAR shall notify EPA in writing of the scheduled date of commencement of onsite activities at least 1 business day prior to conducting any work under this Approval.

11. Prior to initiating onsite work under this Approval, NSTAR shall submit the following information:

    a. a certification signed by its selected remediation contractor, stating that the contractor has read and understands the Notification, and agrees to abide by the conditions specified in this Approval; and,

    b. a certification signed by the selected analytical laboratory, stating that the laboratory has read and understands the sample preparation, extraction, analytical and quality assurance requirements specified in the Notification and in this Approval.

REMEDIAL AND DISPOSAL CONDITIONS

12. The cleanup level for *PCB remediation waste* (i.e., soils and trap rock) at the Site shall be less than or equal to (≤) 25 ppm.

13. The cleanup level for *porous surfaces* (i.e., concrete) at the Site shall be ≤ 1 ppm.

    a. If identified, sampling of *porous surfaces* (i.e., concrete) shall be performed on a bulk basis (i.e. mg/Kg). Samples shall be collected according to the Region 1 *Standard Operating Procedure for Sampling Porous Surfaces for Polychlorinated Biphenyls (PCBs), Rev. 4, May 5, 2011* to a maximum depth of 0.5 inches.

    b. Chemical extraction for PCBs shall be conducted using Methods 3500B/3540C of SW-846 for solid matrices and Method 3500B/3510C of SW-846 for aqueous matrices; and, chemical analysis for PCBs shall be conducted using Method 8082 of SW-846, unless another extraction or analytical method(s) is validated according to Subpart Q.

14. All PCB waste (regardless of concentration) generated as a result of the activities described in the Notification, excluding any decontaminated materials, shall be marked in accordance with § 761.40; stored in a manner prescribed in § 761.65; and, disposed of in accordance with 40 CFR § 761.61(a)(5), unless otherwise specified below:

    a. Decontamination wastes and residues shall be disposed of in accordance with 40 CFR § 761.79(g).

    b. Moveable equipment, tools, and sampling equipment shall be decontaminated in accordance with either 40 CFR § 761.79(b)(3)(i)(A), § 761.79(b)(3)(ii)(A), or § 761.79(c)(2).

    c. PCB-contaminated water generated during decontamination or dewatering, if applicable, shall be decontaminated in accordance with 40 CFR § 761.79(b)(1) or disposed of under § 761.60.

INSPECTION, MODIFICATION AND REVOCATION CONDITIONS

15. NSTAR shall allow any authorized representative of the Administrator of the EPA to inspect the Site, to inspect records, and to take samples as may be necessary to determine compliance with the PCB regulations and this Approval. Any refusal by NSTAR to allow such an inspection (as authorized by Section 11 of TSCA) shall be grounds for revocation of this Approval.

16. Any proposed modification(s) in the plan, specifications, or information in the Notification must be submitted to EPA no less than 14 calendar days prior to the proposed implementation of the change. Such proposed modifications will be subject to the procedures of 40 CFR § 761.61(a)(3)(ii).

17. Any departure from the conditions of this Approval without prior, written authorization from the EPA may result in the revocation, suspension and/or modification of the Approval, in addition to any other legal or equitable relief or remedy the EPA may choose to pursue.

18. Any misrepresentation or omission of any material fact in the Notification or in any records or reports may result in the EPA's revocation, suspension and/or modification of the Approval, in addition to any other legal or equitable relief or remedy the EPA may choose to pursue.

19. Approval for these activities may be revoked, modified or otherwise altered: if EPA finds a violation of the conditions of this Approval or of 40 CFR Part 761, including EPA's PCB Spill Cleanup Policy, or other applicable rules and regulations; or, if EPA finds that these activities present an unreasonable risk to public health or the environment.

RECORDKEEPING AND REPORTING CONDITIONS

20. NSTAR shall prepare and maintain all records and documents required by 40 CFR Part 761, including but not limited to the records required under Subparts J and K. A written record of the cleanup and the analytical sampling shall be established and maintained by NSTAR in one centralized location until such time as EPA authorizes, in writing, an alternative disposition for such records. All records shall be made available for inspection by authorized representatives of EPA.

21. NSTAR shall submit a final report as both a hard and electronic copy, to EPA within 60 days of completion of the activities authorized under this Approval. At a minimum, this final report shall include: a short narrative of the cleanup and disposal activities including a photo log; characterization and confirmation sampling analytical results (as applicable); copies of the accompanying analytical chains of custody; field and laboratory quality control/quality assurance checks; an estimate of the quantity of PCB waste disposed of and the size of the remediated area(s); copies of manifests and bills of lading; and copies of certificates of disposal or similar certifications issued by the disposer.

22. Required submittals shall be mailed to:

    Kimberly N. Tisa, PCB Coordinator (OSRR07-2)
    United States Environmental Protection Agency
    5 Post Office Square, Suite 100
    Boston, Massachusetts 02109-3912
    Telephone: (617) 918-1527
    Facsimile: (617) 918-0527

23. No record, report or communication required under this Approval shall qualify as a self-audit or voluntary disclosure under EPA audit, self disclosure or penalty policies.

****

END OF ATTACHMENT 1

ATTACHMENT
2

NITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 1
5 Post Office Square, Suite 100
Boston, MA 02109-3912

STANDARD OPERATING PROCEDURE FOR SAMPLING POROUS SURFACES FOR POLYCHLORINATED BIPHENYLS (PCBs)

May 2011

SDMS DocID 484692

STANDARD OPERATING PROCEDURE FOR SAMPLING POROUS SURFACES FOR POLYCHLORINATED BIPHENYLS (PCBs)

The Office of Environmental Measurement and Evaluation
EPA New England – Region 1
11 Technology Dr.
North Chelmsford, MA 01863

Prepared by: Dan Granz, Environmental Engineer — Date: 5/5/11

Reviewed by: Kim Tisa, TSCA PCB Coordinator — Date: 5/5/11

Reviewed by: Jerry Keefe – EIA Team Leader — Date: 05/23/11

Approved by: Dan Boudreau, EIA Chemistry Team Leader — Date: 5/23/11

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Revision Page

Date	Rev#	Summary of Changes	Sections
12/97	1	Initial Approval, draft	
3/20/08	2	Major update, only for PCBs, added TSCA sampling	All sections
7/17/08	3	Disposal of dust filter and decon of vac hose	11.0 and 14.0
5/04/11	4	Vacuum Trap Design and Clean-out	9.4

Table of Contents

1.0 Scope and Application 4

2.0 Summary of Method 4

3.0 Definitions 4

4.0 Health and Safety Warnings 5

5.0 Interferences 6

6.0 Personnel Qualifications 6

7.0 Equipment and Supplies 6

8.0 Sampling Design 7

9.0 Sample Collection 7

10.0 Sample Handling, Preservation, and Storage 10

11.0 Decontamination 11

12.0 Data and Record Management 11

13.0 Quality Control and Quality Assurance 11

14.0 Waste Management and Pollution Prevention 12

15.0 References 12

Attachments:

Example of Custody Seal and Sample Label
Example of Chain of Custody Form

1.0 Scope and Application

1.1 This Standard Operating Procedure (SOP) is suitable for collection of a porous matrix sample for analysis of Polychlorinated Biphenyls (PCBs).

1.2 This SOP describes sampling techniques for both hard and soft porous surfaces.

1.2.1 Hard surfaces, and most soft surfaces, can be sampled using an impact hammer drill to generate a uniform, finely ground, powder to be extracted and analyzed for PCBs. This procedure is primarily geared at providing enough sample quantity for two analyses. Hard porous surfaces include concrete, brick, asphalt, cement, sandstone, limestone, unglazed ceramics, and other possible PCB suspected material. This procedure may also be used on other softer porous surfaces, such as wood.

1.2.2 Soft surfaces can be sampled using a chisel or sharp knife to generate a representative sample to be extracted and analyzed for PCBs. Soft porous surfaces include wood, wall plasterboard, low density plastics, rubber, caulking, and other PCB suspected material.

1.3 This SOP provides for collection of surface samples (0 – 0.5 inches) and delineation of PCB contamination throughout the core of the porous surface. The procedure can be used to sample the porous surface at distinctly different depth zones.

2.0 Method Summary

A one-inch or other sized diameter carbide drill bit is used in a rotary impact hammer drill to generate a fine powder, or other representative sample, suitable for extraction and analysis of PCBs from porous surfaces. This method also allows the use of chisels or knives for the collection of samples from soft porous surfaces for PCB analysis.

3.0 Definitions

3.1 Field/Bottle Blank: A sample container of the same lot as the containers used for the environmental samples. This evaluates PCB contamination introduced from the sample container(s) from a common lot.

3.2 Equipment/Rinse/Rinsate Blanks: A sample that is collected by pouring hexane over the sample collection equipment after decontamination and before sample collection. The sample is collected in the appropriate sample container identical to the sample containers. This represents background contamination resulting from the field equipment, sampling procedure, sample container, and shipment.

3.3 Field Replicates/Duplicates: Two or more samples collected at the same sampling location. Field replicates should be samples collected side by side. Field replicates represent the precision of the whole method, site heterogeneity, field sampling, and the laboratory analysis.

3.4 Field Split Samples: Two or more representative subsamples taken from one environmental sample in the field. Prior to splitting, the environmental sample is homogenized to correct for sample heterogeneity that would adversely impact data comparability. Field split samples are usually analyzed by different laboratories (interlaboratory comparison) or by the same laboratory (intralaboratory comparison). Field splits are used to assess sample handling procedures from field to laboratory and laboratory comparability.

3.5 Laboratory Quality Samples: Additional samples that will be collected for the laboratory's quality control program: matrix spike, matrix spike duplicate, laboratory duplicates, etc.

3.6 Proficiency Testing (PT)/Performance Evaluation (PE) Sample: A sample, the composition of which is unknown to the laboratory or analyst, provided to the analyst or laboratory to assess the capability to produce results within acceptable criteria. This is optional depending on the data quality objectives. If possible, it is recommended that the PE sample be of similar matrix as the porous surface(s) being sampled.

3.7 Porous Surface: Any surface that allows PCBs to penetrate or pass into itself including, but not limited to, paint or coating on metal; corroded metal; fibrous glass or glass wool; unglazed ceramics; ceramics with porous glaze; porous building stone such as sandstone, travertine, limestone, or coral rock; low density plastics such as Styrofoam and low density polyethylene; coated (varnished or painted) or uncoated wood; painted or unpainted concrete or cement; plaster; plasterboard; wallboard; rubber; caulking; fiberboard; chipboard; asphalt; or tar paper.

3.8 Shipping Container Temperature Blank: A water sample that is transported to the laboratory to measure the temperature of the samples in the cooler.

4.0 Health and Safety

4.1 Eye, respiratory, and hearing protection are required at all times during sample drilling. A properly fitted respirator is required for hard porous surface sampling. A respirator is recommended whenever there is a risk of inhalation of either particulate or volatilized PCBs during sampling.

4.2 All proper personal protection clothing and equipment must be worn.

4.3 When working with potentially hazardous materials or situations, follow EPA, OSHA, and specific health or safety procedures.

4.4 Care must be exercised when using an electrical drill and sharp cutting objects.

5.0 Interferences and Potential Problems

5.1 This sampling technique produces a finely ground uniform powder, which minimizes the physical matrix effects from variations in the sample consistency (i.e., particle size, uniformity, homogeneity, and surface condition). Matrix spike analysis of a sample is highly recommended to monitor for any matrix related interferences.

5.2 Nitrile gloves are recommended. Latex gloves must not be used due to possible phthalate contamination.

5.3 Interferences may result from using contaminated equipment, solvents, reagents, sample containers, or sampling in a disturbed area. The drill bit must be decontaminated between samples. (see Section 11.0.)

5.4 Cross contamination problems can be eliminated or minimized through the use of dedicated sampling equipment.

6.0 Personnel Qualifications

6.1 All field samplers working at hazardous materials/waste sites are required to take a 40 hour health and safety training course prior to engaging in any field activities. Subsequently, an 8 hour refresher health and safety course is required annually.

6.2 The field sampler should be trained by an experienced sampler before initiating this procedure.

6.3 All personnel shall be responsible for complying with all quality assurance/quality control requirements that pertain to their organizational/technical function.

7.0 Equipment and Supplies

7.1 This list varies with the matrix and if depth profiling is required

Rotary impact hammer variable speed drill
1-inch or other suitable (1/2, 3/4, etc.) diameter carbide tip drill bits
Steel chisel or sharp cutting knife, and hammer
Brush and cloths to clean area
Stainless steel scoopulas

Aluminum foil to collect the powder sample
1 quart Cubitainer with the top cut out to collect the powder sample
Aluminum weighing pans to collect the powder sample
Cleaned glass container (2 oz or 40 mL) with Teflon lined cap
Decontamination supplies: hexane, two small buckets, a scrub brush, detergent, deionized water, hexane squirt bottle, and paper towels
Dedicated vacuum cleaner with a disposable filter or a vacuum pump with a dust filter
Polyethylene tubing and Pasteur pipettes
Sample tags/labels, custody seals, and Chain-of-Custody form

8.0 Sampling Design

8.1 A sufficient number of samples must be collected to meet the data quality objectives of the project. If the source of the PCB contamination is regulated under the federal TSCA PCB Regulations at 40 CFR Part 761, the sampler should insure that the sampling design is sufficient to meet any investigation or verification sampling requirements. At a minimum, the following is recommended:

8.1.1 Suspected stained area (s) should be sampled.

8.1.2 At each separate location, collect at least 3 samples of each type of porous surface, regardless of the amount of each type of porous surface present.

8.1.3 In areas where PCB equipment was used or where PCBs were stored, samples should be collected at a frequency of 1 sample/100 square feet (ft^2).

9.0 Sample Collection

9.1 Hard Porous Surfaces

9.1.1 Lock a 1-inch or another size diameter carbide drill bit into the impact hammer drill and plug the drill into an appropriate power source. For easy identification, sample locations may be pre-marked using a marker or paint. (Note: the actual drilling point must not be marked.) Remove any debris with a clean brush or cloth prior to drilling. All sampling decisions of this nature should be noted in the sampling logbook.

9.1.2 Use a Cubitainer with the top cut off or aluminum foil to contain the powdered sample. Begin drilling in the designated location. Apply steady even pressure and let the drill do the work. Applying too much pressure will generate excessive heat and dull the drill bit prematurely. The drill will provide a finely ground powder that can be easily collected.

9.1.3 Samples should be collected at ½-inch depth intervals. Thus, the initial surface sample should be collected from 0 – 0.5 inches. A ½-inch deep hole generates about 10 grams (20 mL) of powder. Multiple holes located closely adjacent to each other, may be needed to generate sufficient sample volumes for a PCB determination. It is strongly recommended that the analytical laboratory be consulted on the minimum sample size needed for PCB extraction and analysis.

9.1.4 Wall and Ceiling Sampling: A team of two samplers will be required for wall and ceiling sampling. The second person will hold a clean catch surface (e.g. an aluminum pan) below the drill to collect the falling powder. Alternatively, use the chuck-end of the drill bit and punch a hole through the center of the collection pan. The drill bit is then mounted through the pan and into the drill. For ceilings, the drill may be held at an angle to collect the powder. Thus the driller can be drilling at an angle while the assistant steadies the pan to catch the falling powder. As a precaution, it may be advantageous to tape a piece of plastic around the drill, just below the chuck, to avoid dust contaminating the body of the drill and entering the drill's cooling vents. Caution must be taken to prevent obstruction of the drill's cooling vents.

9.2 Soft Porous Surfaces

9.2.1 The procedure for the hard porous surface may be used for certain soft porous surfaces, such as wood.

9.2.2 Samples should be collected at no more than ½-inch depth intervals using a metal chisel or sharp cutting knife. Thus, the initial surface sample should be collected from 0 – 0.5 inches. It is important to collect at least 10 grams for analysis.

9.2.3 For soft porous surfaces, such as caulking and rubber, a representative sample can be collected using a metal chisel or sharp cutting knife.

9.3 Multiple Depth Sampling

9.3.1 Multiple Depth Sampling may not be applicable to certain porous surfaces, such as caulking.

9.3.2 Collect the surface sample as outlined in Section 9.1 or 9.2.

9.3.3 Use the vacuum pump or cleaner to clean out the hole.

9.3.4 To collect multiple depths there are two options.

9.3.4.1 Option one: drill sequentially ½-inch increments with the 1 inch drill.

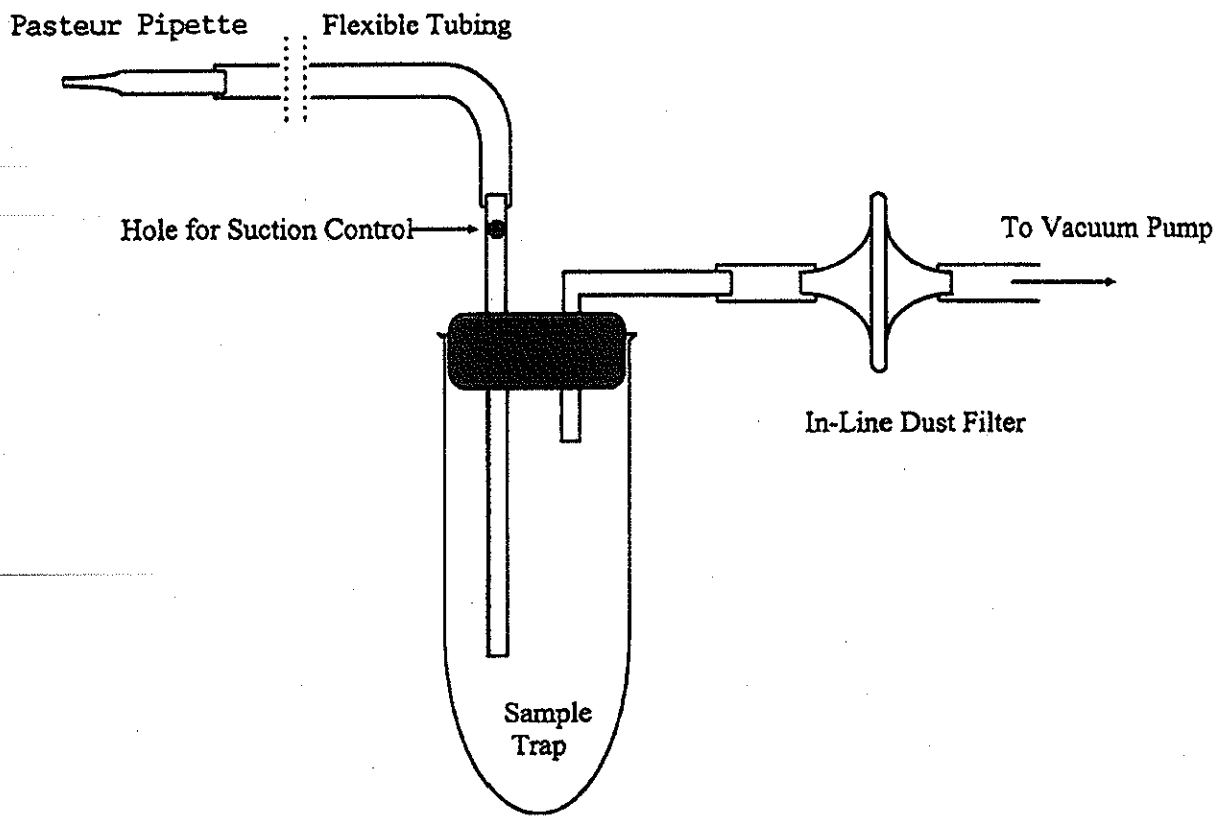
9.3.4.2 Option two: drill with the 1 inch bit and either make the hole larger or use a smaller bit to take the next ½- inch sample.

9.3.5 A stainless steel scoopula will make it easier to collect the sample from the bottom of the hole.

9.4 Vacuum Trap Design and Clean-out

The trap presented in Figure 1 is a convenient and thorough way for collecting and removing concrete powder from drilled holes. The trap system is designed to allow for control of the suction from the vacuum pump and easy trap clean-out between samples. Note, by placing a hole in the inlet tube (see Figure 1), a finger on the hand holding the trap can be used to control the suction at the sampling tip. Thus, when this hole is left completely open, there will be no suction, and the sampler can have complete control over where and what to sample. To change-out between samples the following steps should be taken: 1) the Pasteur pipette and piece of polyethylene tubing at the sample inlet should be replaced with new materials, 2) the portion of the rubber stopper and glass tubing that was in the trap should be wiped down with a clean damp paper towel (wetted with deionized water) and then dried with a fresh paper towel, 3) a clean pipe cleaner should be drawn through the glass inlet tube to remove any concrete dust present, and 4) the glass tube or flask used to collect the sample should swapped out with a clean decontaminated sample trap. Having several clean tubes or flasks on hand will facilitate change-out between samples.

Figure 1



Note: the holes should be vacuumed thoroughly to minimize any cross-contamination between sample depths and the bits should be decontaminated between samples. (See Section 11.0)

10.0 Sample Handling, Preservation, and Storage

10.1 Samples must be collected in glass containers for PCB analyses. In general, a 2-ounce sample container with a Teflon-lined cap (wide-mouth jars are preferred) will hold sufficient mass for most analyses. A 2-ounce jar can hold roughly 90 grams of sample.

10.2 Samples are to be shipped refrigerated and maintained at $\leq$ 6°C until the time of extraction and analysis.

10.3 The suggested holding time for PCB samples is 14 days to extraction.

11.0 Decontamination

11.1 Assemble two decontamination buckets. The first bucket contains a detergent and potable water solution, and the second bucket is for rinsate. Place all used drill bits, hose for the vacuum cleaner, and utensils in the detergent and water bucket. Scrub each piece thoroughly using the scrub brush. Note, the powder does cling to the metal surfaces, so care should be taken during this step, especially with the twists and curves of the drill bits. Next, rinse each piece with water and hexane. Place the rinsed pieces on clean paper towels and individually dry and inspect each piece. Note: all pieces should be dry prior to reuse.

11.2 Lightly contaminated drill bits and utensils may be wiped with a hexane soaked cloth and hexane rinsed for decontamination.

12.0 Data and Record Management

12.1 All data and information collection should follow a Field Data Management SOP or Quality Assurance Project Plan (QAPP).

12.2 Follow the chain of custody procedures to release the samples to the laboratory. A copy is kept with the sampling records.

12.3 The field data is stored for at least 3 years.

13.0 Quality Control and Quality Assurance

13.1 Representative samples are required. The sampler will evaluate the site specific conditions to assure the sample will be representative.

13.2 All sampling equipment must be decontaminated prior to use and between each discrete sample.

13.3 All field Quality Control (QC) sample requirements in a Sample and Analysis Plan (SAP) or QAPP must be followed. The SAP or QAPP may involve field blanks, equipment blanks, field duplicates and/or the collection of extra samples for the laboratory's quality control program.

13.4 Field duplicates should be collected at a minimum frequency of 1 per 20 samples or 1 per non-related porous matrix, whichever is greater.

14.0 Waste Management and Pollution Prevention

14.1 During field sampling events there may be PCB and/or hazardous waste produced from the sample collection. The waste must be handled and disposed of in accordance with federal, state, and local regulations. The dust filter, and tubing if a vacuum pump is used, is disposed after each site investigation. This waste will be treated as PCB waste if the samples are positive for PCBs. It may be possible to manage or dispose of the waste produced at the site where the work was performed. If the site does not meet regulatory requirements for these types of activities, the waste must be transported to a facility permitted to manage and/or dispose of the waste.

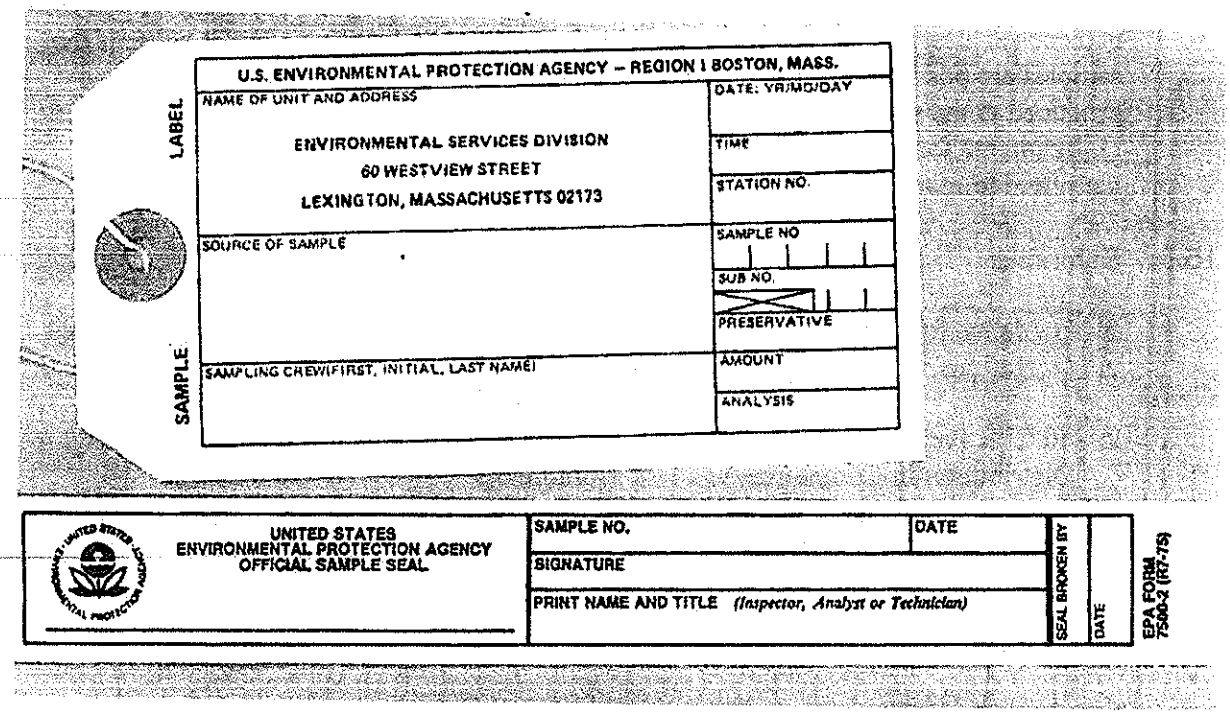
15.0 References

1. Guidance for the Preparation of Standard Operating Procedures for Quality-Related Operations, QA/G-6, EPA/600/R-96/027, November 1995.

2. 40 CFR Part 761 – Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution In Commerce, and Use Prohibitions

3. Sample Container and Holding Time: RCRA SW 846, Chapter 4, Table 4.1, Revision 4, February, 2007.

Example of Sample Label and Custody Seal



Example of Chain of Custody Form

ENVIRONMENTAL PROTECTION AGENCY
REGION 1

CHAIN OF CUSTODY RECORD

PROJ. NO. | PROJECT NAME

SAMPLERS: (Signature)

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CON-TAINERS	REMARKS

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time
			Remarks

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

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Tighe&Bond

APPENDIX C

Table 1 - PCB Trench Data Page 1
Soil Sample Results
NSTAR Newton Station 292
48 Elliot Street, Newton Massachusetts

Analytical Test Compound	Sample ID / Trench ID / Sample Date	MA S-1/GW-3	MA S-3/GW-3	EPA Unrestricted PCB Cleanup Standards	EPA Low Occupancy PCB Cleanup Standards	1604338-01 TRENCH 59 (0-4')	1604338-02 TRENCH 59 (4-8')	1604338-03 TRENCH 60 (0-4')	1604338-04 TRENCH 60 (4-8')	1604395-01 TRENCH 61 (0-4')	1604395-02 TRENCH 61 (4-8')	1604395-03 TRENCH 62 (0-4')	1604395-04 TRENCH 62 (4-8')
	Sample Date					4/13/2016	4/13/2016	4/13/2016	4/13/2016	4/14/2016	4/14/2016	4/14/2016	4/14/2016
EPA 8082 - mg/Kg	Aroclor 1016	NE	NE	NE	NE	<0.0563	<0.0522	<0.0577	<0.0559	<0.0546	<0.0547	<0.0585	<0.0523
	Aroclor 1221	NE	NE	NE	NE	<0.0563	<0.0522	<0.0577	<0.0559	<0.0546	<0.0547	<0.0585	<0.0523
	Aroclor 1232	NE	NE	NE	NE	<0.0563	<0.0522	<0.0577	<0.0559	<0.0546	<0.0547	<0.0585	<0.0523
	Aroclor 1242	NE	NE	NE	NE	<0.0563	<0.0522	<0.0577	<0.0559	<0.0546	<0.0547	<0.0585	<0.0523
	Aroclor 1248	NE	NE	NE	NE	<0.0563	<0.0522	<0.0577	<0.0559	<0.0546	<0.0547	<0.0585	<0.0523
	Aroclor 1254	NE	NE	NE	NE	0.326	0.245	0.0885	<0.0559	<0.0546	<0.0547	<0.0585	<0.0523
	Aroclor 1260	NE	NE	NE	NE	<0.0563	<0.0522	<0.0577	<0.0559	<0.0546	<0.0547	<0.0585	<0.0523
	Aroclor 1262	NE	NE	NE	NE	<0.0563	<0.0522	<0.0577	<0.0559	<0.0546	<0.0547	<0.0585	<0.0523
	Aroclor 1268	NE	NE	NE	NE	<0.0563	<0.0522	<0.0577	<0.0559	<0.0546	<0.0547	<0.0585	<0.0523
	PCBs [1]	1	4	1	25	0.326	0.245	0.0885	ND	ND	ND	ND	ND

Analytical Test Compound	Sample ID / Trench ID / Sample Date	MA S-1/GW-3	MA S-3/GW-3	EPA Unrestricted PCB Cleanup Standards	EPA Low Occupancy PCB Cleanup Standards	1604395-05 TRENCH 63 (0-4')	1604395-06 TRENCH 63 (4-8')	1604395-07 TRENCH 64/65	1604395-08 TRENCH 66 (0-4')	1604395-09 TRENCH 66 (4-8')	1604451-01 TRENCH 66/67	1604451-02 TRENCH 68/69	1604488-01 TRENCH 70/71
	Sample Date					4/14/2016	4/14/2016	4/14/2016	4/14/2016	4/14/2016	4/15/2016	4/15/2016	4/18/2016
EPA 8082 - mg/Kg	Aroclor 1016	NE	NE	NE	NE	<1.15	<0.0526	<0.0553	<0.0563	<0.0549	<0.0572	<0.0601	<0.0563
	Aroclor 1221	NE	NE	NE	NE	<1.15	<0.0526	<0.0553	<0.0563	<0.0549	<0.0572	<0.0601	<0.0563
	Aroclor 1232	NE	NE	NE	NE	<1.15	<0.0526	<0.0553	<0.0563	<0.0549	<0.0572	<0.0601	<0.0563
	Aroclor 1242	NE	NE	NE	NE	<1.15	<0.0526	<0.0553	<0.0563	<0.0549	<0.0572	<0.0601	<0.0563
	Aroclor 1248	NE	NE	NE	NE	<1.15	<0.0526	<0.0553	<0.0563	<0.0549	<0.0572	<0.0601	<0.0563
	Aroclor 1254	NE	NE	NE	NE	9.84	0.835	0.16	<0.0563	0.108	<0.0572	<0.0601	<0.0563
	Aroclor 1260	NE	NE	NE	NE	<1.15	<0.0526	<0.0553	<0.0563	<0.0549	0.0654	<0.0601	<0.0563
	Aroclor 1262	NE	NE	NE	NE	<1.15	<0.0526	<0.0553	<0.0563	<0.0549	<0.0572	<0.0601	<0.0563
	Aroclor 1268	NE	NE	NE	NE	<1.15	<0.0526	<0.0553	<0.0563	<0.0549	<0.0572	<0.0601	<0.0563
	PCBs [1]	1	4	1	25	9.84	0.835	0.16	ND	0.108	0.0654	ND	ND

Analytical Test Compound	Sample ID / Trench ID / Sample Date	MA S-1/GW-3	MA S-3/GW-3	EPA Unrestricted PCB Cleanup Standards	EPA Low Occupancy PCB Cleanup Standards	1604488-02 TRENCH 72/73	1604488-03 TRENCH 74/75	1604513-01 TRENCH 76/77	1604513-02 TRENCH 78	1604513-03 TRENCH 79	1604657-01 TRENCH 81/80	1604587-03 TRENCH 83/82	1604587-02 TRENCH 85/84
	Sample Date					4/18/2016	4/18/2016	4/19/2016	4/19/2016	4/19/2016	4/22/2016	4/21/2016	4/21/2016
EPA 8082 - mg/Kg	Aroclor 1016	NE	NE	NE	NE	<0.0587	<0.0574	<0.0557	<0.0572	<0.0542	<0.0614	<0.0614	<0.0560
	Aroclor 1221	NE	NE	NE	NE	<0.0587	<0.0574	<0.0557	<0.0572	<0.0542	<0.0614	<0.0614	<0.0560
	Aroclor 1232	NE	NE	NE	NE	<0.0587	<0.0574	<0.0557	<0.0572	<0.0542	<0.0614	<0.0614	<0.0560
	Aroclor 1242	NE	NE	NE	NE	<0.0587	<0.0574	<0.0557	<0.0572	<0.0542	<0.0614	<0.0614	<0.0560
	Aroclor 1248	NE	NE	NE	NE	<0.0587	<0.0574	<0.0557	<0.0572	<0.0542	<0.0614	<0.0614	<0.0560
	Aroclor 1254	NE	NE	NE	NE	<0.0587	<0.0574	<0.0557	<0.0572	<0.0542	0.29	0.332	<0.0560
	Aroclor 1260	NE	NE	NE	NE	0.105	0.108	<0.0557	<0.0572	<0.0542	<0.0614	<0.0614	<0.0560
	Aroclor 1262	NE	NE	NE	NE	<0.0587	<0.0574	<0.0557	<0.0572	<0.0542	<0.0614	<0.0614	<0.0560
	Aroclor 1268	NE	NE	NE	NE	<0.0587	<0.0574	<0.0557	<0.0572	<0.0542	<0.0614	<0.0614	<0.0560
	PCBs [1]	1	4	1	25	0.105	0.108	ND	ND	ND	0.29	0.332	ND

Analytical Test Compound	Sample ID / Trench ID / Sample Date	MA S-1/GW-3	MA S-3/GW-3	EPA Unrestricted PCB Cleanup Standards	EPA Low Occupancy PCB Cleanup Standards	1604587-01 TRENCH 87/86	1604513-04 TRENCH 88/89
	Sample Date					4/21/2016	4/19/2016
EPA 8082 - mg/Kg	Aroclor 1016	NE	NE	NE	NE	<0.0561	<0.0532
	Aroclor 1221	NE	NE	NE	NE	<0.0561	<0.0532
	Aroclor 1232	NE	NE	NE	NE	<0.0561	<0.0532
	Aroclor 1242	NE	NE	NE	NE	<0.0561	<0.0532
	Aroclor 1248	NE	NE	NE	NE	<0.0561	<0.0532
	Aroclor 1254	NE	NE	NE	NE	<0.0561	<0.0532
	Aroclor 1260	NE	NE	NE	NE	<0.0561	<0.0532
	Aroclor 1262	NE	NE	NE	NE	<0.0561	<0.0532
	Aroclor 1268	NE	NE	NE	NE	<0.0561	<0.0532
	PCBs [1]	1	4	1	25	ND	ND

TABLE 2
Soil Disposal Characterization Results
Station 292 - Transmission and Distribution Duct Bank
Elliot Street
Newton, Massachusetts

Analytical Test	Sample Identification	Comm 97 Unlined Landfill Criteria	Comm 97 Lined Landfill Criteria	DISP-1	DISP-2	DISP-3	DISP-4	DISP-5	DISP-6	DISP-7	DISP-8A	DISP-8A	DISP-8B	DISP-8B	DISP-9	DISP-10	DISP-11	DISP-12	DISP-13
	Sample Depth (Feet BGS)			0-8'	0-8'	0-4'	0-8'	0-8'	0-8'	0-8'	0-4'	5-7'	0-4'	5-7'	0-8'	0-3	0-3	0-3	0-3
	Soil Type			Type C1	Type D3	Type C1	Type C1	Type C1	Type C1	Type C1	Type C1	Type C1	Type C1	Type C1	Type C1	Type C1	Type C1	Type C1	Type C1
Compound	Trench Sample Number(s)			59,60	61,62,63	64,65	66/67	68/69	70/71	72/73	74/75	74/75	74/75	74/75	76/77	78	79	89,88,87	83,82,81
	Sample Date			4/13/2016	4/14/2016	4/14/2016	4/15/2016	4/15/2016	4/18/2016	4/18/2016	4/18/2016	4/18/2015	4/18/2015	4/18/2016	4/19/2016	4/19/2016	4/15/2015	4/19/2016	4/22/2016
TPH - mg/kg	TPH	2,500	5,000	19	20.3	ND (10.3)	22.7	29.9	ND (11.2)	67	44	40.5	103	13.4	97.3	35.9	25	ND (10.5)	34.8
SVOCs - mg/kg	Acenaphthalene	NE	NE	ND (0.386)	ND (0.369)	ND (0.365)	ND (0.389)	ND (0.407)	ND (0.362)	ND (0.372)	ND (0.380)	ND (0.361)	ND (0.373)	ND (0.380)	ND (0.384)	ND (0.368)	ND (0.341)	ND (0.380)	ND (0.404)
	Acenaphthlyene	NE	NE	ND (0.386)	ND (0.369)	ND (0.365)	ND (0.389)	ND (0.407)	ND (0.362)	ND (0.372)	ND (0.380)	ND (0.361)	ND (0.373)	ND (0.380)	ND (0.384)	ND (0.368)	ND (0.341)	ND (0.380)	ND (0.404)
	Anthracene	NE	NE	ND (0.386)	ND (0.369)	ND (0.365)	ND (0.389)	ND (0.407)	ND (0.362)	ND (0.372)	ND (0.380)	ND (0.361)	ND (0.373)	ND (0.380)	ND (0.384)	ND (0.368)	ND (0.341)	ND (0.380)	ND (0.404)
	Benzo(a)anthracene	NE	NE	ND (0.386)	ND (0.369)	ND (0.365)	ND (0.389)	ND (0.407)	ND (0.362)	0.767	ND (0.380)	ND (0.361)	ND (0.373)	ND (0.380)	0.451	ND (0.368)	ND (0.341)	ND (0.380)	ND (0.404)
	Benzo(a)pyrene	NE	NE	ND (0.386)	ND (0.369)	ND (0.365)	ND (0.389)	ND (0.407)	ND (0.362)	0.61	ND (0.380)	0.185	0.249	ND (0.380)	0.39	ND (0.368)	ND (0.341)	ND (0.380)	ND (0.404)
	Benzo(b)fluoranthene	NE	NE	ND (0.386)	ND (0.369)	ND (0.365)	ND (0.389)	ND (0.407)	ND (0.362)	0.686	ND (0.380)	ND (0.361)	ND (0.373)	ND (0.380)	0.501	ND (0.368)	ND (0.341)	ND (0.380)	ND (0.404)
	Benzo(g,h,i)perylene	NE	NE	ND (0.386)	ND (0.369)	ND (0.365)	ND (0.389)	ND (0.407)	ND (0.362)	ND (0.372)	ND (0.380)	ND (0.361)	ND (0.373)	ND (0.380)	ND (0.384)	ND (0.368)	ND (0.341)	ND (0.380)	ND (0.404)
	Benzo(k)fluoranthene	NE	NE	ND (0.386)	ND (0.369)	ND (0.365)	ND (0.389)	ND (0.407)	ND (0.362)	ND (0.372)	ND (0.380)	ND (0.361)	ND (0.373)	ND (0.380)	ND (0.384)	ND (0.368)	ND (0.341)	ND (0.380)	ND (0.404)
	Chrysene	NE	NE	ND (0.386)	0.298	ND (0.365)	ND (0.389)	ND (0.407)	ND (0.362)	0.752	ND (0.380)	0.235	0.3	ND (0.380)	0.436	ND (0.368)	ND (0.341)	ND (0.380)	ND (0.404)
	Dibenzo(a,h)anthracene	NE	NE	ND (0.386)	ND (0.369)	ND (0.365)	ND (0.389)	ND (0.407)	ND (0.362)	ND (0.372)	ND (0.380)	ND (0.361)	ND (0.373)	ND (0.380)	ND (0.384)	ND (0.368)	ND (0.341)	ND (0.380)	ND (0.404)
	Fluoranthene	NE	NE	ND (0.386)	0.73	ND (0.365)	ND (0.389)	ND (0.407)	ND (0.362)	1.29	ND (0.380)	0.375	0.505	ND (0.380)	1.03	ND (0.368)	ND (0.341)	ND (0.380)	ND (0.404)
	Fluorene	NE	NE	ND (0.386)	ND (0.369)	ND (0.365)	ND (0.389)	ND (0.407)	ND (0.362)	ND (0.372)	ND (0.380)	ND (0.361)	ND (0.373)	ND (0.380)	ND (0.384)	ND (0.368)	ND (0.341)	ND (0.380)	ND (0.404)
	Indeno(1,2,3-cd)pyrene	NE	NE	ND (0.386)	ND (0.369)	ND (0.365)	ND (0.389)	ND (0.407)	ND (0.362)	ND (0.372)	ND (0.380)	ND (0.361)	ND (0.373)	ND (0.380)	ND (0.384)	ND (0.368)	ND (0.341)	ND (0.380)	ND (0.404)
	2-Methylnaphthalene	NE	NE	ND (0.386)	ND (0.369)	ND (0.365)	ND (0.389)	ND (0.407)	ND (0.362)	ND (0.372)	ND (0.380)	ND (0.361)	ND (0.373)	ND (0.380)	ND (0.384)	ND (0.368)	ND (0.341)	ND (0.380)	ND (0.404)
	Naphthalene	NE	NE	ND (0.386)	ND (0.369)	ND (0.365)	ND (0.389)	ND (0.407)	ND (0.362)	ND (0.372)	ND (0.380)	ND (0.361)	ND (0.373)	ND (0.380)	ND (0.384)	ND (0.368)	ND (0.341)	ND (0.380)	ND (0.404)
	Phenanthrene	NE	NE	ND (0.386)	0.622	ND (0.365)	ND (0.389)	ND (0.407)	ND (0.362)	ND (0.372)	ND (0.380)	ND (0.361)	ND (0.373)	ND (0.380)	0.534	ND (0.368)	ND (0.341)	ND (0.380)	ND (0.404)
	Pyrene	NE	NE	ND (0.386)	0.54	ND (0.365)	ND (0.389)	ND (0.407)	ND (0.362)	1.15	ND (0.380)	ND (0.361)	0.474	ND (0.380)	0.716	ND (0.368)	ND (0.341)	ND (0.380)	ND (0.404)
	Bis(2-ethylhexyl)phthalate	NE	NE	ND (0.386)	ND (0.369)	ND (0.365)	ND (0.389)	ND (0.407)	ND (0.362)	ND (0.372)	ND (0.380)	ND (0.361)	ND (0.373)	ND (0.380)	ND (0.384)	ND (0.368)	ND (0.341)	ND (0.380)	ND (0.404)
	Dibenzofuran	NE	NE	ND (0.386)	ND (0.369)	ND (0.365)	ND (0.389)	ND (0.407)	ND (0.362)	ND (0.372)	ND (0.380)	ND (0.361)	ND (0.373)	ND (0.380)	ND (0.384)	ND (0.368)	ND (0.341)	ND (0.380)	ND (0.404)
	All Other SVOCs	NE	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND (0.361)	ND	ND	ND	ND	ND	ND	ND
	Total SVOCs	100	100	ND	2.2	ND	ND	ND	ND	5.26	ND	ND 0.795	1.528	ND	4.058	ND	ND	ND	ND
Metals- mg/kg	Arsenic, Total	40	40	11.9	7.59	7.59	12.3	10.8	7.97	10.3	13	12	13.2	10.3	8.18	16.3	14.3	14.2	14
	Barium, Total	NE	NE	18	15.1	15.1	23.4	18.7	12.1	36.2	32.7	32.4	27.8	25.2	38.6	40.2	24.2	23.1	31.7
	Cadmium, Total	30	80	ND (0.48)	ND (0.43)	ND (0.43)	ND (0.44)	ND (0.40)	ND (0.50)	ND (0.53)	ND (0.53)	ND (0.45)	ND (0.50)	0.7	ND (0.56)	ND (0.54)	ND (0.44)	ND (0.43)	ND (0.52)
	Chromium, Total	1,000	1,000	12.6	8.01	8	10.2	9.6	5.8	9.84	10.1	11	12	10.6	6.67	14.3	13.7	14.9	11.9
	Hexavalent Chromium	NE	NE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Lead, Total	1,000	2,000	13.1	9.88	9.88	19.6	19	7	42.9	26.9	28.2	174	17.6	72.6	84.3	12.8	17.2	56.7
	TCLP Lead	< 5	< 5	-	-	-	-	-	-	-	-	-	1.36	-	-	-	-	-	-
	Mercury, Total	10	10	ND (0.035)	ND (0.032)	ND (0.032)	ND (0.033)	0.052	ND (0.030)	0	0.087	0.088	0.05	ND (0.034)	0.059	0.128	0.044	ND (0.033)	0.062
	Selenium, Total	NE	NE	ND (0.48)	ND (2.17)	ND (2.17)	ND (0.44)	ND (4.0)	ND (2.49)	ND (2.65)	ND (2.65)	ND (2.27)	ND (2.49)	ND (2.48)	ND (5.58)	ND (2.71)	ND (2.18)	ND (2.13)	0.62
	Silver, Total	NE	NE	ND (0.48)	ND (0.43)	ND (0.43)	0.56	0.46	ND (0.50)	ND (0.53)	ND (0.53)	ND (0.45)	ND (0.50)	ND (0.50)	ND (0.56)	0.68	ND (0.68)	0.66	ND (0.52)
PCB - mg/kg	Highest PCB Concentration	**< 2**	**< 2**	0.326	**9.84**	0.16	0.0654	ND (0.0601)	ND (0.0563)	0.105	0.108	0.108	0.108	ND (0.12)	ND (0.05570	ND (0.0572)	ND (0.0542)	ND (0.0532)	0.0814
VOCs - mg/kg	All VOCs	NE	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Waste Characterstics	pH	2-12.5	2-12.5	6.2	7.4	8.09	6.76	6.59	7.1	7.36	7.86	7.94	7.7	6.8	7.62	7.43	7.52	6.98	6.58
	Ignitability /Flashpoint	NI	NI	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent
	ORP	NE	NE	388	388	381	423	419	409	378	376	380	376	94	454	442	457	472	372
	Conductivity	4,000	8,000	60	139	97	167	153	17	55	49	67	25	22	746	150	13	11	16
	Reactive Sulfides	500	500	ND (2.0)	ND (2.0)	ND (20)	ND (20)	ND (2.0)	ND (20)	ND (2.0)	ND (2.0)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (2.0)	ND (2.0)	ND (2.0)
	Reactive Cyanide	250	250	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (20)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (4.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)

Notes:
VOCs = Volatile Organic Compounds
SVOCs = Semi-Volatile Organic Compounds
TPH = Total Petroleum Hydrocarbons
PCBs = Polychlorinated biphenyls
mg/kg = milligrams per kilogram (ppm)
< xx = not detected above the indicated laboratory method detection limit
c/s = compound specific
NE = Not Established
ND = Not Detected
Type C1 Soil: Re-Use at Unlined Landfill
Type D3 Soil: Out-of-State Subtitle D Landfill

Tighe&Bond

APPENDIX D

STATION 292
PCB TRENCH LABORATORY REPORTS

CERTIFICATE OF ANALYSIS

Michael Martin
Tighe & Bond
4 Barlows Landing Road, Unit 15
Pocasset, MA 02559

RE: Station 292 (N-1023-035)
ESS Laboratory Work Order Number: 1604338

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED
By ESS Laboratory at 3:28 pm, Apr 15, 2016

Analytical Summary
The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with NELAC Standards, A2LA and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604338

SAMPLE RECEIPT

The following samples were received on April 13, 2016 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has performed and reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Data Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

Lab Number	Sample Name	Matrix	Analysis
1604338-01	Trench 59 0-4ft	Soil	8082A
1604338-02	Trench 59 4-8ft	Soil	8082A
1604338-03	Trench 60 0-4ft	Soil	8082A
1604338-04	Trench 60 4-8ft	Soil	8082A

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604338

PROJECT NARRATIVE

No unusual observations noted.

End of Project Narrative.

DATA USABILITY LINKS

Definitions of Quality Control Parameters

Semivolatile Organics Internal Standard Information

Semivolatile Organics Surrogate Information

Volatile Organics Internal Standard Information

Volatile Organics Surrogate Information

EPH and VPH Alkane Lists

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604338

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

1010A - Flashpoint
6010C - ICP
6020A - ICP MS
7010 - Graphite Furnace
7196A - Hexavalent Chromium
7470A - Aqueous Mercury
7471B - Solid Mercury
8011 - EDB/DBCP/TCP
8015D - GRO/DRO
8081B - Pesticides
8082A - PCB
8100M - TPH
8151A - Herbicides
8260B - VOA
8270D - SVOA
8270D SIM - SVOA Low Level
9014 - Cyanide
9038 - Sulfate
9040C - Aqueous pH
9045D - Solid pH (Corrosivity)
9050A - Specific Conductance
9056A - Anions (IC)
9060A - TOC
9095B - Paint Filter
MADEP 04-1.1 - EPH / VPH

Prep Methods

3005A - Aqueous ICP Digestion
3020A - Aqueous Graphite Furnace / ICP MS Digestion
3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
3060A - Solid Hexavalent Chromium Digestion
3510C - Separatory Funnel Extraction
3520C - Liquid / Liquid Extraction
3540C - Manual Soxhlet Extraction
3541 - Automated Soxhlet Extraction
3546 - Microwave Extraction
3580A - Waste Dilution
5030B - Aqueous Purge and Trap
5030C - Aqueous Purge and Trap
5035 - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604338

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **1604338-01 through 1604338-04**

Matrices: ( ) Ground Water/Surface Water (X) Soil/Sediment ( ) Drinking Water ( ) Air ( ) Other:_____

CAM Protocol (check all that apply below):

( ) 8260 VOC CAM II A	( ) 7470/7471 Hg CAM III B	( ) MassDEP VPH CAM IV A	( ) 8081 Pesticides CAM V B	( ) 7196 Hex Cr CAM VI B	( ) MassDEP APH CAM IX A
( ) 8270 SVOC CAM II B	( ) 7010 Metals CAM III C	( ) MassDEP EPH CAM IV B	( ) 8151 Herbicides CAM V C	( ) 8330 Explosives CAM VIII A	( ) TO-15 VOC CAM IX B
( ) 6010 Metals CAM III A	( ) 6020 Metals CAM III D	(X) 8082 PCB CAM V A	( ) 6860 Perchlorate CAM VIII B	( ) 9014 Total Cyanide/PAC CAM VI A	

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	Yes (X) No ( )
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	Yes (X) No ( )
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	Yes (X) No ( )
D	Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	Yes (X) No ( )
E	a. VPH, EPH, APH and TO-15 only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	Yes ( ) No ( )
	b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	Yes ( ) No ( )
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	Yes (X) No ( )

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)?	Yes (X) No ( )*
	Data User Note: ***Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.***	
H	Were **all** QC performance standards specified in the CAM protocol(s) achieved?	Yes (X) No ( )*
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	Yes (X) No ( )*

****All negative responses must be addressed in an attached laboratory narrative.***

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: _____ Date: April 15, 2016
Printed Name: Laurel Stoddard Position: Laboratory Director

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Trench 59 0-4ft
Date Sampled: 04/13/16 09:35
Percent Solids: 88
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1604338
ESS Laboratory Sample ID: 1604338-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 4/13/16 21:21
Cleanup Method: 3665A

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.0563)		8082A		1	04/15/16 1:08		CD61318
Aroclor 1221	ND (0.0563)		8082A		1	04/15/16 1:08		CD61318
Aroclor 1232	ND (0.0563)		8082A		1	04/15/16 1:08		CD61318
Aroclor 1242	ND (0.0563)		8082A		1	04/15/16 1:08		CD61318
Aroclor 1248	ND (0.0563)		8082A		1	04/15/16 1:08		CD61318
Aroclor 1254	**0.326** (0.0563)		8082A		1	04/15/16 1:08		CD61318
Aroclor 1260	ND (0.0563)		8082A		1	04/15/16 1:08		CD61318
Aroclor 1262	ND (0.0563)		8082A		1	04/15/16 1:08		CD61318
Aroclor 1268	ND (0.0563)		8082A		1	04/15/16 1:08		CD61318

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*65 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*66 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*73 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*63 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Trench 59 4-8ft
Date Sampled: 04/13/16 10:23
Percent Solids: 95
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1604338
ESS Laboratory Sample ID: 1604338-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 4/13/16 21:21
Cleanup Method: 3665A

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.0522)		8082A		1	04/15/16 1:27		CD61318
Aroclor 1221	ND (0.0522)		8082A		1	04/15/16 1:27		CD61318
Aroclor 1232	ND (0.0522)		8082A		1	04/15/16 1:27		CD61318
Aroclor 1242	ND (0.0522)		8082A		1	04/15/16 1:27		CD61318
Aroclor 1248	ND (0.0522)		8082A		1	04/15/16 1:27		CD61318
Aroclor 1254	**0.245** (0.0522)		8082A		1	04/15/16 1:27		CD61318
Aroclor 1260	ND (0.0522)		8082A		1	04/15/16 1:27		CD61318
Aroclor 1262	ND (0.0522)		8082A		1	04/15/16 1:27		CD61318
Aroclor 1268	ND (0.0522)		8082A		1	04/15/16 1:27		CD61318

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*82 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*85 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*84 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*80 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Trench 60 0-4ft
Date Sampled: 04/13/16 12:34
Percent Solids: 87
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1604338
ESS Laboratory Sample ID: 1604338-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 4/13/16 21:21
Cleanup Method: 3665A

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.0577)		8082A		1	04/15/16 1:46		CD61318
Aroclor 1221	ND (0.0577)		8082A		1	04/15/16 1:46		CD61318
Aroclor 1232	ND (0.0577)		8082A		1	04/15/16 1:46		CD61318
Aroclor 1242	ND (0.0577)		8082A		1	04/15/16 1:46		CD61318
Aroclor 1248	ND (0.0577)		8082A		1	04/15/16 1:46		CD61318
Aroclor 1254	**0.0885** (0.0577)		8082A		1	04/15/16 1:46		CD61318
Aroclor 1260	ND (0.0577)		8082A		1	04/15/16 1:46		CD61318
Aroclor 1262	ND (0.0577)		8082A		1	04/15/16 1:46		CD61318
Aroclor 1268	ND (0.0577)		8082A		1	04/15/16 1:46		CD61318

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*83 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*89 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*84 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*81 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Trench 60 4-8ft
Date Sampled: 04/13/16 13:20
Percent Solids: 92
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1604338
ESS Laboratory Sample ID: 1604338-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 4/13/16 21:21
Cleanup Method: 3665A

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.0559)		8082A		1	04/15/16 2:06		CD61318
Aroclor 1221	ND (0.0559)		8082A		1	04/15/16 2:06		CD61318
Aroclor 1232	ND (0.0559)		8082A		1	04/15/16 2:06		CD61318
Aroclor 1242	ND (0.0559)		8082A		1	04/15/16 2:06		CD61318
Aroclor 1248	ND (0.0559)		8082A		1	04/15/16 2:06		CD61318
Aroclor 1254	ND (0.0559)		8082A		1	04/15/16 2:06		CD61318
Aroclor 1260	ND (0.0559)		8082A		1	04/15/16 2:06		CD61318
Aroclor 1262	ND (0.0559)		8082A		1	04/15/16 2:06		CD61318
Aroclor 1268	ND (0.0559)		8082A		1	04/15/16 2:06		CD61318

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*85 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*91 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*85 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*82 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604338

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CD61318 - 3540C										
Blank										
Aroclor 1016	ND	0.0500	mg/kg wet							
Aroclor 1221	ND	0.0500	mg/kg wet							
Aroclor 1232	ND	0.0500	mg/kg wet							
Aroclor 1242	ND	0.0500	mg/kg wet							
Aroclor 1248	ND	0.0500	mg/kg wet							
Aroclor 1254	ND	0.0500	mg/kg wet							
Aroclor 1260	ND	0.0500	mg/kg wet							
Aroclor 1262	ND	0.0500	mg/kg wet							
Aroclor 1268	ND	0.0500	mg/kg wet							
Surrogate: Decachlorobiphenyl	*0.0195*		mg/kg wet	*0.02500*		*78*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0209*		mg/kg wet	*0.02500*		*84*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0195*		mg/kg wet	*0.02500*		*78*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0187*		mg/kg wet	*0.02500*		*75*	*30-150*			
LCS										
Aroclor 1016	0.456	0.0500	mg/kg wet	0.5000		91	40-140			
Aroclor 1260	0.441	0.0500	mg/kg wet	0.5000		88	40-140			
Surrogate: Decachlorobiphenyl	*0.0199*		mg/kg wet	*0.02500*		*80*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0216*		mg/kg wet	*0.02500*		*86*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0201*		mg/kg wet	*0.02500*		*80*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0204*		mg/kg wet	*0.02500*		*82*	*30-150*			
LCS Dup										
Aroclor 1016	0.472	0.0500	mg/kg wet	0.5000		94	40-140	3	30	
Aroclor 1260	0.479	0.0500	mg/kg wet	0.5000		96	40-140	8	30	
Surrogate: Decachlorobiphenyl	*0.0221*		mg/kg wet	*0.02500*		*88*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0240*		mg/kg wet	*0.02500*		*96*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0206*		mg/kg wet	*0.02500*		*82*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0211*		mg/kg wet	*0.02500*		*84*	*30-150*			

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292 ESS Laboratory Work Order: 1604338

Notes and Definitions

U	Analyte included in the analysis, but not detected
ND	Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DL	Detection Limit
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
NR	No Recovery
[CALC]	Calculated Analyte
SUB	Subcontracted analysis; see attached report

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604338

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179
http://www.health.ri.gov/find/labs/analytical/ESS.pdf

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002
http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/documents/AllLabs.xls

Massachusetts Potable and Non Potable Water: M-RI002
http://public.dep.state.ma.us/Labcert/Labcert.aspx

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424
http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313
http://www.wadsworth.org/labcert/elap/comm.html

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006
http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752
http://www.depweb.state.pa.us/portal/server.pt/community/labs/13780/laboratory_accreditation_program/590095

ESS Laboratory Sample and Cooler Receipt Checklist

Client: Tighe & Bond - KPB/TB/MM

Shipped/Delivered Via: ESS Courier

ESS Project ID: 1604338
Date Received: 4/13/2016
Project Due Date: 4/15/2016
Days for Project: 2 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 1.1 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** Yes / No / NA
10. Were any analyses received outside of hold time? Yes / No

11. Any Subcontracting needed? Yes / No
    ESS Sample IDs:
    Analysis:
    TAT:
12. Were VOAs received? Yes / No
    a. Air bubbles in aqueous VOAs? Yes / No
    b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
    a. If metals preserved upon receipt: Date: Time: By:
    b. Low Level VOAs brought to freezer: Date: Time: By:

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / No
    a. Was there a need to contact the client? Yes / No
    Who was contacted? Date: Time: By:

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	26136	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	26135	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	26134	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	26133	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

2nd Review
Are barcode labels on correct containers? Yes / No

Completed By: Date & Time: 4/13/16 1900
Reviewed By: Date & Time: 4/13/16 1920

ESS Laboratory

Division of Thielsch Engineering, Inc.

185 Frances Avenue, Cranston, RI 02910-2211
Tel. (401) 461-7181 Fax (401) 461-4486
www.esslaboratory.com

CHAIN OF CUSTODY

ESS Lab # 1604338

Turn Time 48hr Standard Other_____

Regulatory State: (MA) RI CT NH NJ NY ME Other_____

Is this project for any of the following:(please circle)
(MA-MCP) Navy USACE CT DEP Other_____

Reporting Limits - RCS-1

Electonic Deliverables (Excel) Access (PDF)

Co. Name: Tighe + Bond

Contact Person: Michael Martin

Project # N-1023-035

Project Name: Station 292

Address: 4 Barlows landing

City: ~~4 Barlows landing~~ Pocasset

State: MA

Zip: 02559

PO #:

Tel.:

Fax.:

email: MEMartin@tighebond.com

ESS Lab ID	Date	Collection Time	Grab -G Composite-C	Matrix	Sample ID	Pres Code	# of Containers	Type of Container	Vol of Container	Analysis: PCBs
1	4/13/16	9:35	G	S	Trench 59 (0-4')	NP	1	AG	4oz	X
2	↓	10:23	G	S	Trench 59 (4-8')	NP	1	AG	↓	X
3	↓	12:34	G	S	Trench 60 (0-4')	NP	1	AG	↓	X
4	↓	13:20	G	S	Trench 60 (4-8')	NP	1	AG	↓	X

Container Type: P-Poly G-Glass AG-Amber Glass S-Sterile V-VOA

Matrix: S-Soil SD-Solid D-Sludge WW-Wastewater GW-Groundwater SW-Surface Water DW-Drinking Water O-Oil W-Wipes F-Filter

Cooler Present _____Yes _____No

Seals Intact ____ Yes _____No NA:___

Cooler Temperature: 1.7

Internal Use Only
[✓] Pickup
[ ] Technician___

Preservation Code: 1-NP, 2-HCl, 3-H2SO4, 4-HNO3, 5-NaOH, 6-MeOH, 7-Asorbic Acid, 8-ZnAct, 9-_____

Sampled by : Ku

Comments: TSCA Extraction Method

Relinquished by: (Signature, Date & Time)	Received by: (Signature, Date & Time)	Relinquished by: (Signature, Date & Time)	Received by: (Signature, Date & Time)
4/13/16	4/13/16 15:[illegible]	4/13/16 17:18	4/13/16 1854
Relinquished by: (Signature, Date & Time)	Received by: (Signature, Date & Time)	Relinquished by: (Signature, Date & Time)	Received by: (Signature, Date & Time)

* By circling MA-MCP, client acknowledges samples were collected in accordance with MADEP CAM VIIA

Please fax to the laboratory all changes to Chain of Custody

1 (White) Lab Copy
2 (Yellow) Client Receipt

CERTIFICATE OF ANALYSIS

Michael Martin
Tighe & Bond
4 Barlows Landing Road, Unit 15
Pocasset, MA 02559

RE: Station 292 (N-1023-056)
ESS Laboratory Work Order Number: 1604395

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED
By ESS Laboratory at 3:30 pm, Apr 18, 2016

Analytical Summary
The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with NELAC Standards, A2LA and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604395

SAMPLE RECEIPT

The following samples were received on April 14, 2016 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has performed and reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Data Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

Lab Number	Sample Name	Matrix	Analysis
1604395-01	Trench 61 0-4ft	Soil	8082A
1604395-02	Trench 61 4-8ft	Soil	8082A
1604395-03	Trench 62 0-4ft	Soil	8082A
1604395-04	Trench 62 4-8ft	Soil	8082A
1604395-05	Trench 63 0-4ft	Soil	8082A
1604395-06	Trench 63 4-8ft	Soil	8082A
1604395-07	Trench 64/65	Soil	8082A
1604395-08	Trench 66 0-4ft	Soil	8082A
1604395-09	Trench 66 4-8ft	Soil	8082A

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604395

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

1604395-05 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (101% @ 30-150%), Decachlorobiphenyl [2C] (96% @ 30-150%),
Tetrachloro-m-xylene (84% @ 30-150%), Tetrachloro-m-xylene [2C] (95% @ 30-150%)

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

Definitions of Quality Control Parameters

Semivolatile Organics Internal Standard Information

Semivolatile Organics Surrogate Information

Volatile Organics Internal Standard Information

Volatile Organics Surrogate Information

EPH and VPH Alkane Lists

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604395

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

1010A - Flashpoint
6010C - ICP
6020A - ICP MS
7010 - Graphite Furnace
7196A - Hexavalent Chromium
7470A - Aqueous Mercury
7471B - Solid Mercury
8011 - EDB/DBCP/TCP
8015D - GRO/DRO
8081B - Pesticides
8082A - PCB
8100M - TPH
8151A - Herbicides
8260B - VOA
8270D - SVOA
8270D SIM - SVOA Low Level
9014 - Cyanide
9038 - Sulfate
9040C - Aqueous pH
9045D - Solid pH (Corrosivity)
9050A - Specific Conductance
9056A - Anions (IC)
9060A - TOC
9095B - Paint Filter
MADEP 04-1.1 - EPH / VPH

Prep Methods

3005A - Aqueous ICP Digestion
3020A - Aqueous Graphite Furnace / ICP MS Digestion
3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
3060A - Solid Hexavalent Chromium Digestion
3510C - Separatory Funnel Extraction
3520C - Liquid / Liquid Extraction
3540C - Manual Soxhlet Extraction
3541 - Automated Soxhlet Extraction
3546 - Microwave Extraction
3580A - Waste Dilution
5030B - Aqueous Purge and Trap
5030C - Aqueous Purge and Trap
5035 - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604395

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **1604395-01 through 1604395-09**

Matrices: ( ) Ground Water/Surface Water (X) Soil/Sediment ( ) Drinking Water ( ) Air ( ) Other:_____

CAM Protocol (check all that apply below):

( ) 8260 VOC CAM II A	( ) 7470/7471 Hg CAM III B	( ) MassDEP VPH CAM IV A	( ) 8081 Pesticides CAM V B	( ) 7196 Hex Cr CAM VI B	( ) MassDEP APH CAM IX A
( ) 8270 SVOC CAM II B	( ) 7010 Metals CAM III C	( ) MassDEP EPH CAM IV B	( ) 8151 Herbicides CAM V C	( ) 8330 Explosives CAM VIII A	( ) TO-15 VOC CAM IX B
( ) 6010 Metals CAM III A	( ) 6020 Metals CAM III D	(X) 8082 PCB CAM V A	( ) 6860 Perchlorate CAM VIII B	( ) 9014 Total Cyanide/PAC CAM VI A	

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	Yes (X) No ( )
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	Yes (X) No ( )
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	Yes (X) No ( )
D	Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	Yes (X) No ( )
E	a. VPH, EPH, APH and TO-15 only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	Yes ( ) No ( )
	b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	Yes ( ) No ( )
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	Yes (X) No ( )

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)?	Yes (X) No ( )*
	Data User Note: ***Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.***	
H	Were **all** QC performance standards specified in the CAM protocol(s) achieved?	Yes ( ) No (X)*
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	Yes (X) No ( )*

****All negative responses must be addressed in an attached laboratory narrative.***

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Laurel Stoddard
Date: April 18, 2016
Printed Name: Laurel Stoddard
Position: Laboratory Director

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Trench 61 0-4ft
Date Sampled: 04/14/16 08:10
Percent Solids: 95
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1604395
ESS Laboratory Sample ID: 1604395-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: JXS
Prepared: 4/14/16 18:30
Cleanup Method: 3665A

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.0546)		8082A		1	04/15/16 19:59		CD61417
Aroclor 1221	ND (0.0546)		8082A		1	04/15/16 19:59		CD61417
Aroclor 1232	ND (0.0546)		8082A		1	04/15/16 19:59		CD61417
Aroclor 1242	ND (0.0546)		8082A		1	04/15/16 19:59		CD61417
Aroclor 1248	ND (0.0546)		8082A		1	04/15/16 19:59		CD61417
Aroclor 1254	ND (0.0546)		8082A		1	04/15/16 19:59		CD61417
Aroclor 1260	ND (0.0546)		8082A		1	04/15/16 19:59		CD61417
Aroclor 1262	ND (0.0546)		8082A		1	04/15/16 19:59		CD61417
Aroclor 1268	ND (0.0546)		8082A		1	04/15/16 19:59		CD61417

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*87 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*77 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*78 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*77 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Trench 61 4-8ft
Date Sampled: 04/14/16 08:33
Percent Solids: 95
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1604395
ESS Laboratory Sample ID: 1604395-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: JXS
Prepared: 4/14/16 18:30
Cleanup Method: 3665A

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.0547)		8082A		1	04/15/16 20:22		CD61417
Aroclor 1221	ND (0.0547)		8082A		1	04/15/16 20:22		CD61417
Aroclor 1232	ND (0.0547)		8082A		1	04/15/16 20:22		CD61417
Aroclor 1242	ND (0.0547)		8082A		1	04/15/16 20:22		CD61417
Aroclor 1248	ND (0.0547)		8082A		1	04/15/16 20:22		CD61417
Aroclor 1254	ND (0.0547)		8082A		1	04/15/16 20:22		CD61417
Aroclor 1260	ND (0.0547)		8082A		1	04/15/16 20:22		CD61417
Aroclor 1262	ND (0.0547)		8082A		1	04/15/16 20:22		CD61417
Aroclor 1268	ND (0.0547)		8082A		1	04/15/16 20:22		CD61417

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*87 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*87 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*80 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*79 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Trench 62 0-4ft
Date Sampled: 04/14/16 08:40
Percent Solids: 89
Initial Volume: 19.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1604395
ESS Laboratory Sample ID: 1604395-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: JXS
Prepared: 4/14/16 18:30
Cleanup Method: 3665A

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.0585)		8082A		1	04/15/16 20:44		CD61417
Aroclor 1221	ND (0.0585)		8082A		1	04/15/16 20:44		CD61417
Aroclor 1232	ND (0.0585)		8082A		1	04/15/16 20:44		CD61417
Aroclor 1242	ND (0.0585)		8082A		1	04/15/16 20:44		CD61417
Aroclor 1248	ND (0.0585)		8082A		1	04/15/16 20:44		CD61417
Aroclor 1254	ND (0.0585)		8082A		1	04/15/16 20:44		CD61417
Aroclor 1260	ND (0.0585)		8082A		1	04/15/16 20:44		CD61417
Aroclor 1262	ND (0.0585)		8082A		1	04/15/16 20:44		CD61417
Aroclor 1268	ND (0.0585)		8082A		1	04/15/16 20:44		CD61417

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*80 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*83 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*84 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*81 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Trench 62 4-8ft
Date Sampled: 04/14/16 08:55
Percent Solids: 96
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1604395
ESS Laboratory Sample ID: 1604395-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: JXS
Prepared: 4/14/16 18:30
Cleanup Method: 3665A

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.0523)		8082A		1	04/15/16 21:07		CD61417
Aroclor 1221	ND (0.0523)		8082A		1	04/15/16 21:07		CD61417
Aroclor 1232	ND (0.0523)		8082A		1	04/15/16 21:07		CD61417
Aroclor 1242	ND (0.0523)		8082A		1	04/15/16 21:07		CD61417
Aroclor 1248	ND (0.0523)		8082A		1	04/15/16 21:07		CD61417
Aroclor 1254	ND (0.0523)		8082A		1	04/15/16 21:07		CD61417
Aroclor 1260	ND (0.0523)		8082A		1	04/15/16 21:07		CD61417
Aroclor 1262	ND (0.0523)		8082A		1	04/15/16 21:07		CD61417
Aroclor 1268	ND (0.0523)		8082A		1	04/15/16 21:07		CD61417

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*71 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*70 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*71 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*68 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Trench 63 0-4ft
Date Sampled: 04/14/16 09:15
Percent Solids: 89
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1604395
ESS Laboratory Sample ID: 1604395-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 4/14/16 18:30
Cleanup Method: 3665A

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (1.15)		8082A		20	04/18/16 13:06		CD61417
Aroclor 1221	ND (1.15)		8082A		20	04/18/16 13:06		CD61417
Aroclor 1232	ND (1.15)		8082A		20	04/18/16 13:06		CD61417
Aroclor 1242	ND (1.15)		8082A		20	04/18/16 13:06		CD61417
Aroclor 1248	ND (1.15)		8082A		20	04/18/16 13:06		CD61417
Aroclor 1254	**9.84** (1.15)		8082A		20	04/18/16 13:06		CD61417
Aroclor 1260	ND (1.15)		8082A		20	04/18/16 13:06		CD61417
Aroclor 1262	ND (1.15)		8082A		20	04/18/16 13:06		CD61417
Aroclor 1268	ND (1.15)		8082A		20	04/18/16 13:06		CD61417

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*101 %*	*SD*	*30-150*
Surrogate: Decachlorobiphenyl [2C]	*96 %*	*SD*	*30-150*
Surrogate: Tetrachloro-m-xylene	*84 %*	*SD*	*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*95 %*	*SD*	*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Trench 63 4-8ft
Date Sampled: 04/14/16 09:25
Percent Solids: 95
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1604395
ESS Laboratory Sample ID: 1604395-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: JXS
Prepared: 4/14/16 18:30
Cleanup Method: 3665A

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.0526)		8082A		1	04/15/16 21:52		CD61417
Aroclor 1221	ND (0.0526)		8082A		1	04/15/16 21:52		CD61417
Aroclor 1232	ND (0.0526)		8082A		1	04/15/16 21:52		CD61417
Aroclor 1242	ND (0.0526)		8082A		1	04/15/16 21:52		CD61417
Aroclor 1248	ND (0.0526)		8082A		1	04/15/16 21:52		CD61417
Aroclor 1254	**0.835** (0.0526)		8082A		1	04/15/16 21:52		CD61417
Aroclor 1260	ND (0.0526)		8082A		1	04/15/16 21:52		CD61417
Aroclor 1262	ND (0.0526)		8082A		1	04/15/16 21:52		CD61417
Aroclor 1268	ND (0.0526)		8082A		1	04/15/16 21:52		CD61417

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*79 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*84 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*64 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*65 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Trench 64/65
Date Sampled: 04/14/16 11:23
Percent Solids: 94
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1604395
ESS Laboratory Sample ID: 1604395-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: JXS
Prepared: 4/14/16 18:30
Cleanup Method: 3665A

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.0553)		8082A		1	04/15/16 22:15		CD61417
Aroclor 1221	ND (0.0553)		8082A		1	04/15/16 22:15		CD61417
Aroclor 1232	ND (0.0553)		8082A		1	04/15/16 22:15		CD61417
Aroclor 1242	ND (0.0553)		8082A		1	04/15/16 22:15		CD61417
Aroclor 1248	ND (0.0553)		8082A		1	04/15/16 22:15		CD61417
Aroclor 1254	**0.160** (0.0553)		8082A		1	04/15/16 22:15		CD61417
Aroclor 1260	ND (0.0553)		8082A		1	04/15/16 22:15		CD61417
Aroclor 1262	ND (0.0553)		8082A		1	04/15/16 22:15		CD61417
Aroclor 1268	ND (0.0553)		8082A		1	04/15/16 22:15		CD61417

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*83 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*85 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*76 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*74 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Trench 66 0-4ft
Date Sampled: 04/14/16 12:47
Percent Solids: 91
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1604395
ESS Laboratory Sample ID: 1604395-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: JXS
Prepared: 4/14/16 18:30
Cleanup Method: 3665A

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.0563)		8082A		1	04/15/16 22:38		CD61417
Aroclor 1221	ND (0.0563)		8082A		1	04/15/16 22:38		CD61417
Aroclor 1232	ND (0.0563)		8082A		1	04/15/16 22:38		CD61417
Aroclor 1242	ND (0.0563)		8082A		1	04/15/16 22:38		CD61417
Aroclor 1248	ND (0.0563)		8082A		1	04/15/16 22:38		CD61417
Aroclor 1254	ND (0.0563)		8082A		1	04/15/16 22:38		CD61417
Aroclor 1260	ND (0.0563)		8082A		1	04/15/16 22:38		CD61417
Aroclor 1262	ND (0.0563)		8082A		1	04/15/16 22:38		CD61417
Aroclor 1268	ND (0.0563)		8082A		1	04/15/16 22:38		CD61417

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*80 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*80 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*77 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*74 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Trench 66 4-8ft
Date Sampled: 04/14/16 13:11
Percent Solids: 92
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1604395
ESS Laboratory Sample ID: 1604395-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: JXS
Prepared: 4/14/16 18:30
Cleanup Method: 3665A

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.0549)		8082A		1	04/15/16 23:00		CD61417
Aroclor 1221	ND (0.0549)		8082A		1	04/15/16 23:00		CD61417
Aroclor 1232	ND (0.0549)		8082A		1	04/15/16 23:00		CD61417
Aroclor 1242	ND (0.0549)		8082A		1	04/15/16 23:00		CD61417
Aroclor 1248	ND (0.0549)		8082A		1	04/15/16 23:00		CD61417
Aroclor 1254	**0.108** (0.0549)		8082A		1	04/15/16 23:00		CD61417
Aroclor 1260	ND (0.0549)		8082A		1	04/15/16 23:00		CD61417
Aroclor 1262	ND (0.0549)		8082A		1	04/15/16 23:00		CD61417
Aroclor 1268	ND (0.0549)		8082A		1	04/15/16 23:00		CD61417

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*79 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*80 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*77 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*75 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604395

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CD61417 - 3540C										
Blank										
Aroclor 1016	ND	0.0500	mg/kg wet							
Aroclor 1221	ND	0.0500	mg/kg wet							
Aroclor 1232	ND	0.0500	mg/kg wet							
Aroclor 1242	ND	0.0500	mg/kg wet							
Aroclor 1248	ND	0.0500	mg/kg wet							
Aroclor 1254	ND	0.0500	mg/kg wet							
Aroclor 1260	ND	0.0500	mg/kg wet							
Aroclor 1262	ND	0.0500	mg/kg wet							
Aroclor 1268	ND	0.0500	mg/kg wet							
Surrogate: Decachlorobiphenyl	*0.0210*		mg/kg wet	*0.02500*		*84*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0230*		mg/kg wet	*0.02500*		*92*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0199*		mg/kg wet	*0.02500*		*80*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0192*		mg/kg wet	*0.02500*		*77*	*30-150*			
LCS										
Aroclor 1016	0.474	0.0500	mg/kg wet	0.5000		95	40-140			
Aroclor 1260	0.504	0.0500	mg/kg wet	0.5000		101	40-140			
Surrogate: Decachlorobiphenyl	*0.0231*		mg/kg wet	*0.02500*		*93*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0255*		mg/kg wet	*0.02500*		*102*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0218*		mg/kg wet	*0.02500*		*87*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0221*		mg/kg wet	*0.02500*		*88*	*30-150*			
LCS Dup										
Aroclor 1016	0.456	0.0500	mg/kg wet	0.5000		91	40-140	4	30	
Aroclor 1260	0.478	0.0500	mg/kg wet	0.5000		96	40-140	5	30	
Surrogate: Decachlorobiphenyl	*0.0214*		mg/kg wet	*0.02500*		*86*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0233*		mg/kg wet	*0.02500*		*93*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0205*		mg/kg wet	*0.02500*		*82*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0208*		mg/kg wet	*0.02500*		*83*	*30-150*			

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292 ESS Laboratory Work Order: 1604395

Notes and Definitions

U	Analyte included in the analysis, but not detected
SD	Surrogate recovery(ies) diluted below the MRL (SD).
D	Diluted.
ND	Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DL	Detection Limit
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
NR	No Recovery
[CALC]	Calculated Analyte
SUB	Subcontracted analysis; see attached report

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604395

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179
http://www.health.ri.gov/find/labs/analytical/ESS.pdf

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002
http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/documents/AllLabs.xls

Massachusetts Potable and Non Potable Water: M-RI002
http://public.dep.state.ma.us/Labcert/Labcert.aspx

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424
http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313
http://www.wadsworth.org/labcert/elap/comm.html

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006
http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752
http://www.depweb.state.pa.us/portal/server.pt/community/labs/13780/laboratory_accreditation_program/590095

ESS Laboratory Sample and Cooler Receipt Checklist

Client: Tighe & Bond - KPB/TB/MM

Shipped/Delivered Via: ESS Courier

ESS Project ID: 1604395
Date Received: 4/14/2016
Project Due Date: 4/18/2016
Days for Project: 2 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 2.1 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** (Yes) / No / NA
10. Were any analyses received outside of hold time? Yes / (No)

11. Any Subcontracting needed? Yes / (No)
    ESS Sample IDs:
    Analysis:
    TAT:
12. Were VOAs received? Yes / (No)
    a. Air bubbles in aqueous VOAs? Yes / No
    b. Does methanol cover soil completely? Yes / No / (NA)

13. Are the samples properly preserved? (Yes) / No
    a. If metals preserved upon receipt: Date: Time: By:
    b. Low Level VOAs brought to freezer: Date: Time: By:

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / (No)
    a. Was there a need to contact the client? Yes / No
    Who was contacted? Date: Time: By:

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	26683	Yes	NA	Yes	8 oz. Jar - Unpres	NP	
02	26682	Yes	NA	Yes	8 oz. Jar - Unpres	NP	
03	26681	Yes	NA	Yes	8 oz. Jar - Unpres	NP	
04	26680	Yes	NA	Yes	8 oz. Jar - Unpres	NP	
05	26679	Yes	NA	Yes	8 oz. Jar - Unpres	NP	
06	26678	Yes	NA	Yes	8 oz. Jar - Unpres	NP	
07	26677	Yes	NA	Yes	8 oz. Jar - Unpres	NP	
08	26676	Yes	NA	Yes	8 oz. Jar - Unpres	NP	
09	26675	Yes	NA	Yes	8 oz. Jar - Unpres	NP	

2nd Review
Are barcode labels on correct containers? (Yes) / No

Completed By: Date & Time: 4/14/16 1722
Reviewed By: Date & Time: 4/14/16 1740

ESS Laboratory

Division of Thielsch Engineering, Inc.
185 Frances Avenue, Cranston, RI 02910-2211
Tel. (401) 461-7181 Fax (401) 461-4486
www.esslaboratory.com

CHAIN OF CUSTODY

Page 1 of 1

Turn Time 48 hr ___ Standard Other ___
If faster than 5 days, prior approval by laboratory is required # ___

State where samples were collected from: (MA) RI CT NH NJ NY ME Other ___

Is this project for any of the following: (MA-MCP*) Navy USACE Other ___

Reporting Limits: RCS-1

ESS LAB PROJECT ID: 1604395

Electronic Deliverable: ✓ Yes ___ No Format Excel/PDF

Co. Name	Tighe + Bond
Project #	056 N-1023 ~~035~~
Project Name (20 Char. or less)	Station 292
Contact Person	Michael Martin
Address	4 Barlows Landing
City	Pocasset
State	MA
Zip	02559
PO#	
Telephone #	
Fax #	
Email Address	MEMartin@TigheBond.com

Circle and/or Write Required Analysis

ESS LAB Sample#	Date	Collection Time	COMP	GRAB	MATRIX	Sample Identification (20 Char. or less)	Number of Containers	Type of Containers	8260 / 624 / 524.2	8021 MTBE/BTEX / 8015 GRO / VPH	8100 TPH / 8015 DRO / EPH	8081 Pesticides / 8082 PCB / No Targets	8270 / 625 / PAH only	RCRA5 / RCRA8 / PP13 / TAL23	TCLP8 / MCP / MCPw/Hg / NBC7						
1	4/14/16	810		X	S	Trench 61 (0-4')	1	AG				X									
2		833		X	S	Trench 61 (4-8')	1	AG				X									
3		840		X	S	Trench 62 (0-4')	1	AG				X									
4		855		X	S	Trench 62 (4-8')	1	AG				X									
5		915		X	S	Trench 63 (0-4)	1	AG				X									
6		925		X	S	Trench 63 (4-8)	1	AG				X									
7		11:23	X	X	S	Trench 64/65	1	AG				X									
8		1247		X	S	Trench 66 (0-4')	1	AG				X									
9		1311		X	S	Trench 66 (4-8')	1	AG				X									

Container Type: P-Poly G-Glass S-Sterile V-VOA

Matrix: S-Soil SD-Solid D-Sludge WW-Waste Water GW-Ground Water SW-Surface Water DW-Drinking Water O-Oil W-Wipes F-Filters

Cooler Present ___ Yes ✓ No
Seals Intact ___ Yes ___ No NA: X
Cooler Temp: 2.1 ICE 4/14/16

Internal Use Only
[✓] Pickup
[ ] Technicians ___

Comments: TSCA Extraction method

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
[signature]	4/14/16	[signature]	4/14/16 1451	[signature]	4/14/16 16:42	[signature]	4/14/16 1719
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time

*MADEP requires that all additional calibrated analytes found during analysis be disclosed.

Please fax all changes to Chain of Custody in writing.

1 (White) Lab Copy 2 (Yellow) Client Receipt

CERTIFICATE OF ANALYSIS

Michael Martin
Tighe & Bond
4 Barlows Landing Road, Unit 15
Pocasset, MA 02559

RE: Station 292 (N-1023-056)
ESS Laboratory Work Order Number: 1604451

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED
By ESS Laboratory at 3:29 pm, Apr 19, 2016

Analytical Summary
The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with NELAC Standards, A2LA and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604451

SAMPLE RECEIPT

The following samples were received on April 15, 2016 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has performed and reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Data Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

Lab Number	Sample Name	Matrix	Analysis
1604451-01	Trench 66/67	Soil	8082A
1604451-02	Trench 68/69	Soil	8082A

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604451

PROJECT NARRATIVE

No unusual observations noted.

End of Project Narrative.

DATA USABILITY LINKS

Definitions of Quality Control Parameters

Semivolatile Organics Internal Standard Information

Semivolatile Organics Surrogate Information

Volatile Organics Internal Standard Information

Volatile Organics Surrogate Information

EPH and VPH Alkane Lists

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604451

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

1010A - Flashpoint
6010C - ICP
6020A - ICP MS
7010 - Graphite Furnace
7196A - Hexavalent Chromium
7470A - Aqueous Mercury
7471B - Solid Mercury
8011 - EDB/DBCP/TCP
8015D - GRO/DRO
8081B - Pesticides
8082A - PCB
8100M - TPH
8151A - Herbicides
8260B - VOA
8270D - SVOA
8270D SIM - SVOA Low Level
9014 - Cyanide
9038 - Sulfate
9040C - Aqueous pH
9045D - Solid pH (Corrosivity)
9050A - Specific Conductance
9056A - Anions (IC)
9060A - TOC
9095B - Paint Filter
MADEP 04-1.1 - EPH / VPH

Prep Methods

3005A - Aqueous ICP Digestion
3020A - Aqueous Graphite Furnace / ICP MS Digestion
3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
3060A - Solid Hexavalent Chromium Digestion
3510C - Separatory Funnel Extraction
3520C - Liquid / Liquid Extraction
3540C - Manual Soxhlet Extraction
3541 - Automated Soxhlet Extraction
3546 - Microwave Extraction
3580A - Waste Dilution
5030B - Aqueous Purge and Trap
5030C - Aqueous Purge and Trap
5035 - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604451

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **1604451-01 through 1604451-02**

Matrices: ( ) Ground Water/Surface Water (X) Soil/Sediment ( ) Drinking Water ( ) Air ( ) Other:_____

CAM Protocol (check all that apply below):

( ) 8260 VOC CAM II A	( ) 7470/7471 Hg CAM III B	( ) MassDEP VPH CAM IV A	( ) 8081 Pesticides CAM V B	( ) 7196 Hex Cr CAM VI B	( ) MassDEP APH CAM IX A
( ) 8270 SVOC CAM II B	( ) 7010 Metals CAM III C	( ) MassDEP EPH CAM IV B	( ) 8151 Herbicides CAM V C	( ) 8330 Explosives CAM VIII A	( ) TO-15 VOC CAM IX B
( ) 6010 Metals CAM III A	( ) 6020 Metals CAM III D	(X) 8082 PCB CAM V A	( ) 6860 Perchlorate CAM VIII B	( ) 9014 Total Cyanide/PAC CAM VI A	

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	Yes (X) No ( )
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	Yes (X) No ( )
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	Yes (X) No ( )
D	Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	Yes (X) No ( )
E	a. VPH, EPH, APH and TO-15 only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	Yes ( ) No ( )
	b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	Yes ( ) No ( )
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	Yes (X) No ( )

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)?	Yes (X) No ( )*
	Data User Note: ***Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.***	
H	Were **all** QC performance standards specified in the CAM protocol(s) achieved?	Yes (X) No ( )*
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	Yes (X) No ( )*

****All negative responses must be addressed in an attached laboratory narrative.***

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: _____ Date: April 19, 2016
Printed Name: Laurel Stoddard Position: Laboratory Director

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Trench 66/67
Date Sampled: 04/15/16 08:20
Percent Solids: 91
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1604451
ESS Laboratory Sample ID: 1604451-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 4/18/16 17:30
Cleanup Method: 3665A

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.0572)		8082A		1	04/19/16 11:11		CD61823
Aroclor 1221	ND (0.0572)		8082A		1	04/19/16 11:11		CD61823
Aroclor 1232	ND (0.0572)		8082A		1	04/19/16 11:11		CD61823
Aroclor 1242	ND (0.0572)		8082A		1	04/19/16 11:11		CD61823
Aroclor 1248	ND (0.0572)		8082A		1	04/19/16 11:11		CD61823
Aroclor 1254	ND (0.0572)		8082A		1	04/19/16 11:11		CD61823
Aroclor 1260	**0.0654** (0.0572)		8082A		1	04/19/16 11:11		CD61823
Aroclor 1262	ND (0.0572)		8082A		1	04/19/16 11:11		CD61823
Aroclor 1268	ND (0.0572)		8082A		1	04/19/16 11:11		CD61823

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*46 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*48 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*75 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*66 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Trench 68/69
Date Sampled: 04/15/16 09:30
Percent Solids: 87
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1604451
ESS Laboratory Sample ID: 1604451-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 4/18/16 17:30
Cleanup Method: 3665A

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.0601)		8082A		1	04/19/16 11:29		CD61823
Aroclor 1221	ND (0.0601)		8082A		1	04/19/16 11:29		CD61823
Aroclor 1232	ND (0.0601)		8082A		1	04/19/16 11:29		CD61823
Aroclor 1242	ND (0.0601)		8082A		1	04/19/16 11:29		CD61823
Aroclor 1248	ND (0.0601)		8082A		1	04/19/16 11:29		CD61823
Aroclor 1254	ND (0.0601)		8082A		1	04/19/16 11:29		CD61823
Aroclor 1260	ND (0.0601)		8082A		1	04/19/16 11:29		CD61823
Aroclor 1262	ND (0.0601)		8082A		1	04/19/16 11:29		CD61823
Aroclor 1268	ND (0.0601)		8082A		1	04/19/16 11:29		CD61823

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*64 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*66 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*81 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*78 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604451

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CD61823 - 3540C										
Blank										
Aroclor 1016	ND	0.0500	mg/kg wet							
Aroclor 1221	ND	0.0500	mg/kg wet							
Aroclor 1232	ND	0.0500	mg/kg wet							
Aroclor 1242	ND	0.0500	mg/kg wet							
Aroclor 1248	ND	0.0500	mg/kg wet							
Aroclor 1254	ND	0.0500	mg/kg wet							
Aroclor 1260	ND	0.0500	mg/kg wet							
Aroclor 1262	ND	0.0500	mg/kg wet							
Aroclor 1268	ND	0.0500	mg/kg wet							
Surrogate: Decachlorobiphenyl	*0.0158*		mg/kg wet	*0.02500*		*63*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0169*		mg/kg wet	*0.02500*		*67*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0192*		mg/kg wet	*0.02500*		*77*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0188*		mg/kg wet	*0.02500*		*75*	*30-150*			
LCS										
Aroclor 1016	0.463	0.0500	mg/kg wet	0.5000		93	40-140			
Aroclor 1260	0.469	0.0500	mg/kg wet	0.5000		94	40-140			
Surrogate: Decachlorobiphenyl	*0.0167*		mg/kg wet	*0.02500*		*67*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0182*		mg/kg wet	*0.02500*		*73*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0201*		mg/kg wet	*0.02500*		*80*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0206*		mg/kg wet	*0.02500*		*83*	*30-150*			
LCS Dup										
Aroclor 1016	0.456	0.0500	mg/kg wet	0.5000		91	40-140	2	30	
Aroclor 1260	0.465	0.0500	mg/kg wet	0.5000		93	40-140	0.9	30	
Surrogate: Decachlorobiphenyl	*0.0168*		mg/kg wet	*0.02500*		*67*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0182*		mg/kg wet	*0.02500*		*73*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0195*		mg/kg wet	*0.02500*		*78*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0201*		mg/kg wet	*0.02500*		*80*	*30-150*			

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292 ESS Laboratory Work Order: 1604451

Notes and Definitions

U	Analyte included in the analysis, but not detected
ND	Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DL	Detection Limit
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
NR	No Recovery
[CALC]	Calculated Analyte
SUB	Subcontracted analysis; see attached report

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604451

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179
http://www.health.ri.gov/find/labs/analytical/ESS.pdf

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002
http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/documents/AllLabs.xls

Massachusetts Potable and Non Potable Water: M-RI002
http://public.dep.state.ma.us/Labcert/Labcert.aspx

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424
http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313
http://www.wadsworth.org/labcert/elap/comm.html

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006
http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752
http://www.depweb.state.pa.us/portal/server.pt/community/labs/13780/laboratory_accreditation_program/590095

ESS Laboratory Sample and Cooler Receipt Checklist

Client: Tighe & Bond - KPB/TB/MM

Shipped/Delivered Via: ESS Courier

ESS Project ID: 1604451
Date Received: 4/15/2016
Project Due Date: 4/19/2016
Days for Project: 2 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 2.2 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** Yes / No / NA
10. Were any analyses received outside of hold time? Yes / No

11. Any Subcontracting needed? Yes / No
    ESS Sample IDs:
    Analysis:
    TAT:
12. Were VOAs received? Yes / No
    a. Air bubbles in aqueous VOAs? Yes / No
    b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
    a. If metals preserved upon receipt: Date: Time: By:
    b. Low Level VOAs brought to freezer: Date: Time: By:

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / No
    a. Was there a need to contact the client? Yes / No
    Who was contacted? Date: Time: By:

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	27160	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	27159	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

2nd Review
Are barcode labels on correct containers? Yes / No

Completed By: Date & Time: 4/15/16 1850
Reviewed By: Date & Time: 4/15/16 1852

ESS Laboratory

Division of Thielsch Engineering, Inc.
185 Frances Avenue, Cranston, RI 02910-2211
Tel. (401) 461-7181 Fax (401) 461-4486
www.esslaboratory.com

CHAIN OF CUSTODY

Page 1 of 1

Turn Time 48hr Standard Other _____
If faster than 5 days, prior approval by laboratory is required # _____
State where samples were collected from: (MA) RI CT NH NJ NY ME Other _____
Is this project for any of the following: (MA-MCP*) Navy USACE Other _____

Reporting Limits: RCS-1

ESS LAB PROJECT ID: 1604457

Electronic Deliverable: ✓ Yes ___ No Format Excel, PDF

Co. Name: Tighe + Bond
Project # 056 N-1023-~~035~~
Project Name (20 Char. or less): Station 292
Contact Person: Michael Martin
Address: 4 Barlows Landing
City: Pocasset State: MA Zip: 02559
PO#:
Telephone #:
Fax #:
Email Address: MEMartin@tighebond.com

Circle and/or Write Required Analysis

ESS LAB Sample#	Date	Collection Time	COMP	GRAB	MATRIX	Sample Identification (20 Char. or less)	Number of Containers	Type of Containers	8260	624	524.2	8021 MTBE/BTEX	8015 GRO	VPH	8100 TPH	8015 DRO	EPH	No Targets	8081 Pesticides	8082 PCB	608 Pesticides	608 PCB	8270	625	PAH only	RCRA5	RCRA8	TCLP8	PP13	MCP	TAL23	MCPw/Hg	NBC7
1	4/15/16	820	X		S	Trench 66/67	1	AG											X														
2	4/15/16	930	X		S	Trench 68/69	1	AG											X														

Container Type: P-Poly G-Glass S-Sterile V-VOA
Matrix: S-Soil SD-Solid D-Sludge WW-Waste Water GW-Ground Water SW-Surface Water DW-Drinking Water O-Oil W-Wipes F-Filters

Cooler Present ___ Yes ___ No
Seals Intact ___ Yes ___ No NA: X
Cooler Temp: 2-2 ICE

Internal Use Only
[ ] Pickup
[ ] Technicians _____

Comments: TSCA method

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
[signature]	4/15/16	[signature]	4-15 15:20	[signature]	4-15 15:34	[signature]	4/15/16 1829
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time

*MADEP requires that all additional calibrated analytes found during analysis be disclosed.

Please fax all changes to Chain of Custody in writing.

1 (White) Lab Copy 2 (Yellow) Client Receipt

Page 1 of 1

CERTIFICATE OF ANALYSIS

Michael Martin
Tighe & Bond
4 Barlows Landing Road, Unit 15
Pocasset, MA 02559

RE: Station 292 (N-1023-56)
ESS Laboratory Work Order Number: 1604488

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED
By ESS Laboratory at 1:36 pm, Apr 20, 2016

Analytical Summary
The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with NELAC Standards, A2LA and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604488

SAMPLE RECEIPT

The following samples were received on April 18, 2016 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has performed and reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Data Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

Lab Number	Sample Name	Matrix	Analysis
1604488-01	Trench 70/71	Soil	8082A
1604488-02	Trench 72/73	Soil	8082A
1604488-03	Trench 74/75	Soil	8082A

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604488

PROJECT NARRATIVE

No unusual observations noted.

End of Project Narrative.

DATA USABILITY LINKS

Definitions of Quality Control Parameters

Semivolatile Organics Internal Standard Information

Semivolatile Organics Surrogate Information

Volatile Organics Internal Standard Information

Volatile Organics Surrogate Information

EPH and VPH Alkane Lists

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604488

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

1010A - Flashpoint
6010C - ICP
6020A - ICP MS
7010 - Graphite Furnace
7196A - Hexavalent Chromium
7470A - Aqueous Mercury
7471B - Solid Mercury
8011 - EDB/DBCP/TCP
8015D - GRO/DRO
8081B - Pesticides
8082A - PCB
8100M - TPH
8151A - Herbicides
8260B - VOA
8270D - SVOA
8270D SIM - SVOA Low Level
9014 - Cyanide
9038 - Sulfate
9040C - Aqueous pH
9045D - Solid pH (Corrosivity)
9050A - Specific Conductance
9056A - Anions (IC)
9060A - TOC
9095B - Paint Filter
MADEP 04-1.1 - EPH / VPH

Prep Methods

3005A - Aqueous ICP Digestion
3020A - Aqueous Graphite Furnace / ICP MS Digestion
3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
3060A - Solid Hexavalent Chromium Digestion
3510C - Separatory Funnel Extraction
3520C - Liquid / Liquid Extraction
3540C - Manual Soxhlet Extraction
3541 - Automated Soxhlet Extraction
3546 - Microwave Extraction
3580A - Waste Dilution
5030B - Aqueous Purge and Trap
5030C - Aqueous Purge and Trap
5035 - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604488

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **1604488-01 through 1604488-03**

Matrices: ( ) Ground Water/Surface Water (X) Soil/Sediment ( ) Drinking Water ( ) Air ( ) Other:_____

CAM Protocol (check all that apply below):

( ) 8260 VOC CAM II A	( ) 7470/7471 Hg CAM III B	( ) MassDEP VPH CAM IV A	( ) 8081 Pesticides CAM V B	( ) 7196 Hex Cr CAM VI B	( ) MassDEP APH CAM IX A
( ) 8270 SVOC CAM II B	( ) 7010 Metals CAM III C	( ) MassDEP EPH CAM IV B	( ) 8151 Herbicides CAM V C	( ) 8330 Explosives CAM VIII A	( ) TO-15 VOC CAM IX B
( ) 6010 Metals CAM III A	( ) 6020 Metals CAM III D	(X) 8082 PCB CAM V A	( ) 6860 Perchlorate CAM VIII B	( ) 9014 Total Cyanide/PAC CAM VI A	

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	Yes (X) No ( )
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	Yes (X) No ( )
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	Yes (X) No ( )
D	Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	Yes (X) No ( )
E	a. VPH, EPH, APH and TO-15 only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	Yes ( ) No ( )
	b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	Yes ( ) No ( )
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	Yes (X) No ( )

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)?	Yes (X) No ( )*
	Data User Note: ***Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.***	
H	Were **all** QC performance standards specified in the CAM protocol(s) achieved?	Yes (X) No ( )*
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	Yes (X) No ( )*

****All negative responses must be addressed in an attached laboratory narrative.***

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: _____ Date: April 20, 2016
Printed Name: Laurel Stoddard Position: Laboratory Director

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Trench 70/71
Date Sampled: 04/18/16 08:05
Percent Solids: 92
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1604488
ESS Laboratory Sample ID: 1604488-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 4/18/16 18:00
Cleanup Method: 3665A

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.0563)		8082A		1	04/20/16 0:41		CD61824
Aroclor 1221	ND (0.0563)		8082A		1	04/20/16 0:41		CD61824
Aroclor 1232	ND (0.0563)		8082A		1	04/20/16 0:41		CD61824
Aroclor 1242	ND (0.0563)		8082A		1	04/20/16 0:41		CD61824
Aroclor 1248	ND (0.0563)		8082A		1	04/20/16 0:41		CD61824
Aroclor 1254	ND (0.0563)		8082A		1	04/20/16 0:41		CD61824
Aroclor 1260	ND (0.0563)		8082A		1	04/20/16 0:41		CD61824
Aroclor 1262	ND (0.0563)		8082A		1	04/20/16 0:41		CD61824
Aroclor 1268	ND (0.0563)		8082A		1	04/20/16 0:41		CD61824

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*71 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*76 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*85 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*82 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Trench 72/73
Date Sampled: 04/18/16 13:00
Percent Solids: 89
Initial Volume: 19.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1604488
ESS Laboratory Sample ID: 1604488-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 4/18/16 18:00
Cleanup Method: 3665A

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.0587)		8082A		1	04/20/16 1:00		CD61824
Aroclor 1221	ND (0.0587)		8082A		1	04/20/16 1:00		CD61824
Aroclor 1232	ND (0.0587)		8082A		1	04/20/16 1:00		CD61824
Aroclor 1242	ND (0.0587)		8082A		1	04/20/16 1:00		CD61824
Aroclor 1248	ND (0.0587)		8082A		1	04/20/16 1:00		CD61824
Aroclor 1254	ND (0.0587)		8082A		1	04/20/16 1:00		CD61824
Aroclor 1260	**0.105** (0.0587)		8082A		1	04/20/16 1:00		CD61824
Aroclor 1262	ND (0.0587)		8082A		1	04/20/16 1:00		CD61824
Aroclor 1268	ND (0.0587)		8082A		1	04/20/16 1:00		CD61824

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*79 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*82 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*84 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*80 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Trench 74/75
Date Sampled: 04/18/16 10:45
Percent Solids: 91
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1604488
ESS Laboratory Sample ID: 1604488-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 4/18/16 18:00
Cleanup Method: 3665A

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.0574)		8082A		1	04/20/16 1:19		CD61824
Aroclor 1221	ND (0.0574)		8082A		1	04/20/16 1:19		CD61824
Aroclor 1232	ND (0.0574)		8082A		1	04/20/16 1:19		CD61824
Aroclor 1242	ND (0.0574)		8082A		1	04/20/16 1:19		CD61824
Aroclor 1248	ND (0.0574)		8082A		1	04/20/16 1:19		CD61824
Aroclor 1254	ND (0.0574)		8082A		1	04/20/16 1:19		CD61824
Aroclor 1260	**0.108** (0.0574)		8082A		1	04/20/16 1:19		CD61824
Aroclor 1262	ND (0.0574)		8082A		1	04/20/16 1:19		CD61824
Aroclor 1268	ND (0.0574)		8082A		1	04/20/16 1:19		CD61824

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*71 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*75 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*79 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*77 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604488

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CD61824 - 3540C										
Blank										
Aroclor 1016	ND	0.0500	mg/kg wet							
Aroclor 1221	ND	0.0500	mg/kg wet							
Aroclor 1232	ND	0.0500	mg/kg wet							
Aroclor 1242	ND	0.0500	mg/kg wet							
Aroclor 1248	ND	0.0500	mg/kg wet							
Aroclor 1254	ND	0.0500	mg/kg wet							
Aroclor 1260	ND	0.0500	mg/kg wet							
Aroclor 1262	ND	0.0500	mg/kg wet							
Aroclor 1268	ND	0.0500	mg/kg wet							
Surrogate: Decachlorobiphenyl	*0.0187*		mg/kg wet	*0.02500*		*75*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0202*		mg/kg wet	*0.02500*		*81*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0191*		mg/kg wet	*0.02500*		*77*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0188*		mg/kg wet	*0.02500*		*75*	*30-150*			
LCS										
Aroclor 1016	0.461	0.0500	mg/kg wet	0.5000		92	40-140			
Aroclor 1260	0.462	0.0500	mg/kg wet	0.5000		92	40-140			
Surrogate: Decachlorobiphenyl	*0.0193*		mg/kg wet	*0.02500*		*77*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0207*		mg/kg wet	*0.02500*		*83*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0197*		mg/kg wet	*0.02500*		*79*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0203*		mg/kg wet	*0.02500*		*81*	*30-150*			
LCS Dup										
Aroclor 1016	0.467	0.0500	mg/kg wet	0.5000		93	40-140	1	30	
Aroclor 1260	0.479	0.0500	mg/kg wet	0.5000		96	40-140	3	30	
Surrogate: Decachlorobiphenyl	*0.0193*		mg/kg wet	*0.02500*		*77*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0206*		mg/kg wet	*0.02500*		*82*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0199*		mg/kg wet	*0.02500*		*80*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0205*		mg/kg wet	*0.02500*		*82*	*30-150*			

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292 ESS Laboratory Work Order: 1604488

Notes and Definitions

U	Analyte included in the analysis, but not detected
ND	Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DL	Detection Limit
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
NR	No Recovery
[CALC]	Calculated Analyte
SUB	Subcontracted analysis; see attached report

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604488

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179
http://www.health.ri.gov/find/labs/analytical/ESS.pdf

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002
http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/documents/AllLabs.xls

Massachusetts Potable and Non Potable Water: M-RI002
http://public.dep.state.ma.us/Labcert/Labcert.aspx

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424
http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313
http://www.wadsworth.org/labcert/elap/comm.html

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006
http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752
http://www.depweb.state.pa.us/portal/server.pt/community/labs/13780/laboratory_accreditation_program/590095

ESS Laboratory Sample and Cooler Receipt Checklist

Client: Tighe & Bond - KPB/TB/MM

Shipped/Delivered Via: ESS Courier

ESS Project ID: 1604488
Date Received: 4/18/2016
Project Due Date: 4/20/2016
Days for Project: 2 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 3.0 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** Yes / No / NA
10. Were any analyses received outside of hold time? Yes / No

11. Any Subcontracting needed? Yes / No
    ESS Sample IDs:
    Analysis:
    TAT:
12. Were VOAs received? Yes / No
    a. Air bubbles in aqueous VOAs? Yes / No
    b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
    a. If metals preserved upon receipt: Date: Time: By:
    b. Low Level VOAs brought to freezer: Date: Time: By:

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / No
    a. Was there a need to contact the client? Yes / No
    Who was contacted? Date: Time: By:

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	27503	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	27502	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	27501	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

2nd Review
Are barcode labels on correct containers? Yes / No

Completed By: Date & Time: 4.18.16 1538
Reviewed By: Date & Time: 4/18/16 1605

ESS Laboratory

Division of Thielsch Engineering, Inc.
185 Frances Avenue, Cranston, RI 02910-2211
Tel. (401) 461-7181 Fax (401) 461-4486
www.esslaboratory.com

CHAIN OF CUSTODY

Page 1 of 1

Turn Time 48hr Standard Other _____
If faster than 5 days, prior approval by laboratory is required # _____
State where samples were collected from: MA RI CT NH NJ NY ME Other _____
Is this project for any of the following: MA-MCP* Navy USACE Other _____

Reporting Limits: RCS-1

ESS LAB PROJECT ID: 1609388

Electronic Deliverable: ✓ Yes ___ No Format Excel, PDF

Co. Name: Tighe + Bond
Project #: N-1023-56
Project Name (20 Char. or less): Station 292
Contact Person: Michael Martin
Address: 4 Barlows Landing
City: Pocasset State: MA Zip: 02559
PO#:
Telephone #:
Fax #:
Email Address: MEMartin@Tighebond.com

Circle and/or Write Required Analysis

ESS LAB Sample#	Date	Collection Time	COMP	GRAB	MATRIX	Sample Identification (20 Char. or less)	Number of Containers	Type of Containers	8260	624	524.2	8021 MTBE/BTEX	8015 GRO	VPH	8100 TPH	8015 DRO	EPH	No Targets	8081 Pesticides	8082 PCB	608 Pesticides	608 PCB	8270	625	PAH only	RCRA5	RCRA8	PP13	TAL23	TCLP8	MCP	MCPw/Hg	NBC7
1	4/18/16	805	X		S	Trench 70/71													X														
2	4/18/16	1300	X		S	Trench 72/73													X														
3	4/18/16	1045	X		S	Trench 74/75													X														

Container Type: P-Poly G-Glass S-Sterile V-VOA
Matrix: S-Soil SD-Solid D-Sludge WW-Waste Water GW-Ground Water SW-Surface Water DW-Drinking Water O-Oil W-Wipes F-Filters

Cooler Present ✓ Yes ___ No
Seals Intact ___ Yes ___ No NA: _____
Cooler Temp: 3.0 ice

Internal Use Only
[✓] Pickup
[ ] Technicians _____

Comments: TSCA method

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
[signature]	4/18/16 14:33	[signature]	4/18 14:35	[signature]	4/18 15:36	[signature]	4/18/16 1539
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time

*MADEP requires that all additional calibrated analytes found during

Please fax all changes to Chain of Custody in writing.

1 (White) Lab Copy 2 (Yellow) Client Receipt

CERTIFICATE OF ANALYSIS

Michael Martin
Tighe & Bond
4 Barlows Landing Road, Unit 15
Pocasset, MA 02559

RE: Station 292 (N-1023-056)
ESS Laboratory Work Order Number: 1604513

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED
By ESS Laboratory at 3:49 pm, Apr 22, 2016

Analytical Summary
The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with NELAC Standards, A2LA and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604513

SAMPLE RECEIPT

The following samples were received on April 19, 2016 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has performed and reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Data Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

Lab Number	Sample Name	Matrix	Analysis
1604513-01	Trench 76/77	Soil	8082A
1604513-02	Trench 78	Soil	8082A
1604513-03	Trench 79	Soil	8082A
1604513-04	Trench 88/89	Soil	8082A

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604513

PROJECT NARRATIVE

No unusual observations noted.

End of Project Narrative.

DATA USABILITY LINKS

Definitions of Quality Control Parameters

Semivolatile Organics Internal Standard Information

Semivolatile Organics Surrogate Information

Volatile Organics Internal Standard Information

Volatile Organics Surrogate Information

EPH and VPH Alkane Lists

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604513

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

1010A - Flashpoint
6010C - ICP
6020A - ICP MS
7010 - Graphite Furnace
7196A - Hexavalent Chromium
7470A - Aqueous Mercury
7471B - Solid Mercury
8011 - EDB/DBCP/TCP
8015D - GRO/DRO
8081B - Pesticides
8082A - PCB
8100M - TPH
8151A - Herbicides
8260B - VOA
8270D - SVOA
8270D SIM - SVOA Low Level
9014 - Cyanide
9038 - Sulfate
9040C - Aqueous pH
9045D - Solid pH (Corrosivity)
9050A - Specific Conductance
9056A - Anions (IC)
9060A - TOC
9095B - Paint Filter
MADEP 04-1.1 - EPH / VPH

Prep Methods

3005A - Aqueous ICP Digestion
3020A - Aqueous Graphite Furnace / ICP MS Digestion
3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
3060A - Solid Hexavalent Chromium Digestion
3510C - Separatory Funnel Extraction
3520C - Liquid / Liquid Extraction
3540C - Manual Soxhlet Extraction
3541 - Automated Soxhlet Extraction
3546 - Microwave Extraction
3580A - Waste Dilution
5030B - Aqueous Purge and Trap
5030C - Aqueous Purge and Trap
5035 - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604513

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **1604513-01 through 1604513-04**

Matrices: ( ) Ground Water/Surface Water (X) Soil/Sediment ( ) Drinking Water ( ) Air ( ) Other:_____

CAM Protocol (check all that apply below):

( ) 8260 VOC CAM II A	( ) 7470/7471 Hg CAM III B	( ) MassDEP VPH CAM IV A	( ) 8081 Pesticides CAM V B	( ) 7196 Hex Cr CAM VI B	( ) MassDEP APH CAM IX A
( ) 8270 SVOC CAM II B	( ) 7010 Metals CAM III C	( ) MassDEP EPH CAM IV B	( ) 8151 Herbicides CAM V C	( ) 8330 Explosives CAM VIII A	( ) TO-15 VOC CAM IX B
( ) 6010 Metals CAM III A	( ) 6020 Metals CAM III D	(X) 8082 PCB CAM V A	( ) 6860 Perchlorate CAM VIII B	( ) 9014 Total Cyanide/PAC CAM VI A	

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	Yes (X) No ( )
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	Yes (X) No ( )
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	Yes (X) No ( )
D	Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	Yes (X) No ( )
E	a. VPH, EPH, APH and TO-15 only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	Yes ( ) No ( )
	b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	Yes ( ) No ( )
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	Yes (X) No ( )

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)?	Yes (X) No ( )*
	Data User Note: ***Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.***	
H	Were **all** QC performance standards specified in the CAM protocol(s) achieved?	Yes (X) No ( )*
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	Yes (X) No ( )*

****All negative responses must be addressed in an attached laboratory narrative.***

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: _____ Date: April 22, 2016

Printed Name: Laurel Stoddard Position: Laboratory Director

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Trench 76/77
Date Sampled: 04/19/16 08:30
Percent Solids: 91
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1604513
ESS Laboratory Sample ID: 1604513-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: JXS
Prepared: 4/19/16 17:15
Cleanup Method: 3665A

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.0557)		8082A		1	04/20/16 16:59		CD61912
Aroclor 1221	ND (0.0557)		8082A		1	04/20/16 16:59		CD61912
Aroclor 1232	ND (0.0557)		8082A		1	04/20/16 16:59		CD61912
Aroclor 1242	ND (0.0557)		8082A		1	04/20/16 16:59		CD61912
Aroclor 1248	ND (0.0557)		8082A		1	04/20/16 16:59		CD61912
Aroclor 1254	ND (0.0557)		8082A		1	04/20/16 16:59		CD61912
Aroclor 1260	ND (0.0557)		8082A		1	04/20/16 16:59		CD61912
Aroclor 1262	ND (0.0557)		8082A		1	04/20/16 16:59		CD61912
Aroclor 1268	ND (0.0557)		8082A		1	04/20/16 16:59		CD61912

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*97 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*96 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*79 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*75 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Trench 78
Date Sampled: 04/19/16 09:10
Percent Solids: 90
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1604513
ESS Laboratory Sample ID: 1604513-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: JXS
Prepared: 4/19/16 17:15
Cleanup Method: 3665A

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.0572)		8082A		1	04/20/16 17:16		CD61912
Aroclor 1221	ND (0.0572)		8082A		1	04/20/16 17:16		CD61912
Aroclor 1232	ND (0.0572)		8082A		1	04/20/16 17:16		CD61912
Aroclor 1242	ND (0.0572)		8082A		1	04/20/16 17:16		CD61912
Aroclor 1248	ND (0.0572)		8082A		1	04/20/16 17:16		CD61912
Aroclor 1254	ND (0.0572)		8082A		1	04/20/16 17:16		CD61912
Aroclor 1260	ND (0.0572)		8082A		1	04/20/16 17:16		CD61912
Aroclor 1262	ND (0.0572)		8082A		1	04/20/16 17:16		CD61912
Aroclor 1268	ND (0.0572)		8082A		1	04/20/16 17:16		CD61912

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*87 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*92 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*92 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*85 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Trench 79
Date Sampled: 04/19/16 10:10
Percent Solids: 94
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1604513
ESS Laboratory Sample ID: 1604513-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: JXS
Prepared: 4/19/16 17:15
Cleanup Method: 3665A

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.0542)		8082A		1	04/20/16 17:35		CD61912
Aroclor 1221	ND (0.0542)		8082A		1	04/20/16 17:35		CD61912
Aroclor 1232	ND (0.0542)		8082A		1	04/20/16 17:35		CD61912
Aroclor 1242	ND (0.0542)		8082A		1	04/20/16 17:35		CD61912
Aroclor 1248	ND (0.0542)		8082A		1	04/20/16 17:35		CD61912
Aroclor 1254	ND (0.0542)		8082A		1	04/20/16 17:35		CD61912
Aroclor 1260	ND (0.0542)		8082A		1	04/20/16 17:35		CD61912
Aroclor 1262	ND (0.0542)		8082A		1	04/20/16 17:35		CD61912
Aroclor 1268	ND (0.0542)		8082A		1	04/20/16 17:35		CD61912

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*93 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*103 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*92 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*90 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Trench 88/89
Date Sampled: 04/19/16 11:15
Percent Solids: 93
Initial Volume: 20.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1604513
ESS Laboratory Sample ID: 1604513-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 4/19/16 17:15
Cleanup Method: 3665A

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.0532)		8082A		1	04/22/16 1:56		CD61912
Aroclor 1221	ND (0.0532)		8082A		1	04/22/16 1:56		CD61912
Aroclor 1232	ND (0.0532)		8082A		1	04/22/16 1:56		CD61912
Aroclor 1242	ND (0.0532)		8082A		1	04/22/16 1:56		CD61912
Aroclor 1248	ND (0.0532)		8082A		1	04/22/16 1:56		CD61912
Aroclor 1254	ND (0.0532)		8082A		1	04/22/16 1:56		CD61912
Aroclor 1260	ND (0.0532)		8082A		1	04/22/16 1:56		CD61912
Aroclor 1262	ND (0.0532)		8082A		1	04/22/16 1:56		CD61912
Aroclor 1268	ND (0.0532)		8082A		1	04/22/16 1:56		CD61912

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*85 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*85 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*88 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*79 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604513

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CD61912 - 3540C										
Blank										
Aroclor 1016	ND	0.0500	mg/kg wet							
Aroclor 1221	ND	0.0500	mg/kg wet							
Aroclor 1232	ND	0.0500	mg/kg wet							
Aroclor 1242	ND	0.0500	mg/kg wet							
Aroclor 1248	ND	0.0500	mg/kg wet							
Aroclor 1254	ND	0.0500	mg/kg wet							
Aroclor 1260	ND	0.0500	mg/kg wet							
Aroclor 1262	ND	0.0500	mg/kg wet							
Aroclor 1268	ND	0.0500	mg/kg wet							
Surrogate: Decachlorobiphenyl	*0.0208*		mg/kg wet	*0.02500*		*83*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0229*		mg/kg wet	*0.02500*		*92*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0198*		mg/kg wet	*0.02500*		*79*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0192*		mg/kg wet	*0.02500*		*77*	*30-150*			
LCS										
Aroclor 1016	0.486	0.0500	mg/kg wet	0.5000		97	40-140			
Aroclor 1260	0.543	0.0500	mg/kg wet	0.5000		109	40-140			
Surrogate: Decachlorobiphenyl	*0.0228*		mg/kg wet	*0.02500*		*91*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0253*		mg/kg wet	*0.02500*		*101*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0213*		mg/kg wet	*0.02500*		*85*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0218*		mg/kg wet	*0.02500*		*87*	*30-150*			
LCS Dup										
Aroclor 1016	0.478	0.0500	mg/kg wet	0.5000		96	40-140	2	30	
Aroclor 1260	0.504	0.0500	mg/kg wet	0.5000		101	40-140	7	30	
Surrogate: Decachlorobiphenyl	*0.0221*		mg/kg wet	*0.02500*		*89*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0242*		mg/kg wet	*0.02500*		*97*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0209*		mg/kg wet	*0.02500*		*83*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0212*		mg/kg wet	*0.02500*		*85*	*30-150*			

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292 ESS Laboratory Work Order: 1604513

Notes and Definitions

U	Analyte included in the analysis, but not detected
ND	Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DL	Detection Limit
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
NR	No Recovery
[CALC]	Calculated Analyte
SUB	Subcontracted analysis; see attached report

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604513

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179
http://www.health.ri.gov/find/labs/analytical/ESS.pdf

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002
http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/documents/AllLabs.xls

Massachusetts Potable and Non Potable Water: M-RI002
http://public.dep.state.ma.us/Labcert/Labcert.aspx

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424
http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313
http://www.wadsworth.org/labcert/elap/comm.html

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006
http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752
http://www.depweb.state.pa.us/portal/server.pt/community/labs/13780/laboratory_accreditation_program/590095

ESS Laboratory Sample and Cooler Receipt Checklist

Client: Tighe & Bond - KPB/TB/MM

Shipped/Delivered Via: ESS Courier

ESS Project ID: 1604513
Date Received: 4/19/2016
Project Due Date: 4/21/2016
Days for Project: 2 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 1.6 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** Yes / No / NA
10. Were any analyses received outside of hold time? Yes / No

11. Any Subcontracting needed? Yes / No
    ESS Sample IDs:
    Analysis:
    TAT:
12. Were VOAs received? Yes / No
    a. Air bubbles in aqueous VOAs? Yes / No
    b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
    a. If metals preserved upon receipt: Date: Time: By:
    b. Low Level VOAs brought to freezer: Date: Time: By:

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / No
    a. Was there a need to contact the client? Yes / No
    Who was contacted? Date: Time: By:

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	27669	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	27668	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	27667	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	27666	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

2nd Review
Are barcode labels on correct containers? Yes / No

Completed By: Date & Time: 4.19.16 1627
Reviewed By: Date & Time: 4/19/16 1656

ESS Laboratory

Division of Thielsch Engineering, Inc.
185 Frances Avenue, Cranston, RI 02910-2211
Tel. (401) 461-7181 Fax (401) 461-4486
www.esslaboratory.com

CHAIN OF CUSTODY

Page 1 of 1

Turn Time 4 Day Standard Other _____
If faster than 5 days, prior approval by laboratory is required # _____

State where samples were collected from:
(MA) RI CT NH NJ NY ME Other _____

Is this project for any of the following:
(MA-MCP)* Navy USACE Other _____

Reporting Limits: RCS-1

ESS LAB PROJECT ID: 1604513

Electronic Deliverable: ✓ Yes ___ No Format Excel, PDF

Co. Name: Tighe + Bond
Project #: N-1023-56
Project Name (20 Char. or less): Station 292
Contact Person: Michael Martin
Address: 4 Barlows Landing
City: Pocasset State: MA Zip: 02559 PO#:
Telephone #: Fax #: Email Address: MEMartin@Tigheband.com

Circle and/or Write Required Analysis

ESS LAB Sample#	Date	Collection Time	COMP	GRAB	MATRIX	Sample Identification (20 Char. or less)	Number of Containers	Type of Containers	8260 / 624 / 524.2	8021 MTBE/BTEX / 8015 GRO / VPH	8100 TPH / 8015 DRO / EPH	8081 Pesticides / 8082 PCB / 608 Pesticides / No Targets / 608 PCB	8270 / 625 / PAH only	RCRA5 / RCRA8 / PP13 / TAL23	TCLP8 / MCP / MCPw/Hg / NBC7							
1	4/19/16	830	X		S	Trench 76/77	1	AG				X										
2	↓	9:10	X		S	Trench 78	1	↓				X										
3	↓	10:10	X		S	Trench 79	1	↓				X										
4	↓	1115	X		S	Trench 88/89	1	↓				X										

Container Type: P-Poly G-Glass S-Sterile V-VOA
Matrix: S-Soil SD-Solid D-Sludge WW-Waste Water GW-Ground Water SW-Surface Water DW-Drinking Water O-Oil W-Wipes F-Filters

Cooler Present ✓ Yes ___ No
Seals Intact ___ Yes ___ No NA: _____
Cooler Temp: 1.6

Internal Use Only
[ ] Pickup
[ ] Technicians _____

Comments: TSCA Extraction Method

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
[signature]	4/19/16 14:33	[signature]	4/19 14:35	[signature]	4/19/16 08	[signature]	4/19/16 1615
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time

*MADEP requires that all additional calibrated analytes found during analysis be disclosed.

Please fax all changes to Chain of Custody in writing.

1 (White) Lab Copy 2 (Yellow) Client Receipt

CERTIFICATE OF ANALYSIS

Michael Martin
Tighe & Bond
4 Barlows Landing Road, Unit 15
Pocasset, MA 02559

RE: Station 292 (N-1023-056)
ESS Laboratory Work Order Number: 1604587

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED
By ESS Laboratory at 3:41 pm, Apr 25, 2016

Analytical Summary
The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with NELAC Standards, A2LA and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604587

SAMPLE RECEIPT

The following samples were received on April 21, 2016 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has performed and reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Data Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

Lab Number	Sample Name	Matrix	Analysis
1604587-01	Trench 87/86	Soil	8082A
1604587-02	Trench 85/84	Soil	8082A
1604587-03	Trench 83/82	Soil	8082A

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604587

PROJECT NARRATIVE

No unusual observations noted.

End of Project Narrative.

DATA USABILITY LINKS

Definitions of Quality Control Parameters

Semivolatile Organics Internal Standard Information

Semivolatile Organics Surrogate Information

Volatile Organics Internal Standard Information

Volatile Organics Surrogate Information

EPH and VPH Alkane Lists

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604587

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

1010A - Flashpoint
6010C - ICP
6020A - ICP MS
7010 - Graphite Furnace
7196A - Hexavalent Chromium
7470A - Aqueous Mercury
7471B - Solid Mercury
8011 - EDB/DBCP/TCP
8015D - GRO/DRO
8081B - Pesticides
8082A - PCB
8100M - TPH
8151A - Herbicides
8260B - VOA
8270D - SVOA
8270D SIM - SVOA Low Level
9014 - Cyanide
9038 - Sulfate
9040C - Aqueous pH
9045D - Solid pH (Corrosivity)
9050A - Specific Conductance
9056A - Anions (IC)
9060A - TOC
9095B - Paint Filter
MADEP 04-1.1 - EPH / VPH

Prep Methods

3005A - Aqueous ICP Digestion
3020A - Aqueous Graphite Furnace / ICP MS Digestion
3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
3060A - Solid Hexavalent Chromium Digestion
3510C - Separatory Funnel Extraction
3520C - Liquid / Liquid Extraction
3540C - Manual Soxhlet Extraction
3541 - Automated Soxhlet Extraction
3546 - Microwave Extraction
3580A - Waste Dilution
5030B - Aqueous Purge and Trap
5030C - Aqueous Purge and Trap
5035 - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604587

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **1604587-01 through 1604587-03**

Matrices: ( ) Ground Water/Surface Water (X) Soil/Sediment ( ) Drinking Water ( ) Air ( ) Other:_____

CAM Protocol (check all that apply below):

( ) 8260 VOC CAM II A	( ) 7470/7471 Hg CAM III B	( ) MassDEP VPH CAM IV A	( ) 8081 Pesticides CAM V B	( ) 7196 Hex Cr CAM VI B	( ) MassDEP APH CAM IX A
( ) 8270 SVOC CAM II B	( ) 7010 Metals CAM III C	( ) MassDEP EPH CAM IV B	( ) 8151 Herbicides CAM V C	( ) 8330 Explosives CAM VIII A	( ) TO-15 VOC CAM IX B
( ) 6010 Metals CAM III A	( ) 6020 Metals CAM III D	(X) 8082 PCB CAM V A	( ) 6860 Perchlorate CAM VIII B	( ) 9014 Total Cyanide/PAC CAM VI A	

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	Yes (X) No ( )
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	Yes (X) No ( )
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	Yes (X) No ( )
D	Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	Yes (X) No ( )
E	a. VPH, EPH, APH and TO-15 only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	Yes ( ) No ( )
	b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	Yes ( ) No ( )
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	Yes (X) No ( )

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)?	Yes (X) No ( )*
	Data User Note: ***Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.***	
H	Were **all** QC performance standards specified in the CAM protocol(s) achieved?	Yes (X) No ( )*
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	Yes (X) No ( )*

****All negative responses must be addressed in an attached laboratory narrative.***

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: _____ Date: April 25, 2016
Printed Name: Laurel Stoddard Position: Laboratory Director

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Trench 87/86
Date Sampled: 04/21/16 08:40
Percent Solids: 91
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1604587
ESS Laboratory Sample ID: 1604587-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 4/21/16 16:14
Cleanup Method: 3665A

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.0561)		8082A		1	04/23/16 14:29		CD62109
Aroclor 1221	ND (0.0561)		8082A		1	04/23/16 14:29		CD62109
Aroclor 1232	ND (0.0561)		8082A		1	04/23/16 14:29		CD62109
Aroclor 1242	ND (0.0561)		8082A		1	04/23/16 14:29		CD62109
Aroclor 1248	ND (0.0561)		8082A		1	04/23/16 14:29		CD62109
Aroclor 1254	ND (0.0561)		8082A		1	04/23/16 14:29		CD62109
Aroclor 1260	ND (0.0561)		8082A		1	04/23/16 14:29		CD62109
Aroclor 1262	ND (0.0561)		8082A		1	04/23/16 14:29		CD62109
Aroclor 1268	ND (0.0561)		8082A		1	04/23/16 14:29		CD62109

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*60 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*59 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*75 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*67 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Trench 85/84
Date Sampled: 04/21/16 09:30
Percent Solids: 89
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1604587
ESS Laboratory Sample ID: 1604587-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 4/21/16 16:14
Cleanup Method: 3665A

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.0560)		8082A		1	04/23/16 14:52		CD62109
Aroclor 1221	ND (0.0560)		8082A		1	04/23/16 14:52		CD62109
Aroclor 1232	ND (0.0560)		8082A		1	04/23/16 14:52		CD62109
Aroclor 1242	ND (0.0560)		8082A		1	04/23/16 14:52		CD62109
Aroclor 1248	ND (0.0560)		8082A		1	04/23/16 14:52		CD62109
Aroclor 1254	ND (0.0560)		8082A		1	04/23/16 14:52		CD62109
Aroclor 1260	ND (0.0560)		8082A		1	04/23/16 14:52		CD62109
Aroclor 1262	ND (0.0560)		8082A		1	04/23/16 14:52		CD62109
Aroclor 1268	ND (0.0560)		8082A		1	04/23/16 14:52		CD62109

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*65 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*63 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*78 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*74 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Trench 83/82
Date Sampled: 04/21/16 12:00
Percent Solids: 85
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1604587
ESS Laboratory Sample ID: 1604587-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 4/21/16 16:14
Cleanup Method: 3665A

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.0614)		8082A		1	04/23/16 15:15		CD62109
Aroclor 1221	ND (0.0614)		8082A		1	04/23/16 15:15		CD62109
Aroclor 1232	ND (0.0614)		8082A		1	04/23/16 15:15		CD62109
Aroclor 1242	ND (0.0614)		8082A		1	04/23/16 15:15		CD62109
Aroclor 1248	ND (0.0614)		8082A		1	04/23/16 15:15		CD62109
Aroclor 1254	**0.332** (0.0614)		8082A		1	04/23/16 15:15		CD62109
Aroclor 1260	ND (0.0614)		8082A		1	04/23/16 15:15		CD62109
Aroclor 1262	ND (0.0614)		8082A		1	04/23/16 15:15		CD62109
Aroclor 1268	ND (0.0614)		8082A		1	04/23/16 15:15		CD62109

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*68 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*65 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*85 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*80 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604587

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CD62109 - 3540C										
Blank										
Aroclor 1016	ND	0.0500	mg/kg wet							
Aroclor 1221	ND	0.0500	mg/kg wet							
Aroclor 1232	ND	0.0500	mg/kg wet							
Aroclor 1242	ND	0.0500	mg/kg wet							
Aroclor 1248	ND	0.0500	mg/kg wet							
Aroclor 1254	ND	0.0500	mg/kg wet							
Aroclor 1260	ND	0.0500	mg/kg wet							
Aroclor 1262	ND	0.0500	mg/kg wet							
Aroclor 1268	ND	0.0500	mg/kg wet							
Surrogate: Decachlorobiphenyl	*0.0193*		mg/kg wet	*0.02500*		*77*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0195*		mg/kg wet	*0.02500*		*78*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0176*		mg/kg wet	*0.02500*		*70*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0179*		mg/kg wet	*0.02500*		*72*	*30-150*			
LCS										
Aroclor 1016	0.416	0.0500	mg/kg wet	0.5000		83	40-140			
Aroclor 1260	0.448	0.0500	mg/kg wet	0.5000		90	40-140			
Surrogate: Decachlorobiphenyl	*0.0230*		mg/kg wet	*0.02500*		*92*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0228*		mg/kg wet	*0.02500*		*91*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0187*		mg/kg wet	*0.02500*		*75*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0184*		mg/kg wet	*0.02500*		*74*	*30-150*			
LCS Dup										
Aroclor 1016	0.471	0.0500	mg/kg wet	0.5000		94	40-140	12	30	
Aroclor 1260	0.440	0.0500	mg/kg wet	0.5000		88	40-140	2	30	
Surrogate: Decachlorobiphenyl	*0.0211*		mg/kg wet	*0.02500*		*84*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0221*		mg/kg wet	*0.02500*		*88*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0193*		mg/kg wet	*0.02500*		*77*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0194*		mg/kg wet	*0.02500*		*78*	*30-150*			

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292 ESS Laboratory Work Order: 1604587

Notes and Definitions

U	Analyte included in the analysis, but not detected
ND	Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DL	Detection Limit
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
NR	No Recovery
[CALC]	Calculated Analyte
SUB	Subcontracted analysis; see attached report

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604587

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179
http://www.health.ri.gov/find/labs/analytical/ESS.pdf

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002
http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/documents/AllLabs.xls

Massachusetts Potable and Non Potable Water: M-RI002
http://public.dep.state.ma.us/Labcert/Labcert.aspx

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424
http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313
http://www.wadsworth.org/labcert/elap/comm.html

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006
http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752
http://www.depweb.state.pa.us/portal/server.pt/community/labs/13780/laboratory_accreditation_program/590095

ESS Laboratory Sample and Cooler Receipt Checklist

Client: Tighe & Bond - KPB/TB/MM

Shipped/Delivered Via: ESS Courier

ESS Project ID: 1604587
Date Received: 4/21/2016
Project Due Date: 4/25/2016
Days for Project: 2 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 1.6 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** Yes / No / NA
10. Were any analyses received outside of hold time? Yes / No

11. Any Subcontracting needed? Yes / No
    ESS Sample IDs:
    Analysis:
    TAT:
12. Were VOAs received? Yes / No
    a. Air bubbles in aqueous VOAs? Yes / No
    b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
    a. If metals preserved upon receipt: Date: Time: By:
    b. Low Level VOAs brought to freezer: Date: Time: By:

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / No
    a. Was there a need to contact the client? Yes / No
    Who was contacted? Date: Time: By:

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	28214	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	28213	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	28212	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

2nd Review
Are barcode labels on correct containers? Yes / No

Completed By: Date & Time: 4/21/16 1555
Reviewed By: Date & Time: 4/21/16 1601

ESS Laboratory

Division of Thielsch Engineering, Inc.

185 Frances Avenue, Cranston, RI 02910-2211
Tel. (401) 461-7181 Fax (401) 461-4486
www.esslaboratory.com

CHAIN OF CUSTODY

ESS Lab # 1604587

Turn Time 48h ~~EOS~~ Standard Other_____

Regulatory State: MA RI CT NH NJ NY ME Other_____

Is this project for any of the following:(please circle)
MA-MCP Navy USACE CT DEP Other_____

Reporting Limits - RSS-1

Electonic Deliverables Excel Access PDF

Co. Name: Tighe + Bond
Contact Person: Michael Martin
City: Pocasset
State: MA
Tel.:
Fax.:
Project #: N-1023-56
Project Name: Station 292
Address: 4 Barlows Landing
Zip: 02559
PO #:
email: MEMartin@TigheBond.com

ESS Lab ID	Date	Collection Time	Grab -G Composite-C	Matrix	Sample ID	Pres Code	# of Containers	Type of Container	Vol of Container	Analysis: PCBs
1	4/21/16	8:40	C	S	Trench 87/86	NP	1	AG	4oz	X
2	4/21/16	9:50	C	S	Trench 85/84	NP	1	AG	4oz	X
3	4/21/16	12:00	C	S	Trench 83/82	NP	1	AG	4oz	X

Container Type: P-Poly G-Glass AG-Amber Glass S-Sterile V-VOA

Matrix: S-Soil SD-Solid D-Sludge WW-Wastewater GW-Groundwater SW-Surface Water DW-Drinking Water O-Oil W-Wipes F-Filter

Cooler Present ___ Yes ___ No

Seals Intact ___ Yes ___ No NA:___

Cooler Temperature: 1.6

Internal Use Only
[✓] Pickup
[ ] Technician___

Preservation Code: 1-NP, 2-HCl, 3-H2SO4, 4-HNO3, 5-NaOH, 6-MeOH, 7-Asorbic Acid, 8-ZnAct, 9-_____

Sampled by: KCL

Comments: TSCA Extraction method

Relinquished by: (Signature, Date & Time)	Received by: (Signature, Date & Time)	Relinquished by: (Signature, Date & Time)	Received by: (Signature, Date & Time)
[signature] 4/21/16	[signature] 4/21/16 11:30	[signature] 4/21/16 15:13	[signature] 4/21/16 1550
Relinquished by: (Signature, Date & Time)	Received by: (Signature, Date & Time)	Relinquished by: (Signature, Date & Time)	Received by: (Signature, Date & Time)

* By circling MA-MCP, client acknowledges samples were collected in accordance with MADEP CAM VIIA

Please fax to the laboratory all changes to Chain of Custody

1 (White) Lab Copy
2 (Yellow) Client Receipt

CERTIFICATE OF ANALYSIS

Michael Martin
Tighe & Bond
4 Barlows Landing Road, Unit 15
Pocasset, MA 02559

RE: Station 292 (N-1023-056)
ESS Laboratory Work Order Number: 1604657

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED
By ESS Laboratory at 5:12 pm, Apr 26, 2016

Analytical Summary
The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with NELAC Standards, A2LA and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604657

SAMPLE RECEIPT

The following samples were received on April 22, 2016 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has performed and reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Data Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

Lab Number	Sample Name	Matrix	Analysis
1604657-01	Trench 81/80	Soil	8082A

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604657

PROJECT NARRATIVE

No unusual observations noted.

End of Project Narrative.

DATA USABILITY LINKS

Definitions of Quality Control Parameters

Semivolatile Organics Internal Standard Information

Semivolatile Organics Surrogate Information

Volatile Organics Internal Standard Information

Volatile Organics Surrogate Information

EPH and VPH Alkane Lists

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604657

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

1010A - Flashpoint
6010C - ICP
6020A - ICP MS
7010 - Graphite Furnace
7196A - Hexavalent Chromium
7470A - Aqueous Mercury
7471B - Solid Mercury
8011 - EDB/DBCP/TCP
8015D - GRO/DRO
8081B - Pesticides
8082A - PCB
8100M - TPH
8151A - Herbicides
8260B - VOA
8270D - SVOA
8270D SIM - SVOA Low Level
9014 - Cyanide
9038 - Sulfate
9040C - Aqueous pH
9045D - Solid pH (Corrosivity)
9050A - Specific Conductance
9056A - Anions (IC)
9060A - TOC
9095B - Paint Filter
MADEP 04-1.1 - EPH / VPH

Prep Methods

3005A - Aqueous ICP Digestion
3020A - Aqueous Graphite Furnace / ICP MS Digestion
3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
3060A - Solid Hexavalent Chromium Digestion
3510C - Separatory Funnel Extraction
3520C - Liquid / Liquid Extraction
3540C - Manual Soxhlet Extraction
3541 - Automated Soxhlet Extraction
3546 - Microwave Extraction
3580A - Waste Dilution
5030B - Aqueous Purge and Trap
5030C - Aqueous Purge and Trap
5035 - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604657

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **1604657-01**

Matrices: ( ) Ground Water/Surface Water (X) Soil/Sediment ( ) Drinking Water ( ) Air ( ) Other:_____

CAM Protocol (check all that apply below):

( ) 8260 VOC CAM II A	( ) 7470/7471 Hg CAM III B	( ) MassDEP VPH CAM IV A	( ) 8081 Pesticides CAM V B	( ) 7196 Hex Cr CAM VI B	( ) MassDEP APH CAM IX A
( ) 8270 SVOC CAM II B	( ) 7010 Metals CAM III C	( ) MassDEP EPH CAM IV B	( ) 8151 Herbicides CAM V C	( ) 8330 Explosives CAM VIII A	( ) TO-15 VOC CAM IX B
( ) 6010 Metals CAM III A	( ) 6020 Metals CAM III D	(X) 8082 PCB CAM V A	( ) 6860 Perchlorate CAM VIII B	( ) 9014 Total Cyanide/PAC CAM VI A	

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	Yes (X) No ( )
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	Yes (X) No ( )
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	Yes (X) No ( )
D	Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	Yes (X) No ( )
E	a. VPH, EPH, APH and TO-15 only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	Yes ( ) No ( )
	b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	Yes ( ) No ( )
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	Yes (X) No ( )

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)? ***Data User Note:*** ***Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.***	Yes (X) No ( )*
H	Were **all** QC performance standards specified in the CAM protocol(s) achieved?	Yes (X) No ( )*
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	Yes (X) No ( )*

****All negative responses must be addressed in an attached laboratory narrative.***

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: _____ Date: April 26, 2016
Printed Name: Laurel Stoddard Position: Laboratory Director

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Trench 81/80
Date Sampled: 04/22/16 09:50
Percent Solids: 83
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1604657
ESS Laboratory Sample ID: 1604657-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 4/22/16 17:34
Cleanup Method: 3665A

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.0614)		8082A		1	04/25/16 21:33		CD62204
Aroclor 1221	ND (0.0614)		8082A		1	04/25/16 21:33		CD62204
Aroclor 1232	ND (0.0614)		8082A		1	04/25/16 21:33		CD62204
Aroclor 1242	ND (0.0614)		8082A		1	04/25/16 21:33		CD62204
Aroclor 1248	ND (0.0614)		8082A		1	04/25/16 21:33		CD62204
Aroclor 1254	**0.290** (0.0614)		8082A		1	04/25/16 21:33		CD62204
Aroclor 1260	ND (0.0614)		8082A		1	04/25/16 21:33		CD62204
Aroclor 1262	ND (0.0614)		8082A		1	04/25/16 21:33		CD62204
Aroclor 1268	ND (0.0614)		8082A		1	04/25/16 21:33		CD62204

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*86 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*88 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*69 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*72 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604657

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CD62204 - 3540C										
Blank										
Aroclor 1016	ND	0.0500	mg/kg wet							
Aroclor 1221	ND	0.0500	mg/kg wet							
Aroclor 1232	ND	0.0500	mg/kg wet							
Aroclor 1242	ND	0.0500	mg/kg wet							
Aroclor 1248	ND	0.0500	mg/kg wet							
Aroclor 1254	ND	0.0500	mg/kg wet							
Aroclor 1260	ND	0.0500	mg/kg wet							
Aroclor 1262	ND	0.0500	mg/kg wet							
Aroclor 1268	ND	0.0500	mg/kg wet							
Surrogate: Decachlorobiphenyl	*0.0178*		mg/kg wet	*0.02500*		*71*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0176*		mg/kg wet	*0.02500*		*71*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0203*		mg/kg wet	*0.02500*		*81*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0181*		mg/kg wet	*0.02500*		*72*	*30-150*			
LCS										
Aroclor 1016	0.441	0.0500	mg/kg wet	0.5000		88	40-140			
Aroclor 1260	0.442	0.0500	mg/kg wet	0.5000		88	40-140			
Surrogate: Decachlorobiphenyl	*0.0195*		mg/kg wet	*0.02500*		*78*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0197*		mg/kg wet	*0.02500*		*79*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0214*		mg/kg wet	*0.02500*		*86*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0201*		mg/kg wet	*0.02500*		*80*	*30-150*			
LCS Dup										
Aroclor 1016	0.426	0.0500	mg/kg wet	0.5000		85	40-140	3	30	
Aroclor 1260	0.435	0.0500	mg/kg wet	0.5000		87	40-140	2	30	
Surrogate: Decachlorobiphenyl	*0.0190*		mg/kg wet	*0.02500*		*76*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0194*		mg/kg wet	*0.02500*		*77*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0201*		mg/kg wet	*0.02500*		*81*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0188*		mg/kg wet	*0.02500*		*75*	*30-150*			

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292 ESS Laboratory Work Order: 1604657

Notes and Definitions

U	Analyte included in the analysis, but not detected
ND	Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DL	Detection Limit
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
NR	No Recovery
[CALC]	Calculated Analyte
SUB	Subcontracted analysis; see attached report

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604657

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179
http://www.health.ri.gov/find/labs/analytical/ESS.pdf

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002
http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/documents/AllLabs.xls

Massachusetts Potable and Non Potable Water: M-RI002
http://public.dep.state.ma.us/Labcert/Labcert.aspx

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424
http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313
http://www.wadsworth.org/labcert/elap/comm.html

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006
http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752
http://www.depweb.state.pa.us/portal/server.pt/community/labs/13780/laboratory_accreditation_program/590095

ESS Laboratory Sample and Cooler Receipt Checklist

Client: Tighe & Bond - KPB/TB/MM

Shipped/Delivered Via: ESS Courier

ESS Project ID: 1604657
Date Received: 4/25/2016
Project Due Date: 4/27/2016
Days for Project: 2 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 2.0 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** Yes / No / NA
10. Were any analyses received outside of hold time? Yes / No

11. Any Subcontracting needed? Yes / No
    ESS Sample IDs:
    Analysis:
    TAT:
12. Were VOAs received? Yes / No
    a. Air bubbles in aqueous VOAs? Yes / No
    b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
    a. If metals preserved upon receipt: Date: Time: By:
    b. Low Level VOAs brought to freezer: Date: Time: By:

Sample Receiving Notes:

RELOG OF 1604644-01 (11) 4-25-16

14. Was there a need to contact Project Manager? Yes / No
    a. Was there a need to contact the client? Yes / No
    Who was contacted? Date: Time: By:

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	28861	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

2nd Review
Are barcode labels on correct containers? Yes / No

Completed By: [signature] Date & Time: 4-25-16 1621
Reviewed By: [signature] Date & Time: 4/25/16 1630
Delivered By: [signature] 4/25/16 1630

1604657

ESS Laboratory

Division of Thielsch Engineering, Inc.

185 Frances Avenue, Cranston, RI 02910-2211
Tel. (401) 461-7181 Fax (401) 461-4486
www.esslaboratory.com

CHAIN OF CUSTODY

ESS Lab # ~~1604644~~ MR 4/25/16

Turn Time 48hr* Standard Other_____

Regulatory State: (MA) RI CT NH NJ NY ME Other_____

Is this project for any of the following:(please circle)
(MA-MCP) Navy USACE CT DEP Other_____

Reporting Limits - RCS-1

Electonic Deliverables (Excel) Access (PDF)

Co. Name: Tighe + Bond
Project # N-1023-56
Project Name: Station 242
Contact Person: Michael Murton
Address: 4 Barlows Landing
City: Pocasset
State: MA
Zip: 02559
PO #
Tel.
Fax.
email: MEMurton@Tighebond.com

ESS Lab ID	Date	Collection Time	Grab -G Composite-C	Matrix	Sample ID	Pres Code	# of Containers	Type of Container	Vol of Container	PCBs	VOCs	SVOCs	TPH	Conductivity/ORP	pH/corrosivity	Ignitability	Reactive cyanide/sulfide	RCRA 8
1	4/22/16	9:50	C	S	Trench 81/80	NP	1	AG	4 oz	X								
MR 4/25/16 2	4/22/16	10:00	C	S	Disp-13	NP/M	4	AG/V		X	X	X	X	X	X	X	X	X

Container Type: P-Poly G-Glass AG-Amber Glass S-Sterile V-VOA

Matrix: S-Soil SD-Solid D-Sludge WW-Wastewater GW-Groundwater SW-Surface Water DW-Drinking Water O-Oil W-Wipes F-Filter

Cooler Present ✓ Yes ____ No

Seals Intact ____ Yes ____ No NA: ____

Cooler Temperature: 2.0

Internal Use Only
[ ] Pickup
[ ] Technician____

Preservation Code: 1-NP, 2-HCl, 3-H2SO4, 4-HNO3, 5-NaOH, 6-MeOH, 7-Asorbic Acid, 8-ZnAct, 9-____

Sampled by: KU

Comments: TSCA extraction method / Std. TAT for Disp-13

Relinquished by: (Signature, Date & Time)	Received by: (Signature, Date & Time)	Relinquished by: (Signature, Date & Time)	Received by: (Signature, Date & Time)
4/22/16	4/22/16 15:06	4/22/16 1638	1604644
Relinquished by: (Signature, Date & Time)	Received by: (Signature, Date & Time)	Relinquished by: (Signature, Date & Time)	Received by: (Signature, Date & Time)

* By circling MA-MCP, client acknowledges samples were collected in accordance with MADEP CAM VIIA

Please fax to the laboratory all changes to Chain of Custody

1 (White) Lab Copy
2 (Yellow) Client Receipt

STATION 292
DISPOSAL CHARACTERIZATION REPORTS

CERTIFICATE OF ANALYSIS

Michael Martin
Tighe & Bond
4 Barlows Landing Road, Unit 15
Pocasset, MA 02559

RE: Station 292 (N-1023-056)
ESS Laboratory Work Order Number: 1604337

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED
By ESS Laboratory at 3:58 pm, Apr 21, 2016

Analytical Summary
The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with NELAC Standards, A2LA and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604337

SAMPLE RECEIPT

The following samples were received on April 13, 2016 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has performed and reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Data Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

Question I: All samples for Metals and EPH were analyzed for a subset of the required MCP list per the client's request.

Lab Number	Sample Name	Matrix	Analysis
1604337-01	Disp-1	Soil	1010, 2580, 6010C, 6020A, 7.3.3.2, 7.3.4.1, 7471B, 8100M, 8260B, 8270D, 9045, 9050A

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604337

PROJECT NARRATIVE

5035/8260B Volatile Organic Compounds / Methanol

CD61434-BS1 **Blank Spike recovery is below lower control limit (B-).**
1,4-Dioxane - Screen (% @ 44-241%), Diethyl Ether (69% @ 70-130%)

CD61434-BSD1 **Blank Spike recovery is below lower control limit (B-).**
1,4-Dioxane - Screen (% @ 44-241%)

CD61434-BSD1 **Relative percent difference for duplicate is outside of criteria (D+).**
Methylene Chloride (27% @ 25%)

CZD0224-CCV1 **Continuing Calibration %Diff/Drift is below control limit (CD-).**
Diethyl Ether (37% @ 30%)

8100M Total Petroleum Hydrocarbons

CZD0189-CCV3 **Continuing Calibration %Diff/Drift is below control limit (CD-).**
Hexatriacontane (C36) (43% @ 25%)

CZD0189-CCV4 **Continuing Calibration %Diff/Drift is below control limit (CD-).**
Hexatriacontane (C36) (49% @ 25%)

CZD0300-CCV2 **Continuing Calibration %Diff/Drift is below control limit (CD-).**
Hexatriacontane (C36) (30% @ 25%)

CZD0300-CCV4 **Continuing Calibration %Diff/Drift is below control limit (CD-).**
Hexatriacontane (C36) (42% @ 25%)

CZD0300-CCV5 **Continuing Calibration %Diff/Drift is below control limit (CD-).**
Hexatriacontane (C36) (46% @ 25%)

8270D Semi-Volatile Organic Compounds

CZD0210-CCV1 **Calibration required quadratic regression (Q).**
2,4-Dinitrophenol (89% @ 80-120%)

CZD0210-CCV1 **Continuing Calibration %Diff/Drift is above control limit (CD+).**
N-Nitrosodimethylamine (22% @ 20%)

CZD0230-CCV1 **Calibration required quadratic regression (Q).**
2,4-Dinitrophenol (87% @ 80-120%)

CZD0230-CCV1 **Continuing Calibration %Diff/Drift is below control limit (CD-).**
4-Nitrophenol (24% @ 20%)

CZD0263-CCV1 **Calibration required quadratic regression (Q).**
2,4-Dinitrophenol (113% @ 80-120%)

No other observations noted.

End of Project Narrative.

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604337

DATA USABILITY LINKS

Definitions of Quality Control Parameters

Semivolatile Organics Internal Standard Information

Semivolatile Organics Surrogate Information

Volatile Organics Internal Standard Information

Volatile Organics Surrogate Information

EPH and VPH Alkane Lists

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

1010A - Flashpoint
6010C - ICP
6020A - ICP MS
7010 - Graphite Furnace
7196A - Hexavalent Chromium
7470A - Aqueous Mercury
7471B - Solid Mercury
8011 - EDB/DBCP/TCP
8015D - GRO/DRO
8081B - Pesticides
8082A - PCB
8100M - TPH
8151A - Herbicides
8260B - VOA
8270D - SVOA
8270D SIM - SVOA Low Level
9014 - Cyanide
9038 - Sulfate
9040C - Aqueous pH
9045D - Solid pH (Corrosivity)
9050A - Specific Conductance
9056A - Anions (IC)
9060A - TOC
9095B - Paint Filter
MADEP 04-1.1 - EPH / VPH

Prep Methods

3005A - Aqueous ICP Digestion
3020A - Aqueous Graphite Furnace / ICP MS Digestion
3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
3060A - Solid Hexavalent Chromium Digestion
3510C - Separatory Funnel Extraction
3520C - Liquid / Liquid Extraction
3540C - Manual Soxhlet Extraction
3541 - Automated Soxhlet Extraction
3546 - Microwave Extraction
3580A - Waste Dilution
5030B - Aqueous Purge and Trap
5030C - Aqueous Purge and Trap
5035 - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604337

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **1604337-01**

Matrices: ( ) Ground Water/Surface Water (X) Soil/Sediment ( ) Drinking Water ( ) Air ( ) Other:_____

CAM Protocol (check all that apply below):

(X) 8260 VOC CAM II A	(X) 7470/7471 Hg CAM III B	( ) MassDEP VPH CAM IV A	( ) 8081 Pesticides CAM V B	( ) 7196 Hex Cr CAM VI B	( ) MassDEP APH CAM IX A
(X) 8270 SVOC CAM II B	( ) 7010 Metals CAM III C	(X) MassDEP EPH CAM IV B	( ) 8151 Herbicides CAM V C	( ) 8330 Explosives CAM VIII A	( ) TO-15 VOC CAM IX B
(X) 6010 Metals CAM III A	(X) 6020 Metals CAM III D	( ) 8082 PCB CAM V A	( ) 6860 Perchlorate CAM VIII B	( ) 9014 Total Cyanide/PAC CAM VI A	

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	Yes (X) No ( )
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	Yes (X) No ( )
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	Yes (X) No ( )
D	Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	Yes (X) No ( )
E	a. VPH, EPH, APH and TO-15 only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	Yes (X) No ( )
	b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	Yes ( ) No ( )
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	Yes (X) No ( )

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)?	Yes (X) No ( )*
	Data User Note: ***Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.***	
H	Were **all** QC performance standards specified in the CAM protocol(s) achieved?	Yes ( ) No (X)*
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	Yes ( ) No (X)*

****All negative responses must be addressed in an attached laboratory narrative.***

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Laurel Stoddard
Date: April 21, 2016
Printed Name: Laurel Stoddard
Position: Laboratory Director

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-1
Date Sampled: 04/13/16 13:45
Percent Solids: 91

ESS Laboratory Work Order: 1604337
ESS Laboratory Sample ID: 1604337-01
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Arsenic	**11.9** (2.38)		6010C		1	KJK	04/15/16 17:23	2.31	100	CD61405
Barium	**18.0** (2.38)		6010C		1	KJK	04/15/16 2:47	2.31	100	CD61405
Cadmium	ND (0.48)		6010C		1	KJK	04/15/16 2:47	2.31	100	CD61405
Chromium	**12.6** (0.95)		6010C		1	KJK	04/15/16 2:47	2.31	100	CD61405
Lead	**13.1** (4.75)		6010C		1	KJK	04/15/16 17:23	2.31	100	CD61405
Mercury	ND (0.035)		7471B		1	BJV	04/15/16 12:44	0.63	40	CD61407
Selenium	ND (0.48)		6020A		20	JP	04/14/16 21:18	2.31	100	CD61405
Silver	ND (0.48)		6010C		1	KJK	04/15/16 2:47	2.31	100	CD61405

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-1
Date Sampled: 04/13/16 13:45
Percent Solids: 91
Initial Volume: 9.7
Final Volume: 5
Extraction Method: 5035

ESS Laboratory Work Order: 1604337
ESS Laboratory Sample ID: 1604337-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1,1,2-Tetrachloroethane	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
1,1,1-Trichloroethane	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
1,1,2,2-Tetrachloroethane	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
1,1,2-Trichloroethane	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
1,1-Dichloroethane	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
1,1-Dichloroethene	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
1,1-Dichloropropene	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
1,2,3-Trichlorobenzene	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
1,2,3-Trichloropropane	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
1,2,4-Trichlorobenzene	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
1,2,4-Trimethylbenzene	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
1,2-Dibromo-3-Chloropropane	ND (0.664)		8260B		1	04/14/16 17:25	CZD0224	CD61434
1,2-Dibromoethane	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
1,2-Dichlorobenzene	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
1,2-Dichloroethane	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
1,2-Dichloropropane	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
1,3,5-Trimethylbenzene	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
1,3-Dichlorobenzene	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
1,3-Dichloropropane	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
1,4-Dichlorobenzene	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
1,4-Dioxane - Screen	ND (26.5)		8260B		1	04/14/16 17:25	CZD0224	CD61434
2,2-Dichloropropane	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
2-Butanone	ND (0.664)		8260B		1	04/14/16 17:25	CZD0224	CD61434
2-Chlorotoluene	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
2-Hexanone	ND (0.664)		8260B		1	04/14/16 17:25	CZD0224	CD61434
4-Chlorotoluene	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
4-Isopropyltoluene	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
4-Methyl-2-Pentanone	ND (0.664)		8260B		1	04/14/16 17:25	CZD0224	CD61434
Acetone	ND (0.664)		8260B		1	04/14/16 17:25	CZD0224	CD61434
Benzene	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
Bromobenzene	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
Bromochloromethane	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-1
Date Sampled: 04/13/16 13:45
Percent Solids: 91
Initial Volume: 9.7
Final Volume: 5
Extraction Method: 5035

ESS Laboratory Work Order: 1604337
ESS Laboratory Sample ID: 1604337-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Bromodichloromethane	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
Bromoform	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
Bromomethane	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
Carbon Disulfide	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
Carbon Tetrachloride	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
Chlorobenzene	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
Chloroethane	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
Chloroform	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
Chloromethane	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
cis-1,2-Dichloroethene	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
cis-1,3-Dichloropropene	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
Dibromochloromethane	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
Dibromomethane	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
Dichlorodifluoromethane	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
Diethyl Ether	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
Di-isopropyl ether	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
Ethyl tertiary-butyl ether	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
Ethylbenzene	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
Hexachlorobutadiene	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
Isopropylbenzene	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
Methyl tert-Butyl Ether	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
Methylene Chloride	ND (0.265)		8260B		1	04/14/16 17:25	CZD0224	CD61434
Naphthalene	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
n-Butylbenzene	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
n-Propylbenzene	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
sec-Butylbenzene	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
Styrene	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
tert-Butylbenzene	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
Tertiary-amyl methyl ether	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
Tetrachloroethene	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
Tetrahydrofuran	ND (0.664)		8260B		1	04/14/16 17:25	CZD0224	CD61434
Toluene	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-1
Date Sampled: 04/13/16 13:45
Percent Solids: 91
Initial Volume: 9.7
Final Volume: 5
Extraction Method: 5035

ESS Laboratory Work Order: 1604337
ESS Laboratory Sample ID: 1604337-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
trans-1,2-Dichloroethene	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
trans-1,3-Dichloropropene	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
Trichloroethene	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
Trichlorofluoromethane	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
Vinyl Chloride	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
Xylene O	ND (0.133)		8260B		1	04/14/16 17:25	CZD0224	CD61434
Xylene P,M	ND (0.265)		8260B		1	04/14/16 17:25	CZD0224	CD61434
Xylenes (Total)	ND (0.265)		8260B		1	04/14/16 17:25		[CALC]

	%Recovery	*Qualifier*	*Limits*
Surrogate: 1,2-Dichloroethane-d4	*124 %*		*70-130*
Surrogate: 4-Bromofluorobenzene	*97 %*		*70-130*
Surrogate: Dibromofluoromethane	*120 %*		*70-130*
Surrogate: Toluene-d8	*103 %*		*70-130*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-1
Date Sampled: 04/13/16 13:45
Percent Solids: 91
Initial Volume: 19
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 1604337
ESS Laboratory Sample ID: 1604337-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DPS
Prepared: 4/14/16 10:50

8100M Total Petroleum Hydrocarbons

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Total Petroleum Hydrocarbons	**19.0** (11.6)		8100M		1	04/14/16 21:34	CZD0300	CD61337

	%Recovery	Qualifier	Limits
Surrogate: O-Terphenyl	*87 %*		*40-140*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-1
Date Sampled: 04/13/16 13:45
Percent Solids: 91
Initial Volume: 14.2
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1604337
ESS Laboratory Sample ID: 1604337-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: IBM
Prepared: 4/14/16 10:10

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,2,4-Trichlorobenzene	ND (0.386)		8270D		1	04/15/16 4:22	CZD0230	CD61320
1,2-Dichlorobenzene	ND (0.386)		8270D		1	04/15/16 4:22	CZD0230	CD61320
1,3-Dichlorobenzene	ND (0.386)		8270D		1	04/15/16 4:22	CZD0230	CD61320
1,4-Dichlorobenzene	ND (0.386)		8270D		1	04/15/16 4:22	CZD0230	CD61320
2,4,5-Trichlorophenol	ND (0.386)		8270D		1	04/15/16 4:22	CZD0230	CD61320
2,4,6-Trichlorophenol	ND (0.386)		8270D		1	04/15/16 4:22	CZD0230	CD61320
2,4-Dichlorophenol	ND (0.386)		8270D		1	04/15/16 4:22	CZD0230	CD61320
2,4-Dimethylphenol	ND (0.386)		8270D		1	04/15/16 4:22	CZD0230	CD61320
2,4-Dinitrophenol	ND (1.94)		8270D		1	04/15/16 4:22	CZD0230	CD61320
2,4-Dinitrotoluene	ND (0.386)		8270D		1	04/15/16 4:22	CZD0230	CD61320
2,6-Dinitrotoluene	ND (0.386)		8270D		1	04/15/16 4:22	CZD0230	CD61320
2-Chloronaphthalene	ND (0.386)		8270D		1	04/15/16 4:22	CZD0230	CD61320
2-Chlorophenol	ND (0.386)		8270D		1	04/15/16 4:22	CZD0230	CD61320
2-Methylnaphthalene	ND (0.386)		8270D		1	04/15/16 4:22	CZD0230	CD61320
2-Methylphenol	ND (0.386)		8270D		1	04/15/16 4:22	CZD0230	CD61320
2-Nitrophenol	ND (0.386)		8270D		1	04/15/16 4:22	CZD0230	CD61320
3,3´-Dichlorobenzidine	ND (0.773)		8270D		1	04/15/16 4:22	CZD0230	CD61320
3+4-Methylphenol	ND (0.773)		8270D		1	04/15/16 4:22	CZD0230	CD61320
4-Bromophenyl-phenylether	ND (0.386)		8270D		1	04/15/16 4:22	CZD0230	CD61320
4-Chloroaniline	ND (0.773)		8270D		1	04/15/16 4:22	CZD0230	CD61320
4-Nitrophenol	ND (1.94)		8270D		1	04/15/16 4:22	CZD0230	CD61320
Acenaphthene	ND (0.386)		8270D		1	04/15/16 4:22	CZD0230	CD61320
Acenaphthylene	ND (0.386)		8270D		1	04/15/16 4:22	CZD0230	CD61320
Acetophenone	ND (0.773)		8270D		1	04/15/16 4:22	CZD0230	CD61320
Aniline	ND (1.94)		8270D		1	04/15/16 4:22	CZD0230	CD61320
Anthracene	ND (0.386)		8270D		1	04/15/16 4:22	CZD0230	CD61320
Azobenzene	ND (0.386)		8270D		1	04/15/16 4:22	CZD0230	CD61320
Benzo(a)anthracene	ND (0.386)		8270D		1	04/15/16 4:22	CZD0230	CD61320
Benzo(a)pyrene	ND (0.194)		8270D		1	04/15/16 4:22	CZD0230	CD61320
Benzo(b)fluoranthene	ND (0.386)		8270D		1	04/15/16 4:22	CZD0230	CD61320
Benzo(g,h,i)perylene	ND (0.386)		8270D		1	04/15/16 4:22	CZD0230	CD61320
Benzo(k)fluoranthene	ND (0.386)		8270D		1	04/15/16 4:22	CZD0230	CD61320

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-1
Date Sampled: 04/13/16 13:45
Percent Solids: 91
Initial Volume: 14.2
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1604337
ESS Laboratory Sample ID: 1604337-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: IBM
Prepared: 4/14/16 10:10

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
bis(2-Chloroethoxy)methane	ND (0.386)		8270D		1	04/15/16 4:22	CZD0230	CD61320
bis(2-Chloroethyl)ether	ND (0.386)		8270D		1	04/15/16 4:22	CZD0230	CD61320
bis(2-chloroisopropyl)Ether	ND (0.386)		8270D		1	04/15/16 4:22	CZD0230	CD61320
bis(2-Ethylhexyl)phthalate	ND (0.386)		8270D		1	04/15/16 4:22	CZD0230	CD61320
Butylbenzylphthalate	ND (0.386)		8270D		1	04/15/16 4:22	CZD0230	CD61320
Chrysene	ND (0.194)		8270D		1	04/15/16 4:22	CZD0230	CD61320
Dibenzo(a,h)Anthracene	ND (0.194)		8270D		1	04/15/16 4:22	CZD0230	CD61320
Dibenzofuran	ND (0.386)		8270D		1	04/15/16 4:22	CZD0230	CD61320
Diethylphthalate	ND (0.386)		8270D		1	04/15/16 4:22	CZD0230	CD61320
Dimethylphthalate	ND (0.386)		8270D		1	04/15/16 4:22	CZD0230	CD61320
Di-n-butylphthalate	ND (0.386)		8270D		1	04/15/16 4:22	CZD0230	CD61320
Di-n-octylphthalate	ND (0.386)		8270D		1	04/15/16 4:22	CZD0230	CD61320
Fluoranthene	ND (0.386)		8270D		1	04/15/16 4:22	CZD0230	CD61320
Fluorene	ND (0.386)		8270D		1	04/15/16 4:22	CZD0230	CD61320
Hexachlorobenzene	ND (0.386)		8270D		1	04/15/16 4:22	CZD0230	CD61320
Hexachlorobutadiene	ND (0.386)		8270D		1	04/15/16 4:22	CZD0230	CD61320
Hexachloroethane	ND (0.386)		8270D		1	04/15/16 4:22	CZD0230	CD61320
Indeno(1,2,3-cd)Pyrene	ND (0.386)		8270D		1	04/15/16 4:22	CZD0230	CD61320
Isophorone	ND (0.386)		8270D		1	04/15/16 4:22	CZD0230	CD61320
Naphthalene	ND (0.386)		8270D		1	04/15/16 4:22	CZD0230	CD61320
Nitrobenzene	ND (0.386)		8270D		1	04/15/16 4:22	CZD0230	CD61320
N-Nitrosodimethylamine	ND (0.386)		8270D		1	04/15/16 4:22	CZD0230	CD61320
Pentachlorophenol	ND (1.94)		8270D		1	04/15/16 4:22	CZD0230	CD61320
Phenanthrene	ND (0.386)		8270D		1	04/15/16 4:22	CZD0230	CD61320
Phenol	ND (0.386)		8270D		1	04/15/16 4:22	CZD0230	CD61320
Pyrene	ND (0.386)		8270D		1	04/15/16 4:22	CZD0230	CD61320

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichlorobenzene-d4	*65 %*		*30-130*
Surrogate: 2,4,6-Tribromophenol	*95 %*		*30-130*
Surrogate: 2-Chlorophenol-d4	*71 %*		*30-130*
Surrogate: 2-Fluorobiphenyl	*72 %*		*30-130*
Surrogate: 2-Fluorophenol	*69 %*		*30-130*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-1
Date Sampled: 04/13/16 13:45
Percent Solids: 91
Initial Volume: 14.2
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1604337
ESS Laboratory Sample ID: 1604337-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: IBM
Prepared: 4/14/16 10:10

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Surrogate: Nitrobenzene-d5		*72 %*		*30-130*				
Surrogate: Phenol-d6		*73 %*		*30-130*				
Surrogate: p-Terphenyl-d14		*73 %*		*30-130*				

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-1
Date Sampled: 04/13/16 13:45
Percent Solids: 91

ESS Laboratory Work Order: 1604337
ESS Laboratory Sample ID: 1604337-01
Sample Matrix: Soil

Classical Chemistry

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	Units	Batch
Conductivity	**WL 60** (5)		9050A		1	EEM	04/15/16 14:55	umhos/cm	CD61523
Corrosivity (pH)	**6.20** (N/A)		9045		1	DEL	04/13/16 22:31	S.U.	CD61357
Corrosivity (pH) Sample Temp	**Soil pH measured in water at 19.1 ºC.**								
Eh (ORP)	**WL 388** (N/A)		2580		1	DEL	04/13/16 22:31	mv	CD61373
Flashpoint	**> 200** (N/A)		1010		1	CRR	04/18/16 11:12	°F	CD61829
Reactive Cyanide	ND (2.0)		7.3.3.2		1	MJV	04/18/16 15:10	mg/kg	CD61841
Reactive Sulfide	ND (2.0)		7.3.4.1		1	MJV	04/18/16 15:10	mg/kg	CD61841

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604337

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Total Metals										
Batch CD61405 - 3050B										
Blank										
Arsenic	ND	2.50	mg/kg wet							
Barium	ND	2.50	mg/kg wet							
Cadmium	ND	0.50	mg/kg wet							
Chromium	ND	1.00	mg/kg wet							
Lead	ND	5.00	mg/kg wet							
Selenium	ND	0.50	mg/kg wet							
Silver	ND	0.50	mg/kg wet							
LCS										
Arsenic	179	9.09	mg/kg wet	161.0		111	80-120			
Barium	407	9.09	mg/kg wet	351.0		116	80-120			
Cadmium	189	1.82	mg/kg wet	190.0		99	80-120			
Chromium	88.9	3.64	mg/kg wet	87.90		101	80-120			
Lead	152	18.2	mg/kg wet	138.0		110	80-120			
Selenium	320	22.7	mg/kg wet	305.0		105	80-120			
Silver	60.0	1.82	mg/kg wet	58.00		103	80-120			
LCS Dup										
Arsenic	181	8.47	mg/kg wet	161.0		112	80-120	1	20	
Barium	401	8.47	mg/kg wet	351.0		114	80-120	1	20	
Cadmium	194	1.69	mg/kg wet	190.0		102	80-120	2	20	
Chromium	91.9	3.39	mg/kg wet	87.90		105	80-120	3	20	
Lead	152	16.9	mg/kg wet	138.0		110	80-120	0.3	20	
Silver	61.6	1.69	mg/kg wet	58.00		106	80-120	3	20	
Batch CD61407 - 7471B										
Blank										
Mercury	ND	0.033	mg/kg wet							
LCS										
Mercury	16.9	1.90	mg/kg wet	15.90		106	80-120			
LCS Dup										
Mercury	16.8	1.80	mg/kg wet	15.90		106	80-120	0.4	20	
5035/8260B Volatile Organic Compounds / Methanol										
Batch CD61434 - 5035										
Blank										
1,1,1,2-Tetrachloroethane	ND	0.200	mg/kg wet							
1,1,1-Trichloroethane	ND	0.200	mg/kg wet							
1,1,2,2-Tetrachloroethane	ND	0.200	mg/kg wet							
1,1,2-Trichloroethane	ND	0.200	mg/kg wet							
1,1-Dichloroethane	ND	0.200	mg/kg wet							
1,1-Dichloroethene	ND	0.200	mg/kg wet							
1,1-Dichloropropene	ND	0.200	mg/kg wet							
1,2,3-Trichlorobenzene	ND	0.200	mg/kg wet							
1,2,3-Trichloropropane	ND	0.200	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604337

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Methanol										
Batch CD61434 - 5035										
1,2,4-Trichlorobenzene	ND	0.200	mg/kg wet							
1,2,4-Trimethylbenzene	ND	0.200	mg/kg wet							
1,2-Dibromo-3-Chloropropane	ND	1.00	mg/kg wet							
1,2-Dibromoethane	ND	0.200	mg/kg wet							
1,2-Dichlorobenzene	ND	0.200	mg/kg wet							
1,2-Dichloroethane	ND	0.200	mg/kg wet							
1,2-Dichloropropane	ND	0.200	mg/kg wet							
1,3,5-Trimethylbenzene	ND	0.200	mg/kg wet							
1,3-Dichlorobenzene	ND	0.200	mg/kg wet							
1,3-Dichloropropane	ND	0.200	mg/kg wet							
1,4-Dichlorobenzene	ND	0.200	mg/kg wet							
1,4-Dioxane - Screen	ND	40.0	mg/kg wet							
2,2-Dichloropropane	ND	0.200	mg/kg wet							
2-Butanone	ND	1.00	mg/kg wet							
2-Chlorotoluene	ND	0.200	mg/kg wet							
2-Hexanone	ND	1.00	mg/kg wet							
4-Chlorotoluene	ND	0.200	mg/kg wet							
4-Isopropyltoluene	ND	0.200	mg/kg wet							
4-Methyl-2-Pentanone	ND	1.00	mg/kg wet							
Acetone	ND	1.00	mg/kg wet							
Benzene	ND	0.200	mg/kg wet							
Bromobenzene	ND	0.200	mg/kg wet							
Bromochloromethane	ND	0.200	mg/kg wet							
Bromodichloromethane	ND	0.200	mg/kg wet							
Bromoform	ND	0.200	mg/kg wet							
Bromomethane	ND	0.200	mg/kg wet							
Carbon Disulfide	ND	0.200	mg/kg wet							
Carbon Tetrachloride	ND	0.200	mg/kg wet							
Chlorobenzene	ND	0.200	mg/kg wet							
Chloroethane	ND	0.200	mg/kg wet							
Chloroform	ND	0.200	mg/kg wet							
Chloromethane	ND	0.200	mg/kg wet							
cis-1,2-Dichloroethene	ND	0.200	mg/kg wet							
cis-1,3-Dichloropropene	ND	0.200	mg/kg wet							
Dibromochloromethane	ND	0.200	mg/kg wet							
Dibromomethane	ND	0.200	mg/kg wet							
Dichlorodifluoromethane	ND	0.200	mg/kg wet							
Diethyl Ether	ND	0.200	mg/kg wet							
Di-isopropyl ether	ND	0.200	mg/kg wet							
Ethyl tertiary-butyl ether	ND	0.200	mg/kg wet							
Ethylbenzene	ND	0.200	mg/kg wet							
Hexachlorobutadiene	ND	0.200	mg/kg wet							
Isopropylbenzene	ND	0.200	mg/kg wet							
Methyl tert-Butyl Ether	ND	0.200	mg/kg wet							
Methylene Chloride	ND	0.400	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604337

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Methanol										
Batch CD61434 - 5035										
Naphthalene	ND	0.200	mg/kg wet							
n-Butylbenzene	ND	0.200	mg/kg wet							
n-Propylbenzene	ND	0.200	mg/kg wet							
sec-Butylbenzene	ND	0.200	mg/kg wet							
Styrene	ND	0.200	mg/kg wet							
tert-Butylbenzene	ND	0.200	mg/kg wet							
Tertiary-amyl methyl ether	ND	0.200	mg/kg wet							
Tetrachloroethene	ND	0.200	mg/kg wet							
Tetrahydrofuran	ND	1.00	mg/kg wet							
Toluene	ND	0.200	mg/kg wet							
trans-1,2-Dichloroethene	ND	0.200	mg/kg wet							
trans-1,3-Dichloropropene	ND	0.200	mg/kg wet							
Trichloroethene	ND	0.200	mg/kg wet							
Trichlorofluoromethane	ND	0.200	mg/kg wet							
Vinyl Chloride	ND	0.200	mg/kg wet							
Xylene O	ND	0.200	mg/kg wet							
Xylene P,M	ND	0.400	mg/kg wet							
Xylenes (Total)	ND	0.400	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	*5.60*		mg/kg wet	*5.000*		*112*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*4.41*		mg/kg wet	*5.000*		*88*	*70-130*			
Surrogate: Dibromofluoromethane	*5.42*		mg/kg wet	*5.000*		*108*	*70-130*			
Surrogate: Toluene-d8	*4.98*		mg/kg wet	*5.000*		*100*	*70-130*			
LCS										
1,1,1,2-Tetrachloroethane	1.93	0.200	mg/kg wet	2.000		96	70-130			
1,1,1-Trichloroethane	2.24	0.200	mg/kg wet	2.000		112	70-130			
1,1,2,2-Tetrachloroethane	1.88	0.200	mg/kg wet	2.000		94	70-130			
1,1,2-Trichloroethane	2.01	0.200	mg/kg wet	2.000		101	70-130			
1,1-Dichloroethane	1.96	0.200	mg/kg wet	2.000		98	70-130			
1,1-Dichloroethene	1.67	0.200	mg/kg wet	2.000		84	70-130			
1,1-Dichloropropene	1.94	0.200	mg/kg wet	2.000		97	70-130			
1,2,3-Trichlorobenzene	2.24	0.200	mg/kg wet	2.000		112	70-130			
1,2,3-Trichloropropane	1.73	0.200	mg/kg wet	2.000		86	70-130			
1,2,4-Trichlorobenzene	2.14	0.200	mg/kg wet	2.000		107	70-130			
1,2,4-Trimethylbenzene	1.84	0.200	mg/kg wet	2.000		92	70-130			
1,2-Dibromo-3-Chloropropane	1.92	1.00	mg/kg wet	2.000		96	70-130			
1,2-Dibromoethane	2.03	0.200	mg/kg wet	2.000		101	70-130			
1,2-Dichlorobenzene	2.06	0.200	mg/kg wet	2.000		103	70-130			
1,2-Dichloroethane	2.17	0.200	mg/kg wet	2.000		108	70-130			
1,2-Dichloropropane	1.81	0.200	mg/kg wet	2.000		90	70-130			
1,3,5-Trimethylbenzene	1.75	0.200	mg/kg wet	2.000		88	70-130			
1,3-Dichlorobenzene	2.13	0.200	mg/kg wet	2.000		106	70-130			
1,3-Dichloropropane	1.97	0.200	mg/kg wet	2.000		98	70-130			
1,4-Dichlorobenzene	2.14	0.200	mg/kg wet	2.000		107	70-130			
1,4-Dioxane - Screen	ND	40.0	mg/kg wet	40.00			44-241			B-
2,2-Dichloropropane	2.07	0.200	mg/kg wet	2.000		104	70-130			

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604337

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Methanol										
Batch CD61434 - 5035										
2-Butanone	9.01	1.00	mg/kg wet	10.00		90	70-130			
2-Chlorotoluene	1.90	0.200	mg/kg wet	2.000		95	70-130			
2-Hexanone	9.65	1.00	mg/kg wet	10.00		97	70-130			
4-Chlorotoluene	1.91	0.200	mg/kg wet	2.000		96	70-130			
4-Isopropyltoluene	1.98	0.200	mg/kg wet	2.000		99	70-130			
4-Methyl-2-Pentanone	9.29	1.00	mg/kg wet	10.00		93	70-130			
Acetone	9.06	1.00	mg/kg wet	10.00		91	70-130			
Benzene	1.92	0.200	mg/kg wet	2.000		96	70-130			
Bromobenzene	1.89	0.200	mg/kg wet	2.000		95	70-130			
Bromochloromethane	2.04	0.200	mg/kg wet	2.000		102	70-130			
Bromodichloromethane	2.11	0.200	mg/kg wet	2.000		106	70-130			
Bromoform	1.95	0.200	mg/kg wet	2.000		98	70-130			
Bromomethane	2.35	0.200	mg/kg wet	2.000		118	70-130			
Carbon Disulfide	1.64	0.200	mg/kg wet	2.000		82	70-130			
Carbon Tetrachloride	2.25	0.200	mg/kg wet	2.000		112	70-130			
Chlorobenzene	2.02	0.200	mg/kg wet	2.000		101	70-130			
Chloroethane	1.55	0.200	mg/kg wet	2.000		78	70-130			
Chloroform	2.09	0.200	mg/kg wet	2.000		104	70-130			
Chloromethane	2.26	0.200	mg/kg wet	2.000		113	70-130			
cis-1,2-Dichloroethene	1.97	0.200	mg/kg wet	2.000		98	70-130			
cis-1,3-Dichloropropene	1.83	0.200	mg/kg wet	2.000		92	70-130			
Dibromochloromethane	2.12	0.200	mg/kg wet	2.000		106	70-130			
Dibromomethane	2.04	0.200	mg/kg wet	2.000		102	70-130			
Dichlorodifluoromethane	2.13	0.200	mg/kg wet	2.000		106	70-130			
Diethyl Ether	1.38	0.200	mg/kg wet	2.000		69	70-130			B-
Di-isopropyl ether	1.79	0.200	mg/kg wet	2.000		90	70-130			
Ethyl tertiary-butyl ether	1.83	0.200	mg/kg wet	2.000		91	70-130			
Ethylbenzene	1.83	0.200	mg/kg wet	2.000		92	70-130			
Hexachlorobutadiene	2.33	0.200	mg/kg wet	2.000		116	70-130			
Isopropylbenzene	1.81	0.200	mg/kg wet	2.000		90	70-130			
Methyl tert-Butyl Ether	1.85	0.200	mg/kg wet	2.000		92	70-130			
Methylene Chloride	1.72	0.400	mg/kg wet	2.000		86	70-130			
Naphthalene	2.11	0.200	mg/kg wet	2.000		105	70-130			
n-Butylbenzene	2.16	0.200	mg/kg wet	2.000		108	70-130			
n-Propylbenzene	1.77	0.200	mg/kg wet	2.000		89	70-130			
sec-Butylbenzene	2.11	0.200	mg/kg wet	2.000		106	70-130			
Styrene	1.65	0.200	mg/kg wet	2.000		82	70-130			
tert-Butylbenzene	1.92	0.200	mg/kg wet	2.000		96	70-130			
Tertiary-amyl methyl ether	1.81	0.200	mg/kg wet	2.000		91	70-130			
Tetrachloroethene	1.72	0.200	mg/kg wet	2.000		86	70-130			
Tetrahydrofuran	1.95	1.00	mg/kg wet	2.000		97	70-130			
Toluene	1.98	0.200	mg/kg wet	2.000		99	70-130			
trans-1,2-Dichloroethene	2.06	0.200	mg/kg wet	2.000		103	70-130			
trans-1,3-Dichloropropene	1.81	0.200	mg/kg wet	2.000		90	70-130			
Trichloroethene	1.99	0.200	mg/kg wet	2.000		99	70-130			

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604337

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Methanol										
Batch CD61434 - 5035										
Trichlorofluoromethane	1.82	0.200	mg/kg wet	2.000		91	70-130			
Vinyl Chloride	2.09	0.200	mg/kg wet	2.000		105	70-130			
Xylene O	1.96	0.200	mg/kg wet	2.000		98	70-130			
Xylene P,M	3.91	0.400	mg/kg wet	4.000		98	70-130			
Xylenes (Total)	5.87	0.400	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	*5.47*		mg/kg wet	*5.000*		*109*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*5.21*		mg/kg wet	*5.000*		*104*	*70-130*			
Surrogate: Dibromofluoromethane	*5.31*		mg/kg wet	*5.000*		*106*	*70-130*			
Surrogate: Toluene-d8	*4.96*		mg/kg wet	*5.000*		*99*	*70-130*			
LCS Dup										
1,1,1,2-Tetrachloroethane	1.87	0.200	mg/kg wet	2.000		94	70-130	3	25	
1,1,1-Trichloroethane	2.16	0.200	mg/kg wet	2.000		108	70-130	4	25	
1,1,2,2-Tetrachloroethane	1.89	0.200	mg/kg wet	2.000		94	70-130	0.2	25	
1,1,2-Trichloroethane	2.00	0.200	mg/kg wet	2.000		100	70-130	0.8	25	
1,1-Dichloroethane	1.96	0.200	mg/kg wet	2.000		98	70-130	0.1	25	
1,1-Dichloroethene	2.06	0.200	mg/kg wet	2.000		103	70-130	20	25	
1,1-Dichloropropene	1.86	0.200	mg/kg wet	2.000		93	70-130	4	25	
1,2,3-Trichlorobenzene	2.04	0.200	mg/kg wet	2.000		102	70-130	9	25	
1,2,3-Trichloropropane	1.71	0.200	mg/kg wet	2.000		85	70-130	1	25	
1,2,4-Trichlorobenzene	2.00	0.200	mg/kg wet	2.000		100	70-130	7	25	
1,2,4-Trimethylbenzene	1.79	0.200	mg/kg wet	2.000		90	70-130	3	25	
1,2-Dibromo-3-Chloropropane	1.92	1.00	mg/kg wet	2.000		96	70-130	0.2	25	
1,2-Dibromoethane	1.92	0.200	mg/kg wet	2.000		96	70-130	6	25	
1,2-Dichlorobenzene	2.03	0.200	mg/kg wet	2.000		102	70-130	1	25	
1,2-Dichloroethane	2.19	0.200	mg/kg wet	2.000		109	70-130	0.7	25	
1,2-Dichloropropane	1.76	0.200	mg/kg wet	2.000		88	70-130	2	25	
1,3,5-Trimethylbenzene	1.78	0.200	mg/kg wet	2.000		89	70-130	1	25	
1,3-Dichlorobenzene	2.10	0.200	mg/kg wet	2.000		105	70-130	1	25	
1,3-Dichloropropane	1.86	0.200	mg/kg wet	2.000		93	70-130	6	25	
1,4-Dichlorobenzene	2.05	0.200	mg/kg wet	2.000		103	70-130	4	25	
1,4-Dioxane - Screen	ND	40.0	mg/kg wet	40.00			44-241	200	200	B-
2,2-Dichloropropane	1.98	0.200	mg/kg wet	2.000		99	70-130	5	25	
2-Butanone	8.34	1.00	mg/kg wet	10.00		83	70-130	8	25	
2-Chlorotoluene	1.89	0.200	mg/kg wet	2.000		95	70-130	0.4	25	
2-Hexanone	8.72	1.00	mg/kg wet	10.00		87	70-130	10	25	
4-Chlorotoluene	1.90	0.200	mg/kg wet	2.000		95	70-130	0.3	25	
4-Isopropyltoluene	1.83	0.200	mg/kg wet	2.000		92	70-130	8	25	
4-Methyl-2-Pentanone	8.39	1.00	mg/kg wet	10.00		84	70-130	10	25	
Acetone	8.27	1.00	mg/kg wet	10.00		83	70-130	9	25	
Benzene	1.91	0.200	mg/kg wet	2.000		95	70-130	0.5	25	
Bromobenzene	1.87	0.200	mg/kg wet	2.000		93	70-130	1	25	
Bromochloromethane	1.95	0.200	mg/kg wet	2.000		98	70-130	4	25	
Bromodichloromethane	2.07	0.200	mg/kg wet	2.000		103	70-130	2	25	
Bromoform	1.85	0.200	mg/kg wet	2.000		93	70-130	5	25	
Bromomethane	2.35	0.200	mg/kg wet	2.000		118	70-130	0	25	

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604337

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Methanol										
Batch CD61434 - 5035										
Carbon Disulfide	1.89	0.200	mg/kg wet	2.000		94	70-130	14	25	
Carbon Tetrachloride	2.19	0.200	mg/kg wet	2.000		109	70-130	3	25	
Chlorobenzene	1.96	0.200	mg/kg wet	2.000		98	70-130	3	25	
Chloroethane	1.55	0.200	mg/kg wet	2.000		77	70-130	0.3	25	
Chloroform	2.05	0.200	mg/kg wet	2.000		102	70-130	2	25	
Chloromethane	2.17	0.200	mg/kg wet	2.000		108	70-130	4	25	
cis-1,2-Dichloroethene	1.96	0.200	mg/kg wet	2.000		98	70-130	0.3	25	
cis-1,3-Dichloropropene	1.83	0.200	mg/kg wet	2.000		92	70-130	0	25	
Dibromochloromethane	2.02	0.200	mg/kg wet	2.000		101	70-130	5	25	
Dibromomethane	1.95	0.200	mg/kg wet	2.000		98	70-130	5	25	
Dichlorodifluoromethane	2.04	0.200	mg/kg wet	2.000		102	70-130	5	25	
Diethyl Ether	1.45	0.200	mg/kg wet	2.000		72	70-130	5	25	
Di-isopropyl ether	1.78	0.200	mg/kg wet	2.000		89	70-130	0.3	25	
Ethyl tertiary-butyl ether	1.75	0.200	mg/kg wet	2.000		88	70-130	4	25	
Ethylbenzene	1.77	0.200	mg/kg wet	2.000		89	70-130	3	25	
Hexachlorobutadiene	2.42	0.200	mg/kg wet	2.000		121	70-130	4	25	
Isopropylbenzene	1.74	0.200	mg/kg wet	2.000		87	70-130	4	25	
Methyl tert-Butyl Ether	1.81	0.200	mg/kg wet	2.000		91	70-130	2	25	
Methylene Chloride	2.25	0.400	mg/kg wet	2.000		112	70-130	27	25	D+
Naphthalene	1.85	0.200	mg/kg wet	2.000		92	70-130	13	25	
n-Butylbenzene	1.99	0.200	mg/kg wet	2.000		99	70-130	8	25	
n-Propylbenzene	1.76	0.200	mg/kg wet	2.000		88	70-130	0.5	25	
sec-Butylbenzene	2.00	0.200	mg/kg wet	2.000		100	70-130	6	25	
Styrene	1.61	0.200	mg/kg wet	2.000		81	70-130	2	25	
tert-Butylbenzene	1.82	0.200	mg/kg wet	2.000		91	70-130	5	25	
Tertiary-amyl methyl ether	1.77	0.200	mg/kg wet	2.000		88	70-130	3	25	
Tetrachloroethene	1.65	0.200	mg/kg wet	2.000		82	70-130	4	25	
Tetrahydrofuran	1.63	1.00	mg/kg wet	2.000		81	70-130	18	25	
Toluene	2.00	0.200	mg/kg wet	2.000		100	70-130	0.9	25	
trans-1,2-Dichloroethene	2.01	0.200	mg/kg wet	2.000		100	70-130	3	25	
trans-1,3-Dichloropropene	1.69	0.200	mg/kg wet	2.000		84	70-130	7	25	
Trichloroethene	2.08	0.200	mg/kg wet	2.000		104	70-130	4	25	
Trichlorofluoromethane	1.91	0.200	mg/kg wet	2.000		95	70-130	5	25	
Vinyl Chloride	2.06	0.200	mg/kg wet	2.000		103	70-130	2	25	
Xylene O	1.93	0.200	mg/kg wet	2.000		96	70-130	2	25	
Xylene P,M	3.85	0.400	mg/kg wet	4.000		96	70-130	2	25	
Xylenes (Total)	5.78	0.400	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	*5.49*		mg/kg wet	*5.000*		*110*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*5.22*		mg/kg wet	*5.000*		*104*	*70-130*			
Surrogate: Dibromofluoromethane	*5.46*		mg/kg wet	*5.000*		*109*	*70-130*			
Surrogate: Toluene-d8	*4.93*		mg/kg wet	*5.000*		*99*	*70-130*			
8100M Total Petroleum Hydrocarbons										
Batch CD61337 - 3546										
Blank										

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604337

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8100M Total Petroleum Hydrocarbons										
Batch CD61337 - 3546										
Decane (C10)	ND	0.2	mg/kg wet							
Docosane (C22)	ND	0.2	mg/kg wet							
Dodecane (C12)	ND	0.2	mg/kg wet							
Eicosane (C20)	ND	0.2	mg/kg wet							
Hexacosane (C26)	ND	0.2	mg/kg wet							
Hexadecane (C16)	ND	0.2	mg/kg wet							
Hexatriacontane (C36)	ND	0.2	mg/kg wet							
Nonadecane (C19)	ND	0.2	mg/kg wet							
Nonane (C9)	ND	0.2	mg/kg wet							
Octacosane (C28)	ND	0.2	mg/kg wet							
Octadecane (C18)	ND	0.2	mg/kg wet							
Tetracosane (C24)	ND	0.2	mg/kg wet							
Tetradecane (C14)	ND	0.2	mg/kg wet							
Total Petroleum Hydrocarbons	ND	10.0	mg/kg wet							
Triacontane (C30)	ND	0.2	mg/kg wet							
Surrogate: O-Terphenyl	*4.50*		mg/kg wet	*5.000*		*90*	*40-140*			
LCS										
Decane (C10)	2.1	0.2	mg/kg wet	2.500		86	40-140			
Docosane (C22)	2.4	0.2	mg/kg wet	2.500		94	40-140			
Dodecane (C12)	2.3	0.2	mg/kg wet	2.500		91	40-140			
Eicosane (C20)	2.4	0.2	mg/kg wet	2.500		95	40-140			
Hexacosane (C26)	2.4	0.2	mg/kg wet	2.500		96	40-140			
Hexadecane (C16)	2.3	0.2	mg/kg wet	2.500		93	40-140			
Hexatriacontane (C36)	2.2	0.2	mg/kg wet	2.500		90	40-140			
Nonadecane (C19)	2.4	0.2	mg/kg wet	2.500		96	40-140			
Nonane (C9)	1.9	0.2	mg/kg wet	2.500		76	30-140			
Octacosane (C28)	2.4	0.2	mg/kg wet	2.500		94	40-140			
Octadecane (C18)	2.3	0.2	mg/kg wet	2.500		93	40-140			
Tetracosane (C24)	2.2	0.2	mg/kg wet	2.500		89	40-140			
Tetradecane (C14)	2.3	0.2	mg/kg wet	2.500		94	40-140			
Total Petroleum Hydrocarbons	32.5	10.0	mg/kg wet	35.00		93	40-140			
Triacontane (C30)	2.4	0.2	mg/kg wet	2.500		95	40-140			
Surrogate: O-Terphenyl	*4.59*		mg/kg wet	*5.000*		*92*	*40-140*			
LCS Dup										
Decane (C10)	2.1	0.2	mg/kg wet	2.500		82	40-140	5	25	
Docosane (C22)	2.3	0.2	mg/kg wet	2.500		92	40-140	2	25	
Dodecane (C12)	2.2	0.2	mg/kg wet	2.500		88	40-140	3	25	
Eicosane (C20)	2.3	0.2	mg/kg wet	2.500		93	40-140	2	25	
Hexacosane (C26)	2.3	0.2	mg/kg wet	2.500		94	40-140	2	25	
Hexadecane (C16)	2.3	0.2	mg/kg wet	2.500		91	40-140	2	25	
Hexatriacontane (C36)	2.2	0.2	mg/kg wet	2.500		88	40-140	2	25	
Nonadecane (C19)	2.3	0.2	mg/kg wet	2.500		94	40-140	2	25	
Nonane (C9)	1.8	0.2	mg/kg wet	2.500		71	30-140	6	25	

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604337

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8100M Total Petroleum Hydrocarbons										
Batch CD61337 - 3546										
Octacosane (C28)	2.3	0.2	mg/kg wet	2.500		92	40-140	2	25	
Octadecane (C18)	2.3	0.2	mg/kg wet	2.500		91	40-140	2	25	
Tetracosane (C24)	2.2	0.2	mg/kg wet	2.500		87	40-140	2	25	
Tetradecane (C14)	2.3	0.2	mg/kg wet	2.500		92	40-140	2	25	
Total Petroleum Hydrocarbons	31.6	10.0	mg/kg wet	35.00		90	40-140	3	25	
Triacontane (C30)	2.3	0.2	mg/kg wet	2.500		93	40-140	2	25	
Surrogate: O-Terphenyl	*4.47*		mg/kg wet	*5.000*		*89*	*40-140*			
8270D Semi-Volatile Organic Compounds										
Batch CD61320 - 3546										
Blank										
1,2,4-Trichlorobenzene	ND	0.333	mg/kg wet							
1,2-Dichlorobenzene	ND	0.333	mg/kg wet							
1,3-Dichlorobenzene	ND	0.333	mg/kg wet							
1,4-Dichlorobenzene	ND	0.333	mg/kg wet							
2,4,5-Trichlorophenol	ND	0.333	mg/kg wet							
2,4,6-Trichlorophenol	ND	0.333	mg/kg wet							
2,4-Dichlorophenol	ND	0.333	mg/kg wet							
2,4-Dimethylphenol	ND	0.333	mg/kg wet							
2,4-Dinitrophenol	ND	1.67	mg/kg wet							
2,4-Dinitrotoluene	ND	0.333	mg/kg wet							
2,6-Dinitrotoluene	ND	0.333	mg/kg wet							
2-Chloronaphthalene	ND	0.333	mg/kg wet							
2-Chlorophenol	ND	0.333	mg/kg wet							
2-Methylnaphthalene	ND	0.333	mg/kg wet							
2-Methylphenol	ND	0.333	mg/kg wet							
2-Nitrophenol	ND	0.333	mg/kg wet							
3,3´-Dichlorobenzidine	ND	0.667	mg/kg wet							
3+4-Methylphenol	ND	0.667	mg/kg wet							
4-Bromophenyl-phenylether	ND	0.333	mg/kg wet							
4-Chloroaniline	ND	0.667	mg/kg wet							
4-Nitrophenol	ND	1.67	mg/kg wet							
Acenaphthene	ND	0.333	mg/kg wet							
Acenaphthylene	ND	0.333	mg/kg wet							
Acetophenone	ND	0.667	mg/kg wet							
Aniline	ND	1.67	mg/kg wet							
Anthracene	ND	0.333	mg/kg wet							
Azobenzene	ND	0.333	mg/kg wet							
Benzo(a)anthracene	ND	0.333	mg/kg wet							
Benzo(a)pyrene	ND	0.167	mg/kg wet							
Benzo(b)fluoranthene	ND	0.333	mg/kg wet							
Benzo(g,h,i)perylene	ND	0.333	mg/kg wet							
Benzo(k)fluoranthene	ND	0.333	mg/kg wet							
bis(2-Chloroethoxy)methane	ND	0.333	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604337

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CD61320 - 3546										
bis(2-Chloroethyl)ether	ND	0.333	mg/kg wet							
bis(2-chloroisopropyl)Ether	ND	0.333	mg/kg wet							
bis(2-Ethylhexyl)phthalate	ND	0.333	mg/kg wet							
Butylbenzylphthalate	ND	0.333	mg/kg wet							
Chrysene	ND	0.167	mg/kg wet							
Dibenzo(a,h)Anthracene	ND	0.167	mg/kg wet							
Dibenzofuran	ND	0.333	mg/kg wet							
Diethylphthalate	ND	0.333	mg/kg wet							
Dimethylphthalate	ND	0.333	mg/kg wet							
Di-n-butylphthalate	ND	0.333	mg/kg wet							
Di-n-octylphthalate	ND	0.333	mg/kg wet							
Fluoranthene	ND	0.333	mg/kg wet							
Fluorene	ND	0.333	mg/kg wet							
Hexachlorobenzene	ND	0.333	mg/kg wet							
Hexachlorobutadiene	ND	0.333	mg/kg wet							
Hexachloroethane	ND	0.333	mg/kg wet							
Indeno(1,2,3-cd)Pyrene	ND	0.333	mg/kg wet							
Isophorone	ND	0.333	mg/kg wet							
Naphthalene	ND	0.333	mg/kg wet							
Nitrobenzene	ND	0.333	mg/kg wet							
N-Nitrosodimethylamine	ND	0.333	mg/kg wet							
Pentachlorophenol	ND	1.67	mg/kg wet							
Phenanthrene	ND	0.333	mg/kg wet							
Phenol	ND	0.333	mg/kg wet							
Pyrene	ND	0.333	mg/kg wet							
Surrogate: 1,2-Dichlorobenzene-d4	*2.20*		mg/kg wet	*3.333*		*66*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*4.38*		mg/kg wet	*5.000*		*88*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.45*		mg/kg wet	*5.000*		*69*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.32*		mg/kg wet	*3.333*		*70*	*30-130*			
Surrogate: 2-Fluorophenol	*3.38*		mg/kg wet	*5.000*		*68*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.29*		mg/kg wet	*3.333*		*69*	*30-130*			
Surrogate: Phenol-d6	*3.47*		mg/kg wet	*5.000*		*69*	*30-130*			
Surrogate: p-Terphenyl-d14	*2.84*		mg/kg wet	*3.333*		*85*	*30-130*			
LCS										
1,2,4-Trichlorobenzene	2.22	0.333	mg/kg wet	3.333		67	40-140			
1,2-Dichlorobenzene	2.10	0.333	mg/kg wet	3.333		63	40-140			
1,3-Dichlorobenzene	2.10	0.333	mg/kg wet	3.333		63	40-140			
1,4-Dichlorobenzene	2.06	0.333	mg/kg wet	3.333		62	40-140			
2,4,5-Trichlorophenol	3.06	0.333	mg/kg wet	3.333		92	30-130			
2,4,6-Trichlorophenol	2.87	0.333	mg/kg wet	3.333		86	30-130			
2,4-Dichlorophenol	2.52	0.333	mg/kg wet	3.333		76	30-130			
2,4-Dimethylphenol	2.64	0.333	mg/kg wet	3.333		79	30-130			
2,4-Dinitrophenol	2.59	1.67	mg/kg wet	3.333		78	30-130			
2,4-Dinitrotoluene	3.10	0.333	mg/kg wet	3.333		93	40-140			
2,6-Dinitrotoluene	2.88	0.333	mg/kg wet	3.333		86	40-140			

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604337

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CD61320 - 3546										
2-Chloronaphthalene	2.29	0.333	mg/kg wet	3.333		69	40-140			
2-Chlorophenol	2.10	0.333	mg/kg wet	3.333		63	30-130			
2-Methylnaphthalene	2.25	0.333	mg/kg wet	3.333		67	40-140			
2-Methylphenol	2.21	0.333	mg/kg wet	3.333		66	30-130			
2-Nitrophenol	2.09	0.333	mg/kg wet	3.333		63	30-130			
3,3´-Dichlorobenzidine	2.49	0.667	mg/kg wet	3.333		75	40-140			
3+4-Methylphenol	4.91	0.667	mg/kg wet	6.667		74	30-130			
4-Bromophenyl-phenylether	3.18	0.333	mg/kg wet	3.333		95	40-140			
4-Chloroaniline	1.82	0.667	mg/kg wet	3.333		54	40-140			
4-Nitrophenol	2.89	1.67	mg/kg wet	3.333		87	30-130			
Acenaphthene	2.66	0.333	mg/kg wet	3.333		80	40-140			
Acenaphthylene	2.87	0.333	mg/kg wet	3.333		86	40-140			
Acetophenone	2.19	0.667	mg/kg wet	3.333		66	40-140			
Aniline	1.35	1.67	mg/kg wet	3.333		41	40-140			
Anthracene	2.97	0.333	mg/kg wet	3.333		89	40-140			
Azobenzene	2.81	0.333	mg/kg wet	3.333		84	40-140			
Benzo(a)anthracene	2.82	0.333	mg/kg wet	3.333		85	40-140			
Benzo(a)pyrene	2.89	0.167	mg/kg wet	3.333		87	40-140			
Benzo(b)fluoranthene	2.86	0.333	mg/kg wet	3.333		86	40-140			
Benzo(g,h,i)perylene	2.84	0.333	mg/kg wet	3.333		85	40-140			
Benzo(k)fluoranthene	2.80	0.333	mg/kg wet	3.333		84	40-140			
bis(2-Chloroethoxy)methane	2.25	0.333	mg/kg wet	3.333		68	40-140			
bis(2-Chloroethyl)ether	2.06	0.333	mg/kg wet	3.333		62	40-140			
bis(2-chloroisopropyl)Ether	2.06	0.333	mg/kg wet	3.333		62	40-140			
bis(2-Ethylhexyl)phthalate	3.11	0.333	mg/kg wet	3.333		93	40-140			
Butylbenzylphthalate	2.99	0.333	mg/kg wet	3.333		90	40-140			
Chrysene	2.91	0.167	mg/kg wet	3.333		87	40-140			
Dibenzo(a,h)Anthracene	2.89	0.167	mg/kg wet	3.333		87	40-140			
Dibenzofuran	2.66	0.333	mg/kg wet	3.333		80	40-140			
Diethylphthalate	3.20	0.333	mg/kg wet	3.333		96	40-140			
Dimethylphthalate	3.06	0.333	mg/kg wet	3.333		92	40-140			
Di-n-butylphthalate	3.27	0.333	mg/kg wet	3.333		98	40-140			
Di-n-octylphthalate	2.98	0.333	mg/kg wet	3.333		89	40-140			
Fluoranthene	2.94	0.333	mg/kg wet	3.333		88	40-140			
Fluorene	2.84	0.333	mg/kg wet	3.333		85	40-140			
Hexachlorobenzene	2.90	0.333	mg/kg wet	3.333		87	40-140			
Hexachlorobutadiene	2.15	0.333	mg/kg wet	3.333		65	40-140			
Hexachloroethane	2.04	0.333	mg/kg wet	3.333		61	40-140			
Indeno(1,2,3-cd)Pyrene	2.79	0.333	mg/kg wet	3.333		84	40-140			
Isophorone	2.47	0.333	mg/kg wet	3.333		74	40-140			
Naphthalene	2.25	0.333	mg/kg wet	3.333		68	40-140			
Nitrobenzene	2.20	0.333	mg/kg wet	3.333		66	40-140			
N-Nitrosodimethylamine	2.33	0.333	mg/kg wet	3.333		70	40-140			
Pentachlorophenol	3.15	1.67	mg/kg wet	3.333		94	30-130			
Phenanthrene	2.80	0.333	mg/kg wet	3.333		84	40-140			

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604337

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CD61320 - 3546										
Phenol	2.08	0.333	mg/kg wet	3.333		63	30-130			
Pyrene	2.80	0.333	mg/kg wet	3.333		84	40-140			
Surrogate: 1,2-Dichlorobenzene-d4	*1.98*		mg/kg wet	*3.333*		*59*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*5.16*		mg/kg wet	*5.000*		*103*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.23*		mg/kg wet	*5.000*		*65*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.42*		mg/kg wet	*3.333*		*73*	*30-130*			
Surrogate: 2-Fluorophenol	*3.06*		mg/kg wet	*5.000*		*61*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.25*		mg/kg wet	*3.333*		*68*	*30-130*			
Surrogate: Phenol-d6	*3.33*		mg/kg wet	*5.000*		*67*	*30-130*			
Surrogate: p-Terphenyl-d14	*2.92*		mg/kg wet	*3.333*		*88*	*30-130*			
LCS Dup										
1,2,4-Trichlorobenzene	2.35	0.333	mg/kg wet	3.333		70	40-140	5	30	
1,2-Dichlorobenzene	2.12	0.333	mg/kg wet	3.333		64	40-140	1	30	
1,3-Dichlorobenzene	2.12	0.333	mg/kg wet	3.333		64	40-140	1	30	
1,4-Dichlorobenzene	2.10	0.333	mg/kg wet	3.333		63	40-140	2	30	
2,4,5-Trichlorophenol	3.05	0.333	mg/kg wet	3.333		92	30-130	0.5	30	
2,4,6-Trichlorophenol	2.79	0.333	mg/kg wet	3.333		84	30-130	3	30	
2,4-Dichlorophenol	2.53	0.333	mg/kg wet	3.333		76	30-130	0.3	30	
2,4-Dimethylphenol	2.68	0.333	mg/kg wet	3.333		80	30-130	1	30	
2,4-Dinitrophenol	2.41	1.67	mg/kg wet	3.333		72	30-130	8	30	
2,4-Dinitrotoluene	2.91	0.333	mg/kg wet	3.333		87	40-140	7	30	
2,6-Dinitrotoluene	2.73	0.333	mg/kg wet	3.333		82	40-140	5	30	
2-Chloronaphthalene	2.45	0.333	mg/kg wet	3.333		73	40-140	6	30	
2-Chlorophenol	2.15	0.333	mg/kg wet	3.333		64	30-130	2	30	
2-Methylnaphthalene	2.29	0.333	mg/kg wet	3.333		69	40-140	2	30	
2-Methylphenol	2.24	0.333	mg/kg wet	3.333		67	30-130	1	30	
2-Nitrophenol	2.23	0.333	mg/kg wet	3.333		67	30-130	6	30	
3,3´-Dichlorobenzidine	2.43	0.667	mg/kg wet	3.333		73	40-140	2	30	
3+4-Methylphenol	4.90	0.667	mg/kg wet	6.667		74	30-130	0.05	30	
4-Bromophenyl-phenylether	3.07	0.333	mg/kg wet	3.333		92	40-140	4	30	
4-Chloroaniline	1.79	0.667	mg/kg wet	3.333		54	40-140	2	30	
4-Nitrophenol	2.71	1.67	mg/kg wet	3.333		81	30-130	6	30	
Acenaphthene	2.65	0.333	mg/kg wet	3.333		80	40-140	0.2	30	
Acenaphthylene	2.85	0.333	mg/kg wet	3.333		85	40-140	0.8	30	
Acetophenone	2.22	0.667	mg/kg wet	3.333		67	40-140	1	30	
Aniline	1.33	1.67	mg/kg wet	3.333		40	40-140	2	30	
Anthracene	2.84	0.333	mg/kg wet	3.333		85	40-140	5	30	
Azobenzene	2.78	0.333	mg/kg wet	3.333		83	40-140	1	30	
Benzo(a)anthracene	2.70	0.333	mg/kg wet	3.333		81	40-140	4	30	
Benzo(a)pyrene	2.68	0.167	mg/kg wet	3.333		81	40-140	7	30	
Benzo(b)fluoranthene	2.56	0.333	mg/kg wet	3.333		77	40-140	11	30	
Benzo(g,h,i)perylene	2.67	0.333	mg/kg wet	3.333		80	40-140	6	30	
Benzo(k)fluoranthene	2.79	0.333	mg/kg wet	3.333		84	40-140	0.3	30	
bis(2-Chloroethoxy)methane	2.36	0.333	mg/kg wet	3.333		71	40-140	5	30	
bis(2-Chloroethyl)ether	2.13	0.333	mg/kg wet	3.333		64	40-140	3	30	

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604337

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CD61320 - 3546										
bis(2-chloroisopropyl)Ether	2.06	0.333	mg/kg wet	3.333		62	40-140	0.03	30	
bis(2-Ethylhexyl)phthalate	2.91	0.333	mg/kg wet	3.333		87	40-140	7	30	
Butylbenzylphthalate	2.84	0.333	mg/kg wet	3.333		85	40-140	5	30	
Chrysene	2.78	0.167	mg/kg wet	3.333		83	40-140	4	30	
Dibenzo(a,h)Anthracene	2.72	0.167	mg/kg wet	3.333		82	40-140	6	30	
Dibenzofuran	2.59	0.333	mg/kg wet	3.333		78	40-140	3	30	
Diethylphthalate	2.98	0.333	mg/kg wet	3.333		90	40-140	7	30	
Dimethylphthalate	2.90	0.333	mg/kg wet	3.333		87	40-140	5	30	
Di-n-butylphthalate	3.13	0.333	mg/kg wet	3.333		94	40-140	5	30	
Di-n-octylphthalate	2.77	0.333	mg/kg wet	3.333		83	40-140	7	30	
Fluoranthene	2.82	0.333	mg/kg wet	3.333		85	40-140	4	30	
Fluorene	2.74	0.333	mg/kg wet	3.333		82	40-140	4	30	
Hexachlorobenzene	2.82	0.333	mg/kg wet	3.333		85	40-140	3	30	
Hexachlorobutadiene	2.33	0.333	mg/kg wet	3.333		70	40-140	8	30	
Hexachloroethane	2.08	0.333	mg/kg wet	3.333		62	40-140	1	30	
Indeno(1,2,3-cd)Pyrene	2.62	0.333	mg/kg wet	3.333		79	40-140	6	30	
Isophorone	2.51	0.333	mg/kg wet	3.333		75	40-140	2	30	
Naphthalene	2.38	0.333	mg/kg wet	3.333		71	40-140	5	30	
Nitrobenzene	2.34	0.333	mg/kg wet	3.333		70	40-140	6	30	
N-Nitrosodimethylamine	2.41	0.333	mg/kg wet	3.333		72	40-140	4	30	
Pentachlorophenol	3.02	1.67	mg/kg wet	3.333		91	30-130	4	30	
Phenanthrene	2.69	0.333	mg/kg wet	3.333		81	40-140	4	30	
Phenol	2.12	0.333	mg/kg wet	3.333		64	30-130	2	30	
Pyrene	2.63	0.333	mg/kg wet	3.333		79	40-140	6	30	
Surrogate: 1,2-Dichlorobenzene-d4	*1.96*		mg/kg wet	*3.333*		*59*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*4.67*		mg/kg wet	*5.000*		*93*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.19*		mg/kg wet	*5.000*		*64*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.48*		mg/kg wet	*3.333*		*74*	*30-130*			
Surrogate: 2-Fluorophenol	*3.03*		mg/kg wet	*5.000*		*61*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.31*		mg/kg wet	*3.333*		*69*	*30-130*			
Surrogate: Phenol-d6	*3.29*		mg/kg wet	*5.000*		*66*	*30-130*			
Surrogate: p-Terphenyl-d14	*2.63*		mg/kg wet	*3.333*		*79*	*30-130*			
Classical Chemistry										
Batch CD61523 - General Preparation										
Blank										
Conductivity	ND	5	umhos/cm							
LCS										
Conductivity	1390		umhos/cm	1411		99	90-110			
Batch CD61829 - General Preparation										
Reference										
Flashpoint	81		°F	81.00		100	97.9-102.1			
Batch CD61841 - General Preparation										
Blank										

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604337

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Classical Chemistry										
Batch CD61841 - General Preparation										
Reactive Cyanide	ND	2.0	mg/kg							
Reactive Sulfide	ND	2.0	mg/kg							
LCS										
Reactive Cyanide	3.9	2.0	mg/kg	100.3		4	0.68-5.41			
Reactive Sulfide	0.2	2.0	mg/kg	10.00		2	0-44			

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292 ESS Laboratory Work Order: 1604337

Notes and Definitions

Z-10	Soil pH measured in water at 19.1 ºC.
WL	Results obtained from a deionized water leach of the sample.
U	Analyte included in the analysis, but not detected
Q	Calibration required quadratic regression (Q).
D+	Relative percent difference for duplicate is outside of criteria (D+).
D	Diluted.
CD+	Continuing Calibration %Diff/Drift is above control limit (CD+).
CD-	Continuing Calibration %Diff/Drift is below control limit (CD-).
B-	Blank Spike recovery is below lower control limit (B-).
>	Greater than.
ND	Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DL	Detection Limit
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
NR	No Recovery
[CALC]	Calculated Analyte
SUB	Subcontracted analysis; see attached report

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604337

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179
http://www.health.ri.gov/find/labs/analytical/ESS.pdf

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002
http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/documents/AllLabs.xls

Massachusetts Potable and Non Potable Water: M-RI002
http://public.dep.state.ma.us/Labcert/Labcert.aspx

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424
http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313
http://www.wadsworth.org/labcert/elap/comm.html

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006
http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752
http://www.depweb.state.pa.us/portal/server.pt/community/labs/13780/laboratory_accreditation_program/590095

ESS Laboratory Sample and Cooler Receipt Checklist

Client: Tighe & Bond - KPB/TB/MM

Shipped/Delivered Via: ESS Courier

ESS Project ID: 1604337
Date Received: 4/13/2016
Project Due Date: 4/20/2016
Days for Project: 5 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 1.1 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** Yes / No / NA
10. Were any analyses received outside of hold time? Yes / No

11. Any Subcontracting needed? Yes / No
    ESS Sample IDs:
    Analysis:
    TAT:
12. Were VOAs received? Yes / No
    a. Air bubbles in aqueous VOAs? Yes / No
    b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
    a. If metals preserved upon receipt: Date: Time: By:
    b. Low Level VOAs brought to freezer: Date: Time: By:

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / No
    a. Was there a need to contact the client? Yes / No
    Who was contacted? Date: Time: By:

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	26130	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
01	26131	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
01	26132	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
01	26309	Yes	NA	Yes	VOA Vial - Methanol	MeOH	

2nd Review
Are barcode labels on correct containers? Yes / No

Completed By: Date & Time: 4-13-16 1913
Reviewed By: Date & Time: 4/13/16 1921

ESS Laboratory

Division of Thielsch Engineering, Inc.

185 Frances Avenue, Cranston, RI 02910-2211
Tel. (401) 461-7181 Fax (401) 461-4486
www.esslaboratory.com

CHAIN OF CUSTODY

ESS Lab # 1004337

Turn Time X Standard Other_____

Regulatory State: (MA) RI CT NH NJ NY ME Other_____

Is this project for any of the following:(please circle)
(MA-MCP) Navy USACE CT DEP Other_____

Reporting Limits - RCS-1

Electonic Deliverables (Excel) Access (PDF)

Co. Name: Tighe + Bond
Contact Person: Michael Martin
Project # N-1023-056 ~~035~~
Project Name: Station 292
Address: 4 Bellows Landing
City: Pocasset
State: MA
Zip: 02559
PO #:
Tel.:
Fax.:
email: MEMartin@Tighebond.com

ESS Lab ID	Date	Collection Time	Grab -G Composite-C	Matrix	Sample ID	Pres Code	# of Containers	Type of Container	Vol of Container	VOCs	SVOCs	TPH	RCRA-8	PH, Conductivity	Reactive cyanide/sulfide	Flashpoint (ignitability)	OKP		
\	4/13/16	13:45	C	S	Disp-1	NP/M	4	AG/V	4oz/V										

Analysis

Container Type: P-Poly G-Glass AG-Amber Glass S-Sterile V-VOA

Matrix: S-Soil SD-Solid D-Sludge WW-Wastewater GW-Groundwater SW-Surface Water DW-Drinking Water O-Oil W-Wipes F-Filter

Cooler Present X Yes ✓ No

Seals Intact ____ Yes ____ No NA:___

Cooler Temperature: 1.7

Internal Use Only
[ ] Pickup
[ ] Technician___

Preservation Code: 1-NP, 2-HCl, 3-H2SO4, 4-HNO3, 5-NaOH, 6-MeOH, 7-Asorbic Acid, 8-ZnAct, 9-_____

Sampled by: KCL

Comments: updated per KCL. mkm 4/18/16

Relinquished by: (Signature, Date & Time)	Received by: (Signature, Date & Time)	Relinquished by: (Signature, Date & Time)	Received by: (Signature, Date & Time)
4/13/16	4/13/16 15:27	4/13/16 17:18	4/13/16 1854
Relinquished by: (Signature, Date & Time)	Received by: (Signature, Date & Time)	Relinquished by: (Signature, Date & Time)	Received by: (Signature, Date & Time)

* By circling MA-MCP, client acknowledges samples were collected in accordance with MADEP CAM VIIA

Please fax to the laboratory all changes to Chain of Custody

1 (White) Lab Copy
2 (Yellow) Client Receipt

ESS Laboratory

Division of Thielsch Engineering, Inc.

185 Frances Avenue, Cranston, RI 02910-2211
Tel. (401) 461-7181 Fax (401) 461-4486
www.esslaboratory.com

CHAIN OF CUSTODY

ESS Lab # 1004337

Turn Time X Standard Other_____

Regulatory State: (MA) RI CT NH NJ NY ME Other_____

Is this project for any of the following:(please circle)
(MA-MCP) Navy USACE CT DEP Other_____

Reporting Limits - RCS-1

Electonic Deliverables (Excel) Access (PDF)

Co. Name: Tighe + Bond
Contact Person: Michael Martin
Project #: N-1023-035
Project Name: Station 292
Address: 4 Bellows Landing
City: Pocasset
State: MA
Zip: 02559
PO #:
Tel.:
Fax.:
email: MEMartin@Tighebond.com

Analysis

ESS Lab ID	Date	Collection Time	Grab -G Composite-C	Matrix	Sample ID	Pres Code	# of Containers	Type of Container	Vol of Container	VOCs	SVOCs	TPH	RCRA-8	PH, conductivity	Reactive cyanide/sulfide	Flashpoint (ignitability)	OPP		
\	4/13/16	13:45	C	S	Disp-1	NP/M	4	AG/V	4oz/V										

Container Type: P-Poly G-Glass AG-Amber Glass S-Sterile V-VOA

Matrix: S-Soil SD-Solid D-Sludge WW-Wastewater GW-Groundwater SW-Surface Water DW-Drinking Water O-Oil W-Wipes F-Filter

Cooler Present X Yes ✓ No

Seals Intact ____ Yes ____ No NA:___

Cooler Temperature: 1.7

Internal Use Only
[ ] Pickup
[ ] Technician___

Preservation Code: 1-NP, 2-HCl, 3-H2SO4, 4-HNO3, 5-NaOH, 6-MeOH, 7-Asorbic Acid, 8-ZnAct, 9-_____

Sampled by: KU

Comments:

Relinquished by: (Signature, Date & Time)	Received by: (Signature, Date & Time)	Relinquished by: (Signature, Date & Time)	Received by: (Signature, Date & Time)
4/13/16	4/13/16 15:27	4/13/16 17:18	4/13/16 1854
Relinquished by: (Signature, Date & Time)	Received by: (Signature, Date & Time)	Relinquished by: (Signature, Date & Time)	Received by: (Signature, Date & Time)

* By circling MA-MCP, client acknowledges samples were collected in accordance with MADEP CAM VIIA

Please fax to the laboratory all changes to Chain of Custody

1 (White) Lab Copy
2 (Yellow) Client Receipt

CERTIFICATE OF ANALYSIS

Michael Martin
Tighe & Bond
4 Barlows Landing Road, Unit 15
Pocasset, MA 02559

RE: Station 292 (N-1023-056)
ESS Laboratory Work Order Number: 1604393

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED
By ESS Laboratory at 2:32 pm, Apr 25, 2016

Analytical Summary
The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with NELAC Standards, A2LA and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604393

SAMPLE RECEIPT

The following samples were received on April 14, 2016 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has performed and reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Data Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

Question I: All samples for Metals and EPH were analyzed for a subset of the required MCP list per the client's request.

Lab Number	Sample Name	Matrix	Analysis
1604393-01	Disp-2	Soil	1010, 2580, 6010C, 7.3.3.2, 7.3.4.1, 7010, 7471B, 8100M, 8260B, 8270D, 9045, 9050A
1604393-02	Disp-3	Soil	1010, 2580, 6010C, 7.3.3.2, 7.3.4.1, 7010, 7471B, 8100M, 8260B, 8270D, 9045, 9050A

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604393

PROJECT NARRATIVE

5035/8260B Volatile Organic Compounds / Methanol

CD62038-BS1 **Blank Spike recovery is above upper control limit (B+).**
Methylene Chloride (132% @ 70-130%)

CD62038-BS1 **Blank Spike recovery is below lower control limit (B-).**
Diethyl Ether (69% @ 70-130%)

CD62038-BSD1 **Relative percent difference for duplicate is outside of criteria (D+).**
1,1-Dichloroethene (44% @ 25%), Methylene Chloride (47% @ 25%)

CZD0332-CCV1 **Continuing Calibration %Diff/Drift is below control limit (CD-).**
Diethyl Ether (32% @ 30%)

8100M Total Petroleum Hydrocarbons

CZD0300-CCV2 **Continuing Calibration %Diff/Drift is below control limit (CD-).**
Hexatriacontane (C36) (30% @ 25%)

CZD0300-CCV4 **Continuing Calibration %Diff/Drift is below control limit (CD-).**
Hexatriacontane (C36) (42% @ 25%)

CZD0300-CCV5 **Continuing Calibration %Diff/Drift is below control limit (CD-).**
Hexatriacontane (C36) (46% @ 25%)

8270D Semi-Volatile Organic Compounds

CZD0242-CCV1 **Calibration required quadratic regression (Q).**
2,4-Dinitrophenol (103% @ 80-120%)

CZD0277-CCV1 **Calibration required quadratic regression (Q).**
2,4-Dinitrophenol (106% @ 80-120%)

CZD0299-CCV1 **Calibration required quadratic regression (Q).**
2,4-Dinitrophenol (108% @ 80-120%)

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

Definitions of Quality Control Parameters

Semivolatile Organics Internal Standard Information

Semivolatile Organics Surrogate Information

Volatile Organics Internal Standard Information

Volatile Organics Surrogate Information

EPH and VPH Alkane Lists

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604393

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

1010A - Flashpoint
6010C - ICP
6020A - ICP MS
7010 - Graphite Furnace
7196A - Hexavalent Chromium
7470A - Aqueous Mercury
7471B - Solid Mercury
8011 - EDB/DBCP/TCP
8015D - GRO/DRO
8081B - Pesticides
8082A - PCB
8100M - TPH
8151A - Herbicides
8260B - VOA
8270D - SVOA
8270D SIM - SVOA Low Level
9014 - Cyanide
9038 - Sulfate
9040C - Aqueous pH
9045D - Solid pH (Corrosivity)
9050A - Specific Conductance
9056A - Anions (IC)
9060A - TOC
9095B - Paint Filter
MADEP 04-1.1 - EPH / VPH

Prep Methods

3005A - Aqueous ICP Digestion
3020A - Aqueous Graphite Furnace / ICP MS Digestion
3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
3060A - Solid Hexavalent Chromium Digestion
3510C - Separatory Funnel Extraction
3520C - Liquid / Liquid Extraction
3540C - Manual Soxhlet Extraction
3541 - Automated Soxhlet Extraction
3546 - Microwave Extraction
3580A - Waste Dilution
5030B - Aqueous Purge and Trap
5030C - Aqueous Purge and Trap
5035 - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604393

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **1604393-01 through 1604393-02**

Matrices: ( ) Ground Water/Surface Water (X) Soil/Sediment ( ) Drinking Water ( ) Air ( ) Other:_____

CAM Protocol (check all that apply below):

(X) 8260 VOC CAM II A	(X) 7470/7471 Hg CAM III B	( ) MassDEP VPH CAM IV A	( ) 8081 Pesticides CAM V B	( ) 7196 Hex Cr CAM VI B	( ) MassDEP APH CAM IX A
(X) 8270 SVOC CAM II B	(X) 7010 Metals CAM III C	(X) MassDEP EPH CAM IV B	( ) 8151 Herbicides CAM V C	( ) 8330 Explosives CAM VIII A	( ) TO-15 VOC CAM IX B
(X) 6010 Metals CAM III A	( ) 6020 Metals CAM III D	( ) 8082 PCB CAM V A	( ) 6860 Perchlorate CAM VIII B	( ) 9014 Total Cyanide/PAC CAM VI A	

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	Yes (X) No ( )
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	Yes (X) No ( )
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	Yes (X) No ( )
D	Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	Yes (X) No ( )
E	a. VPH, EPH, APH and TO-15 only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	Yes (X) No ( )
	b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	Yes ( ) No ( )
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	Yes (X) No ( )

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)?	Yes (X) No ( )*
	Data User Note: ***Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.***	
H	Were **all** QC performance standards specified in the CAM protocol(s) achieved?	Yes ( ) No (X)*
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	Yes ( ) No (X)*

****All negative responses must be addressed in an attached laboratory narrative.***

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Laurel Stoddard
Date: April 25, 2016
Printed Name: Laurel Stoddard
Position: Laboratory Director

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-2
Date Sampled: 04/14/16 09:30
Percent Solids: 93

ESS Laboratory Work Order: 1604393
ESS Laboratory Sample ID: 1604393-01
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Arsenic	**9.12** (2.54)		6010C		1	KJK	04/16/16 21:56	2.11	100	CD61502
Barium	**12.5** (2.54)		6010C		1	KJK	04/16/16 21:56	2.11	100	CD61502
Cadmium	ND (0.51)		6010C		1	KJK	04/16/16 21:56	2.11	100	CD61502
Chromium	**8.66** (1.01)		6010C		1	KJK	04/16/16 21:56	2.11	100	CD61502
Lead	**7.11** (5.07)		6010C		1	KJK	04/16/16 21:56	2.11	100	CD61502
Mercury	ND (0.034)		7471B		1	PJP	04/18/16 11:54	0.62	40	CD61505
Selenium	ND (2.54)		7010		5	JP	04/19/16 18:48	2.11	100	CD61502
Silver	**0.59** (0.51)		6010C		1	KJK	04/16/16 21:56	2.11	100	CD61502

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-2
Date Sampled: 04/14/16 09:30
Percent Solids: 93
Initial Volume: 8.1
Final Volume: 5
Extraction Method: 5035

ESS Laboratory Work Order: 1604393
ESS Laboratory Sample ID: 1604393-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1,1,2-Tetrachloroethane	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
1,1,1-Trichloroethane	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
1,1,2,2-Tetrachloroethane	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
1,1,2-Trichloroethane	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
1,1-Dichloroethane	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
1,1-Dichloroethene	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
1,1-Dichloropropene	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
1,2,3-Trichlorobenzene	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
1,2,3-Trichloropropane	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
1,2,4-Trichlorobenzene	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
1,2,4-Trimethylbenzene	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
1,2-Dibromo-3-Chloropropane	ND (0.731)		8260B		1	04/20/16 15:04	CZD0332	CD62038
1,2-Dibromoethane	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
1,2-Dichlorobenzene	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
1,2-Dichloroethane	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
1,2-Dichloropropane	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
1,3,5-Trimethylbenzene	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
1,3-Dichlorobenzene	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
1,3-Dichloropropane	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
1,4-Dichlorobenzene	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
1,4-Dioxane - Screen	ND (29.3)		8260B		1	04/20/16 15:04	CZD0332	CD62038
2,2-Dichloropropane	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
2-Butanone	ND (0.731)		8260B		1	04/20/16 15:04	CZD0332	CD62038
2-Chlorotoluene	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
2-Hexanone	ND (0.731)		8260B		1	04/20/16 15:04	CZD0332	CD62038
4-Chlorotoluene	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
4-Isopropyltoluene	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
4-Methyl-2-Pentanone	ND (0.731)		8260B		1	04/20/16 15:04	CZD0332	CD62038
Acetone	ND (0.731)		8260B		1	04/20/16 15:04	CZD0332	CD62038
Benzene	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
Bromobenzene	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
Bromochloromethane	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-2
Date Sampled: 04/14/16 09:30
Percent Solids: 93
Initial Volume: 8.1
Final Volume: 5
Extraction Method: 5035

ESS Laboratory Work Order: 1604393
ESS Laboratory Sample ID: 1604393-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Bromodichloromethane	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
Bromoform	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
Bromomethane	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
Carbon Disulfide	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
Carbon Tetrachloride	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
Chlorobenzene	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
Chloroethane	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
Chloroform	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
Chloromethane	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
cis-1,2-Dichloroethene	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
cis-1,3-Dichloropropene	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
Dibromochloromethane	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
Dibromomethane	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
Dichlorodifluoromethane	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
Diethyl Ether	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
Di-isopropyl ether	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
Ethyl tertiary-butyl ether	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
Ethylbenzene	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
Hexachlorobutadiene	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
Isopropylbenzene	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
Methyl tert-Butyl Ether	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
Methylene Chloride	ND (0.293)		8260B		1	04/20/16 15:04	CZD0332	CD62038
Naphthalene	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
n-Butylbenzene	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
n-Propylbenzene	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
sec-Butylbenzene	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
Styrene	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
tert-Butylbenzene	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
Tertiary-amyl methyl ether	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
Tetrachloroethene	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
Tetrahydrofuran	ND (0.731)		8260B		1	04/20/16 15:04	CZD0332	CD62038
Toluene	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-2
Date Sampled: 04/14/16 09:30
Percent Solids: 93
Initial Volume: 8.1
Final Volume: 5
Extraction Method: 5035

ESS Laboratory Work Order: 1604393
ESS Laboratory Sample ID: 1604393-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
trans-1,2-Dichloroethene	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
trans-1,3-Dichloropropene	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
Trichloroethene	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
Trichlorofluoromethane	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
Vinyl Chloride	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
Xylene O	ND (0.146)		8260B		1	04/20/16 15:04	CZD0332	CD62038
Xylene P,M	ND (0.293)		8260B		1	04/20/16 15:04	CZD0332	CD62038
Xylenes (Total)	ND (0.293)		8260B		1	04/20/16 15:04		[CALC]

	%Recovery	*Qualifier*	*Limits*
Surrogate: 1,2-Dichloroethane-d4	*105 %*		*70-130*
Surrogate: 4-Bromofluorobenzene	*103 %*		*70-130*
Surrogate: Dibromofluoromethane	*98 %*		*70-130*
Surrogate: Toluene-d8	*105 %*		*70-130*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-2
Date Sampled: 04/14/16 09:30
Percent Solids: 93
Initial Volume: 19.7
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 1604393
ESS Laboratory Sample ID: 1604393-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DPS
Prepared: 4/15/16 12:00

8100M Total Petroleum Hydrocarbons

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Total Petroleum Hydrocarbons	**20.3** (10.9)		8100M		1	04/16/16 8:03	CZD0300	CD61517

	%Recovery	Qualifier	Limits
Surrogate: O-Terphenyl	*94 %*		*40-140*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-2
Date Sampled: 04/14/16 09:30
Percent Solids: 93
Initial Volume: 14.5
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1604393
ESS Laboratory Sample ID: 1604393-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: IBM
Prepared: 4/15/16 11:39

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,2,4-Trichlorobenzene	ND (0.369)		8270D		1	04/19/16 0:39	CZD0277	CD61519
1,2-Dichlorobenzene	ND (0.369)		8270D		1	04/19/16 0:39	CZD0277	CD61519
1,3-Dichlorobenzene	ND (0.369)		8270D		1	04/19/16 0:39	CZD0277	CD61519
1,4-Dichlorobenzene	ND (0.369)		8270D		1	04/19/16 0:39	CZD0277	CD61519
2,4,5-Trichlorophenol	ND (0.369)		8270D		1	04/19/16 0:39	CZD0277	CD61519
2,4,6-Trichlorophenol	ND (0.369)		8270D		1	04/19/16 0:39	CZD0277	CD61519
2,4-Dichlorophenol	ND (0.369)		8270D		1	04/19/16 0:39	CZD0277	CD61519
2,4-Dimethylphenol	ND (0.369)		8270D		1	04/19/16 0:39	CZD0277	CD61519
2,4-Dinitrophenol	ND (1.85)		8270D		1	04/19/16 0:39	CZD0277	CD61519
2,4-Dinitrotoluene	ND (0.369)		8270D		1	04/19/16 0:39	CZD0277	CD61519
2,6-Dinitrotoluene	ND (0.369)		8270D		1	04/19/16 0:39	CZD0277	CD61519
2-Chloronaphthalene	ND (0.369)		8270D		1	04/19/16 0:39	CZD0277	CD61519
2-Chlorophenol	ND (0.369)		8270D		1	04/19/16 0:39	CZD0277	CD61519
2-Methylnaphthalene	ND (0.369)		8270D		1	04/19/16 0:39	CZD0277	CD61519
2-Methylphenol	ND (0.369)		8270D		1	04/19/16 0:39	CZD0277	CD61519
2-Nitrophenol	ND (0.369)		8270D		1	04/19/16 0:39	CZD0277	CD61519
3,3´-Dichlorobenzidine	ND (0.739)		8270D		1	04/19/16 0:39	CZD0277	CD61519
3+4-Methylphenol	ND (0.739)		8270D		1	04/19/16 0:39	CZD0277	CD61519
4-Bromophenyl-phenylether	ND (0.369)		8270D		1	04/19/16 0:39	CZD0277	CD61519
4-Chloroaniline	ND (0.739)		8270D		1	04/19/16 0:39	CZD0277	CD61519
4-Nitrophenol	ND (1.85)		8270D		1	04/19/16 0:39	CZD0277	CD61519
Acenaphthene	ND (0.369)		8270D		1	04/19/16 0:39	CZD0277	CD61519
Acenaphthylene	ND (0.369)		8270D		1	04/19/16 0:39	CZD0277	CD61519
Acetophenone	ND (0.739)		8270D		1	04/19/16 0:39	CZD0277	CD61519
Aniline	ND (1.85)		8270D		1	04/19/16 0:39	CZD0277	CD61519
Anthracene	ND (0.369)		8270D		1	04/19/16 0:39	CZD0277	CD61519
Azobenzene	ND (0.369)		8270D		1	04/19/16 0:39	CZD0277	CD61519
Benzo(a)anthracene	ND (0.369)		8270D		1	04/19/16 0:39	CZD0277	CD61519
Benzo(a)pyrene	**0.253** (0.185)		8270D		1	04/19/16 0:39	CZD0277	CD61519
Benzo(b)fluoranthene	ND (0.369)		8270D		1	04/19/16 0:39	CZD0277	CD61519
Benzo(g,h,i)perylene	ND (0.369)		8270D		1	04/19/16 0:39	CZD0277	CD61519
Benzo(k)fluoranthene	ND (0.369)		8270D		1	04/19/16 0:39	CZD0277	CD61519

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-2
Date Sampled: 04/14/16 09:30
Percent Solids: 93
Initial Volume: 14.5
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1604393
ESS Laboratory Sample ID: 1604393-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: IBM
Prepared: 4/15/16 11:39

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
bis(2-Chloroethoxy)methane	ND (0.369)		8270D		1	04/19/16 0:39	CZD0277	CD61519
bis(2-Chloroethyl)ether	ND (0.369)		8270D		1	04/19/16 0:39	CZD0277	CD61519
bis(2-chloroisopropyl)Ether	ND (0.369)		8270D		1	04/19/16 0:39	CZD0277	CD61519
bis(2-Ethylhexyl)phthalate	ND (0.369)		8270D		1	04/19/16 0:39	CZD0277	CD61519
Butylbenzylphthalate	ND (0.369)		8270D		1	04/19/16 0:39	CZD0277	CD61519
Chrysene	**0.298** (0.185)		8270D		1	04/19/16 0:39	CZD0277	CD61519
Dibenzo(a,h)Anthracene	ND (0.185)		8270D		1	04/19/16 0:39	CZD0277	CD61519
Dibenzofuran	ND (0.369)		8270D		1	04/19/16 0:39	CZD0277	CD61519
Diethylphthalate	ND (0.369)		8270D		1	04/19/16 0:39	CZD0277	CD61519
Dimethylphthalate	ND (0.369)		8270D		1	04/19/16 0:39	CZD0277	CD61519
Di-n-butylphthalate	ND (0.369)		8270D		1	04/19/16 0:39	CZD0277	CD61519
Di-n-octylphthalate	ND (0.369)		8270D		1	04/19/16 0:39	CZD0277	CD61519
Fluoranthene	**0.730** (0.369)		8270D		1	04/19/16 0:39	CZD0277	CD61519
Fluorene	ND (0.369)		8270D		1	04/19/16 0:39	CZD0277	CD61519
Hexachlorobenzene	ND (0.369)		8270D		1	04/19/16 0:39	CZD0277	CD61519
Hexachlorobutadiene	ND (0.369)		8270D		1	04/19/16 0:39	CZD0277	CD61519
Hexachloroethane	ND (0.369)		8270D		1	04/19/16 0:39	CZD0277	CD61519
Indeno(1,2,3-cd)Pyrene	ND (0.369)		8270D		1	04/19/16 0:39	CZD0277	CD61519
Isophorone	ND (0.369)		8270D		1	04/19/16 0:39	CZD0277	CD61519
Naphthalene	ND (0.369)		8270D		1	04/19/16 0:39	CZD0277	CD61519
Nitrobenzene	ND (0.369)		8270D		1	04/19/16 0:39	CZD0277	CD61519
N-Nitrosodimethylamine	ND (0.369)		8270D		1	04/19/16 0:39	CZD0277	CD61519
Pentachlorophenol	ND (1.85)		8270D		1	04/19/16 0:39	CZD0277	CD61519
Phenanthrene	**0.622** (0.369)		8270D		1	04/19/16 0:39	CZD0277	CD61519
Phenol	ND (0.369)		8270D		1	04/19/16 0:39	CZD0277	CD61519
Pyrene	**0.540** (0.369)		8270D		1	04/19/16 0:39	CZD0277	CD61519

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichlorobenzene-d4	*75 %*		*30-130*
Surrogate: 2,4,6-Tribromophenol	*78 %*		*30-130*
Surrogate: 2-Chlorophenol-d4	*79 %*		*30-130*
Surrogate: 2-Fluorobiphenyl	*80 %*		*30-130*
Surrogate: 2-Fluorophenol	*75 %*		*30-130*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-2
Date Sampled: 04/14/16 09:30
Percent Solids: 93
Initial Volume: 14.5
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1604393
ESS Laboratory Sample ID: 1604393-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: IBM
Prepared: 4/15/16 11:39

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Surrogate: Nitrobenzene-d5		*77 %*		*30-130*				
Surrogate: Phenol-d6		*79 %*		*30-130*				
Surrogate: p-Terphenyl-d14		*83 %*		*30-130*				

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-2
Date Sampled: 04/14/16 09:30
Percent Solids: 93

ESS Laboratory Work Order: 1604393
ESS Laboratory Sample ID: 1604393-01
Sample Matrix: Soil

Classical Chemistry

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	Units	Batch
Conductivity	**WL 139** (5)		9050A		1	JLK	04/19/16 16:41	umhos/cm	CD61932
Corrosivity (pH)	**7.40** (N/A)		9045		1	JLK	04/14/16 21:42	S.U.	CD61455
Corrosivity (pH) Sample Temp	**Soil pH measured in water at 18.9 ºC.**								
Eh (ORP)	**WL 388** (N/A)		2580		1	JLK	04/14/16 21:42	mv	CD61456
Flashpoint	**> 200** (N/A)		1010		1	CRR	04/18/16 13:06	°F	CD61830
Reactive Cyanide	ND (2.0)		7.3.3.2		1	EEM	04/19/16 22:35	mg/kg	CD61917
Reactive Sulfide	ND (2.0)		7.3.4.1		1	EEM	04/19/16 22:35	mg/kg	CD61917

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-3
Date Sampled: 04/14/16 12:32
Percent Solids: 96

ESS Laboratory Work Order: 1604393
ESS Laboratory Sample ID: 1604393-02
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Arsenic	**7.59** (2.17)		6010C		1	KJK	04/16/16 22:00	2.41	100	CD61502
Barium	**15.1** (2.17)		6010C		1	KJK	04/16/16 22:00	2.41	100	CD61502
Cadmium	ND (0.43)		6010C		1	KJK	04/16/16 22:00	2.41	100	CD61502
Chromium	**8.01** (0.87)		6010C		1	KJK	04/16/16 22:00	2.41	100	CD61502
Lead	**9.88** (4.33)		6010C		1	KJK	04/16/16 22:00	2.41	100	CD61502
Mercury	ND (0.032)		7471B		1	PJP	04/18/16 11:56	0.64	40	CD61505
Selenium	ND (2.17)		7010		5	JP	04/19/16 18:53	2.41	100	CD61502
Silver	ND (0.43)		6010C		1	KJK	04/16/16 22:00	2.41	100	CD61502

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-3
Date Sampled: 04/14/16 12:32
Percent Solids: 96
Initial Volume: 9.5
Final Volume: 5
Extraction Method: 5035

ESS Laboratory Work Order: 1604393
ESS Laboratory Sample ID: 1604393-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1,1,2-Tetrachloroethane	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
1,1,1-Trichloroethane	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
1,1,2,2-Tetrachloroethane	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
1,1,2-Trichloroethane	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
1,1-Dichloroethane	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
1,1-Dichloroethene	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
1,1-Dichloropropene	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
1,2,3-Trichlorobenzene	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
1,2,3-Trichloropropane	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
1,2,4-Trichlorobenzene	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
1,2,4-Trimethylbenzene	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
1,2-Dibromo-3-Chloropropane	ND (0.593)		8260B		1	04/20/16 15:31	CZD0332	CD62038
1,2-Dibromoethane	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
1,2-Dichlorobenzene	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
1,2-Dichloroethane	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
1,2-Dichloropropane	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
1,3,5-Trimethylbenzene	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
1,3-Dichlorobenzene	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
1,3-Dichloropropane	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
1,4-Dichlorobenzene	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
1,4-Dioxane - Screen	ND (23.7)		8260B		1	04/20/16 15:31	CZD0332	CD62038
2,2-Dichloropropane	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
2-Butanone	ND (0.593)		8260B		1	04/20/16 15:31	CZD0332	CD62038
2-Chlorotoluene	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
2-Hexanone	ND (0.593)		8260B		1	04/20/16 15:31	CZD0332	CD62038
4-Chlorotoluene	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
4-Isopropyltoluene	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
4-Methyl-2-Pentanone	ND (0.593)		8260B		1	04/20/16 15:31	CZD0332	CD62038
Acetone	ND (0.593)		8260B		1	04/20/16 15:31	CZD0332	CD62038
Benzene	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
Bromobenzene	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
Bromochloromethane	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-3
Date Sampled: 04/14/16 12:32
Percent Solids: 96
Initial Volume: 9.5
Final Volume: 5
Extraction Method: 5035

ESS Laboratory Work Order: 1604393
ESS Laboratory Sample ID: 1604393-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Bromodichloromethane	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
Bromoform	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
Bromomethane	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
Carbon Disulfide	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
Carbon Tetrachloride	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
Chlorobenzene	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
Chloroethane	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
Chloroform	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
Chloromethane	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
cis-1,2-Dichloroethene	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
cis-1,3-Dichloropropene	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
Dibromochloromethane	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
Dibromomethane	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
Dichlorodifluoromethane	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
Diethyl Ether	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
Di-isopropyl ether	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
Ethyl tertiary-butyl ether	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
Ethylbenzene	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
Hexachlorobutadiene	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
Isopropylbenzene	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
Methyl tert-Butyl Ether	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
Methylene Chloride	ND (0.237)		8260B		1	04/20/16 15:31	CZD0332	CD62038
Naphthalene	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
n-Butylbenzene	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
n-Propylbenzene	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
sec-Butylbenzene	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
Styrene	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
tert-Butylbenzene	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
Tertiary-amyl methyl ether	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
Tetrachloroethene	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
Tetrahydrofuran	ND (0.593)		8260B		1	04/20/16 15:31	CZD0332	CD62038
Toluene	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-3
Date Sampled: 04/14/16 12:32
Percent Solids: 96
Initial Volume: 9.5
Final Volume: 5
Extraction Method: 5035

ESS Laboratory Work Order: 1604393
ESS Laboratory Sample ID: 1604393-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
trans-1,2-Dichloroethene	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
trans-1,3-Dichloropropene	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
Trichloroethene	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
Trichlorofluoromethane	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
Vinyl Chloride	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
Xylene O	ND (0.119)		8260B		1	04/20/16 15:31	CZD0332	CD62038
Xylene P,M	ND (0.237)		8260B		1	04/20/16 15:31	CZD0332	CD62038
Xylenes (Total)	ND (0.237)		8260B		1	04/20/16 15:31		[CALC]

	%Recovery	*Qualifier*	*Limits*
Surrogate: 1,2-Dichloroethane-d4	*98 %*		*70-130*
Surrogate: 4-Bromofluorobenzene	*108 %*		*70-130*
Surrogate: Dibromofluoromethane	*101 %*		*70-130*
Surrogate: Toluene-d8	*104 %*		*70-130*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-3
Date Sampled: 04/14/16 12:32
Percent Solids: 96
Initial Volume: 20.3
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 1604393
ESS Laboratory Sample ID: 1604393-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DPS
Prepared: 4/15/16 12:00

8100M Total Petroleum Hydrocarbons

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Total Petroleum Hydrocarbons	ND (10.3)		8100M		1	04/16/16 8:43	CZD0300	CD61517

	%Recovery	Qualifier	Limits
Surrogate: O-Terphenyl	*91 %*		*40-140*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-3
Date Sampled: 04/14/16 12:32
Percent Solids: 96
Initial Volume: 14.3
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1604393
ESS Laboratory Sample ID: 1604393-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: IBM
Prepared: 4/15/16 11:39

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,2,4-Trichlorobenzene	ND (0.365)		8270D		1	04/19/16 1:14	CZD0277	CD61519
1,2-Dichlorobenzene	ND (0.365)		8270D		1	04/19/16 1:14	CZD0277	CD61519
1,3-Dichlorobenzene	ND (0.365)		8270D		1	04/19/16 1:14	CZD0277	CD61519
1,4-Dichlorobenzene	ND (0.365)		8270D		1	04/19/16 1:14	CZD0277	CD61519
2,4,5-Trichlorophenol	ND (0.365)		8270D		1	04/19/16 1:14	CZD0277	CD61519
2,4,6-Trichlorophenol	ND (0.365)		8270D		1	04/19/16 1:14	CZD0277	CD61519
2,4-Dichlorophenol	ND (0.365)		8270D		1	04/19/16 1:14	CZD0277	CD61519
2,4-Dimethylphenol	ND (0.365)		8270D		1	04/19/16 1:14	CZD0277	CD61519
2,4-Dinitrophenol	ND (1.83)		8270D		1	04/19/16 1:14	CZD0277	CD61519
2,4-Dinitrotoluene	ND (0.365)		8270D		1	04/19/16 1:14	CZD0277	CD61519
2,6-Dinitrotoluene	ND (0.365)		8270D		1	04/19/16 1:14	CZD0277	CD61519
2-Chloronaphthalene	ND (0.365)		8270D		1	04/19/16 1:14	CZD0277	CD61519
2-Chlorophenol	ND (0.365)		8270D		1	04/19/16 1:14	CZD0277	CD61519
2-Methylnaphthalene	ND (0.365)		8270D		1	04/19/16 1:14	CZD0277	CD61519
2-Methylphenol	ND (0.365)		8270D		1	04/19/16 1:14	CZD0277	CD61519
2-Nitrophenol	ND (0.365)		8270D		1	04/19/16 1:14	CZD0277	CD61519
3,3´-Dichlorobenzidine	ND (0.730)		8270D		1	04/19/16 1:14	CZD0277	CD61519
3+4-Methylphenol	ND (0.730)		8270D		1	04/19/16 1:14	CZD0277	CD61519
4-Bromophenyl-phenylether	ND (0.365)		8270D		1	04/19/16 1:14	CZD0277	CD61519
4-Chloroaniline	ND (0.730)		8270D		1	04/19/16 1:14	CZD0277	CD61519
4-Nitrophenol	ND (1.83)		8270D		1	04/19/16 1:14	CZD0277	CD61519
Acenaphthene	ND (0.365)		8270D		1	04/19/16 1:14	CZD0277	CD61519
Acenaphthylene	ND (0.365)		8270D		1	04/19/16 1:14	CZD0277	CD61519
Acetophenone	ND (0.730)		8270D		1	04/19/16 1:14	CZD0277	CD61519
Aniline	ND (1.83)		8270D		1	04/19/16 1:14	CZD0277	CD61519
Anthracene	ND (0.365)		8270D		1	04/19/16 1:14	CZD0277	CD61519
Azobenzene	ND (0.365)		8270D		1	04/19/16 1:14	CZD0277	CD61519
Benzo(a)anthracene	ND (0.365)		8270D		1	04/19/16 1:14	CZD0277	CD61519
Benzo(a)pyrene	ND (0.183)		8270D		1	04/19/16 1:14	CZD0277	CD61519
Benzo(b)fluoranthene	ND (0.365)		8270D		1	04/19/16 1:14	CZD0277	CD61519
Benzo(g,h,i)perylene	ND (0.365)		8270D		1	04/19/16 1:14	CZD0277	CD61519
Benzo(k)fluoranthene	ND (0.365)		8270D		1	04/19/16 1:14	CZD0277	CD61519

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-3
Date Sampled: 04/14/16 12:32
Percent Solids: 96
Initial Volume: 14.3
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1604393
ESS Laboratory Sample ID: 1604393-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: IBM
Prepared: 4/15/16 11:39

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
bis(2-Chloroethoxy)methane	ND (0.365)		8270D		1	04/19/16 1:14	CZD0277	CD61519
bis(2-Chloroethyl)ether	ND (0.365)		8270D		1	04/19/16 1:14	CZD0277	CD61519
bis(2-chloroisopropyl)Ether	ND (0.365)		8270D		1	04/19/16 1:14	CZD0277	CD61519
bis(2-Ethylhexyl)phthalate	ND (0.365)		8270D		1	04/19/16 1:14	CZD0277	CD61519
Butylbenzylphthalate	ND (0.365)		8270D		1	04/19/16 1:14	CZD0277	CD61519
Chrysene	ND (0.183)		8270D		1	04/19/16 1:14	CZD0277	CD61519
Dibenzo(a,h)Anthracene	ND (0.183)		8270D		1	04/19/16 1:14	CZD0277	CD61519
Dibenzofuran	ND (0.365)		8270D		1	04/19/16 1:14	CZD0277	CD61519
Diethylphthalate	ND (0.365)		8270D		1	04/19/16 1:14	CZD0277	CD61519
Dimethylphthalate	ND (0.365)		8270D		1	04/19/16 1:14	CZD0277	CD61519
Di-n-butylphthalate	ND (0.365)		8270D		1	04/19/16 1:14	CZD0277	CD61519
Di-n-octylphthalate	ND (0.365)		8270D		1	04/19/16 1:14	CZD0277	CD61519
Fluoranthene	ND (0.365)		8270D		1	04/19/16 1:14	CZD0277	CD61519
Fluorene	ND (0.365)		8270D		1	04/19/16 1:14	CZD0277	CD61519
Hexachlorobenzene	ND (0.365)		8270D		1	04/19/16 1:14	CZD0277	CD61519
Hexachlorobutadiene	ND (0.365)		8270D		1	04/19/16 1:14	CZD0277	CD61519
Hexachloroethane	ND (0.365)		8270D		1	04/19/16 1:14	CZD0277	CD61519
Indeno(1,2,3-cd)Pyrene	ND (0.365)		8270D		1	04/19/16 1:14	CZD0277	CD61519
Isophorone	ND (0.365)		8270D		1	04/19/16 1:14	CZD0277	CD61519
Naphthalene	ND (0.365)		8270D		1	04/19/16 1:14	CZD0277	CD61519
Nitrobenzene	ND (0.365)		8270D		1	04/19/16 1:14	CZD0277	CD61519
N-Nitrosodimethylamine	ND (0.365)		8270D		1	04/19/16 1:14	CZD0277	CD61519
Pentachlorophenol	ND (1.83)		8270D		1	04/19/16 1:14	CZD0277	CD61519
Phenanthrene	ND (0.365)		8270D		1	04/19/16 1:14	CZD0277	CD61519
Phenol	ND (0.365)		8270D		1	04/19/16 1:14	CZD0277	CD61519
Pyrene	ND (0.365)		8270D		1	04/19/16 1:14	CZD0277	CD61519

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichlorobenzene-d4	*72 %*		*30-130*
Surrogate: 2,4,6-Tribromophenol	*77 %*		*30-130*
Surrogate: 2-Chlorophenol-d4	*74 %*		*30-130*
Surrogate: 2-Fluorobiphenyl	*75 %*		*30-130*
Surrogate: 2-Fluorophenol	*71 %*		*30-130*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-3
Date Sampled: 04/14/16 12:32
Percent Solids: 96
Initial Volume: 14.3
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1604393
ESS Laboratory Sample ID: 1604393-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: IBM
Prepared: 4/15/16 11:39

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Surrogate: Nitrobenzene-d5		*72 %*		*30-130*				
Surrogate: Phenol-d6		*75 %*		*30-130*				
Surrogate: p-Terphenyl-d14		*81 %*		*30-130*				

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-3
Date Sampled: 04/14/16 12:32
Percent Solids: 96

ESS Laboratory Work Order: 1604393
ESS Laboratory Sample ID: 1604393-02
Sample Matrix: Soil

Classical Chemistry

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	Units	Batch
Conductivity	**WL 97** (5)		9050A		1	JLK	04/19/16 16:41	umhos/cm	CD61932
Corrosivity (pH)	**8.09** (N/A)		9045		1	JLK	04/14/16 21:42	S.U.	CD61455
Corrosivity (pH) Sample Temp	**Soil pH measured in water at 18.9 ºC.**								
Eh (ORP)	**WL 381** (N/A)		2580		1	JLK	04/14/16 21:42	mv	CD61456
Flashpoint	**> 200** (N/A)		1010		1	CRR	04/18/16 13:06	°F	CD61830
Reactive Cyanide	ND (2.0)		7.3.3.2		1	EEM	04/19/16 22:35	mg/kg	CD61917
Reactive Sulfide	ND (2.0)		7.3.4.1		1	EEM	04/19/16 22:35	mg/kg	CD61917

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604393

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Total Metals										
Batch CD61502 - 3050B										
Blank										
Arsenic	ND	2.50	mg/kg wet							
Barium	ND	2.50	mg/kg wet							
Cadmium	ND	0.50	mg/kg wet							
Chromium	ND	1.00	mg/kg wet							
Lead	ND	5.00	mg/kg wet							
Selenium	ND	0.50	mg/kg wet							
Silver	ND	0.50	mg/kg wet							
LCS										
Arsenic	156	8.77	mg/kg wet	161.0		97	80-120			
Barium	346	8.77	mg/kg wet	351.0		99	80-120			
Cadmium	176	1.75	mg/kg wet	190.0		93	80-120			
Chromium	87.8	3.51	mg/kg wet	87.90		100	80-120			
Lead	135	17.5	mg/kg wet	138.0		98	80-120			
Selenium	296	43.9	mg/kg wet	305.0		97	80-120			
Silver	57.3	1.75	mg/kg wet	58.00		99	80-120			
LCS Dup										
Arsenic	149	8.06	mg/kg wet	161.0		93	80-120	5	20	
Barium	311	8.06	mg/kg wet	351.0		89	80-120	11	20	
Cadmium	168	1.61	mg/kg wet	190.0		89	80-120	4	20	
Chromium	84.0	3.23	mg/kg wet	87.90		96	80-120	4	20	
Lead	129	16.1	mg/kg wet	138.0		93	80-120	4	20	
Selenium	278	40.3	mg/kg wet	305.0		91	80-120	6	20	
Silver	54.4	1.61	mg/kg wet	58.00		94	80-120	5	20	
Batch CD61505 - 7471B										
Blank										
Mercury	ND	0.033	mg/kg wet							
LCS										
Mercury	17.5	1.94	mg/kg wet	15.90		110	80-120			
LCS Dup										
Mercury	17.5	1.87	mg/kg wet	15.90		110	80-120	0.09	20	
5035/8260B Volatile Organic Compounds / Methanol										
Batch CD62038 - 5035										
Blank										
1,1,1,2-Tetrachloroethane	ND	0.200	mg/kg wet							
1,1,1-Trichloroethane	ND	0.200	mg/kg wet							
1,1,2,2-Tetrachloroethane	ND	0.200	mg/kg wet							
1,1,2-Trichloroethane	ND	0.200	mg/kg wet							
1,1-Dichloroethane	ND	0.200	mg/kg wet							
1,1-Dichloroethene	ND	0.200	mg/kg wet							
1,1-Dichloropropene	ND	0.200	mg/kg wet							
1,2,3-Trichlorobenzene	ND	0.200	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604393

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Methanol										
Batch CD62038 - 5035										
1,2,3-Trichloropropane	ND	0.200	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.200	mg/kg wet							
1,2,4-Trimethylbenzene	ND	0.200	mg/kg wet							
1,2-Dibromo-3-Chloropropane	ND	1.00	mg/kg wet							
1,2-Dibromoethane	ND	0.200	mg/kg wet							
1,2-Dichlorobenzene	ND	0.200	mg/kg wet							
1,2-Dichloroethane	ND	0.200	mg/kg wet							
1,2-Dichloropropane	ND	0.200	mg/kg wet							
1,3,5-Trimethylbenzene	ND	0.200	mg/kg wet							
1,3-Dichlorobenzene	ND	0.200	mg/kg wet							
1,3-Dichloropropane	ND	0.200	mg/kg wet							
1,4-Dichlorobenzene	ND	0.200	mg/kg wet							
1,4-Dioxane - Screen	ND	40.0	mg/kg wet							
2,2-Dichloropropane	ND	0.200	mg/kg wet							
2-Butanone	ND	1.00	mg/kg wet							
2-Chlorotoluene	ND	0.200	mg/kg wet							
2-Hexanone	ND	1.00	mg/kg wet							
4-Chlorotoluene	ND	0.200	mg/kg wet							
4-Isopropyltoluene	ND	0.200	mg/kg wet							
4-Methyl-2-Pentanone	ND	1.00	mg/kg wet							
Acetone	ND	1.00	mg/kg wet							
Benzene	ND	0.200	mg/kg wet							
Bromobenzene	ND	0.200	mg/kg wet							
Bromochloromethane	ND	0.200	mg/kg wet							
Bromodichloromethane	ND	0.200	mg/kg wet							
Bromoform	ND	0.200	mg/kg wet							
Bromomethane	ND	0.200	mg/kg wet							
Carbon Disulfide	ND	0.200	mg/kg wet							
Carbon Tetrachloride	ND	0.200	mg/kg wet							
Chlorobenzene	ND	0.200	mg/kg wet							
Chloroethane	ND	0.200	mg/kg wet							
Chloroform	ND	0.200	mg/kg wet							
Chloromethane	ND	0.200	mg/kg wet							
cis-1,2-Dichloroethene	ND	0.200	mg/kg wet							
cis-1,3-Dichloropropene	ND	0.200	mg/kg wet							
Dibromochloromethane	ND	0.200	mg/kg wet							
Dibromomethane	ND	0.200	mg/kg wet							
Dichlorodifluoromethane	ND	0.200	mg/kg wet							
Diethyl Ether	ND	0.200	mg/kg wet							
Di-isopropyl ether	ND	0.200	mg/kg wet							
Ethyl tertiary-butyl ether	ND	0.200	mg/kg wet							
Ethylbenzene	ND	0.200	mg/kg wet							
Hexachlorobutadiene	ND	0.200	mg/kg wet							
Isopropylbenzene	ND	0.200	mg/kg wet							
Methyl tert-Butyl Ether	ND	0.200	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604393

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Methanol										
Batch CD62038 - 5035										
Methylene Chloride	ND	0.400	mg/kg wet							
Naphthalene	ND	0.200	mg/kg wet							
n-Butylbenzene	ND	0.200	mg/kg wet							
n-Propylbenzene	ND	0.200	mg/kg wet							
sec-Butylbenzene	ND	0.200	mg/kg wet							
Styrene	ND	0.200	mg/kg wet							
tert-Butylbenzene	ND	0.200	mg/kg wet							
Tertiary-amyl methyl ether	ND	0.200	mg/kg wet							
Tetrachloroethene	ND	0.200	mg/kg wet							
Tetrahydrofuran	ND	1.00	mg/kg wet							
Toluene	ND	0.200	mg/kg wet							
trans-1,2-Dichloroethene	ND	0.200	mg/kg wet							
trans-1,3-Dichloropropene	ND	0.200	mg/kg wet							
Trichloroethene	ND	0.200	mg/kg wet							
Trichlorofluoromethane	ND	0.200	mg/kg wet							
Vinyl Chloride	ND	0.200	mg/kg wet							
Xylene O	ND	0.200	mg/kg wet							
Xylene P,M	ND	0.400	mg/kg wet							
Xylenes (Total)	ND	0.400	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	*4.80*		mg/kg wet	*5.000*		*96*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*4.65*		mg/kg wet	*5.000*		*93*	*70-130*			
Surrogate: Dibromofluoromethane	*4.67*		mg/kg wet	*5.000*		*93*	*70-130*			
Surrogate: Toluene-d8	*4.76*		mg/kg wet	*5.000*		*95*	*70-130*			
LCS										
1,1,1,2-Tetrachloroethane	1.95	0.200	mg/kg wet	2.000		98	70-130			
1,1,1-Trichloroethane	2.00	0.200	mg/kg wet	2.000		100	70-130			
1,1,2,2-Tetrachloroethane	2.07	0.200	mg/kg wet	2.000		104	70-130			
1,1,2-Trichloroethane	1.97	0.200	mg/kg wet	2.000		98	70-130			
1,1-Dichloroethane	1.94	0.200	mg/kg wet	2.000		97	70-130			
1,1-Dichloroethene	1.40	0.200	mg/kg wet	2.000		70	70-130			
1,1-Dichloropropene	1.98	0.200	mg/kg wet	2.000		99	70-130			
1,2,3-Trichlorobenzene	2.00	0.200	mg/kg wet	2.000		100	70-130			
1,2,3-Trichloropropane	2.03	0.200	mg/kg wet	2.000		102	70-130			
1,2,4-Trichlorobenzene	1.98	0.200	mg/kg wet	2.000		99	70-130			
1,2,4-Trimethylbenzene	1.98	0.200	mg/kg wet	2.000		99	70-130			
1,2-Dibromo-3-Chloropropane	1.82	1.00	mg/kg wet	2.000		91	70-130			
1,2-Dibromoethane	2.08	0.200	mg/kg wet	2.000		104	70-130			
1,2-Dichlorobenzene	2.06	0.200	mg/kg wet	2.000		103	70-130			
1,2-Dichloroethane	1.92	0.200	mg/kg wet	2.000		96	70-130			
1,2-Dichloropropane	1.89	0.200	mg/kg wet	2.000		94	70-130			
1,3,5-Trimethylbenzene	2.07	0.200	mg/kg wet	2.000		103	70-130			
1,3-Dichlorobenzene	2.08	0.200	mg/kg wet	2.000		104	70-130			
1,3-Dichloropropane	2.12	0.200	mg/kg wet	2.000		106	70-130			
1,4-Dichlorobenzene	2.08	0.200	mg/kg wet	2.000		104	70-130			
1,4-Dioxane - Screen	48.4	40.0	mg/kg wet	40.00		121	44-241			

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604393

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Methanol										
Batch CD62038 - 5035										
2,2-Dichloropropane	2.01	0.200	mg/kg wet	2.000		100	70-130			
2-Butanone	9.83	1.00	mg/kg wet	10.00		98	70-130			
2-Chlorotoluene	2.08	0.200	mg/kg wet	2.000		104	70-130			
2-Hexanone	10.3	1.00	mg/kg wet	10.00		103	70-130			
4-Chlorotoluene	2.11	0.200	mg/kg wet	2.000		106	70-130			
4-Isopropyltoluene	2.02	0.200	mg/kg wet	2.000		101	70-130			
4-Methyl-2-Pentanone	10.0	1.00	mg/kg wet	10.00		100	70-130			
Acetone	7.48	1.00	mg/kg wet	10.00		75	70-130			
Benzene	1.93	0.200	mg/kg wet	2.000		97	70-130			
Bromobenzene	2.07	0.200	mg/kg wet	2.000		104	70-130			
Bromochloromethane	1.96	0.200	mg/kg wet	2.000		98	70-130			
Bromodichloromethane	1.90	0.200	mg/kg wet	2.000		95	70-130			
Bromoform	2.02	0.200	mg/kg wet	2.000		101	70-130			
Bromomethane	2.05	0.200	mg/kg wet	2.000		102	70-130			
Carbon Disulfide	2.03	0.200	mg/kg wet	2.000		102	70-130			
Carbon Tetrachloride	2.09	0.200	mg/kg wet	2.000		104	70-130			
Chlorobenzene	2.09	0.200	mg/kg wet	2.000		104	70-130			
Chloroethane	1.85	0.200	mg/kg wet	2.000		92	70-130			
Chloroform	1.93	0.200	mg/kg wet	2.000		96	70-130			
Chloromethane	1.89	0.200	mg/kg wet	2.000		94	70-130			
cis-1,2-Dichloroethene	2.09	0.200	mg/kg wet	2.000		105	70-130			
cis-1,3-Dichloropropene	2.15	0.200	mg/kg wet	2.000		108	70-130			
Dibromochloromethane	1.88	0.200	mg/kg wet	2.000		94	70-130			
Dibromomethane	1.95	0.200	mg/kg wet	2.000		97	70-130			
Dichlorodifluoromethane	1.45	0.200	mg/kg wet	2.000		72	70-130			
Diethyl Ether	1.39	0.200	mg/kg wet	2.000		69	70-130			B-
Di-isopropyl ether	2.00	0.200	mg/kg wet	2.000		100	70-130			
Ethyl tertiary-butyl ether	1.97	0.200	mg/kg wet	2.000		99	70-130			
Ethylbenzene	2.05	0.200	mg/kg wet	2.000		102	70-130			
Hexachlorobutadiene	2.16	0.200	mg/kg wet	2.000		108	70-130			
Isopropylbenzene	2.11	0.200	mg/kg wet	2.000		106	70-130			
Methyl tert-Butyl Ether	1.97	0.200	mg/kg wet	2.000		99	70-130			
Methylene Chloride	2.63	0.400	mg/kg wet	2.000		132	70-130			B+
Naphthalene	2.00	0.200	mg/kg wet	2.000		100	70-130			
n-Butylbenzene	2.07	0.200	mg/kg wet	2.000		104	70-130			
n-Propylbenzene	2.10	0.200	mg/kg wet	2.000		105	70-130			
sec-Butylbenzene	2.10	0.200	mg/kg wet	2.000		105	70-130			
Styrene	2.06	0.200	mg/kg wet	2.000		103	70-130			
tert-Butylbenzene	2.08	0.200	mg/kg wet	2.000		104	70-130			
Tertiary-amyl methyl ether	2.00	0.200	mg/kg wet	2.000		100	70-130			
Tetrachloroethene	1.67	0.200	mg/kg wet	2.000		84	70-130			
Tetrahydrofuran	2.30	1.00	mg/kg wet	2.000		115	70-130			
Toluene	2.00	0.200	mg/kg wet	2.000		100	70-130			
trans-1,2-Dichloroethene	2.08	0.200	mg/kg wet	2.000		104	70-130			
trans-1,3-Dichloropropene	1.84	0.200	mg/kg wet	2.000		92	70-130			

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604393

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Methanol										
Batch CD62038 - 5035										
Trichloroethene	1.93	0.200	mg/kg wet	2.000		96	70-130			
Trichlorofluoromethane	1.58	0.200	mg/kg wet	2.000		79	70-130			
Vinyl Chloride	1.80	0.200	mg/kg wet	2.000		90	70-130			
Xylene O	2.15	0.200	mg/kg wet	2.000		108	70-130			
Xylene P,M	4.31	0.400	mg/kg wet	4.000		108	70-130			
Xylenes (Total)	6.46	0.400	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	*4.90*		mg/kg wet	*5.000*		*98*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*4.95*		mg/kg wet	*5.000*		*99*	*70-130*			
Surrogate: Dibromofluoromethane	*4.75*		mg/kg wet	*5.000*		*95*	*70-130*			
Surrogate: Toluene-d8	*4.88*		mg/kg wet	*5.000*		*98*	*70-130*			
LCS Dup										
1,1,1,2-Tetrachloroethane	1.86	0.200	mg/kg wet	2.000		93	70-130	5	25	
1,1,1-Trichloroethane	1.98	0.200	mg/kg wet	2.000		99	70-130	1	25	
1,1,2,2-Tetrachloroethane	2.10	0.200	mg/kg wet	2.000		105	70-130	2	25	
1,1,2-Trichloroethane	1.92	0.200	mg/kg wet	2.000		96	70-130	2	25	
1,1-Dichloroethane	1.90	0.200	mg/kg wet	2.000		95	70-130	2	25	
1,1-Dichloroethene	2.18	0.200	mg/kg wet	2.000		109	70-130	44	25	D+
1,1-Dichloropropene	1.95	0.200	mg/kg wet	2.000		98	70-130	1	25	
1,2,3-Trichlorobenzene	1.95	0.200	mg/kg wet	2.000		98	70-130	2	25	
1,2,3-Trichloropropane	2.01	0.200	mg/kg wet	2.000		100	70-130	1	25	
1,2,4-Trichlorobenzene	1.91	0.200	mg/kg wet	2.000		96	70-130	3	25	
1,2,4-Trimethylbenzene	1.99	0.200	mg/kg wet	2.000		100	70-130	0.7	25	
1,2-Dibromo-3-Chloropropane	1.86	1.00	mg/kg wet	2.000		93	70-130	2	25	
1,2-Dibromoethane	2.00	0.200	mg/kg wet	2.000		100	70-130	4	25	
1,2-Dichlorobenzene	2.03	0.200	mg/kg wet	2.000		102	70-130	1	25	
1,2-Dichloroethane	1.93	0.200	mg/kg wet	2.000		96	70-130	0.1	25	
1,2-Dichloropropane	1.89	0.200	mg/kg wet	2.000		94	70-130	0	25	
1,3,5-Trimethylbenzene	2.02	0.200	mg/kg wet	2.000		101	70-130	2	25	
1,3-Dichlorobenzene	2.09	0.200	mg/kg wet	2.000		105	70-130	0.6	25	
1,3-Dichloropropane	2.06	0.200	mg/kg wet	2.000		103	70-130	3	25	
1,4-Dichlorobenzene	2.05	0.200	mg/kg wet	2.000		102	70-130	2	25	
1,4-Dioxane - Screen	43.0	40.0	mg/kg wet	40.00		107	44-241	12	200	
2,2-Dichloropropane	1.95	0.200	mg/kg wet	2.000		98	70-130	3	25	
2-Butanone	9.89	1.00	mg/kg wet	10.00		99	70-130	0.6	25	
2-Chlorotoluene	2.08	0.200	mg/kg wet	2.000		104	70-130	0.4	25	
2-Hexanone	10.5	1.00	mg/kg wet	10.00		105	70-130	2	25	
4-Chlorotoluene	2.09	0.200	mg/kg wet	2.000		105	70-130	0.9	25	
4-Isopropyltoluene	2.00	0.200	mg/kg wet	2.000		100	70-130	0.8	25	
4-Methyl-2-Pentanone	10.4	1.00	mg/kg wet	10.00		104	70-130	4	25	
Acetone	7.57	1.00	mg/kg wet	10.00		76	70-130	1	25	
Benzene	1.92	0.200	mg/kg wet	2.000		96	70-130	0.8	25	
Bromobenzene	2.04	0.200	mg/kg wet	2.000		102	70-130	2	25	
Bromochloromethane	1.90	0.200	mg/kg wet	2.000		95	70-130	3	25	
Bromodichloromethane	1.86	0.200	mg/kg wet	2.000		93	70-130	2	25	
Bromoform	1.93	0.200	mg/kg wet	2.000		96	70-130	4	25	

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604393

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Methanol										
Batch CD62038 - 5035										
Bromomethane	1.98	0.200	mg/kg wet	2.000		99	70-130	3	25	
Carbon Disulfide	1.76	0.200	mg/kg wet	2.000		88	70-130	14	25	
Carbon Tetrachloride	2.05	0.200	mg/kg wet	2.000		103	70-130	2	25	
Chlorobenzene	2.00	0.200	mg/kg wet	2.000		100	70-130	4	25	
Chloroethane	1.96	0.200	mg/kg wet	2.000		98	70-130	6	25	
Chloroform	1.90	0.200	mg/kg wet	2.000		95	70-130	1	25	
Chloromethane	1.83	0.200	mg/kg wet	2.000		91	70-130	3	25	
cis-1,2-Dichloroethene	2.01	0.200	mg/kg wet	2.000		100	70-130	4	25	
cis-1,3-Dichloropropene	2.05	0.200	mg/kg wet	2.000		103	70-130	5	25	
Dibromochloromethane	1.79	0.200	mg/kg wet	2.000		90	70-130	5	25	
Dibromomethane	1.97	0.200	mg/kg wet	2.000		98	70-130	1	25	
Dichlorodifluoromethane	1.40	0.200	mg/kg wet	2.000		70	70-130	3	25	
Diethyl Ether	1.41	0.200	mg/kg wet	2.000		70	70-130	1	25	
Di-isopropyl ether	1.95	0.200	mg/kg wet	2.000		98	70-130	2	25	
Ethyl tertiary-butyl ether	1.96	0.200	mg/kg wet	2.000		98	70-130	0.7	25	
Ethylbenzene	1.99	0.200	mg/kg wet	2.000		100	70-130	3	25	
Hexachlorobutadiene	2.05	0.200	mg/kg wet	2.000		102	70-130	5	25	
Isopropylbenzene	2.10	0.200	mg/kg wet	2.000		105	70-130	0.3	25	
Methyl tert-Butyl Ether	1.96	0.200	mg/kg wet	2.000		98	70-130	0.5	25	
Methylene Chloride	1.64	0.400	mg/kg wet	2.000		82	70-130	47	25	D+
Naphthalene	2.00	0.200	mg/kg wet	2.000		100	70-130	0.1	25	
n-Butylbenzene	2.01	0.200	mg/kg wet	2.000		100	70-130	3	25	
n-Propylbenzene	2.06	0.200	mg/kg wet	2.000		103	70-130	2	25	
sec-Butylbenzene	2.09	0.200	mg/kg wet	2.000		105	70-130	0.1	25	
Styrene	1.99	0.200	mg/kg wet	2.000		99	70-130	4	25	
tert-Butylbenzene	2.10	0.200	mg/kg wet	2.000		105	70-130	1	25	
Tertiary-amyl methyl ether	1.98	0.200	mg/kg wet	2.000		99	70-130	0.9	25	
Tetrachloroethene	1.64	0.200	mg/kg wet	2.000		82	70-130	2	25	
Tetrahydrofuran	1.99	1.00	mg/kg wet	2.000		100	70-130	14	25	
Toluene	1.98	0.200	mg/kg wet	2.000		99	70-130	0.7	25	
trans-1,2-Dichloroethene	2.01	0.200	mg/kg wet	2.000		101	70-130	3	25	
trans-1,3-Dichloropropene	1.77	0.200	mg/kg wet	2.000		88	70-130	4	25	
Trichloroethene	1.90	0.200	mg/kg wet	2.000		95	70-130	1	25	
Trichlorofluoromethane	1.56	0.200	mg/kg wet	2.000		78	70-130	2	25	
Vinyl Chloride	1.79	0.200	mg/kg wet	2.000		89	70-130	1	25	
Xylene O	2.04	0.200	mg/kg wet	2.000		102	70-130	5	25	
Xylene P,M	4.18	0.400	mg/kg wet	4.000		105	70-130	3	25	
Xylenes (Total)	6.22	0.400	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	*4.90*		mg/kg wet	*5.000*		*98*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*4.79*		mg/kg wet	*5.000*		*96*	*70-130*			
Surrogate: Dibromofluoromethane	*4.76*		mg/kg wet	*5.000*		*95*	*70-130*			
Surrogate: Toluene-d8	*4.85*		mg/kg wet	*5.000*		*97*	*70-130*			
8100M Total Petroleum Hydrocarbons										
Batch CD61517 - 3546										

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604393

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8100M Total Petroleum Hydrocarbons										
Batch CD61517 - 3546										
Blank										
Decane (C10)	ND	0.2	mg/kg wet							
Docosane (C22)	ND	0.2	mg/kg wet							
Dodecane (C12)	ND	0.2	mg/kg wet							
Eicosane (C20)	ND	0.2	mg/kg wet							
Hexacosane (C26)	ND	0.2	mg/kg wet							
Hexadecane (C16)	ND	0.2	mg/kg wet							
Hexatriacontane (C36)	ND	0.2	mg/kg wet							
Nonadecane (C19)	ND	0.2	mg/kg wet							
Nonane (C9)	ND	0.2	mg/kg wet							
Octacosane (C28)	ND	0.2	mg/kg wet							
Octadecane (C18)	ND	0.2	mg/kg wet							
Tetracosane (C24)	ND	0.2	mg/kg wet							
Tetradecane (C14)	ND	0.2	mg/kg wet							
Total Petroleum Hydrocarbons	ND	10.0	mg/kg wet							
Triacontane (C30)	ND	0.2	mg/kg wet							
Surrogate: O-Terphenyl	*4.49*		mg/kg wet	*5.000*		*90*	*40-140*			
LCS										
Decane (C10)	2.1	0.2	mg/kg wet	2.500		86	40-140			
Docosane (C22)	2.5	0.2	mg/kg wet	2.500		99	40-140			
Dodecane (C12)	2.2	0.2	mg/kg wet	2.500		90	40-140			
Eicosane (C20)	2.5	0.2	mg/kg wet	2.500		99	40-140			
Hexacosane (C26)	2.5	0.2	mg/kg wet	2.500		100	40-140			
Hexadecane (C16)	2.4	0.2	mg/kg wet	2.500		94	40-140			
Hexatriacontane (C36)	1.5	0.2	mg/kg wet	2.500		61	40-140			
Nonadecane (C19)	2.5	0.2	mg/kg wet	2.500		100	40-140			
Nonane (C9)	1.9	0.2	mg/kg wet	2.500		74	30-140			
Octacosane (C28)	2.4	0.2	mg/kg wet	2.500		97	40-140			
Octadecane (C18)	2.4	0.2	mg/kg wet	2.500		97	40-140			
Tetracosane (C24)	2.3	0.2	mg/kg wet	2.500		94	40-140			
Tetradecane (C14)	2.4	0.2	mg/kg wet	2.500		94	40-140			
Total Petroleum Hydrocarbons	31.4	10.0	mg/kg wet	35.00		90	40-140			
Triacontane (C30)	2.4	0.2	mg/kg wet	2.500		96	40-140			
Surrogate: O-Terphenyl	*4.74*		mg/kg wet	*5.000*		*95*	*40-140*			
LCS Dup										
Decane (C10)	2.1	0.2	mg/kg wet	2.500		83	40-140	3	25	
Docosane (C22)	2.4	0.2	mg/kg wet	2.500		96	40-140	3	25	
Dodecane (C12)	2.2	0.2	mg/kg wet	2.500		87	40-140	3	25	
Eicosane (C20)	2.4	0.2	mg/kg wet	2.500		96	40-140	4	25	
Hexacosane (C26)	2.4	0.2	mg/kg wet	2.500		98	40-140	2	25	
Hexadecane (C16)	2.3	0.2	mg/kg wet	2.500		92	40-140	2	25	
Hexatriacontane (C36)	1.4	0.2	mg/kg wet	2.500		58	40-140	6	25	
Nonadecane (C19)	2.4	0.2	mg/kg wet	2.500		96	40-140	4	25	

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604393

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8100M Total Petroleum Hydrocarbons										
Batch CD61517 - 3546										
Nonane (C9)	1.8	0.2	mg/kg wet	2.500		72	30-140	3	25	
Octacosane (C28)	2.4	0.2	mg/kg wet	2.500		95	40-140	3	25	
Octadecane (C18)	2.3	0.2	mg/kg wet	2.500		93	40-140	4	25	
Tetracosane (C24)	2.3	0.2	mg/kg wet	2.500		91	40-140	3	25	
Tetradecane (C14)	2.3	0.2	mg/kg wet	2.500		91	40-140	3	25	
Total Petroleum Hydrocarbons	30.4	10.0	mg/kg wet	35.00		87	40-140	3	25	
Triacontane (C30)	2.3	0.2	mg/kg wet	2.500		93	40-140	3	25	
Surrogate: O-Terphenyl	*4.48*		mg/kg wet	*5.000*		*90*	*40-140*			
8270D Semi-Volatile Organic Compounds										
Batch CD61519 - 3546										
Blank										
1,2,4-Trichlorobenzene	ND	0.333	mg/kg wet							
1,2-Dichlorobenzene	ND	0.333	mg/kg wet							
1,3-Dichlorobenzene	ND	0.333	mg/kg wet							
1,4-Dichlorobenzene	ND	0.333	mg/kg wet							
2,4,5-Trichlorophenol	ND	0.333	mg/kg wet							
2,4,6-Trichlorophenol	ND	0.333	mg/kg wet							
2,4-Dichlorophenol	ND	0.333	mg/kg wet							
2,4-Dimethylphenol	ND	0.333	mg/kg wet							
2,4-Dinitrophenol	ND	1.67	mg/kg wet							
2,4-Dinitrotoluene	ND	0.333	mg/kg wet							
2,6-Dinitrotoluene	ND	0.333	mg/kg wet							
2-Chloronaphthalene	ND	0.333	mg/kg wet							
2-Chlorophenol	ND	0.333	mg/kg wet							
2-Methylnaphthalene	ND	0.333	mg/kg wet							
2-Methylphenol	ND	0.333	mg/kg wet							
2-Nitrophenol	ND	0.333	mg/kg wet							
3,3´-Dichlorobenzidine	ND	0.667	mg/kg wet							
3+4-Methylphenol	ND	0.667	mg/kg wet							
4-Bromophenyl-phenylether	ND	0.333	mg/kg wet							
4-Chloroaniline	ND	0.667	mg/kg wet							
4-Nitrophenol	ND	1.67	mg/kg wet							
Acenaphthene	ND	0.333	mg/kg wet							
Acenaphthylene	ND	0.333	mg/kg wet							
Acetophenone	ND	0.667	mg/kg wet							
Aniline	ND	1.67	mg/kg wet							
Anthracene	ND	0.333	mg/kg wet							
Azobenzene	ND	0.333	mg/kg wet							
Benzo(a)anthracene	ND	0.333	mg/kg wet							
Benzo(a)pyrene	ND	0.167	mg/kg wet							
Benzo(b)fluoranthene	ND	0.333	mg/kg wet							
Benzo(g,h,i)perylene	ND	0.333	mg/kg wet							
Benzo(k)fluoranthene	ND	0.333	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604393

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CD61519 - 3546										
bis(2-Chloroethoxy)methane	ND	0.333	mg/kg wet							
bis(2-Chloroethyl)ether	ND	0.333	mg/kg wet							
bis(2-chloroisopropyl)Ether	ND	0.333	mg/kg wet							
bis(2-Ethylhexyl)phthalate	ND	0.333	mg/kg wet							
Butylbenzylphthalate	ND	0.333	mg/kg wet							
Chrysene	ND	0.167	mg/kg wet							
Dibenzo(a,h)Anthracene	ND	0.167	mg/kg wet							
Dibenzofuran	ND	0.333	mg/kg wet							
Diethylphthalate	ND	0.333	mg/kg wet							
Dimethylphthalate	ND	0.333	mg/kg wet							
Di-n-butylphthalate	ND	0.333	mg/kg wet							
Di-n-octylphthalate	ND	0.333	mg/kg wet							
Fluoranthene	ND	0.333	mg/kg wet							
Fluorene	ND	0.333	mg/kg wet							
Hexachlorobenzene	ND	0.333	mg/kg wet							
Hexachlorobutadiene	ND	0.333	mg/kg wet							
Hexachloroethane	ND	0.333	mg/kg wet							
Indeno(1,2,3-cd)Pyrene	ND	0.333	mg/kg wet							
Isophorone	ND	0.333	mg/kg wet							
Naphthalene	ND	0.333	mg/kg wet							
Nitrobenzene	ND	0.333	mg/kg wet							
N-Nitrosodimethylamine	ND	0.333	mg/kg wet							
Pentachlorophenol	ND	1.67	mg/kg wet							
Phenanthrene	ND	0.333	mg/kg wet							
Phenol	ND	0.333	mg/kg wet							
Pyrene	ND	0.333	mg/kg wet							
Surrogate: 1,2-Dichlorobenzene-d4	*2.53*		mg/kg wet	*3.333*		*76*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*3.40*		mg/kg wet	*5.000*		*68*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.92*		mg/kg wet	*5.000*		*78*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.67*		mg/kg wet	*3.333*		*80*	*30-130*			
Surrogate: 2-Fluorophenol	*3.79*		mg/kg wet	*5.000*		*76*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.56*		mg/kg wet	*3.333*		*77*	*30-130*			
Surrogate: Phenol-d6	*4.02*		mg/kg wet	*5.000*		*80*	*30-130*			
Surrogate: p-Terphenyl-d14	*3.01*		mg/kg wet	*3.333*		*90*	*30-130*			
LCS										
1,2,4-Trichlorobenzene	2.73	0.333	mg/kg wet	3.333		82	40-140			
1,2-Dichlorobenzene	2.63	0.333	mg/kg wet	3.333		79	40-140			
1,3-Dichlorobenzene	2.62	0.333	mg/kg wet	3.333		79	40-140			
1,4-Dichlorobenzene	2.62	0.333	mg/kg wet	3.333		79	40-140			
2,4,5-Trichlorophenol	3.06	0.333	mg/kg wet	3.333		92	30-130			
2,4,6-Trichlorophenol	3.09	0.333	mg/kg wet	3.333		93	30-130			
2,4-Dichlorophenol	2.75	0.333	mg/kg wet	3.333		83	30-130			
2,4-Dimethylphenol	2.81	0.333	mg/kg wet	3.333		84	30-130			
2,4-Dinitrophenol	2.26	1.67	mg/kg wet	3.333		68	30-130			
2,4-Dinitrotoluene	3.01	0.333	mg/kg wet	3.333		90	40-140			

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604393

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CD61519 - 3546										
2,6-Dinitrotoluene	2.78	0.333	mg/kg wet	3.333		83	40-140			
2-Chloronaphthalene	2.61	0.333	mg/kg wet	3.333		78	40-140			
2-Chlorophenol	2.58	0.333	mg/kg wet	3.333		77	30-130			
2-Methylnaphthalene	2.52	0.333	mg/kg wet	3.333		76	40-140			
2-Methylphenol	2.58	0.333	mg/kg wet	3.333		77	30-130			
2-Nitrophenol	2.59	0.333	mg/kg wet	3.333		78	30-130			
3,3´-Dichlorobenzidine	2.10	0.667	mg/kg wet	3.333		63	40-140			
3+4-Methylphenol	5.64	0.667	mg/kg wet	6.667		85	30-130			
4-Bromophenyl-phenylether	2.92	0.333	mg/kg wet	3.333		88	40-140			
4-Chloroaniline	2.41	0.667	mg/kg wet	3.333		72	40-140			
4-Nitrophenol	2.68	1.67	mg/kg wet	3.333		80	30-130			
Acenaphthene	2.79	0.333	mg/kg wet	3.333		84	40-140			
Acenaphthylene	2.85	0.333	mg/kg wet	3.333		85	40-140			
Acetophenone	2.64	0.667	mg/kg wet	3.333		79	40-140			
Aniline	2.16	1.67	mg/kg wet	3.333		65	40-140			
Anthracene	2.89	0.333	mg/kg wet	3.333		87	40-140			
Azobenzene	2.77	0.333	mg/kg wet	3.333		83	40-140			
Benzo(a)anthracene	2.84	0.333	mg/kg wet	3.333		85	40-140			
Benzo(a)pyrene	3.01	0.167	mg/kg wet	3.333		90	40-140			
Benzo(b)fluoranthene	2.98	0.333	mg/kg wet	3.333		89	40-140			
Benzo(g,h,i)perylene	3.02	0.333	mg/kg wet	3.333		90	40-140			
Benzo(k)fluoranthene	2.86	0.333	mg/kg wet	3.333		86	40-140			
bis(2-Chloroethoxy)methane	2.66	0.333	mg/kg wet	3.333		80	40-140			
bis(2-Chloroethyl)ether	2.71	0.333	mg/kg wet	3.333		81	40-140			
bis(2-chloroisopropyl)Ether	2.58	0.333	mg/kg wet	3.333		77	40-140			
bis(2-Ethylhexyl)phthalate	3.20	0.333	mg/kg wet	3.333		96	40-140			
Butylbenzylphthalate	3.06	0.333	mg/kg wet	3.333		92	40-140			
Chrysene	2.86	0.167	mg/kg wet	3.333		86	40-140			
Dibenzo(a,h)Anthracene	3.02	0.167	mg/kg wet	3.333		91	40-140			
Dibenzofuran	2.72	0.333	mg/kg wet	3.333		81	40-140			
Diethylphthalate	2.84	0.333	mg/kg wet	3.333		85	40-140			
Dimethylphthalate	2.82	0.333	mg/kg wet	3.333		85	40-140			
Di-n-butylphthalate	3.20	0.333	mg/kg wet	3.333		96	40-140			
Di-n-octylphthalate	2.77	0.333	mg/kg wet	3.333		83	40-140			
Fluoranthene	3.01	0.333	mg/kg wet	3.333		90	40-140			
Fluorene	2.74	0.333	mg/kg wet	3.333		82	40-140			
Hexachlorobenzene	2.72	0.333	mg/kg wet	3.333		82	40-140			
Hexachlorobutadiene	2.72	0.333	mg/kg wet	3.333		82	40-140			
Hexachloroethane	2.57	0.333	mg/kg wet	3.333		77	40-140			
Indeno(1,2,3-cd)Pyrene	3.04	0.333	mg/kg wet	3.333		91	40-140			
Isophorone	2.61	0.333	mg/kg wet	3.333		78	40-140			
Naphthalene	2.76	0.333	mg/kg wet	3.333		83	40-140			
Nitrobenzene	2.61	0.333	mg/kg wet	3.333		78	40-140			
N-Nitrosodimethylamine	2.27	0.333	mg/kg wet	3.333		68	40-140			
Pentachlorophenol	2.80	1.67	mg/kg wet	3.333		84	30-130			

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604393

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CD61519 - 3546										
Phenanthrene	2.80	0.333	mg/kg wet	3.333		84	40-140			
Phenol	2.68	0.333	mg/kg wet	3.333		81	30-130			
Pyrene	2.82	0.333	mg/kg wet	3.333		85	40-140			
Surrogate: 1,2-Dichlorobenzene-d4	*2.66*		mg/kg wet	*3.333*		*80*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*4.17*		mg/kg wet	*5.000*		*83*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*4.10*		mg/kg wet	*5.000*		*82*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.86*		mg/kg wet	*3.333*		*86*	*30-130*			
Surrogate: 2-Fluorophenol	*4.04*		mg/kg wet	*5.000*		*81*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.74*		mg/kg wet	*3.333*		*82*	*30-130*			
Surrogate: Phenol-d6	*4.10*		mg/kg wet	*5.000*		*82*	*30-130*			
Surrogate: p-Terphenyl-d14	*2.98*		mg/kg wet	*3.333*		*89*	*30-130*			
LCS Dup										
1,2,4-Trichlorobenzene	2.72	0.333	mg/kg wet	3.333		82	40-140	0.4	30	
1,2-Dichlorobenzene	2.56	0.333	mg/kg wet	3.333		77	40-140	3	30	
1,3-Dichlorobenzene	2.55	0.333	mg/kg wet	3.333		77	40-140	3	30	
1,4-Dichlorobenzene	2.54	0.333	mg/kg wet	3.333		76	40-140	3	30	
2,4,5-Trichlorophenol	3.08	0.333	mg/kg wet	3.333		93	30-130	0.9	30	
2,4,6-Trichlorophenol	3.04	0.333	mg/kg wet	3.333		91	30-130	2	30	
2,4-Dichlorophenol	2.79	0.333	mg/kg wet	3.333		84	30-130	2	30	
2,4-Dimethylphenol	2.77	0.333	mg/kg wet	3.333		83	30-130	1	30	
2,4-Dinitrophenol	2.19	1.67	mg/kg wet	3.333		66	30-130	3	30	
2,4-Dinitrotoluene	2.90	0.333	mg/kg wet	3.333		87	40-140	4	30	
2,6-Dinitrotoluene	2.72	0.333	mg/kg wet	3.333		82	40-140	2	30	
2-Chloronaphthalene	2.55	0.333	mg/kg wet	3.333		76	40-140	2	30	
2-Chlorophenol	2.60	0.333	mg/kg wet	3.333		78	30-130	0.6	30	
2-Methylnaphthalene	2.49	0.333	mg/kg wet	3.333		75	40-140	1	30	
2-Methylphenol	2.63	0.333	mg/kg wet	3.333		79	30-130	2	30	
2-Nitrophenol	2.61	0.333	mg/kg wet	3.333		78	30-130	1	30	
3,3´-Dichlorobenzidine	2.04	0.667	mg/kg wet	3.333		61	40-140	3	30	
3+4-Methylphenol	5.74	0.667	mg/kg wet	6.667		86	30-130	2	30	
4-Bromophenyl-phenylether	2.89	0.333	mg/kg wet	3.333		87	40-140	0.9	30	
4-Chloroaniline	2.39	0.667	mg/kg wet	3.333		72	40-140	0.8	30	
4-Nitrophenol	2.52	1.67	mg/kg wet	3.333		76	30-130	6	30	
Acenaphthene	2.72	0.333	mg/kg wet	3.333		82	40-140	2	30	
Acenaphthylene	2.78	0.333	mg/kg wet	3.333		83	40-140	3	30	
Acetophenone	2.65	0.667	mg/kg wet	3.333		80	40-140	0.3	30	
Aniline	2.17	1.67	mg/kg wet	3.333		65	40-140	0.6	30	
Anthracene	2.83	0.333	mg/kg wet	3.333		85	40-140	2	30	
Azobenzene	2.76	0.333	mg/kg wet	3.333		83	40-140	0.3	30	
Benzo(a)anthracene	2.78	0.333	mg/kg wet	3.333		83	40-140	2	30	
Benzo(a)pyrene	2.94	0.167	mg/kg wet	3.333		88	40-140	2	30	
Benzo(b)fluoranthene	2.89	0.333	mg/kg wet	3.333		87	40-140	3	30	
Benzo(g,h,i)perylene	2.97	0.333	mg/kg wet	3.333		89	40-140	2	30	
Benzo(k)fluoranthene	2.83	0.333	mg/kg wet	3.333		85	40-140	0.9	30	
bis(2-Chloroethoxy)methane	2.63	0.333	mg/kg wet	3.333		79	40-140	1	30	

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604393

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CD61519 - 3546										
bis(2-Chloroethyl)ether	2.57	0.333	mg/kg wet	3.333		77	40-140	5	30	
bis(2-chloroisopropyl)Ether	2.54	0.333	mg/kg wet	3.333		76	40-140	1	30	
bis(2-Ethylhexyl)phthalate	3.02	0.333	mg/kg wet	3.333		91	40-140	6	30	
Butylbenzylphthalate	2.94	0.333	mg/kg wet	3.333		88	40-140	4	30	
Chrysene	2.82	0.167	mg/kg wet	3.333		84	40-140	2	30	
Dibenzo(a,h)Anthracene	2.97	0.167	mg/kg wet	3.333		89	40-140	2	30	
Dibenzofuran	2.64	0.333	mg/kg wet	3.333		79	40-140	3	30	
Diethylphthalate	2.70	0.333	mg/kg wet	3.333		81	40-140	5	30	
Dimethylphthalate	2.73	0.333	mg/kg wet	3.333		82	40-140	3	30	
Di-n-butylphthalate	2.97	0.333	mg/kg wet	3.333		89	40-140	8	30	
Di-n-octylphthalate	2.64	0.333	mg/kg wet	3.333		79	40-140	5	30	
Fluoranthene	2.83	0.333	mg/kg wet	3.333		85	40-140	6	30	
Fluorene	2.66	0.333	mg/kg wet	3.333		80	40-140	3	30	
Hexachlorobenzene	2.69	0.333	mg/kg wet	3.333		81	40-140	1	30	
Hexachlorobutadiene	2.62	0.333	mg/kg wet	3.333		79	40-140	4	30	
Hexachloroethane	2.46	0.333	mg/kg wet	3.333		74	40-140	5	30	
Indeno(1,2,3-cd)Pyrene	2.99	0.333	mg/kg wet	3.333		90	40-140	2	30	
Isophorone	2.57	0.333	mg/kg wet	3.333		77	40-140	2	30	
Naphthalene	2.70	0.333	mg/kg wet	3.333		81	40-140	2	30	
Nitrobenzene	2.57	0.333	mg/kg wet	3.333		77	40-140	1	30	
N-Nitrosodimethylamine	2.17	0.333	mg/kg wet	3.333		65	40-140	5	30	
Pentachlorophenol	2.60	1.67	mg/kg wet	3.333		78	30-130	8	30	
Phenanthrene	2.73	0.333	mg/kg wet	3.333		82	40-140	2	30	
Phenol	2.73	0.333	mg/kg wet	3.333		82	30-130	2	30	
Pyrene	2.82	0.333	mg/kg wet	3.333		84	40-140	0.06	30	
Surrogate: 1,2-Dichlorobenzene-d4	*2.52*		mg/kg wet	*3.333*		*76*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*4.10*		mg/kg wet	*5.000*		*82*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*4.03*		mg/kg wet	*5.000*		*81*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.72*		mg/kg wet	*3.333*		*82*	*30-130*			
Surrogate: 2-Fluorophenol	*3.92*		mg/kg wet	*5.000*		*78*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.62*		mg/kg wet	*3.333*		*79*	*30-130*			
Surrogate: Phenol-d6	*4.04*		mg/kg wet	*5.000*		*81*	*30-130*			
Surrogate: p-Terphenyl-d14	*2.84*		mg/kg wet	*3.333*		*85*	*30-130*			
Classical Chemistry										
Batch CD61830 - General Preparation										
Reference										
Flashpoint	81		°F	81.00		100	97.9-102.1			
Batch CD61917 - General Preparation										
Blank										
Reactive Cyanide	ND	2.0	mg/kg							
Reactive Sulfide	ND	2.0	mg/kg							
LCS										
Reactive Cyanide	4.0	2.0	mg/kg	100.3		4	0.68-5.41			

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604393

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Classical Chemistry										
Batch CD61917 - General Preparation										
Reactive Sulfide	0.2	2.0	mg/kg	10.00		2	0-44			
Batch CD61932 - General Preparation										
Blank										
Conductivity	ND	5	umhos/cm							
LCS										
Conductivity	1420		umhos/cm	1411		101	90-110			

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292 ESS Laboratory Work Order: 1604393

Notes and Definitions

Z-10	Soil pH measured in water at 18.9 ºC.
WL	Results obtained from a deionized water leach of the sample.
U	Analyte included in the analysis, but not detected
Q	Calibration required quadratic regression (Q).
D+	Relative percent difference for duplicate is outside of criteria (D+).
D	Diluted.
CD-	Continuing Calibration %Diff/Drift is below control limit (CD-).
B+	Blank Spike recovery is above upper control limit (B+).
B-	Blank Spike recovery is below lower control limit (B-).
>	Greater than.
ND	Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DL	Detection Limit
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
NR	No Recovery
[CALC]	Calculated Analyte
SUB	Subcontracted analysis; see attached report

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604393

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179
http://www.health.ri.gov/find/labs/analytical/ESS.pdf

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002
http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/documents/AllLabs.xls

Massachusetts Potable and Non Potable Water: M-RI002
http://public.dep.state.ma.us/Labcert/Labcert.aspx

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424
http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313
http://www.wadsworth.org/labcert/elap/comm.html

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006
http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752
http://www.depweb.state.pa.us/portal/server.pt/community/labs/13780/laboratory_accreditation_program/590095

ESS Laboratory Sample and Cooler Receipt Checklist

Client: Tighe & Bond - KPB/TB/MM

Shipped/Delivered Via: ESS Courier

ESS Project ID: 1604393
Date Received: 4/14/2016
Project Due Date: 4/21/2016
Days for Project: 5 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 2.1 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** (Yes) No / NA
10. Were any analyses received outside of hold time? Yes / (No)

11. Any Subcontracting needed? Yes / (No)
    ESS Sample IDs:
    Analysis:
    TAT:
12. Were VOAs received? (Yes) / No
    a. Air bubbles in aqueous VOAs? Yes / No
    b. Does methanol cover soil completely? (Yes) No / NA

13. Are the samples properly preserved? (Yes) / No
    a. If metals preserved upon receipt: Date: Time: By:
    b. Low Level VOAs brought to freezer: Date: Time: By:

Sample Receiving Notes:
Not ESS provided vials ns 4/14/16

14. Was there a need to contact Project Manager? Yes / (No)
    a. Was there a need to contact the client? Yes / No
    Who was contacted? Date: Time: By:

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	26667	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
01	26668	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
01	26670	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
01	26672	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
02	26665	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	26666	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	26669	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
02	26671	Yes	NA	Yes	VOA Vial - Methanol	MeOH	

2nd Review
Are barcode labels on correct containers? (Yes) / No

Completed By: Date & Time: 4/14/16 1727
Reviewed By: Date & Time: 4/14/16 1737

ESS Laboratory

Division of Thielsch Engineering, Inc.
185 Frances Avenue, Cranston, RI 02910-2211
Tel. (401) 461-7181 Fax (401) 461-4486
www.esslaboratory.com

CHAIN OF CUSTODY

Page 1 of 1

Turn Time ✓ Standard Other _____
If faster than 5 days, prior approval by laboratory is required # _____

State where samples were collected from:
(MA) RI CT NH NJ NY ME Other _____

Is this project for any of the following:
(MA-MCP*) Navy USACE Other _____

Reporting Limits: RCS-1

ESS LAB PROJECT ID: 1604393

Electronic Deliverable ✓ Yes ___ No Format Excel, PDF

Co. Name: Tighe + Bond
Project #: N-1023-035
Project Name (20 Char. or less): Station 292
Contact Person: Michael Martin
Address: 4 Barlows Landing
City: Pocasset State: MA Zip: 02559
PO#:
Telephone #:
Fax #:
Email Address: MEMartin@tighebond.com

Circle and/or Write Required Analysis

ESS LAB Sample#	Date	Collection Time	COMP	GRAB	MATRIX	Sample Identification (20 Char. or less)	Number of Containers	Type of Containers	524.2 / 624 / (8260)	VPH / 8015 GRO / 8021 MTBE/BTEX	No Targets / EPH / 8015 DRO / (8100 TPH)	608 PCB / 608 Pesticides / 8082 PCB / 8081 Pesticides	PAH only / 625 / (8270)	PP13 TAL23 / (RCRA8) / RCRA5	NBC7 / MCPw/Hg / MCP / TCLP8	pH / Corrosivity	Conductivity	Reactive cyanide + sulfide	Ignitability			
1	4/14/16	930	X		S	Disp-2	4	~~4~~ AG/V	X		X		X	X		X	X	X	X			
2	4/14/16	1232	X		S	Disp-3	4	AG/V	X		X		X	X		X	X	X	X			

Container Type: P-Poly G-Glass S-Sterile V-VOA
Matrix: S-Soil SD-Solid D-Sludge WW-Waste Water GW-Ground Water SW-Surface Water DW-Drinking Water O-Oil W-Wipes F-Filters

Cooler Present ✓ Yes ___ No
Seals Intact ___ Yes ___ No NA: ✓
Cooler Temp: 2-1 ICE WR

Internal Use Only
[ ] Pickup
[ ] Technicians _____

Comments: TCLP if over 20x

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
[signature]	4/14/16	[signature]	4/14/16 14:51	[signature]	4/14/16 16:57	[signature]	4/14/16 1727
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
						WR	4/15/16

*MADEP requires that all additional calibrated analytes found during analysis be disclosed.

Please fax all changes to Chain of Custody in writing.

1 (White) Lab Copy 2 (Yellow) Client Receipt

Page 40 of 40

CERTIFICATE OF ANALYSIS

Michael Martin
Tighe & Bond
4 Barlows Landing Road, Unit 15
Pocasset, MA 02559

RE: Station 292 (N-1023-035)
ESS Laboratory Work Order Number: 1604452

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED
By ESS Laboratory at 5:39 pm, Apr 25, 2016

Analytical Summary
The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with NELAC Standards, A2LA and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604452

SAMPLE RECEIPT

The following samples were received on April 15, 2016 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has performed and reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Data Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

Question I: All samples for Metals and EPH were analyzed for a subset of the required MCP list per the client's request.

Lab Number	Sample Name	Matrix	Analysis
1604452-01	Disp-4	Soil	1010, 2580, 6010C, 6020A, 7.3.3.2, 7.3.4.1, 7471B, 8100M, 8260B, 8270D, 9045, 9050A
1604452-02	Disp-5	Soil	1010, 2580, 6010C, 6020A, 7.3.3.2, 7.3.4.1, 7471B, 8100M, 8260B, 8270D, 9045, 9050A

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604452

PROJECT NARRATIVE

8100M Total Petroleum Hydrocarbons

CZD0266-CCV3 **Continuing Calibration %Diff/Drift is below control limit (CD-).**
Hexatriacontane (C36) (56% @ 25%)

8270D Semi-Volatile Organic Compounds

CZD0270-CCV1 **Calibration required quadratic regression (Q).**
2,4-Dinitrophenol (87% @ 80-120%)

CZD0299-CCV1 **Calibration required quadratic regression (Q).**
2,4-Dinitrophenol (108% @ 80-120%)

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

Definitions of Quality Control Parameters

Semivolatile Organics Internal Standard Information

Semivolatile Organics Surrogate Information

Volatile Organics Internal Standard Information

Volatile Organics Surrogate Information

EPH and VPH Alkane Lists

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604452

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

1010A - Flashpoint
6010C - ICP
6020A - ICP MS
7010 - Graphite Furnace
7196A - Hexavalent Chromium
7470A - Aqueous Mercury
7471B - Solid Mercury
8011 - EDB/DBCP/TCP
8015D - GRO/DRO
8081B - Pesticides
8082A - PCB
8100M - TPH
8151A - Herbicides
8260B - VOA
8270D - SVOA
8270D SIM - SVOA Low Level
9014 - Cyanide
9038 - Sulfate
9040C - Aqueous pH
9045D - Solid pH (Corrosivity)
9050A - Specific Conductance
9056A - Anions (IC)
9060A - TOC
9095B - Paint Filter
MADEP 04-1.1 - EPH / VPH

Prep Methods

3005A - Aqueous ICP Digestion
3020A - Aqueous Graphite Furnace / ICP MS Digestion
3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
3060A - Solid Hexavalent Chromium Digestion
3510C - Separatory Funnel Extraction
3520C - Liquid / Liquid Extraction
3540C - Manual Soxhlet Extraction
3541 - Automated Soxhlet Extraction
3546 - Microwave Extraction
3580A - Waste Dilution
5030B - Aqueous Purge and Trap
5030C - Aqueous Purge and Trap
5035 - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604452

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **1604452-01 through 1604452-02**

Matrices: ( ) Ground Water/Surface Water (X) Soil/Sediment ( ) Drinking Water ( ) Air ( ) Other:_____

CAM Protocol (check all that apply below):

(X) 8260 VOC CAM II A	(X) 7470/7471 Hg CAM III B	( ) MassDEP VPH CAM IV A	( ) 8081 Pesticides CAM V B	( ) 7196 Hex Cr CAM VI B	( ) MassDEP APH CAM IX A
(X) 8270 SVOC CAM II B	( ) 7010 Metals CAM III C	(X) MassDEP EPH CAM IV B	( ) 8151 Herbicides CAM V C	( ) 8330 Explosives CAM VIII A	( ) TO-15 VOC CAM IX B
(X) 6010 Metals CAM III A	(X) 6020 Metals CAM III D	( ) 8082 PCB CAM V A	( ) 6860 Perchlorate CAM VIII B	( ) 9014 Total Cyanide/PAC CAM VI A	

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	Yes (X) No ( )
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	Yes (X) No ( )
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	Yes (X) No ( )
D	Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	Yes (X) No ( )
E	a. VPH, EPH, APH and TO-15 only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	Yes (X) No ( )
	b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	Yes ( ) No ( )
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	Yes (X) No ( )

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)?	Yes (X) No ( )*
	Data User Note: ***Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.***	
H	Were **all** QC performance standards specified in the CAM protocol(s) achieved?	Yes ( ) No (X)*
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	Yes ( ) No (X)*

****All negative responses must be addressed in an attached laboratory narrative.***

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: _____ Date: April 25, 2016
Printed Name: Laurel Stoddard Position: Laboratory Director

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-4
Date Sampled: 04/15/16 08:40
Percent Solids: 91

ESS Laboratory Work Order: 1604452
ESS Laboratory Sample ID: 1604452-01
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Arsenic	**12.3** (2.18)		6010C		1	BJV	04/19/16 15:38	2.52	100	CD61808
Barium	**23.4** (2.18)		6010C		1	BJV	04/19/16 15:38	2.52	100	CD61808
Cadmium	ND (0.44)		6010C		1	BJV	04/19/16 15:38	2.52	100	CD61808
Chromium	**10.2** (0.87)		6010C		1	BJV	04/19/16 15:38	2.52	100	CD61808
Lead	**19.6** (4.36)		6010C		1	BJV	04/20/16 12:56	2.52	100	CD61808
Mercury	ND (0.033)		7471B		1	PJP	04/19/16 11:36	0.66	40	CD61810
Selenium	ND (0.44)		6020A		20	NAR	04/19/16 18:24	2.52	100	CD61808
Silver	**0.56** (0.44)		6010C		1	BJV	04/19/16 15:38	2.52	100	CD61808

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-4
Date Sampled: 04/15/16 08:40
Percent Solids: 91
Initial Volume: 9.6
Final Volume: 5
Extraction Method: 5035

ESS Laboratory Work Order: 1604452
ESS Laboratory Sample ID: 1604452-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1,1,2-Tetrachloroethane	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
1,1,1-Trichloroethane	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
1,1,2,2-Tetrachloroethane	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
1,1,2-Trichloroethane	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
1,1-Dichloroethane	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
1,1-Dichloroethene	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
1,1-Dichloropropene	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
1,2,3-Trichlorobenzene	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
1,2,3-Trichloropropane	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
1,2,4-Trichlorobenzene	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
1,2,4-Trimethylbenzene	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
1,2-Dibromo-3-Chloropropane	ND (0.671)		8260B		1	04/21/16 15:33	CZD0347	CD62122
1,2-Dibromoethane	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
1,2-Dichlorobenzene	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
1,2-Dichloroethane	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
1,2-Dichloropropane	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
1,3,5-Trimethylbenzene	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
1,3-Dichlorobenzene	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
1,3-Dichloropropane	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
1,4-Dichlorobenzene	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
1,4-Dioxane - Screen	ND (26.8)		8260B		1	04/21/16 15:33	CZD0347	CD62122
2,2-Dichloropropane	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
2-Butanone	ND (0.671)		8260B		1	04/21/16 15:33	CZD0347	CD62122
2-Chlorotoluene	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
2-Hexanone	ND (0.671)		8260B		1	04/21/16 15:33	CZD0347	CD62122
4-Chlorotoluene	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
4-Isopropyltoluene	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
4-Methyl-2-Pentanone	ND (0.671)		8260B		1	04/21/16 15:33	CZD0347	CD62122
Acetone	ND (0.671)		8260B		1	04/21/16 15:33	CZD0347	CD62122
Benzene	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
Bromobenzene	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
Bromochloromethane	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-4
Date Sampled: 04/15/16 08:40
Percent Solids: 91
Initial Volume: 9.6
Final Volume: 5
Extraction Method: 5035

ESS Laboratory Work Order: 1604452
ESS Laboratory Sample ID: 1604452-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Bromodichloromethane	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
Bromoform	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
Bromomethane	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
Carbon Disulfide	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
Carbon Tetrachloride	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
Chlorobenzene	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
Chloroethane	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
Chloroform	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
Chloromethane	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
cis-1,2-Dichloroethene	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
cis-1,3-Dichloropropene	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
Dibromochloromethane	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
Dibromomethane	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
Dichlorodifluoromethane	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
Diethyl Ether	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
Di-isopropyl ether	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
Ethyl tertiary-butyl ether	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
Ethylbenzene	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
Hexachlorobutadiene	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
Isopropylbenzene	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
Methyl tert-Butyl Ether	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
Methylene Chloride	ND (0.268)		8260B		1	04/21/16 15:33	CZD0347	CD62122
Naphthalene	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
n-Butylbenzene	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
n-Propylbenzene	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
sec-Butylbenzene	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
Styrene	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
tert-Butylbenzene	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
Tertiary-amyl methyl ether	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
Tetrachloroethene	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
Tetrahydrofuran	ND (0.671)		8260B		1	04/21/16 15:33	CZD0347	CD62122
Toluene	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-4
Date Sampled: 04/15/16 08:40
Percent Solids: 91
Initial Volume: 9.6
Final Volume: 5
Extraction Method: 5035

ESS Laboratory Work Order: 1604452
ESS Laboratory Sample ID: 1604452-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
trans-1,2-Dichloroethene	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
trans-1,3-Dichloropropene	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
Trichloroethene	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
Trichlorofluoromethane	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
Vinyl Chloride	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
Xylene O	ND (0.134)		8260B		1	04/21/16 15:33	CZD0347	CD62122
Xylene P,M	ND (0.268)		8260B		1	04/21/16 15:33	CZD0347	CD62122
Xylenes (Total)	ND (0.268)		8260B		1	04/21/16 15:33		[CALC]

	%Recovery	*Qualifier*	*Limits*
Surrogate: 1,2-Dichloroethane-d4	*109 %*		*70-130*
Surrogate: 4-Bromofluorobenzene	*109 %*		*70-130*
Surrogate: Dibromofluoromethane	*116 %*		*70-130*
Surrogate: Toluene-d8	*118 %*		*70-130*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-4
Date Sampled: 04/15/16 08:40
Percent Solids: 91
Initial Volume: 20.2
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 1604452
ESS Laboratory Sample ID: 1604452-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: ZLC
Prepared: 4/18/16 13:05

8100M Total Petroleum Hydrocarbons

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Total Petroleum Hydrocarbons	**22.7** (10.9)		8100M		1	04/18/16 17:16	CZD0266	CD61836

	%Recovery	Qualifier	Limits
Surrogate: O-Terphenyl	*94 %*		*40-140*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-4
Date Sampled: 04/15/16 08:40
Percent Solids: 91
Initial Volume: 14.1
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1604452
ESS Laboratory Sample ID: 1604452-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: IBM
Prepared: 4/18/16 12:20

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,2,4-Trichlorobenzene	ND (0.389)		8270D		1	04/19/16 10:35	CZD0299	CD61837
1,2-Dichlorobenzene	ND (0.389)		8270D		1	04/19/16 10:35	CZD0299	CD61837
1,3-Dichlorobenzene	ND (0.389)		8270D		1	04/19/16 10:35	CZD0299	CD61837
1,4-Dichlorobenzene	ND (0.389)		8270D		1	04/19/16 10:35	CZD0299	CD61837
2,4,5-Trichlorophenol	ND (0.389)		8270D		1	04/19/16 10:35	CZD0299	CD61837
2,4,6-Trichlorophenol	ND (0.389)		8270D		1	04/19/16 10:35	CZD0299	CD61837
2,4-Dichlorophenol	ND (0.389)		8270D		1	04/19/16 10:35	CZD0299	CD61837
2,4-Dimethylphenol	ND (0.389)		8270D		1	04/19/16 10:35	CZD0299	CD61837
2,4-Dinitrophenol	ND (1.95)		8270D		1	04/19/16 10:35	CZD0299	CD61837
2,4-Dinitrotoluene	ND (0.389)		8270D		1	04/19/16 10:35	CZD0299	CD61837
2,6-Dinitrotoluene	ND (0.389)		8270D		1	04/19/16 10:35	CZD0299	CD61837
2-Chloronaphthalene	ND (0.389)		8270D		1	04/19/16 10:35	CZD0299	CD61837
2-Chlorophenol	ND (0.389)		8270D		1	04/19/16 10:35	CZD0299	CD61837
2-Methylnaphthalene	ND (0.389)		8270D		1	04/19/16 10:35	CZD0299	CD61837
2-Methylphenol	ND (0.389)		8270D		1	04/19/16 10:35	CZD0299	CD61837
2-Nitrophenol	ND (0.389)		8270D		1	04/19/16 10:35	CZD0299	CD61837
3,3´-Dichlorobenzidine	ND (0.780)		8270D		1	04/19/16 10:35	CZD0299	CD61837
3+4-Methylphenol	ND (0.780)		8270D		1	04/19/16 10:35	CZD0299	CD61837
4-Bromophenyl-phenylether	ND (0.389)		8270D		1	04/19/16 10:35	CZD0299	CD61837
4-Chloroaniline	ND (0.780)		8270D		1	04/19/16 10:35	CZD0299	CD61837
4-Nitrophenol	ND (1.95)		8270D		1	04/19/16 10:35	CZD0299	CD61837
Acenaphthene	ND (0.389)		8270D		1	04/19/16 10:35	CZD0299	CD61837
Acenaphthylene	ND (0.389)		8270D		1	04/19/16 10:35	CZD0299	CD61837
Acetophenone	ND (0.780)		8270D		1	04/19/16 10:35	CZD0299	CD61837
Aniline	ND (1.95)		8270D		1	04/19/16 10:35	CZD0299	CD61837
Anthracene	ND (0.389)		8270D		1	04/19/16 10:35	CZD0299	CD61837
Azobenzene	ND (0.389)		8270D		1	04/19/16 10:35	CZD0299	CD61837
Benzo(a)anthracene	ND (0.389)		8270D		1	04/19/16 10:35	CZD0299	CD61837
Benzo(a)pyrene	ND (0.195)		8270D		1	04/19/16 10:35	CZD0299	CD61837
Benzo(b)fluoranthene	ND (0.389)		8270D		1	04/19/16 10:35	CZD0299	CD61837
Benzo(g,h,i)perylene	ND (0.389)		8270D		1	04/19/16 10:35	CZD0299	CD61837
Benzo(k)fluoranthene	ND (0.389)		8270D		1	04/19/16 10:35	CZD0299	CD61837

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-4
Date Sampled: 04/15/16 08:40
Percent Solids: 91
Initial Volume: 14.1
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1604452
ESS Laboratory Sample ID: 1604452-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: IBM
Prepared: 4/18/16 12:20

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
bis(2-Chloroethoxy)methane	ND (0.389)		8270D		1	04/19/16 10:35	CZD0299	CD61837
bis(2-Chloroethyl)ether	ND (0.389)		8270D		1	04/19/16 10:35	CZD0299	CD61837
bis(2-chloroisopropyl)Ether	ND (0.389)		8270D		1	04/19/16 10:35	CZD0299	CD61837
bis(2-Ethylhexyl)phthalate	ND (0.389)		8270D		1	04/19/16 10:35	CZD0299	CD61837
Butylbenzylphthalate	ND (0.389)		8270D		1	04/19/16 10:35	CZD0299	CD61837
Chrysene	ND (0.195)		8270D		1	04/19/16 10:35	CZD0299	CD61837
Dibenzo(a,h)Anthracene	ND (0.195)		8270D		1	04/19/16 10:35	CZD0299	CD61837
Dibenzofuran	ND (0.389)		8270D		1	04/19/16 10:35	CZD0299	CD61837
Diethylphthalate	ND (0.389)		8270D		1	04/19/16 10:35	CZD0299	CD61837
Dimethylphthalate	ND (0.389)		8270D		1	04/19/16 10:35	CZD0299	CD61837
Di-n-butylphthalate	ND (0.389)		8270D		1	04/19/16 10:35	CZD0299	CD61837
Di-n-octylphthalate	ND (0.389)		8270D		1	04/19/16 10:35	CZD0299	CD61837
Fluoranthene	ND (0.389)		8270D		1	04/19/16 10:35	CZD0299	CD61837
Fluorene	ND (0.389)		8270D		1	04/19/16 10:35	CZD0299	CD61837
Hexachlorobenzene	ND (0.389)		8270D		1	04/19/16 10:35	CZD0299	CD61837
Hexachlorobutadiene	ND (0.389)		8270D		1	04/19/16 10:35	CZD0299	CD61837
Hexachloroethane	ND (0.389)		8270D		1	04/19/16 10:35	CZD0299	CD61837
Indeno(1,2,3-cd)Pyrene	ND (0.389)		8270D		1	04/19/16 10:35	CZD0299	CD61837
Isophorone	ND (0.389)		8270D		1	04/19/16 10:35	CZD0299	CD61837
Naphthalene	ND (0.389)		8270D		1	04/19/16 10:35	CZD0299	CD61837
Nitrobenzene	ND (0.389)		8270D		1	04/19/16 10:35	CZD0299	CD61837
N-Nitrosodimethylamine	ND (0.389)		8270D		1	04/19/16 10:35	CZD0299	CD61837
Pentachlorophenol	ND (1.95)		8270D		1	04/19/16 10:35	CZD0299	CD61837
Phenanthrene	ND (0.389)		8270D		1	04/19/16 10:35	CZD0299	CD61837
Phenol	ND (0.389)		8270D		1	04/19/16 10:35	CZD0299	CD61837
Pyrene	ND (0.389)		8270D		1	04/19/16 10:35	CZD0299	CD61837

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichlorobenzene-d4	*68 %*		*30-130*
Surrogate: 2,4,6-Tribromophenol	*75 %*		*30-130*
Surrogate: 2-Chlorophenol-d4	*72 %*		*30-130*
Surrogate: 2-Fluorobiphenyl	*70 %*		*30-130*
Surrogate: 2-Fluorophenol	*69 %*		*30-130*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-4
Date Sampled: 04/15/16 08:40
Percent Solids: 91
Initial Volume: 14.1
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1604452
ESS Laboratory Sample ID: 1604452-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: IBM
Prepared: 4/18/16 12:20

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Surrogate: Nitrobenzene-d5		*68 %*		*30-130*				
Surrogate: Phenol-d6		*73 %*		*30-130*				
Surrogate: p-Terphenyl-d14		*82 %*		*30-130*				

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-4
Date Sampled: 04/15/16 08:40
Percent Solids: 91

ESS Laboratory Work Order: 1604452
ESS Laboratory Sample ID: 1604452-01
Sample Matrix: Soil

Classical Chemistry

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	Units	Batch
Conductivity	**WL 167** (5)		9050A		1	JLK	04/19/16 17:06	umhos/cm	CD61933
Corrosivity (pH)	**6.76** (N/A)		9045		1	JLK	04/15/16 21:28	S.U.	CD61551
Corrosivity (pH) Sample Temp	**Soil pH measured in water at 20.4 ºC.**								
Eh (ORP)	**423** (N/A)		2580		1	JLK	04/15/16 21:28	mv	CD61552
Flashpoint	**> 200** (N/A)		1010		1	CRR	04/18/16 14:40	°F	CD61844
Reactive Cyanide	ND (2.0)		7.3.3.2		1	EEM	04/19/16 22:35	mg/kg	CD61917
Reactive Sulfide	ND (2.0)		7.3.4.1		1	EEM	04/19/16 22:35	mg/kg	CD61917

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-5
Date Sampled: 04/15/16 11:20
Percent Solids: 88

ESS Laboratory Work Order: 1604452
ESS Laboratory Sample ID: 1604452-02
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Arsenic	**10.8** (1.99)		6010C		1	BJV	04/19/16 15:55	2.87	100	CD61808
Barium	**18.7** (1.99)		6010C		1	BJV	04/19/16 15:55	2.87	100	CD61808
Cadmium	ND (0.40)		6010C		1	BJV	04/19/16 15:55	2.87	100	CD61808
Chromium	**9.61** (0.80)		6010C		1	BJV	04/19/16 15:55	2.87	100	CD61808
Lead	**19.0** (3.98)		6010C		1	BJV	04/20/16 13:00	2.87	100	CD61808
Mercury	**0.052** (0.035)		7471B		1	PJP	04/19/16 11:38	0.64	40	CD61810
Selenium	ND (0.40)		6020A		20	NAR	04/19/16 18:29	2.87	100	CD61808
Silver	**0.46** (0.40)		6010C		1	BJV	04/19/16 15:55	2.87	100	CD61808

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-5
Date Sampled: 04/15/16 11:20
Percent Solids: 88
Initial Volume: 8.2
Final Volume: 5
Extraction Method: 5035

ESS Laboratory Work Order: 1604452
ESS Laboratory Sample ID: 1604452-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1,1,2-Tetrachloroethane	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
1,1,1-Trichloroethane	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
1,1,2,2-Tetrachloroethane	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
1,1,2-Trichloroethane	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
1,1-Dichloroethane	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
1,1-Dichloroethene	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
1,1-Dichloropropene	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
1,2,3-Trichlorobenzene	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
1,2,3-Trichloropropane	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
1,2,4-Trichlorobenzene	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
1,2,4-Trimethylbenzene	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
1,2-Dibromo-3-Chloropropane	ND (0.837)		8260B		1	04/21/16 15:59	CZD0347	CD62122
1,2-Dibromoethane	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
1,2-Dichlorobenzene	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
1,2-Dichloroethane	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
1,2-Dichloropropane	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
1,3,5-Trimethylbenzene	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
1,3-Dichlorobenzene	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
1,3-Dichloropropane	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
1,4-Dichlorobenzene	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
1,4-Dioxane - Screen	ND (33.5)		8260B		1	04/21/16 15:59	CZD0347	CD62122
2,2-Dichloropropane	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
2-Butanone	ND (0.837)		8260B		1	04/21/16 15:59	CZD0347	CD62122
2-Chlorotoluene	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
2-Hexanone	ND (0.837)		8260B		1	04/21/16 15:59	CZD0347	CD62122
4-Chlorotoluene	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
4-Isopropyltoluene	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
4-Methyl-2-Pentanone	ND (0.837)		8260B		1	04/21/16 15:59	CZD0347	CD62122
Acetone	ND (0.837)		8260B		1	04/21/16 15:59	CZD0347	CD62122
Benzene	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
Bromobenzene	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
Bromochloromethane	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-5
Date Sampled: 04/15/16 11:20
Percent Solids: 88
Initial Volume: 8.2
Final Volume: 5
Extraction Method: 5035

ESS Laboratory Work Order: 1604452
ESS Laboratory Sample ID: 1604452-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Bromodichloromethane	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
Bromoform	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
Bromomethane	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
Carbon Disulfide	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
Carbon Tetrachloride	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
Chlorobenzene	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
Chloroethane	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
Chloroform	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
Chloromethane	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
cis-1,2-Dichloroethene	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
cis-1,3-Dichloropropene	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
Dibromochloromethane	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
Dibromomethane	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
Dichlorodifluoromethane	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
Diethyl Ether	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
Di-isopropyl ether	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
Ethyl tertiary-butyl ether	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
Ethylbenzene	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
Hexachlorobutadiene	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
Isopropylbenzene	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
Methyl tert-Butyl Ether	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
Methylene Chloride	ND (0.335)		8260B		1	04/21/16 15:59	CZD0347	CD62122
Naphthalene	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
n-Butylbenzene	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
n-Propylbenzene	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
sec-Butylbenzene	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
Styrene	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
tert-Butylbenzene	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
Tertiary-amyl methyl ether	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
Tetrachloroethene	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
Tetrahydrofuran	ND (0.837)		8260B		1	04/21/16 15:59	CZD0347	CD62122
Toluene	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-5
Date Sampled: 04/15/16 11:20
Percent Solids: 88
Initial Volume: 8.2
Final Volume: 5
Extraction Method: 5035

ESS Laboratory Work Order: 1604452
ESS Laboratory Sample ID: 1604452-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
trans-1,2-Dichloroethene	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
trans-1,3-Dichloropropene	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
Trichloroethene	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
Trichlorofluoromethane	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
Vinyl Chloride	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
Xylene O	ND (0.167)		8260B		1	04/21/16 15:59	CZD0347	CD62122
Xylene P,M	ND (0.335)		8260B		1	04/21/16 15:59	CZD0347	CD62122
Xylenes (Total)	ND (0.335)		8260B		1	04/21/16 15:59		[CALC]

	%Recovery	*Qualifier*	*Limits*
Surrogate: 1,2-Dichloroethane-d4	*96 %*		*70-130*
Surrogate: 4-Bromofluorobenzene	*94 %*		*70-130*
Surrogate: Dibromofluoromethane	*104 %*		*70-130*
Surrogate: Toluene-d8	*104 %*		*70-130*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-5
Date Sampled: 04/15/16 11:20
Percent Solids: 88
Initial Volume: 19
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 1604452
ESS Laboratory Sample ID: 1604452-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: ZLC
Prepared: 4/18/16 13:05

8100M Total Petroleum Hydrocarbons

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Total Petroleum Hydrocarbons	**29.9** (12.0)		8100M		1	04/18/16 17:56	CZD0266	CD61836

	%Recovery	Qualifier	Limits
Surrogate: O-Terphenyl	*93 %*		*40-140*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-5
Date Sampled: 04/15/16 11:20
Percent Solids: 88
Initial Volume: 14
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1604452
ESS Laboratory Sample ID: 1604452-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: IBM
Prepared: 4/18/16 12:20

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,2,4-Trichlorobenzene	ND (0.407)		8270D		1	04/19/16 18:11	CZD0299	CD61837
1,2-Dichlorobenzene	ND (0.407)		8270D		1	04/19/16 18:11	CZD0299	CD61837
1,3-Dichlorobenzene	ND (0.407)		8270D		1	04/19/16 18:11	CZD0299	CD61837
1,4-Dichlorobenzene	ND (0.407)		8270D		1	04/19/16 18:11	CZD0299	CD61837
2,4,5-Trichlorophenol	ND (0.407)		8270D		1	04/19/16 18:11	CZD0299	CD61837
2,4,6-Trichlorophenol	ND (0.407)		8270D		1	04/19/16 18:11	CZD0299	CD61837
2,4-Dichlorophenol	ND (0.407)		8270D		1	04/19/16 18:11	CZD0299	CD61837
2,4-Dimethylphenol	ND (0.407)		8270D		1	04/19/16 18:11	CZD0299	CD61837
2,4-Dinitrophenol	ND (2.04)		8270D		1	04/19/16 18:11	CZD0299	CD61837
2,4-Dinitrotoluene	ND (0.407)		8270D		1	04/19/16 18:11	CZD0299	CD61837
2,6-Dinitrotoluene	ND (0.407)		8270D		1	04/19/16 18:11	CZD0299	CD61837
2-Chloronaphthalene	ND (0.407)		8270D		1	04/19/16 18:11	CZD0299	CD61837
2-Chlorophenol	ND (0.407)		8270D		1	04/19/16 18:11	CZD0299	CD61837
2-Methylnaphthalene	ND (0.407)		8270D		1	04/19/16 18:11	CZD0299	CD61837
2-Methylphenol	ND (0.407)		8270D		1	04/19/16 18:11	CZD0299	CD61837
2-Nitrophenol	ND (0.407)		8270D		1	04/19/16 18:11	CZD0299	CD61837
3,3´-Dichlorobenzidine	ND (0.815)		8270D		1	04/19/16 18:11	CZD0299	CD61837
3+4-Methylphenol	ND (0.815)		8270D		1	04/19/16 18:11	CZD0299	CD61837
4-Bromophenyl-phenylether	ND (0.407)		8270D		1	04/19/16 18:11	CZD0299	CD61837
4-Chloroaniline	ND (0.815)		8270D		1	04/19/16 18:11	CZD0299	CD61837
4-Nitrophenol	ND (2.04)		8270D		1	04/19/16 18:11	CZD0299	CD61837
Acenaphthene	ND (0.407)		8270D		1	04/19/16 18:11	CZD0299	CD61837
Acenaphthylene	ND (0.407)		8270D		1	04/19/16 18:11	CZD0299	CD61837
Acetophenone	ND (0.815)		8270D		1	04/19/16 18:11	CZD0299	CD61837
Aniline	ND (2.04)		8270D		1	04/19/16 18:11	CZD0299	CD61837
Anthracene	ND (0.407)		8270D		1	04/19/16 18:11	CZD0299	CD61837
Azobenzene	ND (0.407)		8270D		1	04/19/16 18:11	CZD0299	CD61837
Benzo(a)anthracene	ND (0.407)		8270D		1	04/19/16 18:11	CZD0299	CD61837
Benzo(a)pyrene	ND (0.204)		8270D		1	04/19/16 18:11	CZD0299	CD61837
Benzo(b)fluoranthene	ND (0.407)		8270D		1	04/19/16 18:11	CZD0299	CD61837
Benzo(g,h,i)perylene	ND (0.407)		8270D		1	04/19/16 18:11	CZD0299	CD61837
Benzo(k)fluoranthene	ND (0.407)		8270D		1	04/19/16 18:11	CZD0299	CD61837

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-5
Date Sampled: 04/15/16 11:20
Percent Solids: 88
Initial Volume: 14
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1604452
ESS Laboratory Sample ID: 1604452-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: IBM
Prepared: 4/18/16 12:20

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
bis(2-Chloroethoxy)methane	ND (0.407)		8270D		1	04/19/16 18:11	CZD0299	CD61837
bis(2-Chloroethyl)ether	ND (0.407)		8270D		1	04/19/16 18:11	CZD0299	CD61837
bis(2-chloroisopropyl)Ether	ND (0.407)		8270D		1	04/19/16 18:11	CZD0299	CD61837
bis(2-Ethylhexyl)phthalate	ND (0.407)		8270D		1	04/19/16 18:11	CZD0299	CD61837
Butylbenzylphthalate	ND (0.407)		8270D		1	04/19/16 18:11	CZD0299	CD61837
Chrysene	ND (0.204)		8270D		1	04/19/16 18:11	CZD0299	CD61837
Dibenzo(a,h)Anthracene	ND (0.204)		8270D		1	04/19/16 18:11	CZD0299	CD61837
Dibenzofuran	ND (0.407)		8270D		1	04/19/16 18:11	CZD0299	CD61837
Diethylphthalate	ND (0.407)		8270D		1	04/19/16 18:11	CZD0299	CD61837
Dimethylphthalate	ND (0.407)		8270D		1	04/19/16 18:11	CZD0299	CD61837
Di-n-butylphthalate	ND (0.407)		8270D		1	04/19/16 18:11	CZD0299	CD61837
Di-n-octylphthalate	ND (0.407)		8270D		1	04/19/16 18:11	CZD0299	CD61837
Fluoranthene	ND (0.407)		8270D		1	04/19/16 18:11	CZD0299	CD61837
Fluorene	ND (0.407)		8270D		1	04/19/16 18:11	CZD0299	CD61837
Hexachlorobenzene	ND (0.407)		8270D		1	04/19/16 18:11	CZD0299	CD61837
Hexachlorobutadiene	ND (0.407)		8270D		1	04/19/16 18:11	CZD0299	CD61837
Hexachloroethane	ND (0.407)		8270D		1	04/19/16 18:11	CZD0299	CD61837
Indeno(1,2,3-cd)Pyrene	ND (0.407)		8270D		1	04/19/16 18:11	CZD0299	CD61837
Isophorone	ND (0.407)		8270D		1	04/19/16 18:11	CZD0299	CD61837
Naphthalene	ND (0.407)		8270D		1	04/19/16 18:11	CZD0299	CD61837
Nitrobenzene	ND (0.407)		8270D		1	04/19/16 18:11	CZD0299	CD61837
N-Nitrosodimethylamine	ND (0.407)		8270D		1	04/19/16 18:11	CZD0299	CD61837
Pentachlorophenol	ND (2.04)		8270D		1	04/19/16 18:11	CZD0299	CD61837
Phenanthrene	ND (0.407)		8270D		1	04/19/16 18:11	CZD0299	CD61837
Phenol	ND (0.407)		8270D		1	04/19/16 18:11	CZD0299	CD61837
Pyrene	ND (0.407)		8270D		1	04/19/16 18:11	CZD0299	CD61837

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichlorobenzene-d4	*69 %*		*30-130*
Surrogate: 2,4,6-Tribromophenol	*106 %*		*30-130*
Surrogate: 2-Chlorophenol-d4	*73 %*		*30-130*
Surrogate: 2-Fluorobiphenyl	*71 %*		*30-130*
Surrogate: 2-Fluorophenol	*69 %*		*30-130*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-5
Date Sampled: 04/15/16 11:20
Percent Solids: 88
Initial Volume: 14
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1604452
ESS Laboratory Sample ID: 1604452-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: IBM
Prepared: 4/18/16 12:20

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Surrogate: Nitrobenzene-d5		*69 %*		*30-130*				
Surrogate: Phenol-d6		*73 %*		*30-130*				
Surrogate: p-Terphenyl-d14		*67 %*		*30-130*				

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-5
Date Sampled: 04/15/16 11:20
Percent Solids: 88

ESS Laboratory Work Order: 1604452
ESS Laboratory Sample ID: 1604452-02
Sample Matrix: Soil

Classical Chemistry

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	Units	Batch
Conductivity	**WL 153** (5)		9050A		1	JLK	04/19/16 17:06	umhos/cm	CD61933
Corrosivity (pH)	**6.59** (N/A)		9045		1	JLK	04/15/16 21:28	S.U.	CD61551
Corrosivity (pH) Sample Temp	**Soil pH measured in water at 20.4 ºC.**								
Eh (ORP)	**419** (N/A)		2580		1	JLK	04/15/16 21:28	mv	CD61552
Flashpoint	**> 200** (N/A)		1010		1	CRR	04/18/16 14:40	°F	CD61844
Reactive Cyanide	ND (2.0)		7.3.3.2		1	EEM	04/19/16 22:35	mg/kg	CD61917
Reactive Sulfide	ND (2.0)		7.3.4.1		1	EEM	04/19/16 22:35	mg/kg	CD61917

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604452

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Total Metals										
Batch CD61808 - 3050B										
Blank										
Arsenic	ND	2.50	mg/kg wet							
Barium	ND	2.50	mg/kg wet							
Cadmium	ND	0.50	mg/kg wet							
Chromium	ND	1.00	mg/kg wet							
Lead	ND	5.00	mg/kg wet							
Selenium	ND	0.02	mg/kg wet							
Silver	ND	0.50	mg/kg wet							
LCS										
Arsenic	157	9.43	mg/kg wet	161.0		97	80-120			
Barium	427	9.43	mg/kg wet	351.0		122	74-126			
Cadmium	176	1.89	mg/kg wet	190.0		92	80-120			
Chromium	86.2	3.77	mg/kg wet	87.90		98	80-120			
Lead	136	18.9	mg/kg wet	138.0		99	80-120			
Selenium	294	23.6	mg/kg wet	305.0		97	80-120			
Silver	57.3	1.89	mg/kg wet	58.00		99	80-120			
LCS										
Arsenic	99.9	10.0	mg/kg wet	98.35		102	80-120			
Barium	293	10.0	mg/kg wet	308.0		95	80-120			
Cadmium	132	2.00	mg/kg wet	146.0		91	80-120			
Chromium	172	4.00	mg/kg wet	182.0		95	80-120			
Lead	120	20.0	mg/kg wet	130.0		92	80-120			
Silver	38.0	2.00	mg/kg wet	40.90		93	80-120			
LCS Dup										
Arsenic	163	7.25	mg/kg wet	161.0		101	80-120	4	20	
Barium	396	7.25	mg/kg wet	351.0		113	80-120	8	20	
Cadmium	179	1.45	mg/kg wet	190.0		94	80-120	2	20	
Chromium	87.8	2.90	mg/kg wet	87.90		100	80-120	2	20	
Lead	140	14.5	mg/kg wet	138.0		102	80-120	3	20	
Selenium	319	18.1	mg/kg wet	305.0		105	80-120	8	30	
Silver	57.5	1.45	mg/kg wet	58.00		99	80-120	0.4	20	
LCS Dup										
Arsenic	102	9.09	mg/kg wet	98.35		104	80-120	2	20	
Barium	298	9.09	mg/kg wet	308.0		97	80-120	2	20	
Cadmium	134	1.82	mg/kg wet	146.0		92	80-120	1	20	
Chromium	176	3.64	mg/kg wet	182.0		97	80-120	2	20	
Lead	127	18.2	mg/kg wet	130.0		98	80-120	6	20	
Silver	38.7	1.82	mg/kg wet	40.90		95	80-120	2	20	
Batch CD61810 - 7471B										
Blank										
Mercury	ND	0.033	mg/kg wet							
LCS										
Mercury	16.7	1.87	mg/kg wet	15.90		105	80-120			

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604452

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Total Metals										
Batch CD61810 - 7471B										
LCS Dup										
Mercury	17.4	1.90	mg/kg wet	15.90		110	80-120	5	20	
5035/8260B Volatile Organic Compounds / Methanol										
Batch CD62122 - 5035										
Blank										
1,1,1,2-Tetrachloroethane	ND	0.200	mg/kg wet							
1,1,1-Trichloroethane	ND	0.200	mg/kg wet							
1,1,2,2-Tetrachloroethane	ND	0.200	mg/kg wet							
1,1,2-Trichloroethane	ND	0.200	mg/kg wet							
1,1-Dichloroethane	ND	0.200	mg/kg wet							
1,1-Dichloroethene	ND	0.200	mg/kg wet							
1,1-Dichloropropene	ND	0.200	mg/kg wet							
1,2,3-Trichlorobenzene	ND	0.200	mg/kg wet							
1,2,3-Trichloropropane	ND	0.200	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.200	mg/kg wet							
1,2,4-Trimethylbenzene	ND	0.200	mg/kg wet							
1,2-Dibromo-3-Chloropropane	ND	1.00	mg/kg wet							
1,2-Dibromoethane	ND	0.200	mg/kg wet							
1,2-Dichlorobenzene	ND	0.200	mg/kg wet							
1,2-Dichloroethane	ND	0.200	mg/kg wet							
1,2-Dichloropropane	ND	0.200	mg/kg wet							
1,3,5-Trimethylbenzene	ND	0.200	mg/kg wet							
1,3-Dichlorobenzene	ND	0.200	mg/kg wet							
1,3-Dichloropropane	ND	0.200	mg/kg wet							
1,4-Dichlorobenzene	ND	0.200	mg/kg wet							
1,4-Dioxane - Screen	ND	40.0	mg/kg wet							
2,2-Dichloropropane	ND	0.200	mg/kg wet							
2-Butanone	ND	1.00	mg/kg wet							
2-Chlorotoluene	ND	0.200	mg/kg wet							
2-Hexanone	ND	1.00	mg/kg wet							
4-Chlorotoluene	ND	0.200	mg/kg wet							
4-Isopropyltoluene	ND	0.200	mg/kg wet							
4-Methyl-2-Pentanone	ND	1.00	mg/kg wet							
Acetone	ND	1.00	mg/kg wet							
Benzene	ND	0.200	mg/kg wet							
Bromobenzene	ND	0.200	mg/kg wet							
Bromochloromethane	ND	0.200	mg/kg wet							
Bromodichloromethane	ND	0.200	mg/kg wet							
Bromoform	ND	0.200	mg/kg wet							
Bromomethane	ND	0.200	mg/kg wet							
Carbon Disulfide	ND	0.200	mg/kg wet							
Carbon Tetrachloride	ND	0.200	mg/kg wet							
Chlorobenzene	ND	0.200	mg/kg wet							
Chloroethane	ND	0.200	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604452

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Methanol										
Batch CD62122 - 5035										
Chloroform	ND	0.200	mg/kg wet							
Chloromethane	ND	0.200	mg/kg wet							
cis-1,2-Dichloroethene	ND	0.200	mg/kg wet							
cis-1,3-Dichloropropene	ND	0.200	mg/kg wet							
Dibromochloromethane	ND	0.200	mg/kg wet							
Dibromomethane	ND	0.200	mg/kg wet							
Dichlorodifluoromethane	ND	0.200	mg/kg wet							
Diethyl Ether	ND	0.200	mg/kg wet							
Di-isopropyl ether	ND	0.200	mg/kg wet							
Ethyl tertiary-butyl ether	ND	0.200	mg/kg wet							
Ethylbenzene	ND	0.200	mg/kg wet							
Hexachlorobutadiene	ND	0.200	mg/kg wet							
Isopropylbenzene	ND	0.200	mg/kg wet							
Methyl tert-Butyl Ether	ND	0.200	mg/kg wet							
Methylene Chloride	ND	0.400	mg/kg wet							
Naphthalene	ND	0.200	mg/kg wet							
n-Butylbenzene	ND	0.200	mg/kg wet							
n-Propylbenzene	ND	0.200	mg/kg wet							
sec-Butylbenzene	ND	0.200	mg/kg wet							
Styrene	ND	0.200	mg/kg wet							
tert-Butylbenzene	ND	0.200	mg/kg wet							
Tertiary-amyl methyl ether	ND	0.200	mg/kg wet							
Tetrachloroethene	ND	0.200	mg/kg wet							
Tetrahydrofuran	ND	1.00	mg/kg wet							
Toluene	ND	0.200	mg/kg wet							
trans-1,2-Dichloroethene	ND	0.200	mg/kg wet							
trans-1,3-Dichloropropene	ND	0.200	mg/kg wet							
Trichloroethene	ND	0.200	mg/kg wet							
Trichlorofluoromethane	ND	0.200	mg/kg wet							
Vinyl Chloride	ND	0.200	mg/kg wet							
Xylene O	ND	0.200	mg/kg wet							
Xylene P,M	ND	0.400	mg/kg wet							
Xylenes (Total)	ND	0.400	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	*4.33*		mg/kg wet	*5.000*		*87*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*4.32*		mg/kg wet	*5.000*		*86*	*70-130*			
Surrogate: Dibromofluoromethane	*4.74*		mg/kg wet	*5.000*		*95*	*70-130*			
Surrogate: Toluene-d8	*5.38*		mg/kg wet	*5.000*		*108*	*70-130*			
LCS										
1,1,1,2-Tetrachloroethane	1.92	0.200	mg/kg wet	2.000		96	70-130			
1,1,1-Trichloroethane	1.75	0.200	mg/kg wet	2.000		87	70-130			
1,1,2,2-Tetrachloroethane	1.97	0.200	mg/kg wet	2.000		98	70-130			
1,1,2-Trichloroethane	1.78	0.200	mg/kg wet	2.000		89	70-130			
1,1-Dichloroethane	1.78	0.200	mg/kg wet	2.000		89	70-130			
1,1-Dichloroethene	2.29	0.200	mg/kg wet	2.000		115	70-130			
1,1-Dichloropropene	1.87	0.200	mg/kg wet	2.000		94	70-130			

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604452

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Methanol										
Batch CD62122 - 5035										
1,2,3-Trichlorobenzene	2.30	0.200	mg/kg wet	2.000		115	70-130			
1,2,3-Trichloropropane	1.97	0.200	mg/kg wet	2.000		99	70-130			
1,2,4-Trichlorobenzene	2.15	0.200	mg/kg wet	2.000		108	70-130			
1,2,4-Trimethylbenzene	1.92	0.200	mg/kg wet	2.000		96	70-130			
1,2-Dibromo-3-Chloropropane	2.22	1.00	mg/kg wet	2.000		111	70-130			
1,2-Dibromoethane	2.01	0.200	mg/kg wet	2.000		100	70-130			
1,2-Dichlorobenzene	2.07	0.200	mg/kg wet	2.000		103	70-130			
1,2-Dichloroethane	1.79	0.200	mg/kg wet	2.000		90	70-130			
1,2-Dichloropropane	1.85	0.200	mg/kg wet	2.000		93	70-130			
1,3,5-Trimethylbenzene	2.00	0.200	mg/kg wet	2.000		100	70-130			
1,3-Dichlorobenzene	2.06	0.200	mg/kg wet	2.000		103	70-130			
1,3-Dichloropropane	2.11	0.200	mg/kg wet	2.000		105	70-130			
1,4-Dichlorobenzene	2.04	0.200	mg/kg wet	2.000		102	70-130			
1,4-Dioxane - Screen	39.2	40.0	mg/kg wet	40.00		98	44-241			
2,2-Dichloropropane	1.77	0.200	mg/kg wet	2.000		88	70-130			
2-Butanone	8.68	1.00	mg/kg wet	10.00		87	70-130			
2-Chlorotoluene	2.14	0.200	mg/kg wet	2.000		107	70-130			
2-Hexanone	10.9	1.00	mg/kg wet	10.00		109	70-130			
4-Chlorotoluene	2.15	0.200	mg/kg wet	2.000		107	70-130			
4-Isopropyltoluene	2.03	0.200	mg/kg wet	2.000		102	70-130			
4-Methyl-2-Pentanone	10.2	1.00	mg/kg wet	10.00		102	70-130			
Acetone	11.6	1.00	mg/kg wet	10.00		116	70-130			
Benzene	1.84	0.200	mg/kg wet	2.000		92	70-130			
Bromobenzene	2.16	0.200	mg/kg wet	2.000		108	70-130			
Bromochloromethane	1.85	0.200	mg/kg wet	2.000		93	70-130			
Bromodichloromethane	1.77	0.200	mg/kg wet	2.000		88	70-130			
Bromoform	1.90	0.200	mg/kg wet	2.000		95	70-130			
Bromomethane	2.15	0.200	mg/kg wet	2.000		108	70-130			
Carbon Disulfide	2.16	0.200	mg/kg wet	2.000		108	70-130			
Carbon Tetrachloride	1.81	0.200	mg/kg wet	2.000		90	70-130			
Chlorobenzene	1.95	0.200	mg/kg wet	2.000		98	70-130			
Chloroethane	1.71	0.200	mg/kg wet	2.000		85	70-130			
Chloroform	1.73	0.200	mg/kg wet	2.000		87	70-130			
Chloromethane	1.62	0.200	mg/kg wet	2.000		81	70-130			
cis-1,2-Dichloroethene	1.96	0.200	mg/kg wet	2.000		98	70-130			
cis-1,3-Dichloropropene	1.96	0.200	mg/kg wet	2.000		98	70-130			
Dibromochloromethane	2.11	0.200	mg/kg wet	2.000		105	70-130			
Dibromomethane	1.84	0.200	mg/kg wet	2.000		92	70-130			
Dichlorodifluoromethane	1.43	0.200	mg/kg wet	2.000		72	70-130			
Diethyl Ether	2.40	0.200	mg/kg wet	2.000		120	70-130			
Di-isopropyl ether	1.78	0.200	mg/kg wet	2.000		89	70-130			
Ethyl tertiary-butyl ether	1.89	0.200	mg/kg wet	2.000		94	70-130			
Ethylbenzene	2.09	0.200	mg/kg wet	2.000		104	70-130			
Hexachlorobutadiene	2.33	0.200	mg/kg wet	2.000		117	70-130			
Isopropylbenzene	2.04	0.200	mg/kg wet	2.000		102	70-130			

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604452

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Methanol										
Batch CD62122 - 5035										
Methyl tert-Butyl Ether	1.90	0.200	mg/kg wet	2.000		95	70-130			
Methylene Chloride	1.96	0.400	mg/kg wet	2.000		98	70-130			
Naphthalene	2.25	0.200	mg/kg wet	2.000		113	70-130			
n-Butylbenzene	2.07	0.200	mg/kg wet	2.000		104	70-130			
n-Propylbenzene	2.03	0.200	mg/kg wet	2.000		101	70-130			
sec-Butylbenzene	2.14	0.200	mg/kg wet	2.000		107	70-130			
Styrene	1.89	0.200	mg/kg wet	2.000		95	70-130			
tert-Butylbenzene	2.09	0.200	mg/kg wet	2.000		104	70-130			
Tertiary-amyl methyl ether	1.85	0.200	mg/kg wet	2.000		92	70-130			
Tetrachloroethene	1.69	0.200	mg/kg wet	2.000		84	70-130			
Tetrahydrofuran	2.08	1.00	mg/kg wet	2.000		104	70-130			
Toluene	1.99	0.200	mg/kg wet	2.000		100	70-130			
trans-1,2-Dichloroethene	1.99	0.200	mg/kg wet	2.000		100	70-130			
trans-1,3-Dichloropropene	1.90	0.200	mg/kg wet	2.000		95	70-130			
Trichloroethene	1.84	0.200	mg/kg wet	2.000		92	70-130			
Trichlorofluoromethane	1.75	0.200	mg/kg wet	2.000		88	70-130			
Vinyl Chloride	1.71	0.200	mg/kg wet	2.000		85	70-130			
Xylene O	1.98	0.200	mg/kg wet	2.000		99	70-130			
Xylene P,M	4.02	0.400	mg/kg wet	4.000		100	70-130			
Xylenes (Total)	5.99	0.400	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	*4.31*		mg/kg wet	*5.000*		*86*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*5.07*		mg/kg wet	*5.000*		*101*	*70-130*			
Surrogate: Dibromofluoromethane	*4.65*		mg/kg wet	*5.000*		*93*	*70-130*			
Surrogate: Toluene-d8	*5.60*		mg/kg wet	*5.000*		*112*	*70-130*			
LCS Dup										
1,1,1,2-Tetrachloroethane	1.87	0.200	mg/kg wet	2.000		94	70-130	3	25	
1,1,1-Trichloroethane	1.78	0.200	mg/kg wet	2.000		89	70-130	2	25	
1,1,2,2-Tetrachloroethane	1.93	0.200	mg/kg wet	2.000		96	70-130	2	25	
1,1,2-Trichloroethane	1.71	0.200	mg/kg wet	2.000		85	70-130	4	25	
1,1-Dichloroethane	1.72	0.200	mg/kg wet	2.000		86	70-130	4	25	
1,1-Dichloroethene	2.38	0.200	mg/kg wet	2.000		119	70-130	4	25	
1,1-Dichloropropene	1.86	0.200	mg/kg wet	2.000		93	70-130	0.8	25	
1,2,3-Trichlorobenzene	2.05	0.200	mg/kg wet	2.000		102	70-130	12	25	
1,2,3-Trichloropropane	1.87	0.200	mg/kg wet	2.000		93	70-130	6	25	
1,2,4-Trichlorobenzene	2.06	0.200	mg/kg wet	2.000		103	70-130	4	25	
1,2,4-Trimethylbenzene	1.88	0.200	mg/kg wet	2.000		94	70-130	2	25	
1,2-Dibromo-3-Chloropropane	1.85	1.00	mg/kg wet	2.000		93	70-130	18	25	
1,2-Dibromoethane	2.00	0.200	mg/kg wet	2.000		100	70-130	0.4	25	
1,2-Dichlorobenzene	2.01	0.200	mg/kg wet	2.000		100	70-130	3	25	
1,2-Dichloroethane	1.74	0.200	mg/kg wet	2.000		87	70-130	3	25	
1,2-Dichloropropane	1.81	0.200	mg/kg wet	2.000		91	70-130	2	25	
1,3,5-Trimethylbenzene	1.91	0.200	mg/kg wet	2.000		96	70-130	5	25	
1,3-Dichlorobenzene	2.01	0.200	mg/kg wet	2.000		100	70-130	2	25	
1,3-Dichloropropane	2.09	0.200	mg/kg wet	2.000		105	70-130	0.7	25	
1,4-Dichlorobenzene	2.02	0.200	mg/kg wet	2.000		101	70-130	1	25	

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604452

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Methanol										
Batch CD62122 - 5035										
1,4-Dioxane - Screen	41.9	40.0	mg/kg wet	40.00		105	44-241	7	200	
2,2-Dichloropropane	1.80	0.200	mg/kg wet	2.000		90	70-130	2	25	
2-Butanone	8.52	1.00	mg/kg wet	10.00		85	70-130	2	25	
2-Chlorotoluene	2.08	0.200	mg/kg wet	2.000		104	70-130	3	25	
2-Hexanone	9.63	1.00	mg/kg wet	10.00		96	70-130	12	25	
4-Chlorotoluene	2.07	0.200	mg/kg wet	2.000		104	70-130	3	25	
4-Isopropyltoluene	1.89	0.200	mg/kg wet	2.000		94	70-130	7	25	
4-Methyl-2-Pentanone	9.44	1.00	mg/kg wet	10.00		94	70-130	8	25	
Acetone	10.2	1.00	mg/kg wet	10.00		102	70-130	12	25	
Benzene	1.87	0.200	mg/kg wet	2.000		93	70-130	1	25	
Bromobenzene	2.06	0.200	mg/kg wet	2.000		103	70-130	5	25	
Bromochloromethane	1.77	0.200	mg/kg wet	2.000		89	70-130	4	25	
Bromodichloromethane	1.78	0.200	mg/kg wet	2.000		89	70-130	0.3	25	
Bromoform	1.78	0.200	mg/kg wet	2.000		89	70-130	6	25	
Bromomethane	2.11	0.200	mg/kg wet	2.000		106	70-130	2	25	
Carbon Disulfide	2.11	0.200	mg/kg wet	2.000		106	70-130	2	25	
Carbon Tetrachloride	1.86	0.200	mg/kg wet	2.000		93	70-130	3	25	
Chlorobenzene	1.98	0.200	mg/kg wet	2.000		99	70-130	1	25	
Chloroethane	1.81	0.200	mg/kg wet	2.000		91	70-130	6	25	
Chloroform	1.73	0.200	mg/kg wet	2.000		87	70-130	0.1	25	
Chloromethane	1.52	0.200	mg/kg wet	2.000		76	70-130	6	25	
cis-1,2-Dichloroethene	1.95	0.200	mg/kg wet	2.000		98	70-130	0.3	25	
cis-1,3-Dichloropropene	1.98	0.200	mg/kg wet	2.000		99	70-130	0.7	25	
Dibromochloromethane	2.06	0.200	mg/kg wet	2.000		103	70-130	2	25	
Dibromomethane	1.76	0.200	mg/kg wet	2.000		88	70-130	4	25	
Dichlorodifluoromethane	1.46	0.200	mg/kg wet	2.000		73	70-130	2	25	
Diethyl Ether	2.43	0.200	mg/kg wet	2.000		121	70-130	1	25	
Di-isopropyl ether	1.83	0.200	mg/kg wet	2.000		91	70-130	3	25	
Ethyl tertiary-butyl ether	1.89	0.200	mg/kg wet	2.000		94	70-130	0.1	25	
Ethylbenzene	2.09	0.200	mg/kg wet	2.000		105	70-130	0.3	25	
Hexachlorobutadiene	2.23	0.200	mg/kg wet	2.000		112	70-130	4	25	
Isopropylbenzene	2.02	0.200	mg/kg wet	2.000		101	70-130	1	25	
Methyl tert-Butyl Ether	1.87	0.200	mg/kg wet	2.000		94	70-130	2	25	
Methylene Chloride	1.95	0.400	mg/kg wet	2.000		98	70-130	0.7	25	
Naphthalene	2.07	0.200	mg/kg wet	2.000		104	70-130	8	25	
n-Butylbenzene	1.92	0.200	mg/kg wet	2.000		96	70-130	7	25	
n-Propylbenzene	1.95	0.200	mg/kg wet	2.000		98	70-130	4	25	
sec-Butylbenzene	1.98	0.200	mg/kg wet	2.000		99	70-130	8	25	
Styrene	1.89	0.200	mg/kg wet	2.000		94	70-130	0.3	25	
tert-Butylbenzene	2.02	0.200	mg/kg wet	2.000		101	70-130	3	25	
Tertiary-amyl methyl ether	1.93	0.200	mg/kg wet	2.000		96	70-130	4	25	
Tetrachloroethene	1.65	0.200	mg/kg wet	2.000		83	70-130	2	25	
Tetrahydrofuran	2.20	1.00	mg/kg wet	2.000		110	70-130	6	25	
Toluene	2.01	0.200	mg/kg wet	2.000		101	70-130	1	25	
trans-1,2-Dichloroethene	1.99	0.200	mg/kg wet	2.000		100	70-130	0	25	

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604452

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Methanol										
Batch CD62122 - 5035										
trans-1,3-Dichloropropene	1.86	0.200	mg/kg wet	2.000		93	70-130	3	25	
Trichloroethene	1.85	0.200	mg/kg wet	2.000		93	70-130	0.5	25	
Trichlorofluoromethane	1.76	0.200	mg/kg wet	2.000		88	70-130	0.8	25	
Vinyl Chloride	1.71	0.200	mg/kg wet	2.000		86	70-130	0.4	25	
Xylene O	1.94	0.200	mg/kg wet	2.000		97	70-130	2	25	
Xylene P,M	3.94	0.400	mg/kg wet	4.000		99	70-130	2	25	
Xylenes (Total)	5.88	0.400	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	*4.41*		mg/kg wet	*5.000*		*88*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*4.98*		mg/kg wet	*5.000*		*100*	*70-130*			
Surrogate: Dibromofluoromethane	*4.69*		mg/kg wet	*5.000*		*94*	*70-130*			
Surrogate: Toluene-d8	*5.60*		mg/kg wet	*5.000*		*112*	*70-130*			
8100M Total Petroleum Hydrocarbons										
Batch CD61836 - 3546										
Blank										
Decane (C10)	ND	0.2	mg/kg wet							
Docosane (C22)	ND	0.2	mg/kg wet							
Dodecane (C12)	ND	0.2	mg/kg wet							
Eicosane (C20)	ND	0.2	mg/kg wet							
Hexacosane (C26)	ND	0.2	mg/kg wet							
Hexadecane (C16)	ND	0.2	mg/kg wet							
Hexatriacontane (C36)	ND	0.2	mg/kg wet							
Nonadecane (C19)	ND	0.2	mg/kg wet							
Nonane (C9)	ND	0.2	mg/kg wet							
Octacosane (C28)	ND	0.2	mg/kg wet							
Octadecane (C18)	ND	0.2	mg/kg wet							
Tetracosane (C24)	ND	0.2	mg/kg wet							
Tetradecane (C14)	ND	0.2	mg/kg wet							
Total Petroleum Hydrocarbons	ND	10.0	mg/kg wet							
Triacontane (C30)	ND	0.2	mg/kg wet							
Surrogate: O-Terphenyl	*4.18*		mg/kg wet	*5.000*		*84*	*40-140*			
LCS										
Decane (C10)	2.4	0.2	mg/kg wet	2.500		94	40-140			
Docosane (C22)	2.5	0.2	mg/kg wet	2.500		98	40-140			
Dodecane (C12)	2.4	0.2	mg/kg wet	2.500		95	40-140			
Eicosane (C20)	2.5	0.2	mg/kg wet	2.500		99	40-140			
Hexacosane (C26)	2.5	0.2	mg/kg wet	2.500		99	40-140			
Hexadecane (C16)	2.4	0.2	mg/kg wet	2.500		98	40-140			
Hexatriacontane (C36)	2.3	0.2	mg/kg wet	2.500		94	40-140			
Nonadecane (C19)	2.5	0.2	mg/kg wet	2.500		100	40-140			
Nonane (C9)	2.0	0.2	mg/kg wet	2.500		79	30-140			
Octacosane (C28)	2.4	0.2	mg/kg wet	2.500		96	40-140			
Octadecane (C18)	2.4	0.2	mg/kg wet	2.500		98	40-140			
Tetracosane (C24)	2.3	0.2	mg/kg wet	2.500		92	40-140			

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604452

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8100M Total Petroleum Hydrocarbons										
Batch CD61836 - 3546										
Tetradecane (C14)	2.5	0.2	mg/kg wet	2.500		98	40-140			
Total Petroleum Hydrocarbons	34.3	10.0	mg/kg wet	35.00		98	40-140			
Triacontane (C30)	2.4	0.2	mg/kg wet	2.500		97	40-140			
Surrogate: O-Terphenyl	*4.96*		mg/kg wet	*5.000*		*99*	*40-140*			
LCS Dup										
Decane (C10)	2.2	0.2	mg/kg wet	2.500		89	40-140	6	25	
Docosane (C22)	2.3	0.2	mg/kg wet	2.500		93	40-140	6	25	
Dodecane (C12)	2.2	0.2	mg/kg wet	2.500		89	40-140	7	25	
Eicosane (C20)	2.3	0.2	mg/kg wet	2.500		93	40-140	6	25	
Hexacosane (C26)	2.3	0.2	mg/kg wet	2.500		93	40-140	5	25	
Hexadecane (C16)	2.3	0.2	mg/kg wet	2.500		91	40-140	7	25	
Hexatriacontane (C36)	2.2	0.2	mg/kg wet	2.500		90	40-140	4	25	
Nonadecane (C19)	2.4	0.2	mg/kg wet	2.500		94	40-140	6	25	
Nonane (C9)	1.9	0.2	mg/kg wet	2.500		75	30-140	5	25	
Octacosane (C28)	2.3	0.2	mg/kg wet	2.500		91	40-140	5	25	
Octadecane (C18)	2.3	0.2	mg/kg wet	2.500		92	40-140	6	25	
Tetracosane (C24)	2.2	0.2	mg/kg wet	2.500		87	40-140	5	25	
Tetradecane (C14)	2.3	0.2	mg/kg wet	2.500		91	40-140	7	25	
Total Petroleum Hydrocarbons	32.2	10.0	mg/kg wet	35.00		92	40-140	6	25	
Triacontane (C30)	2.3	0.2	mg/kg wet	2.500		91	40-140	6	25	
Surrogate: O-Terphenyl	*4.61*		mg/kg wet	*5.000*		*92*	*40-140*			
8270D Semi-Volatile Organic Compounds										
Batch CD61837 - 3546										
Blank										
1,2,4-Trichlorobenzene	ND	0.333	mg/kg wet							
1,2-Dichlorobenzene	ND	0.333	mg/kg wet							
1,3-Dichlorobenzene	ND	0.333	mg/kg wet							
1,4-Dichlorobenzene	ND	0.333	mg/kg wet							
2,4,5-Trichlorophenol	ND	0.333	mg/kg wet							
2,4,6-Trichlorophenol	ND	0.333	mg/kg wet							
2,4-Dichlorophenol	ND	0.333	mg/kg wet							
2,4-Dimethylphenol	ND	0.333	mg/kg wet							
2,4-Dinitrophenol	ND	1.67	mg/kg wet							
2,4-Dinitrotoluene	ND	0.333	mg/kg wet							
2,6-Dinitrotoluene	ND	0.333	mg/kg wet							
2-Chloronaphthalene	ND	0.333	mg/kg wet							
2-Chlorophenol	ND	0.333	mg/kg wet							
2-Methylnaphthalene	ND	0.333	mg/kg wet							
2-Methylphenol	ND	0.333	mg/kg wet							
2-Nitrophenol	ND	0.333	mg/kg wet							
3,3´-Dichlorobenzidine	ND	0.667	mg/kg wet							
3+4-Methylphenol	ND	0.667	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604452

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CD61837 - 3546										
4-Bromophenyl-phenylether	ND	0.333	mg/kg wet							
4-Chloroaniline	ND	0.667	mg/kg wet							
4-Nitrophenol	ND	1.67	mg/kg wet							
Acenaphthene	ND	0.333	mg/kg wet							
Acenaphthylene	ND	0.333	mg/kg wet							
Acetophenone	ND	0.667	mg/kg wet							
Aniline	ND	1.67	mg/kg wet							
Anthracene	ND	0.333	mg/kg wet							
Azobenzene	ND	0.333	mg/kg wet							
Benzo(a)anthracene	ND	0.333	mg/kg wet							
Benzo(a)pyrene	ND	0.167	mg/kg wet							
Benzo(b)fluoranthene	ND	0.333	mg/kg wet							
Benzo(g,h,i)perylene	ND	0.333	mg/kg wet							
Benzo(k)fluoranthene	ND	0.333	mg/kg wet							
bis(2-Chloroethoxy)methane	ND	0.333	mg/kg wet							
bis(2-Chloroethyl)ether	ND	0.333	mg/kg wet							
bis(2-chloroisopropyl)Ether	ND	0.333	mg/kg wet							
bis(2-Ethylhexyl)phthalate	ND	0.333	mg/kg wet							
Butylbenzylphthalate	ND	0.333	mg/kg wet							
Chrysene	ND	0.167	mg/kg wet							
Dibenzo(a,h)Anthracene	ND	0.167	mg/kg wet							
Dibenzofuran	ND	0.333	mg/kg wet							
Diethylphthalate	ND	0.333	mg/kg wet							
Dimethylphthalate	ND	0.333	mg/kg wet							
Di-n-butylphthalate	ND	0.333	mg/kg wet							
Di-n-octylphthalate	ND	0.333	mg/kg wet							
Fluoranthene	ND	0.333	mg/kg wet							
Fluorene	ND	0.333	mg/kg wet							
Hexachlorobenzene	ND	0.333	mg/kg wet							
Hexachlorobutadiene	ND	0.333	mg/kg wet							
Hexachloroethane	ND	0.333	mg/kg wet							
Indeno(1,2,3-cd)Pyrene	ND	0.333	mg/kg wet							
Isophorone	ND	0.333	mg/kg wet							
Naphthalene	ND	0.333	mg/kg wet							
Nitrobenzene	ND	0.333	mg/kg wet							
N-Nitrosodimethylamine	ND	0.333	mg/kg wet							
Pentachlorophenol	ND	1.67	mg/kg wet							
Phenanthrene	ND	0.333	mg/kg wet							
Phenol	ND	0.333	mg/kg wet							
Pyrene	ND	0.333	mg/kg wet							
Surrogate: 1,2-Dichlorobenzene-d4	*2.31*		mg/kg wet	*3.333*		*69*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*2.75*		mg/kg wet	*5.000*		*55*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.55*		mg/kg wet	*5.000*		*71*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.36*		mg/kg wet	*3.333*		*71*	*30-130*			
Surrogate: 2-Fluorophenol	*3.42*		mg/kg wet	*5.000*		*68*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.28*		mg/kg wet	*3.333*		*69*	*30-130*			

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604452

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CD61837 - 3546										
Surrogate: Phenol-d6	*3.62*		mg/kg wet	*5.000*		*72*	*30-130*			
Surrogate: p-Terphenyl-d14	*3.00*		mg/kg wet	*3.333*		*90*	*30-130*			
LCS										
1,2,4-Trichlorobenzene	2.31	0.333	mg/kg wet	3.333		69	40-140			
1,2-Dichlorobenzene	2.17	0.333	mg/kg wet	3.333		65	40-140			
1,3-Dichlorobenzene	2.14	0.333	mg/kg wet	3.333		64	40-140			
1,4-Dichlorobenzene	2.15	0.333	mg/kg wet	3.333		64	40-140			
2,4,5-Trichlorophenol	2.88	0.333	mg/kg wet	3.333		87	30-130			
2,4,6-Trichlorophenol	2.72	0.333	mg/kg wet	3.333		82	30-130			
2,4-Dichlorophenol	2.39	0.333	mg/kg wet	3.333		72	30-130			
2,4-Dimethylphenol	2.39	0.333	mg/kg wet	3.333		72	30-130			
2,4-Dinitrophenol	1.97	1.67	mg/kg wet	3.333		59	30-130			
2,4-Dinitrotoluene	2.93	0.333	mg/kg wet	3.333		88	40-140			
2,6-Dinitrotoluene	2.67	0.333	mg/kg wet	3.333		80	40-140			
2-Chloronaphthalene	2.20	0.333	mg/kg wet	3.333		66	40-140			
2-Chlorophenol	2.21	0.333	mg/kg wet	3.333		66	30-130			
2-Methylnaphthalene	2.13	0.333	mg/kg wet	3.333		64	40-140			
2-Methylphenol	2.26	0.333	mg/kg wet	3.333		68	30-130			
2-Nitrophenol	2.11	0.333	mg/kg wet	3.333		63	30-130			
3,3´-Dichlorobenzidine	2.07	0.667	mg/kg wet	3.333		62	40-140			
3+4-Methylphenol	4.96	0.667	mg/kg wet	6.667		74	30-130			
4-Bromophenyl-phenylether	2.76	0.333	mg/kg wet	3.333		83	40-140			
4-Chloroaniline	2.06	0.667	mg/kg wet	3.333		62	40-140			
4-Nitrophenol	2.60	1.67	mg/kg wet	3.333		78	30-130			
Acenaphthene	2.47	0.333	mg/kg wet	3.333		74	40-140			
Acenaphthylene	2.52	0.333	mg/kg wet	3.333		76	40-140			
Acetophenone	2.27	0.667	mg/kg wet	3.333		68	40-140			
Aniline	1.73	1.67	mg/kg wet	3.333		52	40-140			
Anthracene	2.75	0.333	mg/kg wet	3.333		82	40-140			
Azobenzene	2.54	0.333	mg/kg wet	3.333		76	40-140			
Benzo(a)anthracene	2.77	0.333	mg/kg wet	3.333		83	40-140			
Benzo(a)pyrene	2.88	0.167	mg/kg wet	3.333		86	40-140			
Benzo(b)fluoranthene	2.88	0.333	mg/kg wet	3.333		86	40-140			
Benzo(g,h,i)perylene	2.85	0.333	mg/kg wet	3.333		86	40-140			
Benzo(k)fluoranthene	2.66	0.333	mg/kg wet	3.333		80	40-140			
bis(2-Chloroethoxy)methane	2.24	0.333	mg/kg wet	3.333		67	40-140			
bis(2-Chloroethyl)ether	2.17	0.333	mg/kg wet	3.333		65	40-140			
bis(2-chloroisopropyl)Ether	2.16	0.333	mg/kg wet	3.333		65	40-140			
bis(2-Ethylhexyl)phthalate	3.14	0.333	mg/kg wet	3.333		94	40-140			
Butylbenzylphthalate	2.99	0.333	mg/kg wet	3.333		90	40-140			
Chrysene	2.78	0.167	mg/kg wet	3.333		83	40-140			
Dibenzo(a,h)Anthracene	2.89	0.167	mg/kg wet	3.333		87	40-140			
Dibenzofuran	2.47	0.333	mg/kg wet	3.333		74	40-140			
Diethylphthalate	2.75	0.333	mg/kg wet	3.333		83	40-140			

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604452

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CD61837 - 3546										
Dimethylphthalate	2.70	0.333	mg/kg wet	3.333		81	40-140			
Di-n-butylphthalate	3.01	0.333	mg/kg wet	3.333		90	40-140			
Di-n-octylphthalate	2.67	0.333	mg/kg wet	3.333		80	40-140			
Fluoranthene	2.82	0.333	mg/kg wet	3.333		85	40-140			
Fluorene	2.57	0.333	mg/kg wet	3.333		77	40-140			
Hexachlorobenzene	2.61	0.333	mg/kg wet	3.333		78	40-140			
Hexachlorobutadiene	2.19	0.333	mg/kg wet	3.333		66	40-140			
Hexachloroethane	2.08	0.333	mg/kg wet	3.333		62	40-140			
Indeno(1,2,3-cd)Pyrene	2.89	0.333	mg/kg wet	3.333		87	40-140			
Isophorone	2.20	0.333	mg/kg wet	3.333		66	40-140			
Naphthalene	2.28	0.333	mg/kg wet	3.333		68	40-140			
Nitrobenzene	2.15	0.333	mg/kg wet	3.333		65	40-140			
N-Nitrosodimethylamine	1.77	0.333	mg/kg wet	3.333		53	40-140			
Pentachlorophenol	2.65	1.67	mg/kg wet	3.333		80	30-130			
Phenanthrene	2.65	0.333	mg/kg wet	3.333		80	40-140			
Phenol	2.26	0.333	mg/kg wet	3.333		68	30-130			
Pyrene	2.72	0.333	mg/kg wet	3.333		82	40-140			
Surrogate: 1,2-Dichlorobenzene-d4	*2.21*		mg/kg wet	*3.333*		*66*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*4.17*		mg/kg wet	*5.000*		*83*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.55*		mg/kg wet	*5.000*		*71*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.43*		mg/kg wet	*3.333*		*73*	*30-130*			
Surrogate: 2-Fluorophenol	*3.38*		mg/kg wet	*5.000*		*68*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.27*		mg/kg wet	*3.333*		*68*	*30-130*			
Surrogate: Phenol-d6	*3.60*		mg/kg wet	*5.000*		*72*	*30-130*			
Surrogate: p-Terphenyl-d14	*2.94*		mg/kg wet	*3.333*		*88*	*30-130*			
LCS Dup										
1,2,4-Trichlorobenzene	2.78	0.333	mg/kg wet	3.333		83	40-140	18	30	
1,2-Dichlorobenzene	2.61	0.333	mg/kg wet	3.333		78	40-140	19	30	
1,3-Dichlorobenzene	2.60	0.333	mg/kg wet	3.333		78	40-140	19	30	
1,4-Dichlorobenzene	2.61	0.333	mg/kg wet	3.333		78	40-140	19	30	
2,4,5-Trichlorophenol	3.06	0.333	mg/kg wet	3.333		92	30-130	6	30	
2,4,6-Trichlorophenol	3.11	0.333	mg/kg wet	3.333		93	30-130	13	30	
2,4-Dichlorophenol	2.80	0.333	mg/kg wet	3.333		84	30-130	16	30	
2,4-Dimethylphenol	2.79	0.333	mg/kg wet	3.333		84	30-130	16	30	
2,4-Dinitrophenol	2.21	1.67	mg/kg wet	3.333		66	30-130	11	30	
2,4-Dinitrotoluene	3.15	0.333	mg/kg wet	3.333		95	40-140	7	30	
2,6-Dinitrotoluene	2.86	0.333	mg/kg wet	3.333		86	40-140	7	30	
2-Chloronaphthalene	2.58	0.333	mg/kg wet	3.333		77	40-140	16	30	
2-Chlorophenol	2.60	0.333	mg/kg wet	3.333		78	30-130	16	30	
2-Methylnaphthalene	2.53	0.333	mg/kg wet	3.333		76	40-140	17	30	
2-Methylphenol	2.58	0.333	mg/kg wet	3.333		78	30-130	14	30	
2-Nitrophenol	2.56	0.333	mg/kg wet	3.333		77	30-130	19	30	
3,3´-Dichlorobenzidine	2.08	0.667	mg/kg wet	3.333		62	40-140	0.1	30	
3+4-Methylphenol	5.57	0.667	mg/kg wet	6.667		84	30-130	11	30	
4-Bromophenyl-phenylether	2.90	0.333	mg/kg wet	3.333		87	40-140	5	30	

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604452

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CD61837 - 3546										
4-Chloroaniline	2.35	0.667	mg/kg wet	3.333		71	40-140	13	30	
4-Nitrophenol	2.83	1.67	mg/kg wet	3.333		85	30-130	9	30	
Acenaphthene	2.78	0.333	mg/kg wet	3.333		83	40-140	12	30	
Acenaphthylene	2.84	0.333	mg/kg wet	3.333		85	40-140	12	30	
Acetophenone	2.64	0.667	mg/kg wet	3.333		79	40-140	15	30	
Aniline	1.98	1.67	mg/kg wet	3.333		59	40-140	14	30	
Anthracene	2.87	0.333	mg/kg wet	3.333		86	40-140	4	30	
Azobenzene	2.68	0.333	mg/kg wet	3.333		80	40-140	5	30	
Benzo(a)anthracene	2.85	0.333	mg/kg wet	3.333		86	40-140	3	30	
Benzo(a)pyrene	2.99	0.167	mg/kg wet	3.333		90	40-140	4	30	
Benzo(b)fluoranthene	2.85	0.333	mg/kg wet	3.333		86	40-140	1	30	
Benzo(g,h,i)perylene	2.97	0.333	mg/kg wet	3.333		89	40-140	4	30	
Benzo(k)fluoranthene	3.00	0.333	mg/kg wet	3.333		90	40-140	12	30	
bis(2-Chloroethoxy)methane	2.66	0.333	mg/kg wet	3.333		80	40-140	17	30	
bis(2-Chloroethyl)ether	2.61	0.333	mg/kg wet	3.333		78	40-140	18	30	
bis(2-chloroisopropyl)Ether	2.54	0.333	mg/kg wet	3.333		76	40-140	16	30	
bis(2-Ethylhexyl)phthalate	3.19	0.333	mg/kg wet	3.333		96	40-140	1	30	
Butylbenzylphthalate	3.04	0.333	mg/kg wet	3.333		91	40-140	1	30	
Chrysene	2.85	0.167	mg/kg wet	3.333		86	40-140	3	30	
Dibenzo(a,h)Anthracene	3.00	0.167	mg/kg wet	3.333		90	40-140	4	30	
Dibenzofuran	2.74	0.333	mg/kg wet	3.333		82	40-140	10	30	
Diethylphthalate	2.95	0.333	mg/kg wet	3.333		89	40-140	7	30	
Dimethylphthalate	2.89	0.333	mg/kg wet	3.333		87	40-140	7	30	
Di-n-butylphthalate	3.14	0.333	mg/kg wet	3.333		94	40-140	4	30	
Di-n-octylphthalate	2.84	0.333	mg/kg wet	3.333		85	40-140	6	30	
Fluoranthene	2.97	0.333	mg/kg wet	3.333		89	40-140	5	30	
Fluorene	2.81	0.333	mg/kg wet	3.333		84	40-140	9	30	
Hexachlorobenzene	2.72	0.333	mg/kg wet	3.333		81	40-140	4	30	
Hexachlorobutadiene	2.74	0.333	mg/kg wet	3.333		82	40-140	22	30	
Hexachloroethane	2.55	0.333	mg/kg wet	3.333		76	40-140	20	30	
Indeno(1,2,3-cd)Pyrene	3.01	0.333	mg/kg wet	3.333		90	40-140	4	30	
Isophorone	2.58	0.333	mg/kg wet	3.333		77	40-140	16	30	
Naphthalene	2.75	0.333	mg/kg wet	3.333		82	40-140	19	30	
Nitrobenzene	2.60	0.333	mg/kg wet	3.333		78	40-140	19	30	
N-Nitrosodimethylamine	2.08	0.333	mg/kg wet	3.333		62	40-140	16	30	
Pentachlorophenol	2.84	1.67	mg/kg wet	3.333		85	30-130	7	30	
Phenanthrene	2.80	0.333	mg/kg wet	3.333		84	40-140	5	30	
Phenol	2.59	0.333	mg/kg wet	3.333		78	30-130	14	30	
Pyrene	2.77	0.333	mg/kg wet	3.333		83	40-140	2	30	
Surrogate: 1,2-Dichlorobenzene-d4	*2.58*		mg/kg wet	*3.333*		*77*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*4.26*		mg/kg wet	*5.000*		*85*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*4.01*		mg/kg wet	*5.000*		*80*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.74*		mg/kg wet	*3.333*		*82*	*30-130*			
Surrogate: 2-Fluorophenol	*3.91*		mg/kg wet	*5.000*		*78*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.66*		mg/kg wet	*3.333*		*80*	*30-130*			
Surrogate: Phenol-d6	*3.99*		mg/kg wet	*5.000*		*80*	*30-130*			

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604452

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CD61837 - 3546										
Surrogate: p-Terphenyl-d14	*2.88*		mg/kg wet	*3.333*		*86*	*30-130*			
Classical Chemistry										
Batch CD61844 - General Preparation										
Reference										
Flashpoint	81		°F	81.00		100	97.9-102.1			
Batch CD61917 - General Preparation										
Blank										
Reactive Cyanide	ND	2.0	mg/kg							
Reactive Sulfide	ND	2.0	mg/kg							
LCS										
Reactive Cyanide	4.0	2.0	mg/kg	100.3		4	0.68-5.41			
Reactive Sulfide	0.2	2.0	mg/kg	10.00		2	0-44			
Batch CD61933 - General Preparation										
Blank										
Conductivity	ND	5	umhos/cm							
LCS										
Conductivity	1410		umhos/cm	1411		100	90-110			

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292 ESS Laboratory Work Order: 1604452

Notes and Definitions

Z-10	Soil pH measured in water at 20.4 ºC.
WL	Results obtained from a deionized water leach of the sample.
U	Analyte included in the analysis, but not detected
Q	Calibration required quadratic regression (Q).
D	Diluted.
CD-	Continuing Calibration %Diff/Drift is below control limit (CD-).
>	Greater than.
ND	Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DL	Detection Limit
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
NR	No Recovery
[CALC]	Calculated Analyte
SUB	Subcontracted analysis; see attached report

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604452

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179
http://www.health.ri.gov/find/labs/analytical/ESS.pdf

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002
http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/documents/AllLabs.xls

Massachusetts Potable and Non Potable Water: M-RI002
http://public.dep.state.ma.us/Labcert/Labcert.aspx

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424
http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313
http://www.wadsworth.org/labcert/elap/comm.html

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006
http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752
http://www.depweb.state.pa.us/portal/server.pt/community/labs/13780/laboratory_accreditation_program/590095

ESS Laboratory Sample and Cooler Receipt Checklist

Client: Tighe & Bond - KPB/TB/MM

Shipped/Delivered Via: ESS Courier

ESS Project ID: 1604452
Date Received: 4/15/2016
Project Due Date: 4/22/2016
Days for Project: 5 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 2.2 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** Yes / No / NA
10. Were any analyses received outside of hold time? Yes / No

11. Any Subcontracting needed? Yes / No
    ESS Sample IDs:
    Analysis:
    TAT:
12. Were VOAs received? Yes / No
    a. Air bubbles in aqueous VOAs? Yes / No
    b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
    a. If metals preserved upon receipt: Date: Time: By:
    b. Low Level VOAs brought to freezer: Date: Time: By:

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / No
    a. Was there a need to contact the client? Yes / No
    Who was contacted? Date: Time: By:

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	27163	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
01	27164	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
01	27166	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
01	27168	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
02	27161	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
02	27162	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	27165	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	27167	Yes	NA	Yes	VOA Vial - Methanol	MeOH	

2nd Review
Are barcode labels on correct containers? Yes / No

Completed By: Date & Time: 4/15/16 1849
Reviewed By: Date & Time: 4/15/16 1854

ESS Laboratory

Division of Thielsch Engineering, Inc.
185 Frances Avenue, Cranston, RI 02910-2211
Tel. (401) 461-7181 Fax (401) 461-4486
www.esslaboratory.com

CHAIN OF CUSTODY

Page 1 of 1

Turn Time: X Standard Other ____
If faster than 5 days, prior approval by laboratory is required # ____
State where samples were collected from: MA RI CT NH NJ NY ME Other ____
Is this project for any of the following: MA-MCP* Navy USACE Other ____

Reporting Limits: RCS-1

ESS LAB PROJECT ID: 1604452

Electronic Deliverable: ✓ Yes ___ No

Format: Excel, PDF

Co. Name	Project #	Project Name (20 Char. or less)
Tighe + Bond	N1023-035	Station 292

Contact Person: Michael Martin
Address: 4 Barlows Landing
City: Pocasset State: MA Zip: 02859 PO#:
Telephone #: Fax #: Email Address: MEMartin@tighebond.com

Circle and/or Write Required Analysis

ESS LAB Sample#	Date	Collection Time	COMP	GRAB	MATRIX	Sample Identification (20 Char. or less)	Number of Containers	Type of Containers	8260 624 524.2	8021 MTBE/BTEX 8015 GRO VPH	8100 TPH 8015 DRO EPH No Targets	8081 Pesticides 8082 PCB 608 Pesticides 608 PCB	8270 625 PAH only	RCRA5 RCRA8 PP13 TAL23	TCLP8 MCP MCPw/Hg NBC7	PH, conductivity	Reactive cyanide, sulfide	ignitability	ORP	Flashpoint		
1	4/15/16	8:40	X		S	Disp-4	A4/V	4	X		X		X	X		X	X	X	X	X		
2	4/15/16	11:20	X		S	Disp-5	A6/V	4	X		X		X	X		X	X	X	X	X		

Container Type: P-Poly G-Glass S-Sterile V-VOA
Matrix: S-Soil SD-Solid D-Sludge WW-Waste Water GW-Ground Water SW-Surface Water DW-Drinking Water O-Oil W-Wipes F-Filters

Cooler Present ___ Yes ✓ No
Seals Intact ___ Yes ___ No NA: X
Cooler Temp: 2.2 ICE

Internal Use Only
[✓] Pickup
[ ] Technicians ____

Comments: Run TCLP if exceeds 20x

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
[signature]	4/15/16	[signature]	4-15 11:20	[signature]	4-15 17:34	[signature]	4/15/16 1829
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time

*MADEP requires that all additional calibrated analytes found during analysis be disclosed.

Please fax all changes to Chain of Custody in writing.

1 (White) Lab Copy 2 (Yellow) Client Receipt

CERTIFICATE OF ANALYSIS

Michael Martin
Tighe & Bond
4 Barlows Landing Road, Unit 15
Pocasset, MA 02559

RE: Station 292 (N-1023-056)
ESS Laboratory Work Order Number: 1604486

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED
By ESS Laboratory at 12:42 pm, Apr 26, 2016

Analytical Summary
The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with NELAC Standards, A2LA and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604486

SAMPLE RECEIPT

The following samples were received on April 18, 2016 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has performed and reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Data Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

Question I: All samples for Metals and EPH were analyzed for a subset of the required MCP list per the client's request.

TCLP analyzed at reduced volume per client request.

Lab Number	Sample Name	Matrix	Analysis
1604486-01	Disp-7	Soil	1010, 2580, 6010C, 7.3.3.2, 7.3.4.1, 7010, 7471B, 8100M, 8260B, 8270D, 9045, 9050A
1604486-02	Disp-8A 0-4ft	Soil	1010, 2580, 6010C, 7.3.3.2, 7.3.4.1, 7010, 7471B, 8100M, 8260B, 8270D, 9045, 9050A
1604486-03	Disp-8A 5-7ft	Soil	1010, 2580, 6010C, 7.3.3.2, 7.3.4.1, 7010, 7471B, 8100M, 8260B, 8270D, 9045, 9050A
1604486-04	Disp-8B 0-4ft	Soil	1010, 1311, 1311/6010C, 2580, 6010C, 7.3.3.2, 7.3.4.1, 7010, 7471B, 8100M, 8260B, 8270D, 9045, 9050A
1604486-05	Disp-8B 5-7	Soil	1010, 2580, 6010C, 7.3.3.2, 7.3.4.1, 7010, 7471B, 8100M, 8260B, 8270D, 9045, 9050A
1604486-06	Disp-6	Soil	1010, 2580, 6010C, 7.3.3.2, 7.3.4.1, 7010, 7471B, 8100M, 8260B, 8270D, 9045, 9050A

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604486

PROJECT NARRATIVE

5035/8260B Volatile Organic Compounds / Methanol

1604486-06 **Surrogate recovery(ies) above upper control limit (S+).**
Toluene-d8 (133% @ 70-130%)

CD62038-BS1 **Blank Spike recovery is above upper control limit (B+).**
Methylene Chloride (132% @ 70-130%)

CD62038-BS1 **Blank Spike recovery is below lower control limit (B-).**
Diethyl Ether (69% @ 70-130%)

CD62038-BSD1 **Relative percent difference for duplicate is outside of criteria (D+).**
1,1-Dichloroethene (44% @ 25%), Methylene Chloride (47% @ 25%)

CZD0332-CCV1 **Continuing Calibration %Diff/Drift is below control limit (CD-).**
Diethyl Ether (32% @ 30%)

8100M Total Petroleum Hydrocarbons

CZD0266-CCV3 **Continuing Calibration %Diff/Drift is below control limit (CD-).**
Hexatriacontane (C36) (56% @ 25%)

CZD0320-CCV2 **Continuing Calibration %Diff/Drift is below control limit (CD-).**
Hexatriacontane (C36) (26% @ 25%)

8270D Semi-Volatile Organic Compounds

CZD0270-CCV1 **Calibration required quadratic regression (Q).**
2,4-Dinitrophenol (87% @ 80-120%)

CZD0298-CCV1 **Calibration required quadratic regression (Q).**
2,4-Dinitrophenol (99% @ 80-120%)

CZD0299-CCV1 **Calibration required quadratic regression (Q).**
2,4-Dinitrophenol (108% @ 80-120%)

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

Definitions of Quality Control Parameters

Semivolatile Organics Internal Standard Information

Semivolatile Organics Surrogate Information

Volatile Organics Internal Standard Information

Volatile Organics Surrogate Information

EPH and VPH Alkane Lists

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604486

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

1010A - Flashpoint
6010C - ICP
6020A - ICP MS
7010 - Graphite Furnace
7196A - Hexavalent Chromium
7470A - Aqueous Mercury
7471B - Solid Mercury
8011 - EDB/DBCP/TCP
8015D - GRO/DRO
8081B - Pesticides
8082A - PCB
8100M - TPH
8151A - Herbicides
8260B - VOA
8270D - SVOA
8270D SIM - SVOA Low Level
9014 - Cyanide
9038 - Sulfate
9040C - Aqueous pH
9045D - Solid pH (Corrosivity)
9050A - Specific Conductance
9056A - Anions (IC)
9060A - TOC
9095B - Paint Filter
MADEP 04-1.1 - EPH / VPH

Prep Methods

3005A - Aqueous ICP Digestion
3020A - Aqueous Graphite Furnace / ICP MS Digestion
3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
3060A - Solid Hexavalent Chromium Digestion
3510C - Separatory Funnel Extraction
3520C - Liquid / Liquid Extraction
3540C - Manual Soxhlet Extraction
3541 - Automated Soxhlet Extraction
3546 - Microwave Extraction
3580A - Waste Dilution
5030B - Aqueous Purge and Trap
5030C - Aqueous Purge and Trap
5035 - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604486

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **1604486-01 through 1604486-06**

Matrices: ( ) Ground Water/Surface Water (X) Soil/Sediment ( ) Drinking Water ( ) Air ( ) Other:_____

CAM Protocol (check all that apply below):

(X) 8260 VOC CAM II A	(X) 7470/7471 Hg CAM III B	( ) MassDEP VPH CAM IV A	( ) 8081 Pesticides CAM V B	( ) 7196 Hex Cr CAM VI B	( ) MassDEP APH CAM IX A
(X) 8270 SVOC CAM II B	(X) 7010 Metals CAM III C	(X) MassDEP EPH CAM IV B	( ) 8151 Herbicides CAM V C	( ) 8330 Explosives CAM VIII A	( ) TO-15 VOC CAM IX B
(X) 6010 Metals CAM III A	( ) 6020 Metals CAM III D	( ) 8082 PCB CAM V A	( ) 6860 Perchlorate CAM VIII B	( ) 9014 Total Cyanide/PAC CAM VI A	

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	Yes (X) No ( )
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	Yes (X) No ( )
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	Yes (X) No ( )
D	Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	Yes (X) No ( )
E	a. VPH, EPH, APH and TO-15 only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	Yes (X) No ( )
	b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	Yes ( ) No ( )
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	Yes (X) No ( )

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)?	Yes (X) No ( )*
	Data User Note: ***Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.***	
H	Were **all** QC performance standards specified in the CAM protocol(s) achieved?	Yes ( ) No (X)*
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	Yes ( ) No (X)*

****All negative responses must be addressed in an attached laboratory narrative.***

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Laurel Stoddard
Date: April 26, 2016
Printed Name: Laurel Stoddard
Position: Laboratory Director

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-7
Date Sampled: 04/18/16 13:45
Percent Solids: 91

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-01
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Arsenic	**10.3** (2.65)		6010C		1	JP	04/20/16 23:06	2.07	100	CD62002
Barium	**36.2** (2.65)		6010C		1	JP	04/20/16 23:06	2.07	100	CD62002
Cadmium	ND (0.53)		6010C		1	JP	04/20/16 23:06	2.07	100	CD62002
Chromium	**9.84** (1.06)		6010C		1	JP	04/20/16 23:06	2.07	100	CD62002
Lead	**42.9** (5.29)		6010C		1	JP	04/20/16 23:06	2.07	100	CD62002
Mercury	**0.155** (0.033)		7471B		1	BJV	04/20/16 17:03	0.65	40	CD62006
Selenium	ND (2.65)		7010		5	JP	04/21/16 8:13	2.07	100	CD62002
Silver	ND (0.53)		6010C		1	JP	04/20/16 23:06	2.07	100	CD62002

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-7
Date Sampled: 04/18/16 13:45
Percent Solids: 91
Initial Volume: 24.9
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1,1,2-Tetrachloroethane	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
1,1,1-Trichloroethane	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
1,1,2,2-Tetrachloroethane	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
1,1,2-Trichloroethane	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
1,1-Dichloroethane	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
1,1-Dichloroethene	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
1,1-Dichloropropene	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
1,2,3-Trichlorobenzene	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
1,2,3-Trichloropropane	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
1,2,4-Trichlorobenzene	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
1,2,4-Trimethylbenzene	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
1,2-Dibromo-3-Chloropropane	ND (0.756)		8260B		1	04/20/16 18:07	CZD0332	CD62038
1,2-Dibromoethane	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
1,2-Dichlorobenzene	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
1,2-Dichloroethane	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
1,2-Dichloropropane	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
1,3,5-Trimethylbenzene	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
1,3-Dichlorobenzene	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
1,3-Dichloropropane	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
1,4-Dichlorobenzene	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
1,4-Dioxane - Screen	ND (30.2)		8260B		1	04/20/16 18:07	CZD0332	CD62038
2,2-Dichloropropane	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
2-Butanone	ND (0.756)		8260B		1	04/20/16 18:07	CZD0332	CD62038
2-Chlorotoluene	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
2-Hexanone	ND (0.756)		8260B		1	04/20/16 18:07	CZD0332	CD62038
4-Chlorotoluene	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
4-Isopropyltoluene	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
4-Methyl-2-Pentanone	ND (0.756)		8260B		1	04/20/16 18:07	CZD0332	CD62038
Acetone	ND (0.756)		8260B		1	04/20/16 18:07	CZD0332	CD62038
Benzene	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
Bromobenzene	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
Bromochloromethane	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-7
Date Sampled: 04/18/16 13:45
Percent Solids: 91
Initial Volume: 24.9
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Bromodichloromethane	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
Bromoform	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
Bromomethane	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
Carbon Disulfide	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
Carbon Tetrachloride	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
Chlorobenzene	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
Chloroethane	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
Chloroform	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
Chloromethane	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
cis-1,2-Dichloroethene	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
cis-1,3-Dichloropropene	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
Dibromochloromethane	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
Dibromomethane	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
Dichlorodifluoromethane	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
Diethyl Ether	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
Di-isopropyl ether	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
Ethyl tertiary-butyl ether	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
Ethylbenzene	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
Hexachlorobutadiene	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
Isopropylbenzene	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
Methyl tert-Butyl Ether	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
Methylene Chloride	ND (0.302)		8260B		1	04/20/16 18:07	CZD0332	CD62038
Naphthalene	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
n-Butylbenzene	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
n-Propylbenzene	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
sec-Butylbenzene	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
Styrene	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
tert-Butylbenzene	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
Tertiary-amyl methyl ether	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
Tetrachloroethene	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
Tetrahydrofuran	ND (0.756)		8260B		1	04/20/16 18:07	CZD0332	CD62038
Toluene	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-7
Date Sampled: 04/18/16 13:45
Percent Solids: 91
Initial Volume: 24.9
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
trans-1,2-Dichloroethene	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
trans-1,3-Dichloropropene	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
Trichloroethene	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
Trichlorofluoromethane	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
Vinyl Chloride	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
Xylene O	ND (0.151)		8260B		1	04/20/16 18:07	CZD0332	CD62038
Xylene P,M	ND (0.302)		8260B		1	04/20/16 18:07	CZD0332	CD62038
Xylenes (Total)	ND (0.302)		8260B		1	04/20/16 18:07		[CALC]

	%Recovery	*Qualifier*	*Limits*
Surrogate: 1,2-Dichloroethane-d4	*74 %*		*70-130*
Surrogate: 4-Bromofluorobenzene	*118 %*		*70-130*
Surrogate: Dibromofluoromethane	*97 %*		*70-130*
Surrogate: Toluene-d8	*98 %*		*70-130*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-7
Date Sampled: 04/18/16 13:45
Percent Solids: 91
Initial Volume: 19.5
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DPS
Prepared: 4/19/16 12:05

8100M Total Petroleum Hydrocarbons

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Total Petroleum Hydrocarbons	**67.0** (11.2)		8100M		1	04/20/16 3:04	CZD0318	CD61836

	%Recovery	Qualifier	Limits
Surrogate: O-Terphenyl	*102 %*		*40-140*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-7
Date Sampled: 04/18/16 13:45
Percent Solids: 91
Initial Volume: 14.7
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: IBM
Prepared: 4/19/16 12:05

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,2,4-Trichlorobenzene	ND (0.372)		8270D		1	04/19/16 15:56	CZD0298	CD61837
1,2-Dichlorobenzene	ND (0.372)		8270D		1	04/19/16 15:56	CZD0298	CD61837
1,3-Dichlorobenzene	ND (0.372)		8270D		1	04/19/16 15:56	CZD0298	CD61837
1,4-Dichlorobenzene	ND (0.372)		8270D		1	04/19/16 15:56	CZD0298	CD61837
2,4,5-Trichlorophenol	ND (0.372)		8270D		1	04/19/16 15:56	CZD0298	CD61837
2,4,6-Trichlorophenol	ND (0.372)		8270D		1	04/19/16 15:56	CZD0298	CD61837
2,4-Dichlorophenol	ND (0.372)		8270D		1	04/19/16 15:56	CZD0298	CD61837
2,4-Dimethylphenol	ND (0.372)		8270D		1	04/19/16 15:56	CZD0298	CD61837
2,4-Dinitrophenol	ND (1.87)		8270D		1	04/19/16 15:56	CZD0298	CD61837
2,4-Dinitrotoluene	ND (0.372)		8270D		1	04/19/16 15:56	CZD0298	CD61837
2,6-Dinitrotoluene	ND (0.372)		8270D		1	04/19/16 15:56	CZD0298	CD61837
2-Chloronaphthalene	ND (0.372)		8270D		1	04/19/16 15:56	CZD0298	CD61837
2-Chlorophenol	ND (0.372)		8270D		1	04/19/16 15:56	CZD0298	CD61837
2-Methylnaphthalene	ND (0.372)		8270D		1	04/19/16 15:56	CZD0298	CD61837
2-Methylphenol	ND (0.372)		8270D		1	04/19/16 15:56	CZD0298	CD61837
2-Nitrophenol	ND (0.372)		8270D		1	04/19/16 15:56	CZD0298	CD61837
3,3´-Dichlorobenzidine	ND (0.746)		8270D		1	04/19/16 15:56	CZD0298	CD61837
3+4-Methylphenol	ND (0.746)		8270D		1	04/19/16 15:56	CZD0298	CD61837
4-Bromophenyl-phenylether	ND (0.372)		8270D		1	04/19/16 15:56	CZD0298	CD61837
4-Chloroaniline	ND (0.746)		8270D		1	04/19/16 15:56	CZD0298	CD61837
4-Nitrophenol	ND (1.87)		8270D		1	04/19/16 15:56	CZD0298	CD61837
Acenaphthene	ND (0.372)		8270D		1	04/19/16 15:56	CZD0298	CD61837
Acenaphthylene	ND (0.372)		8270D		1	04/19/16 15:56	CZD0298	CD61837
Acetophenone	ND (0.746)		8270D		1	04/19/16 15:56	CZD0298	CD61837
Aniline	ND (1.87)		8270D		1	04/19/16 15:56	CZD0298	CD61837
Anthracene	ND (0.372)		8270D		1	04/19/16 15:56	CZD0298	CD61837
Azobenzene	ND (0.372)		8270D		1	04/19/16 15:56	CZD0298	CD61837
Benzo(a)anthracene	**0.767** (0.372)		8270D		1	04/19/16 15:56	CZD0298	CD61837
Benzo(a)pyrene	**0.610** (0.187)		8270D		1	04/19/16 15:56	CZD0298	CD61837
Benzo(b)fluoranthene	**0.686** (0.372)		8270D		1	04/19/16 15:56	CZD0298	CD61837
Benzo(g,h,i)perylene	ND (0.372)		8270D		1	04/19/16 15:56	CZD0298	CD61837
Benzo(k)fluoranthene	ND (0.372)		8270D		1	04/19/16 15:56	CZD0298	CD61837

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-7
Date Sampled: 04/18/16 13:45
Percent Solids: 91
Initial Volume: 14.7
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: IBM
Prepared: 4/19/16 12:05

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
bis(2-Chloroethoxy)methane	ND (0.372)		8270D		1	04/19/16 15:56	CZD0298	CD61837
bis(2-Chloroethyl)ether	ND (0.372)		8270D		1	04/19/16 15:56	CZD0298	CD61837
bis(2-chloroisopropyl)Ether	ND (0.372)		8270D		1	04/19/16 15:56	CZD0298	CD61837
bis(2-Ethylhexyl)phthalate	ND (0.372)		8270D		1	04/19/16 15:56	CZD0298	CD61837
Butylbenzylphthalate	ND (0.372)		8270D		1	04/19/16 15:56	CZD0298	CD61837
Chrysene	**0.752** (0.187)		8270D		1	04/19/16 15:56	CZD0298	CD61837
Dibenzo(a,h)Anthracene	ND (0.187)		8270D		1	04/19/16 15:56	CZD0298	CD61837
Dibenzofuran	ND (0.372)		8270D		1	04/19/16 15:56	CZD0298	CD61837
Diethylphthalate	ND (0.372)		8270D		1	04/19/16 15:56	CZD0298	CD61837
Dimethylphthalate	ND (0.372)		8270D		1	04/19/16 15:56	CZD0298	CD61837
Di-n-butylphthalate	ND (0.372)		8270D		1	04/19/16 15:56	CZD0298	CD61837
Di-n-octylphthalate	ND (0.372)		8270D		1	04/19/16 15:56	CZD0298	CD61837
Fluoranthene	**1.29** (0.372)		8270D		1	04/19/16 15:56	CZD0298	CD61837
Fluorene	ND (0.372)		8270D		1	04/19/16 15:56	CZD0298	CD61837
Hexachlorobenzene	ND (0.372)		8270D		1	04/19/16 15:56	CZD0298	CD61837
Hexachlorobutadiene	ND (0.372)		8270D		1	04/19/16 15:56	CZD0298	CD61837
Hexachloroethane	ND (0.372)		8270D		1	04/19/16 15:56	CZD0298	CD61837
Indeno(1,2,3-cd)Pyrene	ND (0.372)		8270D		1	04/19/16 15:56	CZD0298	CD61837
Isophorone	ND (0.372)		8270D		1	04/19/16 15:56	CZD0298	CD61837
Naphthalene	ND (0.372)		8270D		1	04/19/16 15:56	CZD0298	CD61837
Nitrobenzene	ND (0.372)		8270D		1	04/19/16 15:56	CZD0298	CD61837
N-Nitrosodimethylamine	ND (0.372)		8270D		1	04/19/16 15:56	CZD0298	CD61837
Pentachlorophenol	ND (1.87)		8270D		1	04/19/16 15:56	CZD0298	CD61837
Phenanthrene	ND (0.372)		8270D		1	04/19/16 15:56	CZD0298	CD61837
Phenol	ND (0.372)		8270D		1	04/19/16 15:56	CZD0298	CD61837
Pyrene	**1.15** (0.372)		8270D		1	04/19/16 15:56	CZD0298	CD61837

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichlorobenzene-d4	*68 %*		*30-130*
Surrogate: 2,4,6-Tribromophenol	*86 %*		*30-130*
Surrogate: 2-Chlorophenol-d4	*77 %*		*30-130*
Surrogate: 2-Fluorobiphenyl	*80 %*		*30-130*
Surrogate: 2-Fluorophenol	*72 %*		*30-130*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-7
Date Sampled: 04/18/16 13:45
Percent Solids: 91
Initial Volume: 14.7
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: IBM
Prepared: 4/19/16 12:05

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Surrogate: Nitrobenzene-d5		*73 %*		*30-130*				
Surrogate: Phenol-d6		*79 %*		*30-130*				
Surrogate: p-Terphenyl-d14		*92 %*		*30-130*				

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-7
Date Sampled: 04/18/16 13:45
Percent Solids: 91

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-01
Sample Matrix: Soil

Classical Chemistry

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	Units	Batch
Conductivity	**WL 55** (5)		9050A		1	JLK	04/19/16 17:06	umhos/cm	CD61933
Corrosivity (pH)	**7.36** (N/A)		9045		1	JLK	04/18/16 21:01	S.U.	CD61852
Corrosivity (pH) Sample Temp	**Soil pH measured in water at 20.3 ºC.**								
Eh (ORP)	**WL 378** (N/A)		2580		1	JLK	04/18/16 21:01	mv	CD61853
Flashpoint	**> 200** (N/A)		1010		1	CRR	04/20/16 14:22	°F	CD62035
Reactive Cyanide	ND (2.0)		7.3.3.2		1	MJV	04/21/16 7:30	mg/kg	CD62101
Reactive Sulfide	ND (2.0)		7.3.4.1		1	MJV	04/21/16 7:30	mg/kg	CD62101

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-8A 0-4ft
Date Sampled: 04/18/16 10:00
Percent Solids: 92

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-02
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Arsenic	**13.0** (2.65)		6010C		1	JP	04/20/16 23:10	2.05	100	CD62002
Barium	**32.7** (2.65)		6010C		1	JP	04/20/16 23:10	2.05	100	CD62002
Cadmium	ND (0.53)		6010C		1	JP	04/20/16 23:10	2.05	100	CD62002
Chromium	**10.1** (1.06)		6010C		1	JP	04/20/16 23:10	2.05	100	CD62002
Lead	**26.9** (5.31)		6010C		1	JP	04/20/16 23:10	2.05	100	CD62002
Mercury	**0.087** (0.032)		7471B		1	BJV	04/20/16 17:05	0.68	40	CD62006
Selenium	ND (2.65)		7010		5	JP	04/21/16 8:29	2.05	100	CD62002
Silver	ND (0.53)		6010C		1	JP	04/20/16 23:10	2.05	100	CD62002

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-8A 0-4ft
Date Sampled: 04/18/16 10:00
Percent Solids: 92
Initial Volume: 7.6
Final Volume: 5
Extraction Method: 5035

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1,1,2-Tetrachloroethane	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
1,1,1-Trichloroethane	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
1,1,2,2-Tetrachloroethane	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
1,1,2-Trichloroethane	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
1,1-Dichloroethane	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
1,1-Dichloroethene	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
1,1-Dichloropropene	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
1,2,3-Trichlorobenzene	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
1,2,3-Trichloropropane	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
1,2,4-Trichlorobenzene	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
1,2,4-Trimethylbenzene	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
1,2-Dibromo-3-Chloropropane	ND (0.804)		8260B		1	04/20/16 18:33	CZD0332	CD62038
1,2-Dibromoethane	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
1,2-Dichlorobenzene	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
1,2-Dichloroethane	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
1,2-Dichloropropane	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
1,3,5-Trimethylbenzene	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
1,3-Dichlorobenzene	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
1,3-Dichloropropane	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
1,4-Dichlorobenzene	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
1,4-Dioxane - Screen	ND (32.2)		8260B		1	04/20/16 18:33	CZD0332	CD62038
2,2-Dichloropropane	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
2-Butanone	ND (0.804)		8260B		1	04/20/16 18:33	CZD0332	CD62038
2-Chlorotoluene	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
2-Hexanone	ND (0.804)		8260B		1	04/20/16 18:33	CZD0332	CD62038
4-Chlorotoluene	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
4-Isopropyltoluene	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
4-Methyl-2-Pentanone	ND (0.804)		8260B		1	04/20/16 18:33	CZD0332	CD62038
Acetone	ND (0.804)		8260B		1	04/20/16 18:33	CZD0332	CD62038
Benzene	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
Bromobenzene	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
Bromochloromethane	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-8A 0-4ft
Date Sampled: 04/18/16 10:00
Percent Solids: 92
Initial Volume: 7.6
Final Volume: 5
Extraction Method: 5035

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Bromodichloromethane	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
Bromoform	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
Bromomethane	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
Carbon Disulfide	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
Carbon Tetrachloride	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
Chlorobenzene	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
Chloroethane	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
Chloroform	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
Chloromethane	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
cis-1,2-Dichloroethene	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
cis-1,3-Dichloropropene	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
Dibromochloromethane	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
Dibromomethane	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
Dichlorodifluoromethane	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
Diethyl Ether	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
Di-isopropyl ether	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
Ethyl tertiary-butyl ether	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
Ethylbenzene	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
Hexachlorobutadiene	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
Isopropylbenzene	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
Methyl tert-Butyl Ether	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
Methylene Chloride	ND (0.322)		8260B		1	04/20/16 18:33	CZD0332	CD62038
Naphthalene	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
n-Butylbenzene	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
n-Propylbenzene	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
sec-Butylbenzene	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
Styrene	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
tert-Butylbenzene	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
Tertiary-amyl methyl ether	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
Tetrachloroethene	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
Tetrahydrofuran	ND (0.804)		8260B		1	04/20/16 18:33	CZD0332	CD62038
Toluene	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-8A 0-4ft
Date Sampled: 04/18/16 10:00
Percent Solids: 92
Initial Volume: 7.6
Final Volume: 5
Extraction Method: 5035

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
trans-1,2-Dichloroethene	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
trans-1,3-Dichloropropene	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
Trichloroethene	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
Trichlorofluoromethane	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
Vinyl Chloride	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
Xylene O	ND (0.161)		8260B		1	04/20/16 18:33	CZD0332	CD62038
Xylene P,M	ND (0.322)		8260B		1	04/20/16 18:33	CZD0332	CD62038
Xylenes (Total)	ND (0.322)		8260B		1	04/20/16 18:33		[CALC]

	%Recovery	*Qualifier*	*Limits*
Surrogate: 1,2-Dichloroethane-d4	*94 %*		*70-130*
Surrogate: 4-Bromofluorobenzene	*111 %*		*70-130*
Surrogate: Dibromofluoromethane	*103 %*		*70-130*
Surrogate: Toluene-d8	*103 %*		*70-130*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-8A 0-4ft
Date Sampled: 04/18/16 10:00
Percent Solids: 92
Initial Volume: 19.1
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DPS
Prepared: 4/19/16 12:05

8100M Total Petroleum Hydrocarbons

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Total Petroleum Hydrocarbons	**44.0** (11.4)		8100M		1	04/20/16 3:43	CZD0318	CD61836

	%Recovery	Qualifier	Limits
Surrogate: O-Terphenyl	*96 %*		*40-140*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-8A 0-4ft
Date Sampled: 04/18/16 10:00
Percent Solids: 92
Initial Volume: 14.3
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: IBM
Prepared: 4/19/16 12:05

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,2,4-Trichlorobenzene	ND (0.380)		8270D		1	04/19/16 19:40	CZD0298	CD61837
1,2-Dichlorobenzene	ND (0.380)		8270D		1	04/19/16 19:40	CZD0298	CD61837
1,3-Dichlorobenzene	ND (0.380)		8270D		1	04/19/16 19:40	CZD0298	CD61837
1,4-Dichlorobenzene	ND (0.380)		8270D		1	04/19/16 19:40	CZD0298	CD61837
2,4,5-Trichlorophenol	ND (0.380)		8270D		1	04/19/16 19:40	CZD0298	CD61837
2,4,6-Trichlorophenol	ND (0.380)		8270D		1	04/19/16 19:40	CZD0298	CD61837
2,4-Dichlorophenol	ND (0.380)		8270D		1	04/19/16 19:40	CZD0298	CD61837
2,4-Dimethylphenol	ND (0.380)		8270D		1	04/19/16 19:40	CZD0298	CD61837
2,4-Dinitrophenol	ND (1.91)		8270D		1	04/19/16 19:40	CZD0298	CD61837
2,4-Dinitrotoluene	ND (0.380)		8270D		1	04/19/16 19:40	CZD0298	CD61837
2,6-Dinitrotoluene	ND (0.380)		8270D		1	04/19/16 19:40	CZD0298	CD61837
2-Chloronaphthalene	ND (0.380)		8270D		1	04/19/16 19:40	CZD0298	CD61837
2-Chlorophenol	ND (0.380)		8270D		1	04/19/16 19:40	CZD0298	CD61837
2-Methylnaphthalene	ND (0.380)		8270D		1	04/19/16 19:40	CZD0298	CD61837
2-Methylphenol	ND (0.380)		8270D		1	04/19/16 19:40	CZD0298	CD61837
2-Nitrophenol	ND (0.380)		8270D		1	04/19/16 19:40	CZD0298	CD61837
3,3´-Dichlorobenzidine	ND (0.761)		8270D		1	04/19/16 19:40	CZD0298	CD61837
3+4-Methylphenol	ND (0.761)		8270D		1	04/19/16 19:40	CZD0298	CD61837
4-Bromophenyl-phenylether	ND (0.380)		8270D		1	04/19/16 19:40	CZD0298	CD61837
4-Chloroaniline	ND (0.761)		8270D		1	04/19/16 19:40	CZD0298	CD61837
4-Nitrophenol	ND (1.91)		8270D		1	04/19/16 19:40	CZD0298	CD61837
Acenaphthene	ND (0.380)		8270D		1	04/19/16 19:40	CZD0298	CD61837
Acenaphthylene	ND (0.380)		8270D		1	04/19/16 19:40	CZD0298	CD61837
Acetophenone	ND (0.761)		8270D		1	04/19/16 19:40	CZD0298	CD61837
Aniline	ND (1.91)		8270D		1	04/19/16 19:40	CZD0298	CD61837
Anthracene	ND (0.380)		8270D		1	04/19/16 19:40	CZD0298	CD61837
Azobenzene	ND (0.380)		8270D		1	04/19/16 19:40	CZD0298	CD61837
Benzo(a)anthracene	ND (0.380)		8270D		1	04/19/16 19:40	CZD0298	CD61837
Benzo(a)pyrene	ND (0.191)		8270D		1	04/19/16 19:40	CZD0298	CD61837
Benzo(b)fluoranthene	ND (0.380)		8270D		1	04/19/16 19:40	CZD0298	CD61837
Benzo(g,h,i)perylene	ND (0.380)		8270D		1	04/19/16 19:40	CZD0298	CD61837
Benzo(k)fluoranthene	ND (0.380)		8270D		1	04/19/16 19:40	CZD0298	CD61837

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-8A 0-4ft
Date Sampled: 04/18/16 10:00
Percent Solids: 92
Initial Volume: 14.3
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: IBM
Prepared: 4/19/16 12:05

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
bis(2-Chloroethoxy)methane	ND (0.380)		8270D		1	04/19/16 19:40	CZD0298	CD61837
bis(2-Chloroethyl)ether	ND (0.380)		8270D		1	04/19/16 19:40	CZD0298	CD61837
bis(2-chloroisopropyl)Ether	ND (0.380)		8270D		1	04/19/16 19:40	CZD0298	CD61837
bis(2-Ethylhexyl)phthalate	ND (0.380)		8270D		1	04/19/16 19:40	CZD0298	CD61837
Butylbenzylphthalate	ND (0.380)		8270D		1	04/19/16 19:40	CZD0298	CD61837
Chrysene	ND (0.191)		8270D		1	04/19/16 19:40	CZD0298	CD61837
Dibenzo(a,h)Anthracene	ND (0.191)		8270D		1	04/19/16 19:40	CZD0298	CD61837
Dibenzofuran	ND (0.380)		8270D		1	04/19/16 19:40	CZD0298	CD61837
Diethylphthalate	ND (0.380)		8270D		1	04/19/16 19:40	CZD0298	CD61837
Dimethylphthalate	ND (0.380)		8270D		1	04/19/16 19:40	CZD0298	CD61837
Di-n-butylphthalate	ND (0.380)		8270D		1	04/19/16 19:40	CZD0298	CD61837
Di-n-octylphthalate	ND (0.380)		8270D		1	04/19/16 19:40	CZD0298	CD61837
Fluoranthene	ND (0.380)		8270D		1	04/19/16 19:40	CZD0298	CD61837
Fluorene	ND (0.380)		8270D		1	04/19/16 19:40	CZD0298	CD61837
Hexachlorobenzene	ND (0.380)		8270D		1	04/19/16 19:40	CZD0298	CD61837
Hexachlorobutadiene	ND (0.380)		8270D		1	04/19/16 19:40	CZD0298	CD61837
Hexachloroethane	ND (0.380)		8270D		1	04/19/16 19:40	CZD0298	CD61837
Indeno(1,2,3-cd)Pyrene	ND (0.380)		8270D		1	04/19/16 19:40	CZD0298	CD61837
Isophorone	ND (0.380)		8270D		1	04/19/16 19:40	CZD0298	CD61837
Naphthalene	ND (0.380)		8270D		1	04/19/16 19:40	CZD0298	CD61837
Nitrobenzene	ND (0.380)		8270D		1	04/19/16 19:40	CZD0298	CD61837
N-Nitrosodimethylamine	ND (0.380)		8270D		1	04/19/16 19:40	CZD0298	CD61837
Pentachlorophenol	ND (1.91)		8270D		1	04/19/16 19:40	CZD0298	CD61837
Phenanthrene	ND (0.380)		8270D		1	04/19/16 19:40	CZD0298	CD61837
Phenol	ND (0.380)		8270D		1	04/19/16 19:40	CZD0298	CD61837
Pyrene	ND (0.380)		8270D		1	04/19/16 19:40	CZD0298	CD61837

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichlorobenzene-d4	*66 %*		*30-130*
Surrogate: 2,4,6-Tribromophenol	*73 %*		*30-130*
Surrogate: 2-Chlorophenol-d4	*73 %*		*30-130*
Surrogate: 2-Fluorobiphenyl	*71 %*		*30-130*
Surrogate: 2-Fluorophenol	*68 %*		*30-130*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-8A 0-4ft
Date Sampled: 04/18/16 10:00
Percent Solids: 92
Initial Volume: 14.3
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: IBM
Prepared: 4/19/16 12:05

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Surrogate: Nitrobenzene-d5		*67 %*		*30-130*				
Surrogate: Phenol-d6		*75 %*		*30-130*				
Surrogate: p-Terphenyl-d14		*82 %*		*30-130*				

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-8A 0-4ft
Date Sampled: 04/18/16 10:00
Percent Solids: 92

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-02
Sample Matrix: Soil

Classical Chemistry

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	Units	Batch
Conductivity	**WL 49** (5)		9050A		1	JLK	04/19/16 17:06	umhos/cm	CD61933
Corrosivity (pH)	**7.86** (N/A)		9045		1	JLK	04/18/16 21:01	S.U.	CD61852
Corrosivity (pH) Sample Temp	**Soil pH measured in water at 21.5 ºC.**								
Eh (ORP)	**WL 376** (N/A)		2580		1	JLK	04/18/16 21:01	mv	CD61853
Flashpoint	**> 200** (N/A)		1010		1	CRR	04/20/16 14:22	°F	CD62035
Reactive Cyanide	ND (2.0)		7.3.3.2		1	MJV	04/21/16 7:30	mg/kg	CD62101
Reactive Sulfide	ND (2.0)		7.3.4.1		1	MJV	04/21/16 7:30	mg/kg	CD62101

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-8A 5-7ft
Date Sampled: 04/18/16 10:37
Percent Solids: 92

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-03
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Arsenic	**12.0** (2.27)		6010C		1	JP	04/20/16 23:27	2.39	100	CD62002
Barium	**32.4** (2.27)		6010C		1	JP	04/20/16 23:27	2.39	100	CD62002
Cadmium	ND (0.45)		6010C		1	JP	04/20/16 23:27	2.39	100	CD62002
Chromium	**11.0** (0.91)		6010C		1	JP	04/20/16 23:27	2.39	100	CD62002
Lead	**28.2** (4.54)		6010C		1	JP	04/20/16 23:27	2.39	100	CD62002
Mercury	**0.088** (0.035)		7471B		1	BJV	04/20/16 17:07	0.61	40	CD62006
Selenium	ND (2.27)		7010		5	JP	04/21/16 8:35	2.39	100	CD62002
Silver	ND (0.45)		6010C		1	JP	04/20/16 23:27	2.39	100	CD62002

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-8A 5-7ft
Date Sampled: 04/18/16 10:37
Percent Solids: 92
Initial Volume: 7
Final Volume: 5
Extraction Method: 5035

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1,1,2-Tetrachloroethane	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
1,1,1-Trichloroethane	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
1,1,2,2-Tetrachloroethane	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
1,1,2-Trichloroethane	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
1,1-Dichloroethane	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
1,1-Dichloroethene	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
1,1-Dichloropropene	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
1,2,3-Trichlorobenzene	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
1,2,3-Trichloropropane	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
1,2,4-Trichlorobenzene	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
1,2,4-Trimethylbenzene	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
1,2-Dibromo-3-Chloropropane	ND (0.859)		8260B		1	04/21/16 13:20	CZD0347	CD62122
1,2-Dibromoethane	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
1,2-Dichlorobenzene	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
1,2-Dichloroethane	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
1,2-Dichloropropane	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
1,3,5-Trimethylbenzene	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
1,3-Dichlorobenzene	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
1,3-Dichloropropane	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
1,4-Dichlorobenzene	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
1,4-Dioxane - Screen	ND (34.4)		8260B		1	04/21/16 13:20	CZD0347	CD62122
2,2-Dichloropropane	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
2-Butanone	ND (0.859)		8260B		1	04/21/16 13:20	CZD0347	CD62122
2-Chlorotoluene	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
2-Hexanone	ND (0.859)		8260B		1	04/21/16 13:20	CZD0347	CD62122
4-Chlorotoluene	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
4-Isopropyltoluene	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
4-Methyl-2-Pentanone	ND (0.859)		8260B		1	04/21/16 13:20	CZD0347	CD62122
Acetone	ND (0.859)		8260B		1	04/21/16 13:20	CZD0347	CD62122
Benzene	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
Bromobenzene	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
Bromochloromethane	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-8A 5-7ft
Date Sampled: 04/18/16 10:37
Percent Solids: 92
Initial Volume: 7
Final Volume: 5
Extraction Method: 5035

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Bromodichloromethane	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
Bromoform	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
Bromomethane	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
Carbon Disulfide	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
Carbon Tetrachloride	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
Chlorobenzene	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
Chloroethane	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
Chloroform	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
Chloromethane	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
cis-1,2-Dichloroethene	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
cis-1,3-Dichloropropene	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
Dibromochloromethane	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
Dibromomethane	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
Dichlorodifluoromethane	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
Diethyl Ether	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
Di-isopropyl ether	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
Ethyl tertiary-butyl ether	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
Ethylbenzene	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
Hexachlorobutadiene	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
Isopropylbenzene	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
Methyl tert-Butyl Ether	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
Methylene Chloride	ND (0.344)		8260B		1	04/21/16 13:20	CZD0347	CD62122
Naphthalene	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
n-Butylbenzene	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
n-Propylbenzene	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
sec-Butylbenzene	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
Styrene	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
tert-Butylbenzene	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
Tertiary-amyl methyl ether	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
Tetrachloroethene	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
Tetrahydrofuran	ND (0.859)		8260B		1	04/21/16 13:20	CZD0347	CD62122
Toluene	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-8A 5-7ft
Date Sampled: 04/18/16 10:37
Percent Solids: 92
Initial Volume: 7
Final Volume: 5
Extraction Method: 5035

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
trans-1,2-Dichloroethene	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
trans-1,3-Dichloropropene	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
Trichloroethene	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
Trichlorofluoromethane	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
Vinyl Chloride	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
Xylene O	ND (0.172)		8260B		1	04/21/16 13:20	CZD0347	CD62122
Xylene P,M	ND (0.344)		8260B		1	04/21/16 13:20	CZD0347	CD62122
Xylenes (Total)	ND (0.344)		8260B		1	04/21/16 13:20		[CALC]

	%Recovery	*Qualifier*	*Limits*
Surrogate: 1,2-Dichloroethane-d4	*97 %*		*70-130*
Surrogate: 4-Bromofluorobenzene	*101 %*		*70-130*
Surrogate: Dibromofluoromethane	*104 %*		*70-130*
Surrogate: Toluene-d8	*106 %*		*70-130*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-8A 5-7ft
Date Sampled: 04/18/16 10:37
Percent Solids: 92
Initial Volume: 19.2
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DPS
Prepared: 4/19/16 12:05

8100M Total Petroleum Hydrocarbons

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Total Petroleum Hydrocarbons	**40.5** (11.3)		8100M		1	04/20/16 4:22	CZD0318	CD61836

	%Recovery	Qualifier	Limits
Surrogate: O-Terphenyl	*98 %*		*40-140*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-8A 5-7ft
Date Sampled: 04/18/16 10:37
Percent Solids: 92
Initial Volume: 15
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: IBM
Prepared: 4/19/16 12:05

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,2,4-Trichlorobenzene	ND (0.361)		8270D		1	04/19/16 20:18	CZD0298	CD61837
1,2-Dichlorobenzene	ND (0.361)		8270D		1	04/19/16 20:18	CZD0298	CD61837
1,3-Dichlorobenzene	ND (0.361)		8270D		1	04/19/16 20:18	CZD0298	CD61837
1,4-Dichlorobenzene	ND (0.361)		8270D		1	04/19/16 20:18	CZD0298	CD61837
2,4,5-Trichlorophenol	ND (0.361)		8270D		1	04/19/16 20:18	CZD0298	CD61837
2,4,6-Trichlorophenol	ND (0.361)		8270D		1	04/19/16 20:18	CZD0298	CD61837
2,4-Dichlorophenol	ND (0.361)		8270D		1	04/19/16 20:18	CZD0298	CD61837
2,4-Dimethylphenol	ND (0.361)		8270D		1	04/19/16 20:18	CZD0298	CD61837
2,4-Dinitrophenol	ND (1.81)		8270D		1	04/19/16 20:18	CZD0298	CD61837
2,4-Dinitrotoluene	ND (0.361)		8270D		1	04/19/16 20:18	CZD0298	CD61837
2,6-Dinitrotoluene	ND (0.361)		8270D		1	04/19/16 20:18	CZD0298	CD61837
2-Chloronaphthalene	ND (0.361)		8270D		1	04/19/16 20:18	CZD0298	CD61837
2-Chlorophenol	ND (0.361)		8270D		1	04/19/16 20:18	CZD0298	CD61837
2-Methylnaphthalene	ND (0.361)		8270D		1	04/19/16 20:18	CZD0298	CD61837
2-Methylphenol	ND (0.361)		8270D		1	04/19/16 20:18	CZD0298	CD61837
2-Nitrophenol	ND (0.361)		8270D		1	04/19/16 20:18	CZD0298	CD61837
3,3´-Dichlorobenzidine	ND (0.723)		8270D		1	04/19/16 20:18	CZD0298	CD61837
3+4-Methylphenol	ND (0.723)		8270D		1	04/19/16 20:18	CZD0298	CD61837
4-Bromophenyl-phenylether	ND (0.361)		8270D		1	04/19/16 20:18	CZD0298	CD61837
4-Chloroaniline	ND (0.723)		8270D		1	04/19/16 20:18	CZD0298	CD61837
4-Nitrophenol	ND (1.81)		8270D		1	04/19/16 20:18	CZD0298	CD61837
Acenaphthene	ND (0.361)		8270D		1	04/19/16 20:18	CZD0298	CD61837
Acenaphthylene	ND (0.361)		8270D		1	04/19/16 20:18	CZD0298	CD61837
Acetophenone	ND (0.723)		8270D		1	04/19/16 20:18	CZD0298	CD61837
Aniline	ND (1.81)		8270D		1	04/19/16 20:18	CZD0298	CD61837
Anthracene	ND (0.361)		8270D		1	04/19/16 20:18	CZD0298	CD61837
Azobenzene	ND (0.361)		8270D		1	04/19/16 20:18	CZD0298	CD61837
Benzo(a)anthracene	ND (0.361)		8270D		1	04/19/16 20:18	CZD0298	CD61837
Benzo(a)pyrene	**0.185** (0.181)		8270D		1	04/19/16 20:18	CZD0298	CD61837
Benzo(b)fluoranthene	ND (0.361)		8270D		1	04/19/16 20:18	CZD0298	CD61837
Benzo(g,h,i)perylene	ND (0.361)		8270D		1	04/19/16 20:18	CZD0298	CD61837
Benzo(k)fluoranthene	ND (0.361)		8270D		1	04/19/16 20:18	CZD0298	CD61837

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-8A 5-7ft
Date Sampled: 04/18/16 10:37
Percent Solids: 92
Initial Volume: 15
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: IBM
Prepared: 4/19/16 12:05

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
bis(2-Chloroethoxy)methane	ND (0.361)		8270D		1	04/19/16 20:18	CZD0298	CD61837
bis(2-Chloroethyl)ether	ND (0.361)		8270D		1	04/19/16 20:18	CZD0298	CD61837
bis(2-chloroisopropyl)Ether	ND (0.361)		8270D		1	04/19/16 20:18	CZD0298	CD61837
bis(2-Ethylhexyl)phthalate	ND (0.361)		8270D		1	04/19/16 20:18	CZD0298	CD61837
Butylbenzylphthalate	ND (0.361)		8270D		1	04/19/16 20:18	CZD0298	CD61837
Chrysene	**0.235** (0.181)		8270D		1	04/19/16 20:18	CZD0298	CD61837
Dibenzo(a,h)Anthracene	ND (0.181)		8270D		1	04/19/16 20:18	CZD0298	CD61837
Dibenzofuran	ND (0.361)		8270D		1	04/19/16 20:18	CZD0298	CD61837
Diethylphthalate	ND (0.361)		8270D		1	04/19/16 20:18	CZD0298	CD61837
Dimethylphthalate	ND (0.361)		8270D		1	04/19/16 20:18	CZD0298	CD61837
Di-n-butylphthalate	ND (0.361)		8270D		1	04/19/16 20:18	CZD0298	CD61837
Di-n-octylphthalate	ND (0.361)		8270D		1	04/19/16 20:18	CZD0298	CD61837
Fluoranthene	**0.375** (0.361)		8270D		1	04/19/16 20:18	CZD0298	CD61837
Fluorene	ND (0.361)		8270D		1	04/19/16 20:18	CZD0298	CD61837
Hexachlorobenzene	ND (0.361)		8270D		1	04/19/16 20:18	CZD0298	CD61837
Hexachlorobutadiene	ND (0.361)		8270D		1	04/19/16 20:18	CZD0298	CD61837
Hexachloroethane	ND (0.361)		8270D		1	04/19/16 20:18	CZD0298	CD61837
Indeno(1,2,3-cd)Pyrene	ND (0.361)		8270D		1	04/19/16 20:18	CZD0298	CD61837
Isophorone	ND (0.361)		8270D		1	04/19/16 20:18	CZD0298	CD61837
Naphthalene	ND (0.361)		8270D		1	04/19/16 20:18	CZD0298	CD61837
Nitrobenzene	ND (0.361)		8270D		1	04/19/16 20:18	CZD0298	CD61837
N-Nitrosodimethylamine	ND (0.361)		8270D		1	04/19/16 20:18	CZD0298	CD61837
Pentachlorophenol	ND (1.81)		8270D		1	04/19/16 20:18	CZD0298	CD61837
Phenanthrene	ND (0.361)		8270D		1	04/19/16 20:18	CZD0298	CD61837
Phenol	ND (0.361)		8270D		1	04/19/16 20:18	CZD0298	CD61837
Pyrene	ND (0.361)		8270D		1	04/19/16 20:18	CZD0298	CD61837

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichlorobenzene-d4	*65 %*		*30-130*
Surrogate: 2,4,6-Tribromophenol	*82 %*		*30-130*
Surrogate: 2-Chlorophenol-d4	*72 %*		*30-130*
Surrogate: 2-Fluorobiphenyl	*71 %*		*30-130*
Surrogate: 2-Fluorophenol	*66 %*		*30-130*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-8A 5-7ft
Date Sampled: 04/18/16 10:37
Percent Solids: 92
Initial Volume: 15
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: IBM
Prepared: 4/19/16 12:05

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Surrogate: Nitrobenzene-d5		*69 %*		*30-130*				
Surrogate: Phenol-d6		*74 %*		*30-130*				
Surrogate: p-Terphenyl-d14		*89 %*		*30-130*				

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-8A 5-7ft
Date Sampled: 04/18/16 10:37
Percent Solids: 92

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-03
Sample Matrix: Soil

Classical Chemistry

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	Units	Batch
Conductivity	**WL 67** (5)		9050A		1	JLK	04/19/16 17:06	umhos/cm	CD61933
Corrosivity (pH)	**7.94** (N/A)		9045		1	JLK	04/18/16 21:01	S.U.	CD61852
Corrosivity (pH) Sample Temp	**Soil pH measured in water at 21.2 ºC.**								
Eh (ORP)	**WL 380** (N/A)		2580		1	JLK	04/18/16 21:01	mv	CD61853
Flashpoint	**> 200** (N/A)		1010		1	CRR	04/20/16 14:22	°F	CD62035
Reactive Cyanide	ND (2.0)		7.3.3.2		1	MJV	04/21/16 7:30	mg/kg	CD62101
Reactive Sulfide	ND (2.0)		7.3.4.1		1	MJV	04/21/16 7:30	mg/kg	CD62101

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-8B 0-4ft
Date Sampled: 04/18/16 10:50
Percent Solids: 91

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-04
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Arsenic	**13.2** (2.49)		6010C		1	JP	04/20/16 23:31	2.21	100	CD62002
Barium	**27.8** (2.49)		6010C		1	JP	04/20/16 23:31	2.21	100	CD62002
Cadmium	ND (0.50)		6010C		1	JP	04/20/16 23:31	2.21	100	CD62002
Chromium	**12.3** (0.99)		6010C		1	JP	04/20/16 23:31	2.21	100	CD62002
Lead	**174** (4.97)		6010C		1	JP	04/20/16 23:31	2.21	100	CD62002
Mercury	**0.051** (0.036)		7471B		1	BJV	04/20/16 17:13	0.6	40	CD62006
Selenium	ND (2.49)		7010		5	JP	04/21/16 8:40	2.21	100	CD62002
Silver	ND (0.50)		6010C		1	JP	04/20/16 23:31	2.21	100	CD62002

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-8B 0-4ft
Date Sampled: 04/18/16 10:50
Percent Solids: 91

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-04
Sample Matrix: Soil
Units: mg/L

Extraction Method: 3005A TCLP

TCLP Extraction Date: 4/21/16 16:34

1311 TCLP Metals

Analyte	Results (MRL)	MDL	Method	TCLP Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Lead	**1.36** (0.050)		1311/6010C		1	KJK	04/22/16 18:40	50	50	CD62212

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-8B 0-4ft
Date Sampled: 04/18/16 10:50
Percent Solids: 91
Initial Volume: 5.5
Final Volume: 5
Extraction Method: 5035

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1,1,2-Tetrachloroethane	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
1,1,1-Trichloroethane	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
1,1,2,2-Tetrachloroethane	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
1,1,2-Trichloroethane	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
1,1-Dichloroethane	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
1,1-Dichloroethene	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
1,1-Dichloropropene	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
1,2,3-Trichlorobenzene	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
1,2,3-Trichloropropane	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
1,2,4-Trichlorobenzene	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
1,2,4-Trimethylbenzene	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
1,2-Dibromo-3-Chloropropane	ND (1.10)		8260B		1	04/21/16 13:46	CZD0347	CD62122
1,2-Dibromoethane	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
1,2-Dichlorobenzene	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
1,2-Dichloroethane	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
1,2-Dichloropropane	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
1,3,5-Trimethylbenzene	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
1,3-Dichlorobenzene	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
1,3-Dichloropropane	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
1,4-Dichlorobenzene	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
1,4-Dioxane - Screen	ND (43.9)		8260B		1	04/21/16 13:46	CZD0347	CD62122
2,2-Dichloropropane	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
2-Butanone	ND (1.10)		8260B		1	04/21/16 13:46	CZD0347	CD62122
2-Chlorotoluene	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
2-Hexanone	ND (1.10)		8260B		1	04/21/16 13:46	CZD0347	CD62122
4-Chlorotoluene	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
4-Isopropyltoluene	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
4-Methyl-2-Pentanone	ND (1.10)		8260B		1	04/21/16 13:46	CZD0347	CD62122
Acetone	ND (1.10)		8260B		1	04/21/16 13:46	CZD0347	CD62122
Benzene	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
Bromobenzene	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
Bromochloromethane	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-8B 0-4ft
Date Sampled: 04/18/16 10:50
Percent Solids: 91
Initial Volume: 5.5
Final Volume: 5
Extraction Method: 5035

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Bromodichloromethane	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
Bromoform	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
Bromomethane	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
Carbon Disulfide	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
Carbon Tetrachloride	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
Chlorobenzene	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
Chloroethane	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
Chloroform	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
Chloromethane	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
cis-1,2-Dichloroethene	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
cis-1,3-Dichloropropene	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
Dibromochloromethane	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
Dibromomethane	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
Dichlorodifluoromethane	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
Diethyl Ether	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
Di-isopropyl ether	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
Ethyl tertiary-butyl ether	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
Ethylbenzene	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
Hexachlorobutadiene	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
Isopropylbenzene	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
Methyl tert-Butyl Ether	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
Methylene Chloride	ND (0.439)		8260B		1	04/21/16 13:46	CZD0347	CD62122
Naphthalene	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
n-Butylbenzene	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
n-Propylbenzene	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
sec-Butylbenzene	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
Styrene	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
tert-Butylbenzene	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
Tertiary-amyl methyl ether	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
Tetrachloroethene	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
Tetrahydrofuran	ND (1.10)		8260B		1	04/21/16 13:46	CZD0347	CD62122
Toluene	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-8B 0-4ft
Date Sampled: 04/18/16 10:50
Percent Solids: 91
Initial Volume: 5.5
Final Volume: 5
Extraction Method: 5035

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
trans-1,2-Dichloroethene	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
trans-1,3-Dichloropropene	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
Trichloroethene	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
Trichlorofluoromethane	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
Vinyl Chloride	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
Xylene O	ND (0.220)		8260B		1	04/21/16 13:46	CZD0347	CD62122
Xylene P,M	ND (0.439)		8260B		1	04/21/16 13:46	CZD0347	CD62122
Xylenes (Total)	ND (0.439)		8260B		1	04/21/16 13:46		[CALC]

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichloroethane-d4	*99 %*		*70-130*
Surrogate: 4-Bromofluorobenzene	*97 %*		*70-130*
Surrogate: Dibromofluoromethane	*108 %*		*70-130*
Surrogate: Toluene-d8	*106 %*		*70-130*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-8B 0-4ft
Date Sampled: 04/18/16 10:50
Percent Solids: 91
Initial Volume: 19.3
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DPS
Prepared: 4/19/16 12:05

8100M Total Petroleum Hydrocarbons

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Total Petroleum Hydrocarbons	**103** (11.4)		8100M		1	04/20/16 13:08	CZD0320	CD61836

	%Recovery	Qualifier	Limits
Surrogate: O-Terphenyl	*92 %*		*40-140*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-8B 0-4ft
Date Sampled: 04/18/16 10:50
Percent Solids: 91
Initial Volume: 14.7
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: IBM
Prepared: 4/19/16 12:05

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,2,4-Trichlorobenzene	ND (0.373)		8270D		1	04/19/16 20:55	CZD0298	CD61837
1,2-Dichlorobenzene	ND (0.373)		8270D		1	04/19/16 20:55	CZD0298	CD61837
1,3-Dichlorobenzene	ND (0.373)		8270D		1	04/19/16 20:55	CZD0298	CD61837
1,4-Dichlorobenzene	ND (0.373)		8270D		1	04/19/16 20:55	CZD0298	CD61837
2,4,5-Trichlorophenol	ND (0.373)		8270D		1	04/19/16 20:55	CZD0298	CD61837
2,4,6-Trichlorophenol	ND (0.373)		8270D		1	04/19/16 20:55	CZD0298	CD61837
2,4-Dichlorophenol	ND (0.373)		8270D		1	04/19/16 20:55	CZD0298	CD61837
2,4-Dimethylphenol	ND (0.373)		8270D		1	04/19/16 20:55	CZD0298	CD61837
2,4-Dinitrophenol	ND (1.87)		8270D		1	04/19/16 20:55	CZD0298	CD61837
2,4-Dinitrotoluene	ND (0.373)		8270D		1	04/19/16 20:55	CZD0298	CD61837
2,6-Dinitrotoluene	ND (0.373)		8270D		1	04/19/16 20:55	CZD0298	CD61837
2-Chloronaphthalene	ND (0.373)		8270D		1	04/19/16 20:55	CZD0298	CD61837
2-Chlorophenol	ND (0.373)		8270D		1	04/19/16 20:55	CZD0298	CD61837
2-Methylnaphthalene	ND (0.373)		8270D		1	04/19/16 20:55	CZD0298	CD61837
2-Methylphenol	ND (0.373)		8270D		1	04/19/16 20:55	CZD0298	CD61837
2-Nitrophenol	ND (0.373)		8270D		1	04/19/16 20:55	CZD0298	CD61837
3,3´-Dichlorobenzidine	ND (0.748)		8270D		1	04/19/16 20:55	CZD0298	CD61837
3+4-Methylphenol	ND (0.748)		8270D		1	04/19/16 20:55	CZD0298	CD61837
4-Bromophenyl-phenylether	ND (0.373)		8270D		1	04/19/16 20:55	CZD0298	CD61837
4-Chloroaniline	ND (0.748)		8270D		1	04/19/16 20:55	CZD0298	CD61837
4-Nitrophenol	ND (1.87)		8270D		1	04/19/16 20:55	CZD0298	CD61837
Acenaphthene	ND (0.373)		8270D		1	04/19/16 20:55	CZD0298	CD61837
Acenaphthylene	ND (0.373)		8270D		1	04/19/16 20:55	CZD0298	CD61837
Acetophenone	ND (0.748)		8270D		1	04/19/16 20:55	CZD0298	CD61837
Aniline	ND (1.87)		8270D		1	04/19/16 20:55	CZD0298	CD61837
Anthracene	ND (0.373)		8270D		1	04/19/16 20:55	CZD0298	CD61837
Azobenzene	ND (0.373)		8270D		1	04/19/16 20:55	CZD0298	CD61837
Benzo(a)anthracene	ND (0.373)		8270D		1	04/19/16 20:55	CZD0298	CD61837
Benzo(a)pyrene	**0.249** (0.187)		8270D		1	04/19/16 20:55	CZD0298	CD61837
Benzo(b)fluoranthene	ND (0.373)		8270D		1	04/19/16 20:55	CZD0298	CD61837
Benzo(g,h,i)perylene	ND (0.373)		8270D		1	04/19/16 20:55	CZD0298	CD61837
Benzo(k)fluoranthene	ND (0.373)		8270D		1	04/19/16 20:55	CZD0298	CD61837

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-8B 0-4ft
Date Sampled: 04/18/16 10:50
Percent Solids: 91
Initial Volume: 14.7
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: IBM
Prepared: 4/19/16 12:05

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
bis(2-Chloroethoxy)methane	ND (0.373)		8270D		1	04/19/16 20:55	CZD0298	CD61837
bis(2-Chloroethyl)ether	ND (0.373)		8270D		1	04/19/16 20:55	CZD0298	CD61837
bis(2-chloroisopropyl)Ether	ND (0.373)		8270D		1	04/19/16 20:55	CZD0298	CD61837
bis(2-Ethylhexyl)phthalate	ND (0.373)		8270D		1	04/19/16 20:55	CZD0298	CD61837
Butylbenzylphthalate	ND (0.373)		8270D		1	04/19/16 20:55	CZD0298	CD61837
Chrysene	**0.300** (0.187)		8270D		1	04/19/16 20:55	CZD0298	CD61837
Dibenzo(a,h)Anthracene	ND (0.187)		8270D		1	04/19/16 20:55	CZD0298	CD61837
Dibenzofuran	ND (0.373)		8270D		1	04/19/16 20:55	CZD0298	CD61837
Diethylphthalate	ND (0.373)		8270D		1	04/19/16 20:55	CZD0298	CD61837
Dimethylphthalate	ND (0.373)		8270D		1	04/19/16 20:55	CZD0298	CD61837
Di-n-butylphthalate	ND (0.373)		8270D		1	04/19/16 20:55	CZD0298	CD61837
Di-n-octylphthalate	ND (0.373)		8270D		1	04/19/16 20:55	CZD0298	CD61837
Fluoranthene	**0.505** (0.373)		8270D		1	04/19/16 20:55	CZD0298	CD61837
Fluorene	ND (0.373)		8270D		1	04/19/16 20:55	CZD0298	CD61837
Hexachlorobenzene	ND (0.373)		8270D		1	04/19/16 20:55	CZD0298	CD61837
Hexachlorobutadiene	ND (0.373)		8270D		1	04/19/16 20:55	CZD0298	CD61837
Hexachloroethane	ND (0.373)		8270D		1	04/19/16 20:55	CZD0298	CD61837
Indeno(1,2,3-cd)Pyrene	ND (0.373)		8270D		1	04/19/16 20:55	CZD0298	CD61837
Isophorone	ND (0.373)		8270D		1	04/19/16 20:55	CZD0298	CD61837
Naphthalene	ND (0.373)		8270D		1	04/19/16 20:55	CZD0298	CD61837
Nitrobenzene	ND (0.373)		8270D		1	04/19/16 20:55	CZD0298	CD61837
N-Nitrosodimethylamine	ND (0.373)		8270D		1	04/19/16 20:55	CZD0298	CD61837
Pentachlorophenol	ND (1.87)		8270D		1	04/19/16 20:55	CZD0298	CD61837
Phenanthrene	ND (0.373)		8270D		1	04/19/16 20:55	CZD0298	CD61837
Phenol	ND (0.373)		8270D		1	04/19/16 20:55	CZD0298	CD61837
Pyrene	**0.474** (0.373)		8270D		1	04/19/16 20:55	CZD0298	CD61837

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichlorobenzene-d4	*68 %*		*30-130*
Surrogate: 2,4,6-Tribromophenol	*83 %*		*30-130*
Surrogate: 2-Chlorophenol-d4	*74 %*		*30-130*
Surrogate: 2-Fluorobiphenyl	*75 %*		*30-130*
Surrogate: 2-Fluorophenol	*69 %*		*30-130*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-8B 0-4ft
Date Sampled: 04/18/16 10:50
Percent Solids: 91
Initial Volume: 14.7
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: IBM
Prepared: 4/19/16 12:05

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Surrogate: Nitrobenzene-d5		*71 %*		*30-130*				
Surrogate: Phenol-d6		*76 %*		*30-130*				
Surrogate: p-Terphenyl-d14		*90 %*		*30-130*				

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-8B 0-4ft
Date Sampled: 04/18/16 10:50
Percent Solids: 91

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-04
Sample Matrix: Soil

Classical Chemistry

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	Units	Batch
Conductivity	**WL 25** (5)		9050A		1	JLK	04/19/16 17:06	umhos/cm	CD61933
Corrosivity (pH)	**7.70** (N/A)		9045		1	JLK	04/18/16 21:01	S.U.	CD61852
Corrosivity (pH) Sample Temp	**Soil pH measured in water at 20.8 ºC.**								
Eh (ORP)	**WL 376** (N/A)		2580		1	JLK	04/18/16 21:01	mv	CD61853
Flashpoint	**> 200** (N/A)		1010		1	CRR	04/20/16 14:22	°F	CD62035
Reactive Cyanide	ND (2.0)		7.3.3.2		1	MJV	04/21/16 7:30	mg/kg	CD62101
Reactive Sulfide	ND (2.0)		7.3.4.1		1	MJV	04/21/16 7:30	mg/kg	CD62101

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-8B 0-4ft
Date Sampled: 04/18/16 10:50
Percent Solids: 91
Initial Volume: 86.5
Final Volume: 1730
Extraction Method: 1311

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-04
Sample Matrix: Soil
Units: °C
Analyst: LAB
Prepared: 4/21/16 16:34

TCLP Extraction by 1311

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	Batch
Temperature (Min C)	**20.8** (N/A)		1311		1	LAB	04/22/16 8:43	CD62105
Temperature (Max C)	**21.9** (N/A)		1311		1	LAB	04/22/16 8:43	CD62105
Temperature (Range)	**Temperature is not within 23 +/-2 ºC.** (N/A)							

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-8B 5-7
Date Sampled: 04/18/16 11:30
Percent Solids: 93

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-05
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Arsenic	**10.3** (2.48)		6010C		1	JP	04/21/16 0:30	2.18	100	CD62002
Barium	**25.2** (2.48)		6010C		1	JP	04/21/16 0:30	2.18	100	CD62002
Cadmium	**0.70** (0.50)		6010C		1	JP	04/21/16 0:30	2.18	100	CD62002
Chromium	**10.6** (0.99)		6010C		1	JP	04/21/16 0:30	2.18	100	CD62002
Lead	**17.6** (4.95)		6010C		1	JP	04/21/16 0:30	2.18	100	CD62002
Mercury	ND (0.034)		7471B		1	BJV	04/20/16 17:15	0.62	40	CD62006
Selenium	ND (2.48)		7010		5	JP	04/21/16 8:46	2.18	100	CD62002
Silver	ND (0.50)		6010C		1	JP	04/21/16 0:30	2.18	100	CD62002

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-8B 5-7
Date Sampled: 04/18/16 11:30
Percent Solids: 93
Initial Volume: 7.9
Final Volume: 5
Extraction Method: 5035

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1,1,2-Tetrachloroethane	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
1,1,1-Trichloroethane	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
1,1,2,2-Tetrachloroethane	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
1,1,2-Trichloroethane	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
1,1-Dichloroethane	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
1,1-Dichloroethene	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
1,1-Dichloropropene	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
1,2,3-Trichlorobenzene	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
1,2,3-Trichloropropane	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
1,2,4-Trichlorobenzene	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
1,2,4-Trimethylbenzene	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
1,2-Dibromo-3-Chloropropane	ND (0.763)		8260B		1	04/21/16 14:13	CZD0347	CD62122
1,2-Dibromoethane	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
1,2-Dichlorobenzene	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
1,2-Dichloroethane	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
1,2-Dichloropropane	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
1,3,5-Trimethylbenzene	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
1,3-Dichlorobenzene	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
1,3-Dichloropropane	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
1,4-Dichlorobenzene	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
1,4-Dioxane - Screen	ND (30.5)		8260B		1	04/21/16 14:13	CZD0347	CD62122
2,2-Dichloropropane	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
2-Butanone	ND (0.763)		8260B		1	04/21/16 14:13	CZD0347	CD62122
2-Chlorotoluene	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
2-Hexanone	ND (0.763)		8260B		1	04/21/16 14:13	CZD0347	CD62122
4-Chlorotoluene	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
4-Isopropyltoluene	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
4-Methyl-2-Pentanone	ND (0.763)		8260B		1	04/21/16 14:13	CZD0347	CD62122
Acetone	ND (0.763)		8260B		1	04/21/16 14:13	CZD0347	CD62122
Benzene	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
Bromobenzene	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
Bromochloromethane	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-8B 5-7
Date Sampled: 04/18/16 11:30
Percent Solids: 93
Initial Volume: 7.9
Final Volume: 5
Extraction Method: 5035

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Bromodichloromethane	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
Bromoform	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
Bromomethane	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
Carbon Disulfide	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
Carbon Tetrachloride	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
Chlorobenzene	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
Chloroethane	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
Chloroform	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
Chloromethane	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
cis-1,2-Dichloroethene	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
cis-1,3-Dichloropropene	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
Dibromochloromethane	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
Dibromomethane	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
Dichlorodifluoromethane	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
Diethyl Ether	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
Di-isopropyl ether	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
Ethyl tertiary-butyl ether	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
Ethylbenzene	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
Hexachlorobutadiene	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
Isopropylbenzene	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
Methyl tert-Butyl Ether	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
Methylene Chloride	ND (0.305)		8260B		1	04/21/16 14:13	CZD0347	CD62122
Naphthalene	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
n-Butylbenzene	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
n-Propylbenzene	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
sec-Butylbenzene	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
Styrene	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
tert-Butylbenzene	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
Tertiary-amyl methyl ether	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
Tetrachloroethene	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
Tetrahydrofuran	ND (0.763)		8260B		1	04/21/16 14:13	CZD0347	CD62122
Toluene	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-8B 5-7
Date Sampled: 04/18/16 11:30
Percent Solids: 93
Initial Volume: 7.9
Final Volume: 5
Extraction Method: 5035

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
trans-1,2-Dichloroethene	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
trans-1,3-Dichloropropene	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
Trichloroethene	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
Trichlorofluoromethane	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
Vinyl Chloride	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
Xylene O	ND (0.153)		8260B		1	04/21/16 14:13	CZD0347	CD62122
Xylene P,M	ND (0.305)		8260B		1	04/21/16 14:13	CZD0347	CD62122
Xylenes (Total)	ND (0.305)		8260B		1	04/21/16 14:13		[CALC]

	%Recovery	*Qualifier*	*Limits*
Surrogate: 1,2-Dichloroethane-d4	*104 %*		*70-130*
Surrogate: 4-Bromofluorobenzene	*105 %*		*70-130*
Surrogate: Dibromofluoromethane	*112 %*		*70-130*
Surrogate: Toluene-d8	*113 %*		*70-130*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-8B 5-7
Date Sampled: 04/18/16 11:30
Percent Solids: 93
Initial Volume: 19.6
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DPS
Prepared: 4/19/16 14:52

8100M Total Petroleum Hydrocarbons

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Total Petroleum Hydrocarbons	**13.4** (11.0)		8100M		1	04/19/16 21:52	CZD0317	CD61915

	%Recovery	Qualifier	Limits
Surrogate: O-Terphenyl	*83 %*		*40-140*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-8B 5-7
Date Sampled: 04/18/16 11:30
Percent Solids: 93
Initial Volume: 14.2
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: IBM
Prepared: 4/19/16 14:52

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,2,4-Trichlorobenzene	ND (0.380)		8270D		1	04/19/16 18:26	CZD0298	CD61916
1,2-Dichlorobenzene	ND (0.380)		8270D		1	04/19/16 18:26	CZD0298	CD61916
1,3-Dichlorobenzene	ND (0.380)		8270D		1	04/19/16 18:26	CZD0298	CD61916
1,4-Dichlorobenzene	ND (0.380)		8270D		1	04/19/16 18:26	CZD0298	CD61916
2,4,5-Trichlorophenol	ND (0.380)		8270D		1	04/19/16 18:26	CZD0298	CD61916
2,4,6-Trichlorophenol	ND (0.380)		8270D		1	04/19/16 18:26	CZD0298	CD61916
2,4-Dichlorophenol	ND (0.380)		8270D		1	04/19/16 18:26	CZD0298	CD61916
2,4-Dimethylphenol	ND (0.380)		8270D		1	04/19/16 18:26	CZD0298	CD61916
2,4-Dinitrophenol	ND (1.90)		8270D		1	04/19/16 18:26	CZD0298	CD61916
2,4-Dinitrotoluene	ND (0.380)		8270D		1	04/19/16 18:26	CZD0298	CD61916
2,6-Dinitrotoluene	ND (0.380)		8270D		1	04/19/16 18:26	CZD0298	CD61916
2-Chloronaphthalene	ND (0.380)		8270D		1	04/19/16 18:26	CZD0298	CD61916
2-Chlorophenol	ND (0.380)		8270D		1	04/19/16 18:26	CZD0298	CD61916
2-Methylnaphthalene	ND (0.380)		8270D		1	04/19/16 18:26	CZD0298	CD61916
2-Methylphenol	ND (0.380)		8270D		1	04/19/16 18:26	CZD0298	CD61916
2-Nitrophenol	ND (0.380)		8270D		1	04/19/16 18:26	CZD0298	CD61916
3,3´-Dichlorobenzidine	ND (0.761)		8270D		1	04/19/16 18:26	CZD0298	CD61916
3+4-Methylphenol	ND (0.761)		8270D		1	04/19/16 18:26	CZD0298	CD61916
4-Bromophenyl-phenylether	ND (0.380)		8270D		1	04/19/16 18:26	CZD0298	CD61916
4-Chloroaniline	ND (0.761)		8270D		1	04/19/16 18:26	CZD0298	CD61916
4-Nitrophenol	ND (1.90)		8270D		1	04/19/16 18:26	CZD0298	CD61916
Acenaphthene	ND (0.380)		8270D		1	04/19/16 18:26	CZD0298	CD61916
Acenaphthylene	ND (0.380)		8270D		1	04/19/16 18:26	CZD0298	CD61916
Acetophenone	ND (0.761)		8270D		1	04/19/16 18:26	CZD0298	CD61916
Aniline	ND (1.90)		8270D		1	04/19/16 18:26	CZD0298	CD61916
Anthracene	ND (0.380)		8270D		1	04/19/16 18:26	CZD0298	CD61916
Azobenzene	ND (0.380)		8270D		1	04/19/16 18:26	CZD0298	CD61916
Benzo(a)anthracene	ND (0.380)		8270D		1	04/19/16 18:26	CZD0298	CD61916
Benzo(a)pyrene	ND (0.190)		8270D		1	04/19/16 18:26	CZD0298	CD61916
Benzo(b)fluoranthene	ND (0.380)		8270D		1	04/19/16 18:26	CZD0298	CD61916
Benzo(g,h,i)perylene	ND (0.380)		8270D		1	04/19/16 18:26	CZD0298	CD61916
Benzo(k)fluoranthene	ND (0.380)		8270D		1	04/19/16 18:26	CZD0298	CD61916

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-8B 5-7
Date Sampled: 04/18/16 11:30
Percent Solids: 93
Initial Volume: 14.2
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: IBM
Prepared: 4/19/16 14:52

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
bis(2-Chloroethoxy)methane	ND (0.380)		8270D		1	04/19/16 18:26	CZD0298	CD61916
bis(2-Chloroethyl)ether	ND (0.380)		8270D		1	04/19/16 18:26	CZD0298	CD61916
bis(2-chloroisopropyl)Ether	ND (0.380)		8270D		1	04/19/16 18:26	CZD0298	CD61916
bis(2-Ethylhexyl)phthalate	ND (0.380)		8270D		1	04/19/16 18:26	CZD0298	CD61916
Butylbenzylphthalate	ND (0.380)		8270D		1	04/19/16 18:26	CZD0298	CD61916
Chrysene	ND (0.190)		8270D		1	04/19/16 18:26	CZD0298	CD61916
Dibenzo(a,h)Anthracene	ND (0.190)		8270D		1	04/19/16 18:26	CZD0298	CD61916
Dibenzofuran	ND (0.380)		8270D		1	04/19/16 18:26	CZD0298	CD61916
Diethylphthalate	ND (0.380)		8270D		1	04/19/16 18:26	CZD0298	CD61916
Dimethylphthalate	ND (0.380)		8270D		1	04/19/16 18:26	CZD0298	CD61916
Di-n-butylphthalate	ND (0.380)		8270D		1	04/19/16 18:26	CZD0298	CD61916
Di-n-octylphthalate	ND (0.380)		8270D		1	04/19/16 18:26	CZD0298	CD61916
Fluoranthene	ND (0.380)		8270D		1	04/19/16 18:26	CZD0298	CD61916
Fluorene	ND (0.380)		8270D		1	04/19/16 18:26	CZD0298	CD61916
Hexachlorobenzene	ND (0.380)		8270D		1	04/19/16 18:26	CZD0298	CD61916
Hexachlorobutadiene	ND (0.380)		8270D		1	04/19/16 18:26	CZD0298	CD61916
Hexachloroethane	ND (0.380)		8270D		1	04/19/16 18:26	CZD0298	CD61916
Indeno(1,2,3-cd)Pyrene	ND (0.380)		8270D		1	04/19/16 18:26	CZD0298	CD61916
Isophorone	ND (0.380)		8270D		1	04/19/16 18:26	CZD0298	CD61916
Naphthalene	ND (0.380)		8270D		1	04/19/16 18:26	CZD0298	CD61916
Nitrobenzene	ND (0.380)		8270D		1	04/19/16 18:26	CZD0298	CD61916
N-Nitrosodimethylamine	ND (0.380)		8270D		1	04/19/16 18:26	CZD0298	CD61916
Pentachlorophenol	ND (1.90)		8270D		1	04/19/16 18:26	CZD0298	CD61916
Phenanthrene	ND (0.380)		8270D		1	04/19/16 18:26	CZD0298	CD61916
Phenol	ND (0.380)		8270D		1	04/19/16 18:26	CZD0298	CD61916
Pyrene	ND (0.380)		8270D		1	04/19/16 18:26	CZD0298	CD61916

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichlorobenzene-d4	*55 %*		*30-130*
Surrogate: 2,4,6-Tribromophenol	*74 %*		*30-130*
Surrogate: 2-Chlorophenol-d4	*61 %*		*30-130*
Surrogate: 2-Fluorobiphenyl	*59 %*		*30-130*
Surrogate: 2-Fluorophenol	*57 %*		*30-130*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-8B 5-7
Date Sampled: 04/18/16 11:30
Percent Solids: 93
Initial Volume: 14.2
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: IBM
Prepared: 4/19/16 14:52

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Surrogate: Nitrobenzene-d5		*55 %*		*30-130*				
Surrogate: Phenol-d6		*63 %*		*30-130*				
Surrogate: p-Terphenyl-d14		*91 %*		*30-130*				

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-8B 5-7
Date Sampled: 04/18/16 11:30
Percent Solids: 93

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-05
Sample Matrix: Soil

Classical Chemistry

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	Units	Batch
Conductivity	**WL 167** (5)		9050A		1	JLK	04/19/16 17:26	umhos/cm	CD61934
Corrosivity (pH)	**8.21** (N/A)		9045		1	JLK	04/18/16 21:01	S.U.	CD61852
Corrosivity (pH) Sample Temp	**Soil pH measured in water at 20.0 ºC.**								
Eh (ORP)	**WL 385** (N/A)		2580		1	JLK	04/18/16 21:01	mv	CD61853
Flashpoint	**> 200** (N/A)		1010		1	CRR	04/20/16 14:22	°F	CD62035
Reactive Cyanide	ND (2.0)		7.3.3.2		1	MJV	04/21/16 7:30	mg/kg	CD62101
Reactive Sulfide	ND (2.0)		7.3.4.1		1	MJV	04/21/16 7:30	mg/kg	CD62101

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-6
Date Sampled: 04/18/16 08:30
Percent Solids: 93

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-06
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Arsenic	**7.97** (2.49)		6010C		1	JP	04/21/16 0:34	2.15	100	CD62002
Barium	**12.1** (2.49)		6010C		1	JP	04/21/16 0:34	2.15	100	CD62002
Cadmium	ND (0.50)		6010C		1	JP	04/21/16 0:34	2.15	100	CD62002
Chromium	**5.80** (1.00)		6010C		1	JP	04/21/16 0:34	2.15	100	CD62002
Lead	**7.47** (4.99)		6010C		1	JP	04/21/16 0:34	2.15	100	CD62002
Mercury	ND (0.030)		7471B		1	BJV	04/20/16 17:17	0.7	40	CD62006
Selenium	ND (2.49)		7010		5	JP	04/21/16 8:51	2.15	100	CD62002
Silver	ND (0.50)		6010C		1	JP	04/21/16 0:34	2.15	100	CD62002

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-6
Date Sampled: 04/18/16 08:30
Percent Solids: 93
Initial Volume: 9.4
Final Volume: 5
Extraction Method: 5035

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1,1,2-Tetrachloroethane	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
1,1,1-Trichloroethane	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
1,1,2,2-Tetrachloroethane	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
1,1,2-Trichloroethane	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
1,1-Dichloroethane	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
1,1-Dichloroethene	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
1,1-Dichloropropene	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
1,2,3-Trichlorobenzene	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
1,2,3-Trichloropropane	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
1,2,4-Trichlorobenzene	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
1,2,4-Trimethylbenzene	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
1,2-Dibromo-3-Chloropropane	ND (0.642)		8260B		1	04/21/16 14:39	CZD0347	CD62122
1,2-Dibromoethane	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
1,2-Dichlorobenzene	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
1,2-Dichloroethane	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
1,2-Dichloropropane	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
1,3,5-Trimethylbenzene	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
1,3-Dichlorobenzene	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
1,3-Dichloropropane	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
1,4-Dichlorobenzene	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
1,4-Dioxane - Screen	ND (25.7)		8260B		1	04/21/16 14:39	CZD0347	CD62122
2,2-Dichloropropane	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
2-Butanone	ND (0.642)		8260B		1	04/21/16 14:39	CZD0347	CD62122
2-Chlorotoluene	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
2-Hexanone	ND (0.642)		8260B		1	04/21/16 14:39	CZD0347	CD62122
4-Chlorotoluene	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
4-Isopropyltoluene	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
4-Methyl-2-Pentanone	ND (0.642)		8260B		1	04/21/16 14:39	CZD0347	CD62122
Acetone	ND (0.642)		8260B		1	04/21/16 14:39	CZD0347	CD62122
Benzene	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
Bromobenzene	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
Bromochloromethane	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-6
Date Sampled: 04/18/16 08:30
Percent Solids: 93
Initial Volume: 9.4
Final Volume: 5
Extraction Method: 5035

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Bromodichloromethane	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
Bromoform	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
Bromomethane	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
Carbon Disulfide	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
Carbon Tetrachloride	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
Chlorobenzene	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
Chloroethane	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
Chloroform	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
Chloromethane	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
cis-1,2-Dichloroethene	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
cis-1,3-Dichloropropene	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
Dibromochloromethane	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
Dibromomethane	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
Dichlorodifluoromethane	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
Diethyl Ether	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
Di-isopropyl ether	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
Ethyl tertiary-butyl ether	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
Ethylbenzene	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
Hexachlorobutadiene	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
Isopropylbenzene	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
Methyl tert-Butyl Ether	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
Methylene Chloride	ND (0.257)		8260B		1	04/21/16 14:39	CZD0347	CD62122
Naphthalene	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
n-Butylbenzene	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
n-Propylbenzene	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
sec-Butylbenzene	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
Styrene	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
tert-Butylbenzene	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
Tertiary-amyl methyl ether	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
Tetrachloroethene	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
Tetrahydrofuran	ND (0.642)		8260B		1	04/21/16 14:39	CZD0347	CD62122
Toluene	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-6
Date Sampled: 04/18/16 08:30
Percent Solids: 93
Initial Volume: 9.4
Final Volume: 5
Extraction Method: 5035

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
trans-1,2-Dichloroethene	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
trans-1,3-Dichloropropene	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
Trichloroethene	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
Trichlorofluoromethane	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
Vinyl Chloride	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
Xylene O	ND (0.128)		8260B		1	04/21/16 14:39	CZD0347	CD62122
Xylene P,M	ND (0.257)		8260B		1	04/21/16 14:39	CZD0347	CD62122
Xylenes (Total)	ND (0.257)		8260B		1	04/21/16 14:39		[CALC]

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichloroethane-d4	*120 %*		*70-130*
Surrogate: 4-Bromofluorobenzene	*125 %*		*70-130*
Surrogate: Dibromofluoromethane	*129 %*		*70-130*
Surrogate: Toluene-d8	*133 %*	*S+*	*70-130*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-6
Date Sampled: 04/18/16 08:30
Percent Solids: 93
Initial Volume: 19.1
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DPS
Prepared: 4/19/16 14:52

8100M Total Petroleum Hydrocarbons

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Total Petroleum Hydrocarbons	ND (11.2)		8100M		1	04/19/16 22:31	CZD0317	CD61915

	%Recovery	Qualifier	Limits
Surrogate: O-Terphenyl	*77 %*		*40-140*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-6
Date Sampled: 04/18/16 08:30
Percent Solids: 93
Initial Volume: 14.8
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: IBM
Prepared: 4/19/16 14:52

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,2,4-Trichlorobenzene	ND (0.362)		8270D		1	04/19/16 19:03	CZD0298	CD61916
1,2-Dichlorobenzene	ND (0.362)		8270D		1	04/19/16 19:03	CZD0298	CD61916
1,3-Dichlorobenzene	ND (0.362)		8270D		1	04/19/16 19:03	CZD0298	CD61916
1,4-Dichlorobenzene	ND (0.362)		8270D		1	04/19/16 19:03	CZD0298	CD61916
2,4,5-Trichlorophenol	ND (0.362)		8270D		1	04/19/16 19:03	CZD0298	CD61916
2,4,6-Trichlorophenol	ND (0.362)		8270D		1	04/19/16 19:03	CZD0298	CD61916
2,4-Dichlorophenol	ND (0.362)		8270D		1	04/19/16 19:03	CZD0298	CD61916
2,4-Dimethylphenol	ND (0.362)		8270D		1	04/19/16 19:03	CZD0298	CD61916
2,4-Dinitrophenol	ND (1.81)		8270D		1	04/19/16 19:03	CZD0298	CD61916
2,4-Dinitrotoluene	ND (0.362)		8270D		1	04/19/16 19:03	CZD0298	CD61916
2,6-Dinitrotoluene	ND (0.362)		8270D		1	04/19/16 19:03	CZD0298	CD61916
2-Chloronaphthalene	ND (0.362)		8270D		1	04/19/16 19:03	CZD0298	CD61916
2-Chlorophenol	ND (0.362)		8270D		1	04/19/16 19:03	CZD0298	CD61916
2-Methylnaphthalene	ND (0.362)		8270D		1	04/19/16 19:03	CZD0298	CD61916
2-Methylphenol	ND (0.362)		8270D		1	04/19/16 19:03	CZD0298	CD61916
2-Nitrophenol	ND (0.362)		8270D		1	04/19/16 19:03	CZD0298	CD61916
3,3´-Dichlorobenzidine	ND (0.725)		8270D		1	04/19/16 19:03	CZD0298	CD61916
3+4-Methylphenol	ND (0.725)		8270D		1	04/19/16 19:03	CZD0298	CD61916
4-Bromophenyl-phenylether	ND (0.362)		8270D		1	04/19/16 19:03	CZD0298	CD61916
4-Chloroaniline	ND (0.725)		8270D		1	04/19/16 19:03	CZD0298	CD61916
4-Nitrophenol	ND (1.81)		8270D		1	04/19/16 19:03	CZD0298	CD61916
Acenaphthene	ND (0.362)		8270D		1	04/19/16 19:03	CZD0298	CD61916
Acenaphthylene	ND (0.362)		8270D		1	04/19/16 19:03	CZD0298	CD61916
Acetophenone	ND (0.725)		8270D		1	04/19/16 19:03	CZD0298	CD61916
Aniline	ND (1.81)		8270D		1	04/19/16 19:03	CZD0298	CD61916
Anthracene	ND (0.362)		8270D		1	04/19/16 19:03	CZD0298	CD61916
Azobenzene	ND (0.362)		8270D		1	04/19/16 19:03	CZD0298	CD61916
Benzo(a)anthracene	ND (0.362)		8270D		1	04/19/16 19:03	CZD0298	CD61916
Benzo(a)pyrene	ND (0.181)		8270D		1	04/19/16 19:03	CZD0298	CD61916
Benzo(b)fluoranthene	ND (0.362)		8270D		1	04/19/16 19:03	CZD0298	CD61916
Benzo(g,h,i)perylene	ND (0.362)		8270D		1	04/19/16 19:03	CZD0298	CD61916
Benzo(k)fluoranthene	ND (0.362)		8270D		1	04/19/16 19:03	CZD0298	CD61916

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-6
Date Sampled: 04/18/16 08:30
Percent Solids: 93
Initial Volume: 14.8
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: IBM
Prepared: 4/19/16 14:52

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
bis(2-Chloroethoxy)methane	ND (0.362)		8270D		1	04/19/16 19:03	CZD0298	CD61916
bis(2-Chloroethyl)ether	ND (0.362)		8270D		1	04/19/16 19:03	CZD0298	CD61916
bis(2-chloroisopropyl)Ether	ND (0.362)		8270D		1	04/19/16 19:03	CZD0298	CD61916
bis(2-Ethylhexyl)phthalate	ND (0.362)		8270D		1	04/19/16 19:03	CZD0298	CD61916
Butylbenzylphthalate	ND (0.362)		8270D		1	04/19/16 19:03	CZD0298	CD61916
Chrysene	ND (0.181)		8270D		1	04/19/16 19:03	CZD0298	CD61916
Dibenzo(a,h)Anthracene	ND (0.181)		8270D		1	04/19/16 19:03	CZD0298	CD61916
Dibenzofuran	ND (0.362)		8270D		1	04/19/16 19:03	CZD0298	CD61916
Diethylphthalate	ND (0.362)		8270D		1	04/19/16 19:03	CZD0298	CD61916
Dimethylphthalate	ND (0.362)		8270D		1	04/19/16 19:03	CZD0298	CD61916
Di-n-butylphthalate	ND (0.362)		8270D		1	04/19/16 19:03	CZD0298	CD61916
Di-n-octylphthalate	ND (0.362)		8270D		1	04/19/16 19:03	CZD0298	CD61916
Fluoranthene	ND (0.362)		8270D		1	04/19/16 19:03	CZD0298	CD61916
Fluorene	ND (0.362)		8270D		1	04/19/16 19:03	CZD0298	CD61916
Hexachlorobenzene	ND (0.362)		8270D		1	04/19/16 19:03	CZD0298	CD61916
Hexachlorobutadiene	ND (0.362)		8270D		1	04/19/16 19:03	CZD0298	CD61916
Hexachloroethane	ND (0.362)		8270D		1	04/19/16 19:03	CZD0298	CD61916
Indeno(1,2,3-cd)Pyrene	ND (0.362)		8270D		1	04/19/16 19:03	CZD0298	CD61916
Isophorone	ND (0.362)		8270D		1	04/19/16 19:03	CZD0298	CD61916
Naphthalene	ND (0.362)		8270D		1	04/19/16 19:03	CZD0298	CD61916
Nitrobenzene	ND (0.362)		8270D		1	04/19/16 19:03	CZD0298	CD61916
N-Nitrosodimethylamine	ND (0.362)		8270D		1	04/19/16 19:03	CZD0298	CD61916
Pentachlorophenol	ND (1.81)		8270D		1	04/19/16 19:03	CZD0298	CD61916
Phenanthrene	ND (0.362)		8270D		1	04/19/16 19:03	CZD0298	CD61916
Phenol	ND (0.362)		8270D		1	04/19/16 19:03	CZD0298	CD61916
Pyrene	ND (0.362)		8270D		1	04/19/16 19:03	CZD0298	CD61916

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichlorobenzene-d4	*74 %*		*30-130*
Surrogate: 2,4,6-Tribromophenol	*84 %*		*30-130*
Surrogate: 2-Chlorophenol-d4	*81 %*		*30-130*
Surrogate: 2-Fluorobiphenyl	*77 %*		*30-130*
Surrogate: 2-Fluorophenol	*76 %*		*30-130*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-6
Date Sampled: 04/18/16 08:30
Percent Solids: 93
Initial Volume: 14.8
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: IBM
Prepared: 4/19/16 14:52

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Surrogate: Nitrobenzene-d5		*79 %*		*30-130*				
Surrogate: Phenol-d6		*83 %*		*30-130*				
Surrogate: p-Terphenyl-d14		*98 %*		*30-130*				

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-6
Date Sampled: 04/18/16 08:30
Percent Solids: 93

ESS Laboratory Work Order: 1604486
ESS Laboratory Sample ID: 1604486-06
Sample Matrix: Soil

Classical Chemistry

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	Units	Batch
Conductivity	**WL 17** (5)		9050A		1	JLK	04/19/16 17:26	umhos/cm	CD61934
Corrosivity (pH)	**7.10** (N/A)		9045		1	JLK	04/18/16 21:01	S.U.	CD61852
Corrosivity (pH) Sample Temp	**Soil pH measured in water at 19.6 ºC.**								
Eh (ORP)	**WL 409** (N/A)		2580		1	JLK	04/18/16 21:01	mv	CD61853
Flashpoint	**> 200** (N/A)		1010		1	CRR	04/20/16 14:22	°F	CD62035
Reactive Cyanide	ND (2.0)		7.3.3.2		1	MJV	04/21/16 7:30	mg/kg	CD62101
Reactive Sulfide	ND (2.0)		7.3.4.1		1	MJV	04/21/16 7:30	mg/kg	CD62101

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604486

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Total Metals										
Batch CD62002 - 3050B										
Blank										
Arsenic	ND	2.50	mg/kg wet							
Barium	ND	2.50	mg/kg wet							
Cadmium	ND	0.50	mg/kg wet							
Chromium	ND	1.00	mg/kg wet							
Lead	ND	5.00	mg/kg wet							
Selenium	ND	0.50	mg/kg wet							
Silver	ND	0.50	mg/kg wet							
LCS										
Arsenic	145	9.62	mg/kg wet	161.0		90	80-120			
Barium	292	9.62	mg/kg wet	351.0		83	80-120			
Cadmium	158	1.92	mg/kg wet	190.0		83	80-120			
Chromium	75.0	3.85	mg/kg wet	87.90		85	80-120			
Lead	125	19.2	mg/kg wet	138.0		91	80-120			
Selenium	305	48.1	mg/kg wet	305.0		100	80-120			
Silver	52.2	1.92	mg/kg wet	58.00		90	80-120			
LCS Dup										
Arsenic	150	8.93	mg/kg wet	161.0		93	80-120	4	20	
Barium	315	8.93	mg/kg wet	351.0		90	80-120	8	20	
Cadmium	166	1.79	mg/kg wet	190.0		88	80-120	5	20	
Chromium	78.7	3.57	mg/kg wet	87.90		90	80-120	5	20	
Lead	128	17.9	mg/kg wet	138.0		93	80-120	2	20	
Selenium	312	44.6	mg/kg wet	305.0		102	80-120	3	20	
Silver	54.5	1.79	mg/kg wet	58.00		94	80-120	4	20	
Batch CD62006 - 7471B										
Blank										
Mercury	ND	0.033	mg/kg wet							
LCS										
Mercury	16.7	1.65	mg/kg wet	15.90		105	80-120			
LCS Dup										
Mercury	16.8	1.74	mg/kg wet	15.90		106	80-120	0.5	20	
1311 TCLP Metals										
Batch CD62212 - 3005A_TCLP										
Blank										
Lead	ND	0.050	mg/L							
Blank										
Lead	ND	0.050	mg/L							
LCS										
Lead	0.498	0.050	mg/L	0.5000		100	80-120			
LCS Dup										
Lead	0.487	0.050	mg/L	0.5000		97	80-120	2	20	

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604486

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Methanol										
Batch CD62038 - 5035										
Blank										
1,1,1,2-Tetrachloroethane	ND	0.200	mg/kg wet							
1,1,1-Trichloroethane	ND	0.200	mg/kg wet							
1,1,2,2-Tetrachloroethane	ND	0.200	mg/kg wet							
1,1,2-Trichloroethane	ND	0.200	mg/kg wet							
1,1-Dichloroethane	ND	0.200	mg/kg wet							
1,1-Dichloroethene	ND	0.200	mg/kg wet							
1,1-Dichloropropene	ND	0.200	mg/kg wet							
1,2,3-Trichlorobenzene	ND	0.200	mg/kg wet							
1,2,3-Trichloropropane	ND	0.200	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.200	mg/kg wet							
1,2,4-Trimethylbenzene	ND	0.200	mg/kg wet							
1,2-Dibromo-3-Chloropropane	ND	1.00	mg/kg wet							
1,2-Dibromoethane	ND	0.200	mg/kg wet							
1,2-Dichlorobenzene	ND	0.200	mg/kg wet							
1,2-Dichloroethane	ND	0.200	mg/kg wet							
1,2-Dichloropropane	ND	0.200	mg/kg wet							
1,3,5-Trimethylbenzene	ND	0.200	mg/kg wet							
1,3-Dichlorobenzene	ND	0.200	mg/kg wet							
1,3-Dichloropropane	ND	0.200	mg/kg wet							
1,4-Dichlorobenzene	ND	0.200	mg/kg wet							
1,4-Dioxane - Screen	ND	40.0	mg/kg wet							
2,2-Dichloropropane	ND	0.200	mg/kg wet							
2-Butanone	ND	1.00	mg/kg wet							
2-Chlorotoluene	ND	0.200	mg/kg wet							
2-Hexanone	ND	1.00	mg/kg wet							
4-Chlorotoluene	ND	0.200	mg/kg wet							
4-Isopropyltoluene	ND	0.200	mg/kg wet							
4-Methyl-2-Pentanone	ND	1.00	mg/kg wet							
Acetone	ND	1.00	mg/kg wet							
Benzene	ND	0.200	mg/kg wet							
Bromobenzene	ND	0.200	mg/kg wet							
Bromochloromethane	ND	0.200	mg/kg wet							
Bromodichloromethane	ND	0.200	mg/kg wet							
Bromoform	ND	0.200	mg/kg wet							
Bromomethane	ND	0.200	mg/kg wet							
Carbon Disulfide	ND	0.200	mg/kg wet							
Carbon Tetrachloride	ND	0.200	mg/kg wet							
Chlorobenzene	ND	0.200	mg/kg wet							
Chloroethane	ND	0.200	mg/kg wet							
Chloroform	ND	0.200	mg/kg wet							
Chloromethane	ND	0.200	mg/kg wet							
cis-1,2-Dichloroethene	ND	0.200	mg/kg wet							
cis-1,3-Dichloropropene	ND	0.200	mg/kg wet							
Dibromochloromethane	ND	0.200	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604486

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Methanol										
Batch CD62038 - 5035										
Dibromomethane	ND	0.200	mg/kg wet							
Dichlorodifluoromethane	ND	0.200	mg/kg wet							
Diethyl Ether	ND	0.200	mg/kg wet							
Di-isopropyl ether	ND	0.200	mg/kg wet							
Ethyl tertiary-butyl ether	ND	0.200	mg/kg wet							
Ethylbenzene	ND	0.200	mg/kg wet							
Hexachlorobutadiene	ND	0.200	mg/kg wet							
Isopropylbenzene	ND	0.200	mg/kg wet							
Methyl tert-Butyl Ether	ND	0.200	mg/kg wet							
Methylene Chloride	ND	0.400	mg/kg wet							
Naphthalene	ND	0.200	mg/kg wet							
n-Butylbenzene	ND	0.200	mg/kg wet							
n-Propylbenzene	ND	0.200	mg/kg wet							
sec-Butylbenzene	ND	0.200	mg/kg wet							
Styrene	ND	0.200	mg/kg wet							
tert-Butylbenzene	ND	0.200	mg/kg wet							
Tertiary-amyl methyl ether	ND	0.200	mg/kg wet							
Tetrachloroethene	ND	0.200	mg/kg wet							
Tetrahydrofuran	ND	1.00	mg/kg wet							
Toluene	ND	0.200	mg/kg wet							
trans-1,2-Dichloroethene	ND	0.200	mg/kg wet							
trans-1,3-Dichloropropene	ND	0.200	mg/kg wet							
Trichloroethene	ND	0.200	mg/kg wet							
Trichlorofluoromethane	ND	0.200	mg/kg wet							
Vinyl Chloride	ND	0.200	mg/kg wet							
Xylene O	ND	0.200	mg/kg wet							
Xylene P,M	ND	0.400	mg/kg wet							
Xylenes (Total)	ND	0.400	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	*4.80*		mg/kg wet	*5.000*		*96*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*4.65*		mg/kg wet	*5.000*		*93*	*70-130*			
Surrogate: Dibromofluoromethane	*4.67*		mg/kg wet	*5.000*		*93*	*70-130*			
Surrogate: Toluene-d8	*4.76*		mg/kg wet	*5.000*		*95*	*70-130*			
LCS										
1,1,1,2-Tetrachloroethane	1.95	0.200	mg/kg wet	2.000		98	70-130			
1,1,1-Trichloroethane	2.00	0.200	mg/kg wet	2.000		100	70-130			
1,1,2,2-Tetrachloroethane	2.07	0.200	mg/kg wet	2.000		104	70-130			
1,1,2-Trichloroethane	1.97	0.200	mg/kg wet	2.000		98	70-130			
1,1-Dichloroethane	1.94	0.200	mg/kg wet	2.000		97	70-130			
1,1-Dichloroethene	1.40	0.200	mg/kg wet	2.000		70	70-130			
1,1-Dichloropropene	1.98	0.200	mg/kg wet	2.000		99	70-130			
1,2,3-Trichlorobenzene	2.00	0.200	mg/kg wet	2.000		100	70-130			
1,2,3-Trichloropropane	2.03	0.200	mg/kg wet	2.000		102	70-130			
1,2,4-Trichlorobenzene	1.98	0.200	mg/kg wet	2.000		99	70-130			
1,2,4-Trimethylbenzene	1.98	0.200	mg/kg wet	2.000		99	70-130			
1,2-Dibromo-3-Chloropropane	1.82	1.00	mg/kg wet	2.000		91	70-130			

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604486

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Methanol										
Batch CD62038 - 5035										
1,2-Dibromoethane	2.08	0.200	mg/kg wet	2.000		104	70-130			
1,2-Dichlorobenzene	2.06	0.200	mg/kg wet	2.000		103	70-130			
1,2-Dichloroethane	1.92	0.200	mg/kg wet	2.000		96	70-130			
1,2-Dichloropropane	1.89	0.200	mg/kg wet	2.000		94	70-130			
1,3,5-Trimethylbenzene	2.07	0.200	mg/kg wet	2.000		103	70-130			
1,3-Dichlorobenzene	2.08	0.200	mg/kg wet	2.000		104	70-130			
1,3-Dichloropropane	2.12	0.200	mg/kg wet	2.000		106	70-130			
1,4-Dichlorobenzene	2.08	0.200	mg/kg wet	2.000		104	70-130			
1,4-Dioxane - Screen	48.4	40.0	mg/kg wet	40.00		121	44-241			
2,2-Dichloropropane	2.01	0.200	mg/kg wet	2.000		100	70-130			
2-Butanone	9.83	1.00	mg/kg wet	10.00		98	70-130			
2-Chlorotoluene	2.08	0.200	mg/kg wet	2.000		104	70-130			
2-Hexanone	10.3	1.00	mg/kg wet	10.00		103	70-130			
4-Chlorotoluene	2.11	0.200	mg/kg wet	2.000		106	70-130			
4-Isopropyltoluene	2.02	0.200	mg/kg wet	2.000		101	70-130			
4-Methyl-2-Pentanone	10.0	1.00	mg/kg wet	10.00		100	70-130			
Acetone	7.48	1.00	mg/kg wet	10.00		75	70-130			
Benzene	1.93	0.200	mg/kg wet	2.000		97	70-130			
Bromobenzene	2.07	0.200	mg/kg wet	2.000		104	70-130			
Bromochloromethane	1.96	0.200	mg/kg wet	2.000		98	70-130			
Bromodichloromethane	1.90	0.200	mg/kg wet	2.000		95	70-130			
Bromoform	2.02	0.200	mg/kg wet	2.000		101	70-130			
Bromomethane	2.05	0.200	mg/kg wet	2.000		102	70-130			
Carbon Disulfide	2.03	0.200	mg/kg wet	2.000		102	70-130			
Carbon Tetrachloride	2.09	0.200	mg/kg wet	2.000		104	70-130			
Chlorobenzene	2.09	0.200	mg/kg wet	2.000		104	70-130			
Chloroethane	1.85	0.200	mg/kg wet	2.000		92	70-130			
Chloroform	1.93	0.200	mg/kg wet	2.000		96	70-130			
Chloromethane	1.89	0.200	mg/kg wet	2.000		94	70-130			
cis-1,2-Dichloroethene	2.09	0.200	mg/kg wet	2.000		105	70-130			
cis-1,3-Dichloropropene	2.15	0.200	mg/kg wet	2.000		108	70-130			
Dibromochloromethane	1.88	0.200	mg/kg wet	2.000		94	70-130			
Dibromomethane	1.95	0.200	mg/kg wet	2.000		97	70-130			
Dichlorodifluoromethane	1.45	0.200	mg/kg wet	2.000		72	70-130			
Diethyl Ether	1.39	0.200	mg/kg wet	2.000		69	70-130			B-
Di-isopropyl ether	2.00	0.200	mg/kg wet	2.000		100	70-130			
Ethyl tertiary-butyl ether	1.97	0.200	mg/kg wet	2.000		99	70-130			
Ethylbenzene	2.05	0.200	mg/kg wet	2.000		102	70-130			
Hexachlorobutadiene	2.16	0.200	mg/kg wet	2.000		108	70-130			
Isopropylbenzene	2.11	0.200	mg/kg wet	2.000		106	70-130			
Methyl tert-Butyl Ether	1.97	0.200	mg/kg wet	2.000		99	70-130			
Methylene Chloride	2.63	0.400	mg/kg wet	2.000		132	70-130			B+
Naphthalene	2.00	0.200	mg/kg wet	2.000		100	70-130			
n-Butylbenzene	2.07	0.200	mg/kg wet	2.000		104	70-130			
n-Propylbenzene	2.10	0.200	mg/kg wet	2.000		105	70-130			

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604486

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Methanol										
Batch CD62038 - 5035										
sec-Butylbenzene	2.10	0.200	mg/kg wet	2.000		105	70-130			
Styrene	2.06	0.200	mg/kg wet	2.000		103	70-130			
tert-Butylbenzene	2.08	0.200	mg/kg wet	2.000		104	70-130			
Tertiary-amyl methyl ether	2.00	0.200	mg/kg wet	2.000		100	70-130			
Tetrachloroethene	1.67	0.200	mg/kg wet	2.000		84	70-130			
Tetrahydrofuran	2.30	1.00	mg/kg wet	2.000		115	70-130			
Toluene	2.00	0.200	mg/kg wet	2.000		100	70-130			
trans-1,2-Dichloroethene	2.08	0.200	mg/kg wet	2.000		104	70-130			
trans-1,3-Dichloropropene	1.84	0.200	mg/kg wet	2.000		92	70-130			
Trichloroethene	1.93	0.200	mg/kg wet	2.000		96	70-130			
Trichlorofluoromethane	1.58	0.200	mg/kg wet	2.000		79	70-130			
Vinyl Chloride	1.80	0.200	mg/kg wet	2.000		90	70-130			
Xylene O	2.15	0.200	mg/kg wet	2.000		108	70-130			
Xylene P,M	4.31	0.400	mg/kg wet	4.000		108	70-130			
Xylenes (Total)	6.46	0.400	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	*4.90*		mg/kg wet	*5.000*		*98*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*4.95*		mg/kg wet	*5.000*		*99*	*70-130*			
Surrogate: Dibromofluoromethane	*4.75*		mg/kg wet	*5.000*		*95*	*70-130*			
Surrogate: Toluene-d8	*4.88*		mg/kg wet	*5.000*		*98*	*70-130*			
LCS Dup										
1,1,1,2-Tetrachloroethane	1.86	0.200	mg/kg wet	2.000		93	70-130	5	25	
1,1,1-Trichloroethane	1.98	0.200	mg/kg wet	2.000		99	70-130	1	25	
1,1,2,2-Tetrachloroethane	2.10	0.200	mg/kg wet	2.000		105	70-130	2	25	
1,1,2-Trichloroethane	1.92	0.200	mg/kg wet	2.000		96	70-130	2	25	
1,1-Dichloroethane	1.90	0.200	mg/kg wet	2.000		95	70-130	2	25	
1,1-Dichloroethene	2.18	0.200	mg/kg wet	2.000		109	70-130	44	25	D+
1,1-Dichloropropene	1.95	0.200	mg/kg wet	2.000		98	70-130	1	25	
1,2,3-Trichlorobenzene	1.95	0.200	mg/kg wet	2.000		98	70-130	2	25	
1,2,3-Trichloropropane	2.01	0.200	mg/kg wet	2.000		100	70-130	1	25	
1,2,4-Trichlorobenzene	1.91	0.200	mg/kg wet	2.000		96	70-130	3	25	
1,2,4-Trimethylbenzene	1.99	0.200	mg/kg wet	2.000		100	70-130	0.7	25	
1,2-Dibromo-3-Chloropropane	1.86	1.00	mg/kg wet	2.000		93	70-130	2	25	
1,2-Dibromoethane	2.00	0.200	mg/kg wet	2.000		100	70-130	4	25	
1,2-Dichlorobenzene	2.03	0.200	mg/kg wet	2.000		102	70-130	1	25	
1,2-Dichloroethane	1.93	0.200	mg/kg wet	2.000		96	70-130	0.1	25	
1,2-Dichloropropane	1.89	0.200	mg/kg wet	2.000		94	70-130	0	25	
1,3,5-Trimethylbenzene	2.02	0.200	mg/kg wet	2.000		101	70-130	2	25	
1,3-Dichlorobenzene	2.09	0.200	mg/kg wet	2.000		105	70-130	0.6	25	
1,3-Dichloropropane	2.06	0.200	mg/kg wet	2.000		103	70-130	3	25	
1,4-Dichlorobenzene	2.05	0.200	mg/kg wet	2.000		102	70-130	2	25	
1,4-Dioxane - Screen	43.0	40.0	mg/kg wet	40.00		107	44-241	12	200	
2,2-Dichloropropane	1.95	0.200	mg/kg wet	2.000		98	70-130	3	25	
2-Butanone	9.89	1.00	mg/kg wet	10.00		99	70-130	0.6	25	
2-Chlorotoluene	2.08	0.200	mg/kg wet	2.000		104	70-130	0.4	25	
2-Hexanone	10.5	1.00	mg/kg wet	10.00		105	70-130	2	25	

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604486

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Methanol										
Batch CD62038 - 5035										
4-Chlorotoluene	2.09	0.200	mg/kg wet	2.000		105	70-130	0.9	25	
4-Isopropyltoluene	2.00	0.200	mg/kg wet	2.000		100	70-130	0.8	25	
4-Methyl-2-Pentanone	10.4	1.00	mg/kg wet	10.00		104	70-130	4	25	
Acetone	7.57	1.00	mg/kg wet	10.00		76	70-130	1	25	
Benzene	1.92	0.200	mg/kg wet	2.000		96	70-130	0.8	25	
Bromobenzene	2.04	0.200	mg/kg wet	2.000		102	70-130	2	25	
Bromochloromethane	1.90	0.200	mg/kg wet	2.000		95	70-130	3	25	
Bromodichloromethane	1.86	0.200	mg/kg wet	2.000		93	70-130	2	25	
Bromoform	1.93	0.200	mg/kg wet	2.000		96	70-130	4	25	
Bromomethane	1.98	0.200	mg/kg wet	2.000		99	70-130	3	25	
Carbon Disulfide	1.76	0.200	mg/kg wet	2.000		88	70-130	14	25	
Carbon Tetrachloride	2.05	0.200	mg/kg wet	2.000		103	70-130	2	25	
Chlorobenzene	2.00	0.200	mg/kg wet	2.000		100	70-130	4	25	
Chloroethane	1.96	0.200	mg/kg wet	2.000		98	70-130	6	25	
Chloroform	1.90	0.200	mg/kg wet	2.000		95	70-130	1	25	
Chloromethane	1.83	0.200	mg/kg wet	2.000		91	70-130	3	25	
cis-1,2-Dichloroethene	2.01	0.200	mg/kg wet	2.000		100	70-130	4	25	
cis-1,3-Dichloropropene	2.05	0.200	mg/kg wet	2.000		103	70-130	5	25	
Dibromochloromethane	1.79	0.200	mg/kg wet	2.000		90	70-130	5	25	
Dibromomethane	1.97	0.200	mg/kg wet	2.000		98	70-130	1	25	
Dichlorodifluoromethane	1.40	0.200	mg/kg wet	2.000		70	70-130	3	25	
Diethyl Ether	1.41	0.200	mg/kg wet	2.000		70	70-130	1	25	
Di-isopropyl ether	1.95	0.200	mg/kg wet	2.000		98	70-130	2	25	
Ethyl tertiary-butyl ether	1.96	0.200	mg/kg wet	2.000		98	70-130	0.7	25	
Ethylbenzene	1.99	0.200	mg/kg wet	2.000		100	70-130	3	25	
Hexachlorobutadiene	2.05	0.200	mg/kg wet	2.000		102	70-130	5	25	
Isopropylbenzene	2.10	0.200	mg/kg wet	2.000		105	70-130	0.3	25	
Methyl tert-Butyl Ether	1.96	0.200	mg/kg wet	2.000		98	70-130	0.5	25	
Methylene Chloride	1.64	0.400	mg/kg wet	2.000		82	70-130	47	25	D+
Naphthalene	2.00	0.200	mg/kg wet	2.000		100	70-130	0.1	25	
n-Butylbenzene	2.01	0.200	mg/kg wet	2.000		100	70-130	3	25	
n-Propylbenzene	2.06	0.200	mg/kg wet	2.000		103	70-130	2	25	
sec-Butylbenzene	2.09	0.200	mg/kg wet	2.000		105	70-130	0.1	25	
Styrene	1.99	0.200	mg/kg wet	2.000		99	70-130	4	25	
tert-Butylbenzene	2.10	0.200	mg/kg wet	2.000		105	70-130	1	25	
Tertiary-amyl methyl ether	1.98	0.200	mg/kg wet	2.000		99	70-130	0.9	25	
Tetrachloroethene	1.64	0.200	mg/kg wet	2.000		82	70-130	2	25	
Tetrahydrofuran	1.99	1.00	mg/kg wet	2.000		100	70-130	14	25	
Toluene	1.98	0.200	mg/kg wet	2.000		99	70-130	0.7	25	
trans-1,2-Dichloroethene	2.01	0.200	mg/kg wet	2.000		101	70-130	3	25	
trans-1,3-Dichloropropene	1.77	0.200	mg/kg wet	2.000		88	70-130	4	25	
Trichloroethene	1.90	0.200	mg/kg wet	2.000		95	70-130	1	25	
Trichlorofluoromethane	1.56	0.200	mg/kg wet	2.000		78	70-130	2	25	
Vinyl Chloride	1.79	0.200	mg/kg wet	2.000		89	70-130	1	25	
Xylene O	2.04	0.200	mg/kg wet	2.000		102	70-130	5	25	

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604486

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Methanol										
Batch CD62038 - 5035										
Xylene P,M	4.18	0.400	mg/kg wet	4.000		105	70-130	3	25	
Xylenes (Total)	6.22	0.400	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	*4.90*		mg/kg wet	*5.000*		*98*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*4.79*		mg/kg wet	*5.000*		*96*	*70-130*			
Surrogate: Dibromofluoromethane	*4.76*		mg/kg wet	*5.000*		*95*	*70-130*			
Surrogate: Toluene-d8	*4.85*		mg/kg wet	*5.000*		*97*	*70-130*			
Batch CD62122 - 5035										
Blank										
1,1,1,2-Tetrachloroethane	ND	0.200	mg/kg wet							
1,1,1-Trichloroethane	ND	0.200	mg/kg wet							
1,1,2,2-Tetrachloroethane	ND	0.200	mg/kg wet							
1,1,2-Trichloroethane	ND	0.200	mg/kg wet							
1,1-Dichloroethane	ND	0.200	mg/kg wet							
1,1-Dichloroethene	ND	0.200	mg/kg wet							
1,1-Dichloropropene	ND	0.200	mg/kg wet							
1,2,3-Trichlorobenzene	ND	0.200	mg/kg wet							
1,2,3-Trichloropropane	ND	0.200	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.200	mg/kg wet							
1,2,4-Trimethylbenzene	ND	0.200	mg/kg wet							
1,2-Dibromo-3-Chloropropane	ND	1.00	mg/kg wet							
1,2-Dibromoethane	ND	0.200	mg/kg wet							
1,2-Dichlorobenzene	ND	0.200	mg/kg wet							
1,2-Dichloroethane	ND	0.200	mg/kg wet							
1,2-Dichloropropane	ND	0.200	mg/kg wet							
1,3,5-Trimethylbenzene	ND	0.200	mg/kg wet							
1,3-Dichlorobenzene	ND	0.200	mg/kg wet							
1,3-Dichloropropane	ND	0.200	mg/kg wet							
1,4-Dichlorobenzene	ND	0.200	mg/kg wet							
1,4-Dioxane - Screen	ND	40.0	mg/kg wet							
2,2-Dichloropropane	ND	0.200	mg/kg wet							
2-Butanone	ND	1.00	mg/kg wet							
2-Chlorotoluene	ND	0.200	mg/kg wet							
2-Hexanone	ND	1.00	mg/kg wet							
4-Chlorotoluene	ND	0.200	mg/kg wet							
4-Isopropyltoluene	ND	0.200	mg/kg wet							
4-Methyl-2-Pentanone	ND	1.00	mg/kg wet							
Acetone	ND	1.00	mg/kg wet							
Benzene	ND	0.200	mg/kg wet							
Bromobenzene	ND	0.200	mg/kg wet							
Bromochloromethane	ND	0.200	mg/kg wet							
Bromodichloromethane	ND	0.200	mg/kg wet							
Bromoform	ND	0.200	mg/kg wet							
Bromomethane	ND	0.200	mg/kg wet							
Carbon Disulfide	ND	0.200	mg/kg wet							
Carbon Tetrachloride	ND	0.200	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604486

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Methanol										
Batch CD62122 - 5035										
Chlorobenzene	ND	0.200	mg/kg wet							
Chloroethane	ND	0.200	mg/kg wet							
Chloroform	ND	0.200	mg/kg wet							
Chloromethane	ND	0.200	mg/kg wet							
cis-1,2-Dichloroethene	ND	0.200	mg/kg wet							
cis-1,3-Dichloropropene	ND	0.200	mg/kg wet							
Dibromochloromethane	ND	0.200	mg/kg wet							
Dibromomethane	ND	0.200	mg/kg wet							
Dichlorodifluoromethane	ND	0.200	mg/kg wet							
Diethyl Ether	ND	0.200	mg/kg wet							
Di-isopropyl ether	ND	0.200	mg/kg wet							
Ethyl tertiary-butyl ether	ND	0.200	mg/kg wet							
Ethylbenzene	ND	0.200	mg/kg wet							
Hexachlorobutadiene	ND	0.200	mg/kg wet							
Isopropylbenzene	ND	0.200	mg/kg wet							
Methyl tert-Butyl Ether	ND	0.200	mg/kg wet							
Methylene Chloride	ND	0.400	mg/kg wet							
Naphthalene	ND	0.200	mg/kg wet							
n-Butylbenzene	ND	0.200	mg/kg wet							
n-Propylbenzene	ND	0.200	mg/kg wet							
sec-Butylbenzene	ND	0.200	mg/kg wet							
Styrene	ND	0.200	mg/kg wet							
tert-Butylbenzene	ND	0.200	mg/kg wet							
Tertiary-amyl methyl ether	ND	0.200	mg/kg wet							
Tetrachloroethene	ND	0.200	mg/kg wet							
Tetrahydrofuran	ND	1.00	mg/kg wet							
Toluene	ND	0.200	mg/kg wet							
trans-1,2-Dichloroethene	ND	0.200	mg/kg wet							
trans-1,3-Dichloropropene	ND	0.200	mg/kg wet							
Trichloroethene	ND	0.200	mg/kg wet							
Trichlorofluoromethane	ND	0.200	mg/kg wet							
Vinyl Chloride	ND	0.200	mg/kg wet							
Xylene O	ND	0.200	mg/kg wet							
Xylene P,M	ND	0.400	mg/kg wet							
Xylenes (Total)	ND	0.400	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	*4.33*		mg/kg wet	*5.000*		*87*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*4.32*		mg/kg wet	*5.000*		*86*	*70-130*			
Surrogate: Dibromofluoromethane	*4.74*		mg/kg wet	*5.000*		*95*	*70-130*			
Surrogate: Toluene-d8	*5.38*		mg/kg wet	*5.000*		*108*	*70-130*			
LCS										
1,1,1,2-Tetrachloroethane	1.92	0.200	mg/kg wet	2.000		96	70-130			
1,1,1-Trichloroethane	1.75	0.200	mg/kg wet	2.000		87	70-130			
1,1,2,2-Tetrachloroethane	1.97	0.200	mg/kg wet	2.000		98	70-130			
1,1,2-Trichloroethane	1.78	0.200	mg/kg wet	2.000		89	70-130			
1,1-Dichloroethane	1.78	0.200	mg/kg wet	2.000		89	70-130			

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604486

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Methanol										
Batch CD62122 - 5035										
1,1-Dichloroethene	2.29	0.200	mg/kg wet	2.000		115	70-130			
1,1-Dichloropropene	1.87	0.200	mg/kg wet	2.000		94	70-130			
1,2,3-Trichlorobenzene	2.30	0.200	mg/kg wet	2.000		115	70-130			
1,2,3-Trichloropropane	1.97	0.200	mg/kg wet	2.000		99	70-130			
1,2,4-Trichlorobenzene	2.15	0.200	mg/kg wet	2.000		108	70-130			
1,2,4-Trimethylbenzene	1.92	0.200	mg/kg wet	2.000		96	70-130			
1,2-Dibromo-3-Chloropropane	2.22	1.00	mg/kg wet	2.000		111	70-130			
1,2-Dibromoethane	2.01	0.200	mg/kg wet	2.000		100	70-130			
1,2-Dichlorobenzene	2.07	0.200	mg/kg wet	2.000		103	70-130			
1,2-Dichloroethane	1.79	0.200	mg/kg wet	2.000		90	70-130			
1,2-Dichloropropane	1.85	0.200	mg/kg wet	2.000		93	70-130			
1,3,5-Trimethylbenzene	2.00	0.200	mg/kg wet	2.000		100	70-130			
1,3-Dichlorobenzene	2.06	0.200	mg/kg wet	2.000		103	70-130			
1,3-Dichloropropane	2.11	0.200	mg/kg wet	2.000		105	70-130			
1,4-Dichlorobenzene	2.04	0.200	mg/kg wet	2.000		102	70-130			
1,4-Dioxane - Screen	39.2	40.0	mg/kg wet	40.00		98	44-241			
2,2-Dichloropropane	1.77	0.200	mg/kg wet	2.000		88	70-130			
2-Butanone	8.68	1.00	mg/kg wet	10.00		87	70-130			
2-Chlorotoluene	2.14	0.200	mg/kg wet	2.000		107	70-130			
2-Hexanone	10.9	1.00	mg/kg wet	10.00		109	70-130			
4-Chlorotoluene	2.15	0.200	mg/kg wet	2.000		107	70-130			
4-Isopropyltoluene	2.03	0.200	mg/kg wet	2.000		102	70-130			
4-Methyl-2-Pentanone	10.2	1.00	mg/kg wet	10.00		102	70-130			
Acetone	11.6	1.00	mg/kg wet	10.00		116	70-130			
Benzene	1.84	0.200	mg/kg wet	2.000		92	70-130			
Bromobenzene	2.16	0.200	mg/kg wet	2.000		108	70-130			
Bromochloromethane	1.85	0.200	mg/kg wet	2.000		93	70-130			
Bromodichloromethane	1.77	0.200	mg/kg wet	2.000		88	70-130			
Bromoform	1.90	0.200	mg/kg wet	2.000		95	70-130			
Bromomethane	2.15	0.200	mg/kg wet	2.000		108	70-130			
Carbon Disulfide	2.16	0.200	mg/kg wet	2.000		108	70-130			
Carbon Tetrachloride	1.81	0.200	mg/kg wet	2.000		90	70-130			
Chlorobenzene	1.95	0.200	mg/kg wet	2.000		98	70-130			
Chloroethane	1.71	0.200	mg/kg wet	2.000		85	70-130			
Chloroform	1.73	0.200	mg/kg wet	2.000		87	70-130			
Chloromethane	1.62	0.200	mg/kg wet	2.000		81	70-130			
cis-1,2-Dichloroethene	1.96	0.200	mg/kg wet	2.000		98	70-130			
cis-1,3-Dichloropropene	1.96	0.200	mg/kg wet	2.000		98	70-130			
Dibromochloromethane	2.11	0.200	mg/kg wet	2.000		105	70-130			
Dibromomethane	1.84	0.200	mg/kg wet	2.000		92	70-130			
Dichlorodifluoromethane	1.43	0.200	mg/kg wet	2.000		72	70-130			
Diethyl Ether	2.40	0.200	mg/kg wet	2.000		120	70-130			
Di-isopropyl ether	1.78	0.200	mg/kg wet	2.000		89	70-130			
Ethyl tertiary-butyl ether	1.89	0.200	mg/kg wet	2.000		94	70-130			
Ethylbenzene	2.09	0.200	mg/kg wet	2.000		104	70-130			

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604486

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Methanol										
Batch CD62122 - 5035										
Hexachlorobutadiene	2.33	0.200	mg/kg wet	2.000		117	70-130			
Isopropylbenzene	2.04	0.200	mg/kg wet	2.000		102	70-130			
Methyl tert-Butyl Ether	1.90	0.200	mg/kg wet	2.000		95	70-130			
Methylene Chloride	1.96	0.400	mg/kg wet	2.000		98	70-130			
Naphthalene	2.25	0.200	mg/kg wet	2.000		113	70-130			
n-Butylbenzene	2.07	0.200	mg/kg wet	2.000		104	70-130			
n-Propylbenzene	2.03	0.200	mg/kg wet	2.000		101	70-130			
sec-Butylbenzene	2.14	0.200	mg/kg wet	2.000		107	70-130			
Styrene	1.89	0.200	mg/kg wet	2.000		95	70-130			
tert-Butylbenzene	2.09	0.200	mg/kg wet	2.000		104	70-130			
Tertiary-amyl methyl ether	1.85	0.200	mg/kg wet	2.000		92	70-130			
Tetrachloroethene	1.69	0.200	mg/kg wet	2.000		84	70-130			
Tetrahydrofuran	2.08	1.00	mg/kg wet	2.000		104	70-130			
Toluene	1.99	0.200	mg/kg wet	2.000		100	70-130			
trans-1,2-Dichloroethene	1.99	0.200	mg/kg wet	2.000		100	70-130			
trans-1,3-Dichloropropene	1.90	0.200	mg/kg wet	2.000		95	70-130			
Trichloroethene	1.84	0.200	mg/kg wet	2.000		92	70-130			
Trichlorofluoromethane	1.75	0.200	mg/kg wet	2.000		88	70-130			
Vinyl Chloride	1.71	0.200	mg/kg wet	2.000		85	70-130			
Xylene O	1.98	0.200	mg/kg wet	2.000		99	70-130			
Xylene P,M	4.02	0.400	mg/kg wet	4.000		100	70-130			
Xylenes (Total)	5.99	0.400	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	*4.31*		mg/kg wet	*5.000*		*86*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*5.07*		mg/kg wet	*5.000*		*101*	*70-130*			
Surrogate: Dibromofluoromethane	*4.65*		mg/kg wet	*5.000*		*93*	*70-130*			
Surrogate: Toluene-d8	*5.60*		mg/kg wet	*5.000*		*112*	*70-130*			
LCS Dup										
1,1,1,2-Tetrachloroethane	1.87	0.200	mg/kg wet	2.000		94	70-130	3	25	
1,1,1-Trichloroethane	1.78	0.200	mg/kg wet	2.000		89	70-130	2	25	
1,1,2,2-Tetrachloroethane	1.93	0.200	mg/kg wet	2.000		96	70-130	2	25	
1,1,2-Trichloroethane	1.71	0.200	mg/kg wet	2.000		85	70-130	4	25	
1,1-Dichloroethane	1.72	0.200	mg/kg wet	2.000		86	70-130	4	25	
1,1-Dichloroethene	2.38	0.200	mg/kg wet	2.000		119	70-130	4	25	
1,1-Dichloropropene	1.86	0.200	mg/kg wet	2.000		93	70-130	0.8	25	
1,2,3-Trichlorobenzene	2.05	0.200	mg/kg wet	2.000		102	70-130	12	25	
1,2,3-Trichloropropane	1.87	0.200	mg/kg wet	2.000		93	70-130	6	25	
1,2,4-Trichlorobenzene	2.06	0.200	mg/kg wet	2.000		103	70-130	4	25	
1,2,4-Trimethylbenzene	1.88	0.200	mg/kg wet	2.000		94	70-130	2	25	
1,2-Dibromo-3-Chloropropane	1.85	1.00	mg/kg wet	2.000		93	70-130	18	25	
1,2-Dibromoethane	2.00	0.200	mg/kg wet	2.000		100	70-130	0.4	25	
1,2-Dichlorobenzene	2.01	0.200	mg/kg wet	2.000		100	70-130	3	25	
1,2-Dichloroethane	1.74	0.200	mg/kg wet	2.000		87	70-130	3	25	
1,2-Dichloropropane	1.81	0.200	mg/kg wet	2.000		91	70-130	2	25	
1,3,5-Trimethylbenzene	1.91	0.200	mg/kg wet	2.000		96	70-130	5	25	
1,3-Dichlorobenzene	2.01	0.200	mg/kg wet	2.000		100	70-130	2	25	

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604486

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Methanol										
Batch CD62122 - 5035										
1,3-Dichloropropane	2.09	0.200	mg/kg wet	2.000		105	70-130	0.7	25	
1,4-Dichlorobenzene	2.02	0.200	mg/kg wet	2.000		101	70-130	1	25	
1,4-Dioxane - Screen	41.9	40.0	mg/kg wet	40.00		105	44-241	7	200	
2,2-Dichloropropane	1.80	0.200	mg/kg wet	2.000		90	70-130	2	25	
2-Butanone	8.52	1.00	mg/kg wet	10.00		85	70-130	2	25	
2-Chlorotoluene	2.08	0.200	mg/kg wet	2.000		104	70-130	3	25	
2-Hexanone	9.63	1.00	mg/kg wet	10.00		96	70-130	12	25	
4-Chlorotoluene	2.07	0.200	mg/kg wet	2.000		104	70-130	3	25	
4-Isopropyltoluene	1.89	0.200	mg/kg wet	2.000		94	70-130	7	25	
4-Methyl-2-Pentanone	9.44	1.00	mg/kg wet	10.00		94	70-130	8	25	
Acetone	10.2	1.00	mg/kg wet	10.00		102	70-130	12	25	
Benzene	1.87	0.200	mg/kg wet	2.000		93	70-130	1	25	
Bromobenzene	2.06	0.200	mg/kg wet	2.000		103	70-130	5	25	
Bromochloromethane	1.77	0.200	mg/kg wet	2.000		89	70-130	4	25	
Bromodichloromethane	1.78	0.200	mg/kg wet	2.000		89	70-130	0.3	25	
Bromoform	1.78	0.200	mg/kg wet	2.000		89	70-130	6	25	
Bromomethane	2.11	0.200	mg/kg wet	2.000		106	70-130	2	25	
Carbon Disulfide	2.11	0.200	mg/kg wet	2.000		106	70-130	2	25	
Carbon Tetrachloride	1.86	0.200	mg/kg wet	2.000		93	70-130	3	25	
Chlorobenzene	1.98	0.200	mg/kg wet	2.000		99	70-130	1	25	
Chloroethane	1.81	0.200	mg/kg wet	2.000		91	70-130	6	25	
Chloroform	1.73	0.200	mg/kg wet	2.000		87	70-130	0.1	25	
Chloromethane	1.52	0.200	mg/kg wet	2.000		76	70-130	6	25	
cis-1,2-Dichloroethene	1.95	0.200	mg/kg wet	2.000		98	70-130	0.3	25	
cis-1,3-Dichloropropene	1.98	0.200	mg/kg wet	2.000		99	70-130	0.7	25	
Dibromochloromethane	2.06	0.200	mg/kg wet	2.000		103	70-130	2	25	
Dibromomethane	1.76	0.200	mg/kg wet	2.000		88	70-130	4	25	
Dichlorodifluoromethane	1.46	0.200	mg/kg wet	2.000		73	70-130	2	25	
Diethyl Ether	2.43	0.200	mg/kg wet	2.000		121	70-130	1	25	
Di-isopropyl ether	1.83	0.200	mg/kg wet	2.000		91	70-130	3	25	
Ethyl tertiary-butyl ether	1.89	0.200	mg/kg wet	2.000		94	70-130	0.1	25	
Ethylbenzene	2.09	0.200	mg/kg wet	2.000		105	70-130	0.3	25	
Hexachlorobutadiene	2.23	0.200	mg/kg wet	2.000		112	70-130	4	25	
Isopropylbenzene	2.02	0.200	mg/kg wet	2.000		101	70-130	1	25	
Methyl tert-Butyl Ether	1.87	0.200	mg/kg wet	2.000		94	70-130	2	25	
Methylene Chloride	1.95	0.400	mg/kg wet	2.000		98	70-130	0.7	25	
Naphthalene	2.07	0.200	mg/kg wet	2.000		104	70-130	8	25	
n-Butylbenzene	1.92	0.200	mg/kg wet	2.000		96	70-130	7	25	
n-Propylbenzene	1.95	0.200	mg/kg wet	2.000		98	70-130	4	25	
sec-Butylbenzene	1.98	0.200	mg/kg wet	2.000		99	70-130	8	25	
Styrene	1.89	0.200	mg/kg wet	2.000		94	70-130	0.3	25	
tert-Butylbenzene	2.02	0.200	mg/kg wet	2.000		101	70-130	3	25	
Tertiary-amyl methyl ether	1.93	0.200	mg/kg wet	2.000		96	70-130	4	25	
Tetrachloroethene	1.65	0.200	mg/kg wet	2.000		83	70-130	2	25	
Tetrahydrofuran	2.20	1.00	mg/kg wet	2.000		110	70-130	6	25	

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604486

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Methanol										
Batch CD62122 - 5035										
Toluene	2.01	0.200	mg/kg wet	2.000		101	70-130	1	25	
trans-1,2-Dichloroethene	1.99	0.200	mg/kg wet	2.000		100	70-130	0	25	
trans-1,3-Dichloropropene	1.86	0.200	mg/kg wet	2.000		93	70-130	3	25	
Trichloroethene	1.85	0.200	mg/kg wet	2.000		93	70-130	0.5	25	
Trichlorofluoromethane	1.76	0.200	mg/kg wet	2.000		88	70-130	0.8	25	
Vinyl Chloride	1.71	0.200	mg/kg wet	2.000		86	70-130	0.4	25	
Xylene O	1.94	0.200	mg/kg wet	2.000		97	70-130	2	25	
Xylene P,M	3.94	0.400	mg/kg wet	4.000		99	70-130	2	25	
Xylenes (Total)	5.88	0.400	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	*4.41*		mg/kg wet	*5.000*		*88*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*4.98*		mg/kg wet	*5.000*		*100*	*70-130*			
Surrogate: Dibromofluoromethane	*4.69*		mg/kg wet	*5.000*		*94*	*70-130*			
Surrogate: Toluene-d8	*5.60*		mg/kg wet	*5.000*		*112*	*70-130*			
8100M Total Petroleum Hydrocarbons										
Batch CD61836 - 3546										
Blank										
Decane (C10)	ND	0.2	mg/kg wet							
Docosane (C22)	ND	0.2	mg/kg wet							
Dodecane (C12)	ND	0.2	mg/kg wet							
Eicosane (C20)	ND	0.2	mg/kg wet							
Hexacosane (C26)	ND	0.2	mg/kg wet							
Hexadecane (C16)	ND	0.2	mg/kg wet							
Hexatriacontane (C36)	ND	0.2	mg/kg wet							
Nonadecane (C19)	ND	0.2	mg/kg wet							
Nonane (C9)	ND	0.2	mg/kg wet							
Octacosane (C28)	ND	0.2	mg/kg wet							
Octadecane (C18)	ND	0.2	mg/kg wet							
Tetracosane (C24)	ND	0.2	mg/kg wet							
Tetradecane (C14)	ND	0.2	mg/kg wet							
Total Petroleum Hydrocarbons	ND	10.0	mg/kg wet							
Triacontane (C30)	ND	0.2	mg/kg wet							
Surrogate: O-Terphenyl	*4.18*		mg/kg wet	*5.000*		*84*	*40-140*			
LCS										
Decane (C10)	2.4	0.2	mg/kg wet	2.500		94	40-140			
Docosane (C22)	2.5	0.2	mg/kg wet	2.500		98	40-140			
Dodecane (C12)	2.4	0.2	mg/kg wet	2.500		95	40-140			
Eicosane (C20)	2.5	0.2	mg/kg wet	2.500		99	40-140			
Hexacosane (C26)	2.5	0.2	mg/kg wet	2.500		99	40-140			
Hexadecane (C16)	2.4	0.2	mg/kg wet	2.500		98	40-140			
Hexatriacontane (C36)	2.3	0.2	mg/kg wet	2.500		94	40-140			
Nonadecane (C19)	2.5	0.2	mg/kg wet	2.500		100	40-140			
Nonane (C9)	2.0	0.2	mg/kg wet	2.500		79	30-140			
Octacosane (C28)	2.4	0.2	mg/kg wet	2.500		96	40-140			

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604486

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8100M Total Petroleum Hydrocarbons										
Batch CD61836 - 3546										
Octadecane (C18)	2.4	0.2	mg/kg wet	2.500		98	40-140			
Tetracosane (C24)	2.3	0.2	mg/kg wet	2.500		92	40-140			
Tetradecane (C14)	2.5	0.2	mg/kg wet	2.500		98	40-140			
Total Petroleum Hydrocarbons	34.3	10.0	mg/kg wet	35.00		98	40-140			
Triacontane (C30)	2.4	0.2	mg/kg wet	2.500		97	40-140			
Surrogate: O-Terphenyl	*4.96*		mg/kg wet	*5.000*		*99*	*40-140*			
LCS Dup										
Decane (C10)	2.2	0.2	mg/kg wet	2.500		89	40-140	6	25	
Docosane (C22)	2.3	0.2	mg/kg wet	2.500		93	40-140	6	25	
Dodecane (C12)	2.2	0.2	mg/kg wet	2.500		89	40-140	7	25	
Eicosane (C20)	2.3	0.2	mg/kg wet	2.500		93	40-140	6	25	
Hexacosane (C26)	2.3	0.2	mg/kg wet	2.500		93	40-140	5	25	
Hexadecane (C16)	2.3	0.2	mg/kg wet	2.500		91	40-140	7	25	
Hexatriacontane (C36)	2.2	0.2	mg/kg wet	2.500		90	40-140	4	25	
Nonadecane (C19)	2.4	0.2	mg/kg wet	2.500		94	40-140	6	25	
Nonane (C9)	1.9	0.2	mg/kg wet	2.500		75	30-140	5	25	
Octacosane (C28)	2.3	0.2	mg/kg wet	2.500		91	40-140	5	25	
Octadecane (C18)	2.3	0.2	mg/kg wet	2.500		92	40-140	6	25	
Tetracosane (C24)	2.2	0.2	mg/kg wet	2.500		87	40-140	5	25	
Tetradecane (C14)	2.3	0.2	mg/kg wet	2.500		91	40-140	7	25	
Total Petroleum Hydrocarbons	32.2	10.0	mg/kg wet	35.00		92	40-140	6	25	
Triacontane (C30)	2.3	0.2	mg/kg wet	2.500		91	40-140	6	25	
Surrogate: O-Terphenyl	*4.61*		mg/kg wet	*5.000*		*92*	*40-140*			
Batch CD61915 - 3546										
Blank										
Decane (C10)	ND	0.2	mg/kg wet							
Docosane (C22)	ND	0.2	mg/kg wet							
Dodecane (C12)	ND	0.2	mg/kg wet							
Eicosane (C20)	ND	0.2	mg/kg wet							
Hexacosane (C26)	ND	0.2	mg/kg wet							
Hexadecane (C16)	ND	0.2	mg/kg wet							
Hexatriacontane (C36)	ND	0.2	mg/kg wet							
Nonadecane (C19)	ND	0.2	mg/kg wet							
Nonane (C9)	ND	0.2	mg/kg wet							
Octacosane (C28)	ND	0.2	mg/kg wet							
Octadecane (C18)	ND	0.2	mg/kg wet							
Tetracosane (C24)	ND	0.2	mg/kg wet							
Tetradecane (C14)	ND	0.2	mg/kg wet							
Total Petroleum Hydrocarbons	ND	10.0	mg/kg wet							
Triacontane (C30)	ND	0.2	mg/kg wet							
Surrogate: O-Terphenyl	*3.87*		mg/kg wet	*5.000*		*77*	*40-140*			
LCS										

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604486

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8100M Total Petroleum Hydrocarbons										
Batch CD61915 - 3546										
Decane (C10)	1.7	0.2	mg/kg wet	2.500		66	40-140			
Docosane (C22)	2.0	0.2	mg/kg wet	2.500		81	40-140			
Dodecane (C12)	1.8	0.2	mg/kg wet	2.500		70	40-140			
Eicosane (C20)	2.0	0.2	mg/kg wet	2.500		82	40-140			
Hexacosane (C26)	2.1	0.2	mg/kg wet	2.500		82	40-140			
Hexadecane (C16)	1.9	0.2	mg/kg wet	2.500		77	40-140			
Hexatriacontane (C36)	1.9	0.2	mg/kg wet	2.500		75	40-140			
Nonadecane (C19)	2.0	0.2	mg/kg wet	2.500		81	40-140			
Nonane (C9)	1.5	0.2	mg/kg wet	2.500		60	30-140			
Octacosane (C28)	2.0	0.2	mg/kg wet	2.500		80	40-140			
Octadecane (C18)	2.0	0.2	mg/kg wet	2.500		80	40-140			
Tetracosane (C24)	1.9	0.2	mg/kg wet	2.500		77	40-140			
Tetradecane (C14)	1.9	0.2	mg/kg wet	2.500		77	40-140			
Total Petroleum Hydrocarbons	24.0	10.0	mg/kg wet	35.00		69	40-140			
Triacontane (C30)	2.0	0.2	mg/kg wet	2.500		80	40-140			
Surrogate: O-Terphenyl	*3.75*		mg/kg wet	*5.000*		*75*	*40-140*			
LCS Dup										
Decane (C10)	1.8	0.2	mg/kg wet	2.500		71	40-140	8	25	
Docosane (C22)	2.1	0.2	mg/kg wet	2.500		85	40-140	5	25	
Dodecane (C12)	1.9	0.2	mg/kg wet	2.500		77	40-140	8	25	
Eicosane (C20)	2.1	0.2	mg/kg wet	2.500		86	40-140	5	25	
Hexacosane (C26)	2.2	0.2	mg/kg wet	2.500		86	40-140	5	25	
Hexadecane (C16)	2.0	0.2	mg/kg wet	2.500		82	40-140	5	25	
Hexatriacontane (C36)	1.9	0.2	mg/kg wet	2.500		76	40-140	1	25	
Nonadecane (C19)	2.1	0.2	mg/kg wet	2.500		85	40-140	5	25	
Nonane (C9)	1.6	0.2	mg/kg wet	2.500		65	30-140	7	25	
Octacosane (C28)	2.1	0.2	mg/kg wet	2.500		83	40-140	5	25	
Octadecane (C18)	2.1	0.2	mg/kg wet	2.500		84	40-140	5	25	
Tetracosane (C24)	2.0	0.2	mg/kg wet	2.500		81	40-140	5	25	
Tetradecane (C14)	2.0	0.2	mg/kg wet	2.500		80	40-140	4	25	
Total Petroleum Hydrocarbons	25.2	10.0	mg/kg wet	35.00		72	40-140	5	25	
Triacontane (C30)	2.1	0.2	mg/kg wet	2.500		83	40-140	5	25	
Surrogate: O-Terphenyl	*3.95*		mg/kg wet	*5.000*		*79*	*40-140*			
8270D Semi-Volatile Organic Compounds										
Batch CD61837 - 3546										
Blank										
1,2,4-Trichlorobenzene	ND	0.333	mg/kg wet							
1,2-Dichlorobenzene	ND	0.333	mg/kg wet							
1,3-Dichlorobenzene	ND	0.333	mg/kg wet							
1,4-Dichlorobenzene	ND	0.333	mg/kg wet							
2,4,5-Trichlorophenol	ND	0.333	mg/kg wet							
2,4,6-Trichlorophenol	ND	0.333	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604486

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CD61837 - 3546										
2,4-Dichlorophenol	ND	0.333	mg/kg wet							
2,4-Dimethylphenol	ND	0.333	mg/kg wet							
2,4-Dinitrophenol	ND	1.67	mg/kg wet							
2,4-Dinitrotoluene	ND	0.333	mg/kg wet							
2,6-Dinitrotoluene	ND	0.333	mg/kg wet							
2-Chloronaphthalene	ND	0.333	mg/kg wet							
2-Chlorophenol	ND	0.333	mg/kg wet							
2-Methylnaphthalene	ND	0.333	mg/kg wet							
2-Methylphenol	ND	0.333	mg/kg wet							
2-Nitrophenol	ND	0.333	mg/kg wet							
3,3´-Dichlorobenzidine	ND	0.667	mg/kg wet							
3+4-Methylphenol	ND	0.667	mg/kg wet							
4-Bromophenyl-phenylether	ND	0.333	mg/kg wet							
4-Chloroaniline	ND	0.667	mg/kg wet							
4-Nitrophenol	ND	1.67	mg/kg wet							
Acenaphthene	ND	0.333	mg/kg wet							
Acenaphthylene	ND	0.333	mg/kg wet							
Acetophenone	ND	0.667	mg/kg wet							
Aniline	ND	1.67	mg/kg wet							
Anthracene	ND	0.333	mg/kg wet							
Azobenzene	ND	0.333	mg/kg wet							
Benzo(a)anthracene	ND	0.333	mg/kg wet							
Benzo(a)pyrene	ND	0.167	mg/kg wet							
Benzo(b)fluoranthene	ND	0.333	mg/kg wet							
Benzo(g,h,i)perylene	ND	0.333	mg/kg wet							
Benzo(k)fluoranthene	ND	0.333	mg/kg wet							
bis(2-Chloroethoxy)methane	ND	0.333	mg/kg wet							
bis(2-Chloroethyl)ether	ND	0.333	mg/kg wet							
bis(2-chloroisopropyl)Ether	ND	0.333	mg/kg wet							
bis(2-Ethylhexyl)phthalate	ND	0.333	mg/kg wet							
Butylbenzylphthalate	ND	0.333	mg/kg wet							
Chrysene	ND	0.167	mg/kg wet							
Dibenzo(a,h)Anthracene	ND	0.167	mg/kg wet							
Dibenzofuran	ND	0.333	mg/kg wet							
Diethylphthalate	ND	0.333	mg/kg wet							
Dimethylphthalate	ND	0.333	mg/kg wet							
Di-n-butylphthalate	ND	0.333	mg/kg wet							
Di-n-octylphthalate	ND	0.333	mg/kg wet							
Fluoranthene	ND	0.333	mg/kg wet							
Fluorene	ND	0.333	mg/kg wet							
Hexachlorobenzene	ND	0.333	mg/kg wet							
Hexachlorobutadiene	ND	0.333	mg/kg wet							
Hexachloroethane	ND	0.333	mg/kg wet							
Indeno(1,2,3-cd)Pyrene	ND	0.333	mg/kg wet							
Isophorone	ND	0.333	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604486

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CD61837 - 3546										
Naphthalene	ND	0.333	mg/kg wet							
Nitrobenzene	ND	0.333	mg/kg wet							
N-Nitrosodimethylamine	ND	0.333	mg/kg wet							
Pentachlorophenol	ND	1.67	mg/kg wet							
Phenanthrene	ND	0.333	mg/kg wet							
Phenol	ND	0.333	mg/kg wet							
Pyrene	ND	0.333	mg/kg wet							
Surrogate: 1,2-Dichlorobenzene-d4	*2.31*		mg/kg wet	*3.333*		*69*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*2.75*		mg/kg wet	*5.000*		*55*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.55*		mg/kg wet	*5.000*		*71*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.36*		mg/kg wet	*3.333*		*71*	*30-130*			
Surrogate: 2-Fluorophenol	*3.42*		mg/kg wet	*5.000*		*68*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.28*		mg/kg wet	*3.333*		*69*	*30-130*			
Surrogate: Phenol-d6	*3.62*		mg/kg wet	*5.000*		*72*	*30-130*			
Surrogate: p-Terphenyl-d14	*3.00*		mg/kg wet	*3.333*		*90*	*30-130*			
LCS										
1,2,4-Trichlorobenzene	2.31	0.333	mg/kg wet	3.333		69	40-140			
1,2-Dichlorobenzene	2.17	0.333	mg/kg wet	3.333		65	40-140			
1,3-Dichlorobenzene	2.14	0.333	mg/kg wet	3.333		64	40-140			
1,4-Dichlorobenzene	2.15	0.333	mg/kg wet	3.333		64	40-140			
2,4,5-Trichlorophenol	2.88	0.333	mg/kg wet	3.333		87	30-130			
2,4,6-Trichlorophenol	2.72	0.333	mg/kg wet	3.333		82	30-130			
2,4-Dichlorophenol	2.39	0.333	mg/kg wet	3.333		72	30-130			
2,4-Dimethylphenol	2.39	0.333	mg/kg wet	3.333		72	30-130			
2,4-Dinitrophenol	1.97	1.67	mg/kg wet	3.333		59	30-130			
2,4-Dinitrotoluene	2.93	0.333	mg/kg wet	3.333		88	40-140			
2,6-Dinitrotoluene	2.67	0.333	mg/kg wet	3.333		80	40-140			
2-Chloronaphthalene	2.20	0.333	mg/kg wet	3.333		66	40-140			
2-Chlorophenol	2.21	0.333	mg/kg wet	3.333		66	30-130			
2-Methylnaphthalene	2.13	0.333	mg/kg wet	3.333		64	40-140			
2-Methylphenol	2.26	0.333	mg/kg wet	3.333		68	30-130			
2-Nitrophenol	2.11	0.333	mg/kg wet	3.333		63	30-130			
3,3´-Dichlorobenzidine	2.07	0.667	mg/kg wet	3.333		62	40-140			
3+4-Methylphenol	4.96	0.667	mg/kg wet	6.667		74	30-130			
4-Bromophenyl-phenylether	2.76	0.333	mg/kg wet	3.333		83	40-140			
4-Chloroaniline	2.06	0.667	mg/kg wet	3.333		62	40-140			
4-Nitrophenol	2.60	1.67	mg/kg wet	3.333		78	30-130			
Acenaphthene	2.47	0.333	mg/kg wet	3.333		74	40-140			
Acenaphthylene	2.52	0.333	mg/kg wet	3.333		76	40-140			
Acetophenone	2.27	0.667	mg/kg wet	3.333		68	40-140			
Aniline	1.73	1.67	mg/kg wet	3.333		52	40-140			
Anthracene	2.75	0.333	mg/kg wet	3.333		82	40-140			
Azobenzene	2.54	0.333	mg/kg wet	3.333		76	40-140			
Benzo(a)anthracene	2.77	0.333	mg/kg wet	3.333		83	40-140			
Benzo(a)pyrene	2.88	0.167	mg/kg wet	3.333		86	40-140			

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604486

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CD61837 - 3546										
Benzo(b)fluoranthene	2.88	0.333	mg/kg wet	3.333		86	40-140			
Benzo(g,h,i)perylene	2.85	0.333	mg/kg wet	3.333		86	40-140			
Benzo(k)fluoranthene	2.66	0.333	mg/kg wet	3.333		80	40-140			
bis(2-Chloroethoxy)methane	2.24	0.333	mg/kg wet	3.333		67	40-140			
bis(2-Chloroethyl)ether	2.17	0.333	mg/kg wet	3.333		65	40-140			
bis(2-chloroisopropyl)Ether	2.16	0.333	mg/kg wet	3.333		65	40-140			
bis(2-Ethylhexyl)phthalate	3.14	0.333	mg/kg wet	3.333		94	40-140			
Butylbenzylphthalate	2.99	0.333	mg/kg wet	3.333		90	40-140			
Chrysene	2.78	0.167	mg/kg wet	3.333		83	40-140			
Dibenzo(a,h)Anthracene	2.89	0.167	mg/kg wet	3.333		87	40-140			
Dibenzofuran	2.47	0.333	mg/kg wet	3.333		74	40-140			
Diethylphthalate	2.75	0.333	mg/kg wet	3.333		83	40-140			
Dimethylphthalate	2.70	0.333	mg/kg wet	3.333		81	40-140			
Di-n-butylphthalate	3.01	0.333	mg/kg wet	3.333		90	40-140			
Di-n-octylphthalate	2.67	0.333	mg/kg wet	3.333		80	40-140			
Fluoranthene	2.82	0.333	mg/kg wet	3.333		85	40-140			
Fluorene	2.57	0.333	mg/kg wet	3.333		77	40-140			
Hexachlorobenzene	2.61	0.333	mg/kg wet	3.333		78	40-140			
Hexachlorobutadiene	2.19	0.333	mg/kg wet	3.333		66	40-140			
Hexachloroethane	2.08	0.333	mg/kg wet	3.333		62	40-140			
Indeno(1,2,3-cd)Pyrene	2.89	0.333	mg/kg wet	3.333		87	40-140			
Isophorone	2.20	0.333	mg/kg wet	3.333		66	40-140			
Naphthalene	2.28	0.333	mg/kg wet	3.333		68	40-140			
Nitrobenzene	2.15	0.333	mg/kg wet	3.333		65	40-140			
N-Nitrosodimethylamine	1.77	0.333	mg/kg wet	3.333		53	40-140			
Pentachlorophenol	2.65	1.67	mg/kg wet	3.333		80	30-130			
Phenanthrene	2.65	0.333	mg/kg wet	3.333		80	40-140			
Phenol	2.26	0.333	mg/kg wet	3.333		68	30-130			
Pyrene	2.72	0.333	mg/kg wet	3.333		82	40-140			
Surrogate: 1,2-Dichlorobenzene-d4	*2.21*		mg/kg wet	*3.333*		*66*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*4.17*		mg/kg wet	*5.000*		*83*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.55*		mg/kg wet	*5.000*		*71*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.43*		mg/kg wet	*3.333*		*73*	*30-130*			
Surrogate: 2-Fluorophenol	*3.38*		mg/kg wet	*5.000*		*68*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.27*		mg/kg wet	*3.333*		*68*	*30-130*			
Surrogate: Phenol-d6	*3.60*		mg/kg wet	*5.000*		*72*	*30-130*			
Surrogate: p-Terphenyl-d14	*2.94*		mg/kg wet	*3.333*		*88*	*30-130*			
LCS Dup										
1,2,4-Trichlorobenzene	2.78	0.333	mg/kg wet	3.333		83	40-140	18	30	
1,2-Dichlorobenzene	2.61	0.333	mg/kg wet	3.333		78	40-140	19	30	
1,3-Dichlorobenzene	2.60	0.333	mg/kg wet	3.333		78	40-140	19	30	
1,4-Dichlorobenzene	2.61	0.333	mg/kg wet	3.333		78	40-140	19	30	
2,4,5-Trichlorophenol	3.06	0.333	mg/kg wet	3.333		92	30-130	6	30	
2,4,6-Trichlorophenol	3.11	0.333	mg/kg wet	3.333		93	30-130	13	30	
2,4-Dichlorophenol	2.80	0.333	mg/kg wet	3.333		84	30-130	16	30	

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604486

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CD61837 - 3546										
2,4-Dimethylphenol	2.79	0.333	mg/kg wet	3.333		84	30-130	16	30	
2,4-Dinitrophenol	2.21	1.67	mg/kg wet	3.333		66	30-130	11	30	
2,4-Dinitrotoluene	3.15	0.333	mg/kg wet	3.333		95	40-140	7	30	
2,6-Dinitrotoluene	2.86	0.333	mg/kg wet	3.333		86	40-140	7	30	
2-Chloronaphthalene	2.58	0.333	mg/kg wet	3.333		77	40-140	16	30	
2-Chlorophenol	2.60	0.333	mg/kg wet	3.333		78	30-130	16	30	
2-Methylnaphthalene	2.53	0.333	mg/kg wet	3.333		76	40-140	17	30	
2-Methylphenol	2.58	0.333	mg/kg wet	3.333		78	30-130	14	30	
2-Nitrophenol	2.56	0.333	mg/kg wet	3.333		77	30-130	19	30	
3,3´-Dichlorobenzidine	2.08	0.667	mg/kg wet	3.333		62	40-140	0.1	30	
3+4-Methylphenol	5.57	0.667	mg/kg wet	6.667		84	30-130	11	30	
4-Bromophenyl-phenylether	2.90	0.333	mg/kg wet	3.333		87	40-140	5	30	
4-Chloroaniline	2.35	0.667	mg/kg wet	3.333		71	40-140	13	30	
4-Nitrophenol	2.83	1.67	mg/kg wet	3.333		85	30-130	9	30	
Acenaphthene	2.78	0.333	mg/kg wet	3.333		83	40-140	12	30	
Acenaphthylene	2.84	0.333	mg/kg wet	3.333		85	40-140	12	30	
Acetophenone	2.64	0.667	mg/kg wet	3.333		79	40-140	15	30	
Aniline	1.98	1.67	mg/kg wet	3.333		59	40-140	14	30	
Anthracene	2.87	0.333	mg/kg wet	3.333		86	40-140	4	30	
Azobenzene	2.68	0.333	mg/kg wet	3.333		80	40-140	5	30	
Benzo(a)anthracene	2.85	0.333	mg/kg wet	3.333		86	40-140	3	30	
Benzo(a)pyrene	2.99	0.167	mg/kg wet	3.333		90	40-140	4	30	
Benzo(b)fluoranthene	2.85	0.333	mg/kg wet	3.333		86	40-140	1	30	
Benzo(g,h,i)perylene	2.97	0.333	mg/kg wet	3.333		89	40-140	4	30	
Benzo(k)fluoranthene	3.00	0.333	mg/kg wet	3.333		90	40-140	12	30	
bis(2-Chloroethoxy)methane	2.66	0.333	mg/kg wet	3.333		80	40-140	17	30	
bis(2-Chloroethyl)ether	2.61	0.333	mg/kg wet	3.333		78	40-140	18	30	
bis(2-chloroisopropyl)Ether	2.54	0.333	mg/kg wet	3.333		76	40-140	16	30	
bis(2-Ethylhexyl)phthalate	3.19	0.333	mg/kg wet	3.333		96	40-140	1	30	
Butylbenzylphthalate	3.04	0.333	mg/kg wet	3.333		91	40-140	1	30	
Chrysene	2.85	0.167	mg/kg wet	3.333		86	40-140	3	30	
Dibenzo(a,h)Anthracene	3.00	0.167	mg/kg wet	3.333		90	40-140	4	30	
Dibenzofuran	2.74	0.333	mg/kg wet	3.333		82	40-140	10	30	
Diethylphthalate	2.95	0.333	mg/kg wet	3.333		89	40-140	7	30	
Dimethylphthalate	2.89	0.333	mg/kg wet	3.333		87	40-140	7	30	
Di-n-butylphthalate	3.14	0.333	mg/kg wet	3.333		94	40-140	4	30	
Di-n-octylphthalate	2.84	0.333	mg/kg wet	3.333		85	40-140	6	30	
Fluoranthene	2.97	0.333	mg/kg wet	3.333		89	40-140	5	30	
Fluorene	2.81	0.333	mg/kg wet	3.333		84	40-140	9	30	
Hexachlorobenzene	2.72	0.333	mg/kg wet	3.333		81	40-140	4	30	
Hexachlorobutadiene	2.74	0.333	mg/kg wet	3.333		82	40-140	22	30	
Hexachloroethane	2.55	0.333	mg/kg wet	3.333		76	40-140	20	30	
Indeno(1,2,3-cd)Pyrene	3.01	0.333	mg/kg wet	3.333		90	40-140	4	30	
Isophorone	2.58	0.333	mg/kg wet	3.333		77	40-140	16	30	
Naphthalene	2.75	0.333	mg/kg wet	3.333		82	40-140	19	30	

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604486

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CD61837 - 3546										
Nitrobenzene	2.60	0.333	mg/kg wet	3.333		78	40-140	19	30	
N-Nitrosodimethylamine	2.08	0.333	mg/kg wet	3.333		62	40-140	16	30	
Pentachlorophenol	2.84	1.67	mg/kg wet	3.333		85	30-130	7	30	
Phenanthrene	2.80	0.333	mg/kg wet	3.333		84	40-140	5	30	
Phenol	2.59	0.333	mg/kg wet	3.333		78	30-130	14	30	
Pyrene	2.77	0.333	mg/kg wet	3.333		83	40-140	2	30	
Surrogate: 1,2-Dichlorobenzene-d4	*2.58*		mg/kg wet	*3.333*		*77*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*4.26*		mg/kg wet	*5.000*		*85*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*4.01*		mg/kg wet	*5.000*		*80*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.74*		mg/kg wet	*3.333*		*82*	*30-130*			
Surrogate: 2-Fluorophenol	*3.91*		mg/kg wet	*5.000*		*78*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.66*		mg/kg wet	*3.333*		*80*	*30-130*			
Surrogate: Phenol-d6	*3.99*		mg/kg wet	*5.000*		*80*	*30-130*			
Surrogate: p-Terphenyl-d14	*2.88*		mg/kg wet	*3.333*		*86*	*30-130*			
Batch CD61916 - 3546										
Blank										
1,2,4-Trichlorobenzene	ND	0.333	mg/kg wet							
1,2-Dichlorobenzene	ND	0.333	mg/kg wet							
1,3-Dichlorobenzene	ND	0.333	mg/kg wet							
1,4-Dichlorobenzene	ND	0.333	mg/kg wet							
2,4,5-Trichlorophenol	ND	0.333	mg/kg wet							
2,4,6-Trichlorophenol	ND	0.333	mg/kg wet							
2,4-Dichlorophenol	ND	0.333	mg/kg wet							
2,4-Dimethylphenol	ND	0.333	mg/kg wet							
2,4-Dinitrophenol	ND	1.67	mg/kg wet							
2,4-Dinitrotoluene	ND	0.333	mg/kg wet							
2,6-Dinitrotoluene	ND	0.333	mg/kg wet							
2-Chloronaphthalene	ND	0.333	mg/kg wet							
2-Chlorophenol	ND	0.333	mg/kg wet							
2-Methylnaphthalene	ND	0.333	mg/kg wet							
2-Methylphenol	ND	0.333	mg/kg wet							
2-Nitrophenol	ND	0.333	mg/kg wet							
3,3´-Dichlorobenzidine	ND	0.667	mg/kg wet							
3+4-Methylphenol	ND	0.667	mg/kg wet							
4-Bromophenyl-phenylether	ND	0.333	mg/kg wet							
4-Chloroaniline	ND	0.667	mg/kg wet							
4-Nitrophenol	ND	1.67	mg/kg wet							
Acenaphthene	ND	0.333	mg/kg wet							
Acenaphthylene	ND	0.333	mg/kg wet							
Acetophenone	ND	0.667	mg/kg wet							
Aniline	ND	1.67	mg/kg wet							
Anthracene	ND	0.333	mg/kg wet							
Azobenzene	ND	0.333	mg/kg wet							
Benzo(a)anthracene	ND	0.333	mg/kg wet							
Benzo(a)pyrene	ND	0.167	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604486

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CD61916 - 3546										
Benzo(b)fluoranthene	ND	0.333	mg/kg wet							
Benzo(g,h,i)perylene	ND	0.333	mg/kg wet							
Benzo(k)fluoranthene	ND	0.333	mg/kg wet							
bis(2-Chloroethoxy)methane	ND	0.333	mg/kg wet							
bis(2-Chloroethyl)ether	ND	0.333	mg/kg wet							
bis(2-chloroisopropyl)Ether	ND	0.333	mg/kg wet							
bis(2-Ethylhexyl)phthalate	ND	0.333	mg/kg wet							
Butylbenzylphthalate	ND	0.333	mg/kg wet							
Chrysene	ND	0.167	mg/kg wet							
Dibenzo(a,h)Anthracene	ND	0.167	mg/kg wet							
Dibenzofuran	ND	0.333	mg/kg wet							
Diethylphthalate	ND	0.333	mg/kg wet							
Dimethylphthalate	ND	0.333	mg/kg wet							
Di-n-butylphthalate	ND	0.333	mg/kg wet							
Di-n-octylphthalate	ND	0.333	mg/kg wet							
Fluoranthene	ND	0.333	mg/kg wet							
Fluorene	ND	0.333	mg/kg wet							
Hexachlorobenzene	ND	0.333	mg/kg wet							
Hexachlorobutadiene	ND	0.333	mg/kg wet							
Hexachloroethane	ND	0.333	mg/kg wet							
Indeno(1,2,3-cd)Pyrene	ND	0.333	mg/kg wet							
Isophorone	ND	0.333	mg/kg wet							
Naphthalene	ND	0.333	mg/kg wet							
Nitrobenzene	ND	0.333	mg/kg wet							
N-Nitrosodimethylamine	ND	0.333	mg/kg wet							
Pentachlorophenol	ND	1.67	mg/kg wet							
Phenanthrene	ND	0.333	mg/kg wet							
Phenol	ND	0.333	mg/kg wet							
Pyrene	ND	0.333	mg/kg wet							
Surrogate: 1,2-Dichlorobenzene-d4	*2.53*		mg/kg wet	*3.333*		*76*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*4.47*		mg/kg wet	*5.000*		*89*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*4.06*		mg/kg wet	*5.000*		*81*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.61*		mg/kg wet	*3.333*		*78*	*30-130*			
Surrogate: 2-Fluorophenol	*3.92*		mg/kg wet	*5.000*		*78*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.73*		mg/kg wet	*3.333*		*82*	*30-130*			
Surrogate: Phenol-d6	*4.15*		mg/kg wet	*5.000*		*83*	*30-130*			
Surrogate: p-Terphenyl-d14	*3.32*		mg/kg wet	*3.333*		*100*	*30-130*			
LCS										
1,2,4-Trichlorobenzene	2.52	0.333	mg/kg wet	3.333		76	40-140			
1,2-Dichlorobenzene	2.42	0.333	mg/kg wet	3.333		72	40-140			
1,3-Dichlorobenzene	2.43	0.333	mg/kg wet	3.333		73	40-140			
1,4-Dichlorobenzene	2.37	0.333	mg/kg wet	3.333		71	40-140			
2,4,5-Trichlorophenol	2.92	0.333	mg/kg wet	3.333		88	30-130			
2,4,6-Trichlorophenol	2.72	0.333	mg/kg wet	3.333		82	30-130			
2,4-Dichlorophenol	2.78	0.333	mg/kg wet	3.333		83	30-130			

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604486

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CD61916 - 3546										
2,4-Dimethylphenol	2.82	0.333	mg/kg wet	3.333		84	30-130			
2,4-Dinitrophenol	2.22	1.67	mg/kg wet	3.333		66	30-130			
2,4-Dinitrotoluene	3.01	0.333	mg/kg wet	3.333		90	40-140			
2,6-Dinitrotoluene	2.79	0.333	mg/kg wet	3.333		84	40-140			
2-Chloronaphthalene	2.30	0.333	mg/kg wet	3.333		69	40-140			
2-Chlorophenol	2.49	0.333	mg/kg wet	3.333		75	30-130			
2-Methylnaphthalene	2.51	0.333	mg/kg wet	3.333		75	40-140			
2-Methylphenol	2.54	0.333	mg/kg wet	3.333		76	30-130			
2-Nitrophenol	2.45	0.333	mg/kg wet	3.333		73	30-130			
3,3´-Dichlorobenzidine	2.42	0.667	mg/kg wet	3.333		72	40-140			
3+4-Methylphenol	5.98	0.667	mg/kg wet	6.667		90	30-130			
4-Bromophenyl-phenylether	3.08	0.333	mg/kg wet	3.333		92	40-140			
4-Chloroaniline	2.11	0.667	mg/kg wet	3.333		63	40-140			
4-Nitrophenol	2.42	1.67	mg/kg wet	3.333		73	30-130			
Acenaphthene	2.57	0.333	mg/kg wet	3.333		77	40-140			
Acenaphthylene	2.62	0.333	mg/kg wet	3.333		78	40-140			
Acetophenone	2.68	0.667	mg/kg wet	3.333		80	40-140			
Aniline	1.79	1.67	mg/kg wet	3.333		54	40-140			
Anthracene	2.89	0.333	mg/kg wet	3.333		87	40-140			
Azobenzene	2.78	0.333	mg/kg wet	3.333		84	40-140			
Benzo(a)anthracene	2.83	0.333	mg/kg wet	3.333		85	40-140			
Benzo(a)pyrene	2.79	0.167	mg/kg wet	3.333		84	40-140			
Benzo(b)fluoranthene	2.80	0.333	mg/kg wet	3.333		84	40-140			
Benzo(g,h,i)perylene	2.97	0.333	mg/kg wet	3.333		89	40-140			
Benzo(k)fluoranthene	2.85	0.333	mg/kg wet	3.333		85	40-140			
bis(2-Chloroethoxy)methane	2.55	0.333	mg/kg wet	3.333		76	40-140			
bis(2-Chloroethyl)ether	2.48	0.333	mg/kg wet	3.333		74	40-140			
bis(2-chloroisopropyl)Ether	2.48	0.333	mg/kg wet	3.333		74	40-140			
bis(2-Ethylhexyl)phthalate	3.22	0.333	mg/kg wet	3.333		97	40-140			
Butylbenzylphthalate	3.15	0.333	mg/kg wet	3.333		94	40-140			
Chrysene	2.96	0.167	mg/kg wet	3.333		89	40-140			
Dibenzo(a,h)Anthracene	2.95	0.167	mg/kg wet	3.333		88	40-140			
Dibenzofuran	2.56	0.333	mg/kg wet	3.333		77	40-140			
Diethylphthalate	3.10	0.333	mg/kg wet	3.333		93	40-140			
Dimethylphthalate	2.90	0.333	mg/kg wet	3.333		87	40-140			
Di-n-butylphthalate	3.21	0.333	mg/kg wet	3.333		96	40-140			
Di-n-octylphthalate	3.01	0.333	mg/kg wet	3.333		90	40-140			
Fluoranthene	2.70	0.333	mg/kg wet	3.333		81	40-140			
Fluorene	2.71	0.333	mg/kg wet	3.333		81	40-140			
Hexachlorobenzene	2.81	0.333	mg/kg wet	3.333		84	40-140			
Hexachlorobutadiene	2.59	0.333	mg/kg wet	3.333		78	40-140			
Hexachloroethane	2.43	0.333	mg/kg wet	3.333		73	40-140			
Indeno(1,2,3-cd)Pyrene	2.90	0.333	mg/kg wet	3.333		87	40-140			
Isophorone	2.65	0.333	mg/kg wet	3.333		79	40-140			
Naphthalene	2.57	0.333	mg/kg wet	3.333		77	40-140			

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604486

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CD61916 - 3546										
Nitrobenzene	2.51	0.333	mg/kg wet	3.333		75	40-140			
N-Nitrosodimethylamine	2.27	0.333	mg/kg wet	3.333		68	40-140			
Pentachlorophenol	2.43	1.67	mg/kg wet	3.333		73	30-130			
Phenanthrene	2.76	0.333	mg/kg wet	3.333		83	40-140			
Phenol	2.70	0.333	mg/kg wet	3.333		81	30-130			
Pyrene	2.95	0.333	mg/kg wet	3.333		88	40-140			
Surrogate: 1,2-Dichlorobenzene-d4	*2.49*		mg/kg wet	*3.333*		*75*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*5.21*		mg/kg wet	*5.000*		*104*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*4.05*		mg/kg wet	*5.000*		*81*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.57*		mg/kg wet	*3.333*		*77*	*30-130*			
Surrogate: 2-Fluorophenol	*3.79*		mg/kg wet	*5.000*		*76*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.78*		mg/kg wet	*3.333*		*83*	*30-130*			
Surrogate: Phenol-d6	*4.02*		mg/kg wet	*5.000*		*80*	*30-130*			
Surrogate: p-Terphenyl-d14	*3.32*		mg/kg wet	*3.333*		*100*	*30-130*			
LCS Dup										
1,2,4-Trichlorobenzene	2.49	0.333	mg/kg wet	3.333		75	40-140	1	30	
1,2-Dichlorobenzene	2.36	0.333	mg/kg wet	3.333		71	40-140	2	30	
1,3-Dichlorobenzene	2.30	0.333	mg/kg wet	3.333		69	40-140	5	30	
1,4-Dichlorobenzene	2.31	0.333	mg/kg wet	3.333		69	40-140	3	30	
2,4,5-Trichlorophenol	3.07	0.333	mg/kg wet	3.333		92	30-130	5	30	
2,4,6-Trichlorophenol	2.88	0.333	mg/kg wet	3.333		87	30-130	6	30	
2,4-Dichlorophenol	2.64	0.333	mg/kg wet	3.333		79	30-130	5	30	
2,4-Dimethylphenol	2.74	0.333	mg/kg wet	3.333		82	30-130	3	30	
2,4-Dinitrophenol	2.51	1.67	mg/kg wet	3.333		75	30-130	13	30	
2,4-Dinitrotoluene	3.09	0.333	mg/kg wet	3.333		93	40-140	2	30	
2,6-Dinitrotoluene	2.83	0.333	mg/kg wet	3.333		85	40-140	1	30	
2-Chloronaphthalene	2.40	0.333	mg/kg wet	3.333		72	40-140	4	30	
2-Chlorophenol	2.46	0.333	mg/kg wet	3.333		74	30-130	1	30	
2-Methylnaphthalene	2.42	0.333	mg/kg wet	3.333		73	40-140	4	30	
2-Methylphenol	2.47	0.333	mg/kg wet	3.333		74	30-130	3	30	
2-Nitrophenol	2.42	0.333	mg/kg wet	3.333		73	30-130	1	30	
3,3´-Dichlorobenzidine	2.52	0.667	mg/kg wet	3.333		76	40-140	4	30	
3+4-Methylphenol	5.51	0.667	mg/kg wet	6.667		83	30-130	8	30	
4-Bromophenyl-phenylether	3.22	0.333	mg/kg wet	3.333		97	40-140	4	30	
4-Chloroaniline	1.95	0.667	mg/kg wet	3.333		59	40-140	8	30	
4-Nitrophenol	2.59	1.67	mg/kg wet	3.333		78	30-130	6	30	
Acenaphthene	2.66	0.333	mg/kg wet	3.333		80	40-140	4	30	
Acenaphthylene	2.70	0.333	mg/kg wet	3.333		81	40-140	3	30	
Acetophenone	2.60	0.667	mg/kg wet	3.333		78	40-140	3	30	
Aniline	1.80	1.67	mg/kg wet	3.333		54	40-140	0.8	30	
Anthracene	2.99	0.333	mg/kg wet	3.333		90	40-140	3	30	
Azobenzene	2.90	0.333	mg/kg wet	3.333		87	40-140	4	30	
Benzo(a)anthracene	2.89	0.333	mg/kg wet	3.333		87	40-140	2	30	
Benzo(a)pyrene	2.91	0.167	mg/kg wet	3.333		87	40-140	4	30	
Benzo(b)fluoranthene	2.92	0.333	mg/kg wet	3.333		88	40-140	4	30	

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604486

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CD61916 - 3546										
Benzo(g,h,i)perylene	3.12	0.333	mg/kg wet	3.333		94	40-140	5	30	
Benzo(k)fluoranthene	2.92	0.333	mg/kg wet	3.333		88	40-140	2	30	
bis(2-Chloroethoxy)methane	2.50	0.333	mg/kg wet	3.333		75	40-140	2	30	
bis(2-Chloroethyl)ether	2.42	0.333	mg/kg wet	3.333		73	40-140	2	30	
bis(2-chloroisopropyl)Ether	2.40	0.333	mg/kg wet	3.333		72	40-140	3	30	
bis(2-Ethylhexyl)phthalate	3.27	0.333	mg/kg wet	3.333		98	40-140	2	30	
Butylbenzylphthalate	3.18	0.333	mg/kg wet	3.333		95	40-140	1	30	
Chrysene	2.94	0.167	mg/kg wet	3.333		88	40-140	0.7	30	
Dibenzo(a,h)Anthracene	3.09	0.167	mg/kg wet	3.333		93	40-140	5	30	
Dibenzofuran	2.61	0.333	mg/kg wet	3.333		78	40-140	2	30	
Diethylphthalate	3.15	0.333	mg/kg wet	3.333		95	40-140	2	30	
Dimethylphthalate	2.97	0.333	mg/kg wet	3.333		89	40-140	2	30	
Di-n-butylphthalate	3.36	0.333	mg/kg wet	3.333		101	40-140	5	30	
Di-n-octylphthalate	3.15	0.333	mg/kg wet	3.333		95	40-140	5	30	
Fluoranthene	2.93	0.333	mg/kg wet	3.333		88	40-140	8	30	
Fluorene	2.78	0.333	mg/kg wet	3.333		83	40-140	2	30	
Hexachlorobenzene	2.97	0.333	mg/kg wet	3.333		89	40-140	5	30	
Hexachlorobutadiene	2.54	0.333	mg/kg wet	3.333		76	40-140	2	30	
Hexachloroethane	2.33	0.333	mg/kg wet	3.333		70	40-140	4	30	
Indeno(1,2,3-cd)Pyrene	3.00	0.333	mg/kg wet	3.333		90	40-140	3	30	
Isophorone	2.55	0.333	mg/kg wet	3.333		76	40-140	4	30	
Naphthalene	2.53	0.333	mg/kg wet	3.333		76	40-140	2	30	
Nitrobenzene	2.51	0.333	mg/kg wet	3.333		75	40-140	0.05	30	
N-Nitrosodimethylamine	2.17	0.333	mg/kg wet	3.333		65	40-140	4	30	
Pentachlorophenol	2.66	1.67	mg/kg wet	3.333		80	30-130	9	30	
Phenanthrene	2.86	0.333	mg/kg wet	3.333		86	40-140	4	30	
Phenol	2.45	0.333	mg/kg wet	3.333		74	30-130	10	30	
Pyrene	2.88	0.333	mg/kg wet	3.333		86	40-140	2	30	
Surrogate: 1,2-Dichlorobenzene-d4	*2.36*		mg/kg wet	*3.333*		*71*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*5.28*		mg/kg wet	*5.000*		*106*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.84*		mg/kg wet	*5.000*		*77*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.65*		mg/kg wet	*3.333*		*80*	*30-130*			
Surrogate: 2-Fluorophenol	*3.62*		mg/kg wet	*5.000*		*72*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.60*		mg/kg wet	*3.333*		*78*	*30-130*			
Surrogate: Phenol-d6	*3.85*		mg/kg wet	*5.000*		*77*	*30-130*			
Surrogate: p-Terphenyl-d14	*3.16*		mg/kg wet	*3.333*		*95*	*30-130*			
Classical Chemistry										
Batch CD61933 - General Preparation										
Blank										
Conductivity	ND	5	umhos/cm							
LCS										
Conductivity	1410		umhos/cm	1411		100	90-110			
Batch CD61934 - General Preparation										

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604486

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Classical Chemistry										
Batch CD61934 - General Preparation										
Blank										
Conductivity	ND	5	umhos/cm							
LCS										
Conductivity	1410		umhos/cm	1411		100	90-110			
Batch CD62035 - General Preparation										
Reference										
Flashpoint	81		°F	81.00		100	97.9-102.1			
Batch CD62101 - General Preparation										
Blank										
Reactive Cyanide	ND	2.0	mg/kg							
Reactive Sulfide	ND	2.0	mg/kg							
LCS										
Reactive Cyanide	3.9	2.0	mg/kg	100.3		4	0.68-5.41			
Reactive Sulfide	0.2	2.0	mg/kg	10.00		2	0-44			

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292 ESS Laboratory Work Order: 1604486

Notes and Definitions

WL	Results obtained from a deionized water leach of the sample.
B-	Blank Spike recovery is below lower control limit (B-).
B+	Blank Spike recovery is above upper control limit (B+).
CD-	Continuing Calibration %Diff/Drift is below control limit (CD-).
D	Diluted.
D+	Relative percent difference for duplicate is outside of criteria (D+).
Q	Calibration required quadratic regression (Q).
>	Greater than.
U	Analyte included in the analysis, but not detected
Z18	Temperature is not within 23 +/-2 ºC.
Z-10	Soil pH measured in water at 19.6 ºC.
Z-10a	Soil pH measured in water at 20.0 ºC.
Z-10b	Soil pH measured in water at 20.3 ºC.
Z-10c	Soil pH measured in water at 20.8 ºC.
Z-10d	Soil pH measured in water at 21.2 ºC.
Z-10e	Soil pH measured in water at 21.5 ºC.
S+	Surrogate recovery(ies) above upper control limit (S+).
ND	Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DL	Detection Limit
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
NR	No Recovery
[CALC]	Calculated Analyte
SUB	Subcontracted analysis; see attached report

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604486

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179
http://www.health.ri.gov/find/labs/analytical/ESS.pdf

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002
http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/documents/AllLabs.xls

Massachusetts Potable and Non Potable Water: M-RI002
http://public.dep.state.ma.us/Labcert/Labcert.aspx

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424
http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313
http://www.wadsworth.org/labcert/elap/comm.html

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006
http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752
http://www.depweb.state.pa.us/portal/server.pt/community/labs/13780/laboratory_accreditation_program/590095

ESS Laboratory Sample and Cooler Receipt Checklist

Client: Tighe & Bond - KPB/TB/MM

Shipped/Delivered Via: ESS Courier

ESS Project ID: 1604486
Date Received: 4/18/2016
Project Due Date: 4/25/2016
Days for Project: 5 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 3.0 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** Yes / No / NA
10. Were any analyses received outside of hold time? Yes / No

11. Any Subcontracting needed? Yes / No
    ESS Sample IDs:
    Analysis:
    TAT:
12. Were VOAs received? Yes / No
    a. Air bubbles in aqueous VOAs? Yes / No
    b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
    a. If metals preserved upon receipt: Date: Time: By:
    b. Low Level VOAs brought to freezer: Date: Time: By:

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / No
    a. Was there a need to contact the client? Yes / No
    Who was contacted? Date: Time: By:

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	27487	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
01	27493	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
01	27521	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
01	27527	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
02	27486	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	27492	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
02	27520	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	27526	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
03	27485	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	27491	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
03	27519	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	27525	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
04	27484	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	27490	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
04	27518	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	27524	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
05	27483	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	27489	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
05	27517	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	27523	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
06	27482	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
06	27488	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
06	27516	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

ESS Laboratory Sample and Cooler Receipt Checklist

Client: Tighe & Bond - KPB/TB/MM

ESS Project ID: 1604486

Date Received: 4/18/2016

06	27522	Yes	NA	Yes	VOA Vial - Methanol	MeOH

2nd Review

Are barcode labels on correct containers? Yes / No

Completed By: _____ Date & Time: 4.18.16 1556

Reviewed By: _____ Date & Time: 4/18/16 1810

ESS Laboratory

Division of Thielsch Engineering, Inc.
185 Frances Avenue, Cranston, RI 02910-2211
Tel. (401) 461-7181 Fax (401) 461-4486
www.esslaboratory.com

CHAIN OF CUSTODY

Page 1 of 1

Turn Time X Standard Other _____
If faster than 5 days, prior approval by laboratory is required # _____

State where samples were collected from:
(MA) RI CT NH NJ NY ME Other _____

Is this project for any of the following:
(MA-MCP*) Navy USACE Other _____

Reporting Limits: RCS-1

ESS LAB PROJECT ID: 1604486

Electronic Deliverable: ✓ Yes ___ No

Format: Excel, PDF

Co. Name: Tighe + Bond

Project #: N-1023-56

Project Name (20 Char. or less): Station 292

Contact Person: Michael Martin

Address: 4 Barlows landing

City: Pocasset State: MA Zip: 02559 PO#:

Telephone #:

Fax #:

Email Address: MEMartin@tigheband.com

Circle and/or Write Required Analysis

ESS LAB Sample#	Date	Collection Time	COMP	GRAB	MATRIX	Sample Identification (20 Char. or less)	Number of Containers	Type of Containers	524.2 / 624 / 8260	VPH / 8021 MTBE/BTEX	No Targets / EPH / 8015 GRO / 8015 DRO / 8100 TPH	608 PCB / 608 Pesticides / 8081 Pesticides / 8082 PCB	PAH only / 625 / 8270*	PP13 TAL23 / RCRA8 / RCRA5	NBC7 / MCPw/Hg / MCP / TCLP8	pH, Cond.	Reactive cyanide, sulfide	Ignitability	ORP			
1	4/18/16	13:45	X		S	Disp-7	4	AGW	X		X		X	X		X	X	X	X			
2	↓	10:00	X		S	Disp-8A (0-4')	4	↓	X		X		X	X		X	X	X	X			
3		10:37	X		S	Disp-8A (5-7')	4		X		X		X	X		X	X	X	X			
4		10:50	X		S	Disp-8B (0-4')	4		X		X		X	X		X	X	X	X			
5		11:30	X		S	Disp-8B (5-7)	4		X		X		X	X		X	X	X	X			
6		8:30	X		S	Disp-6	4	↓	X		X		X	X		X	X	X	X			

Container Type: P-Poly G-Glass S-Sterile V-VOA

Matrix: S-Soil SD-Solid D-Sludge WW-Waste Water GW-Ground Water SW-Surface Water DW-Drinking Water O-Oil W-Wipes F-Filters

Cooler Present ✓ Yes ___ No
Seals Intact 3.0 Yes ___ No NA: _____
Cooler Temp: 3.0

Internal Use Only
[ ] Pickup
[ ] Technicians _____

Comments: Run TCLP if exceeds 20x

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
[signature]	4/18/16 14:33	[signature]	4/18 17:33	[signature]	4/18 15:36	[signature]	4/18/16 1589
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time

*MADEP requires that all additional calibrated analytes found during analysis be disclosed.

Please fax all changes to Chain of Custody in writing.

1 (White) Lab Copy 2 (Yellow) Client Receipt

CERTIFICATE OF ANALYSIS

Michael Martin
Tighe & Bond
4 Barlows Landing Road, Unit 15
Pocasset, MA 02559

RE: Station 292 (N-1023-056)
ESS Laboratory Work Order Number: 1604514

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED
By ESS Laboratory at 5:43 pm, Apr 26, 2016

Analytical Summary
The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with NELAC Standards, A2LA and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604514

SAMPLE RECEIPT

The following samples were received on April 19, 2016 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has performed and reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Data Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

Question I: All samples for Metals and EPH were analyzed for a subset of the required MCP list per the client's request.

Lab Number	Sample Name	Matrix	Analysis
1604514-01	Disp-9	Soil	1010, 2580, 6010C, 7.3.3.2, 7.3.4.1, 7471B, 8100M, 8260B, 8270D, 9045, 9050A
1604514-02	Disp-10	Soil	1010, 2580, 6010C, 7.3.3.2, 7.3.4.1, 7010, 7471B, 8100M, 8260B, 8270D, 9045, 9050A
1604514-03	Disp-11	Soil	1010, 2580, 6010C, 7.3.3.2, 7.3.4.1, 7010, 7471B, 8100M, 8260B, 8270D, 9045, 9050A
1604514-04	Disp-12	Soil	1010, 2580, 6010C, 7.3.3.2, 7.3.4.1, 7010, 7471B, 8100M, 8260B, 8270D, 9045, 9050A

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604514

PROJECT NARRATIVE

8100M Total Petroleum Hydrocarbons

CZD0320-CCV2 **Continuing Calibration %Diff/Drift is below control limit (CD-).**
Hexatriacontane (C36) (26% @ 25%)

8270D Semi-Volatile Organic Compounds

CD62018-BSD1 **Blank Spike recovery is below lower control limit (B-).**
N-Nitrosodimethylamine (38% @ 40-140%)

CZD0322-CCV1 **Calibration required quadratic regression (Q).**
2,4-Dinitrophenol (123% @ 80-120%)

CZD0322-CCV1 **Continuing Calibration %Diff/Drift is above control limit (CD+).**
2,4-Dinitrophenol (23% @ 20%), 2,4-Dinitrotoluene (24% @ 20%)

CZD0340-CCV1 **Calibration required quadratic regression (Q).**
2,4-Dinitrophenol (129% @ 80-120%)

CZD0340-CCV1 **Continuing Calibration %Diff/Drift is above control limit (CD+).**
2,4-Dinitrophenol (29% @ 20%)

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

Definitions of Quality Control Parameters

Semivolatile Organics Internal Standard Information

Semivolatile Organics Surrogate Information

Volatile Organics Internal Standard Information

Volatile Organics Surrogate Information

EPH and VPH Alkane Lists

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604514

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

1010A - Flashpoint
6010C - ICP
6020A - ICP MS
7010 - Graphite Furnace
7196A - Hexavalent Chromium
7470A - Aqueous Mercury
7471B - Solid Mercury
8011 - EDB/DBCP/TCP
8015D - GRO/DRO
8081B - Pesticides
8082A - PCB
8100M - TPH
8151A - Herbicides
8260B - VOA
8270D - SVOA
8270D SIM - SVOA Low Level
9014 - Cyanide
9038 - Sulfate
9040C - Aqueous pH
9045D - Solid pH (Corrosivity)
9050A - Specific Conductance
9056A - Anions (IC)
9060A - TOC
9095B - Paint Filter
MADEP 04-1.1 - EPH / VPH

Prep Methods

3005A - Aqueous ICP Digestion
3020A - Aqueous Graphite Furnace / ICP MS Digestion
3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
3060A - Solid Hexavalent Chromium Digestion
3510C - Separatory Funnel Extraction
3520C - Liquid / Liquid Extraction
3540C - Manual Soxhlet Extraction
3541 - Automated Soxhlet Extraction
3546 - Microwave Extraction
3580A - Waste Dilution
5030B - Aqueous Purge and Trap
5030C - Aqueous Purge and Trap
5035 - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604514

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **1604514-01 through 1604514-04**

Matrices: ( ) Ground Water/Surface Water (X) Soil/Sediment ( ) Drinking Water ( ) Air ( ) Other:_____

CAM Protocol (check all that apply below):

(X) 8260 VOC CAM II A	(X) 7470/7471 Hg CAM III B	( ) MassDEP VPH CAM IV A	( ) 8081 Pesticides CAM V B	( ) 7196 Hex Cr CAM VI B	( ) MassDEP APH CAM IX A
(X) 8270 SVOC CAM II B	(X) 7010 Metals CAM III C	(X) MassDEP EPH CAM IV B	( ) 8151 Herbicides CAM V C	( ) 8330 Explosives CAM VIII A	( ) TO-15 VOC CAM IX B
(X) 6010 Metals CAM III A	( ) 6020 Metals CAM III D	( ) 8082 PCB CAM V A	( ) 6860 Perchlorate CAM VIII B	( ) 9014 Total Cyanide/PAC CAM VI A	

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	Yes (X) No ( )
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	Yes (X) No ( )
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	Yes (X) No ( )
D	Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	Yes (X) No ( )
E	a. VPH, EPH, APH and TO-15 only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	Yes (X) No ( )
	b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	Yes ( ) No ( )
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	Yes (X) No ( )

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)?	Yes (X) No ( )*
	Data User Note: ***Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.***	
H	Were **all** QC performance standards specified in the CAM protocol(s) achieved?	Yes ( ) No (X)*
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	Yes ( ) No (X)*

****All negative responses must be addressed in an attached laboratory narrative.***

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: _____ Date: April 26, 2016
Printed Name: Laurel Stoddard Position: Laboratory Director

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-9
Date Sampled: 04/19/16 08:45
Percent Solids: 89

ESS Laboratory Work Order: 1604514
ESS Laboratory Sample ID: 1604514-01
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Arsenic	**8.18** (2.79)		6010C		1	KJK	04/22/16 23:35	2.01	100	CD62209
Barium	**38.6** (2.79)		6010C		1	KJK	04/22/16 23:35	2.01	100	CD62209
Cadmium	ND (0.56)		6010C		1	KJK	04/22/16 23:35	2.01	100	CD62209
Chromium	**6.67** (1.12)		6010C		1	KJK	04/22/16 23:35	2.01	100	CD62209
Lead	**72.6** (5.58)		6010C		1	KJK	04/22/16 23:35	2.01	100	CD62209
Mercury	**0.059** (0.034)		7471B		1	PJP	04/25/16 11:32	0.65	40	CD62211
Selenium	ND (5.58)		6010C		1	KJK	04/22/16 23:35	2.01	100	CD62209
Silver	ND (0.56)		6010C		1	KJK	04/22/16 23:35	2.01	100	CD62209

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-9
Date Sampled: 04/19/16 08:45
Percent Solids: 89
Initial Volume: 22
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1604514
ESS Laboratory Sample ID: 1604514-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1,1,2-Tetrachloroethane	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
1,1,1-Trichloroethane	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
1,1,2,2-Tetrachloroethane	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
1,1,2-Trichloroethane	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
1,1-Dichloroethane	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
1,1-Dichloroethene	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
1,1-Dichloropropene	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
1,2,3-Trichlorobenzene	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
1,2,3-Trichloropropane	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
1,2,4-Trichlorobenzene	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
1,2,4-Trimethylbenzene	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
1,2-Dibromo-3-Chloropropane	ND (0.886)		8260B		1	04/21/16 16:52	CZD0347	CD62122
1,2-Dibromoethane	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
1,2-Dichlorobenzene	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
1,2-Dichloroethane	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
1,2-Dichloropropane	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
1,3,5-Trimethylbenzene	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
1,3-Dichlorobenzene	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
1,3-Dichloropropane	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
1,4-Dichlorobenzene	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
1,4-Dioxane - Screen	ND (35.4)		8260B		1	04/21/16 16:52	CZD0347	CD62122
2,2-Dichloropropane	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
2-Butanone	ND (0.886)		8260B		1	04/21/16 16:52	CZD0347	CD62122
2-Chlorotoluene	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
2-Hexanone	ND (0.886)		8260B		1	04/21/16 16:52	CZD0347	CD62122
4-Chlorotoluene	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
4-Isopropyltoluene	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
4-Methyl-2-Pentanone	ND (0.886)		8260B		1	04/21/16 16:52	CZD0347	CD62122
Acetone	ND (0.886)		8260B		1	04/21/16 16:52	CZD0347	CD62122
Benzene	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
Bromobenzene	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
Bromochloromethane	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-9
Date Sampled: 04/19/16 08:45
Percent Solids: 89
Initial Volume: 22
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1604514
ESS Laboratory Sample ID: 1604514-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Bromodichloromethane	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
Bromoform	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
Bromomethane	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
Carbon Disulfide	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
Carbon Tetrachloride	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
Chlorobenzene	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
Chloroethane	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
Chloroform	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
Chloromethane	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
cis-1,2-Dichloroethene	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
cis-1,3-Dichloropropene	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
Dibromochloromethane	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
Dibromomethane	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
Dichlorodifluoromethane	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
Diethyl Ether	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
Di-isopropyl ether	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
Ethyl tertiary-butyl ether	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
Ethylbenzene	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
Hexachlorobutadiene	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
Isopropylbenzene	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
Methyl tert-Butyl Ether	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
Methylene Chloride	ND (0.354)		8260B		1	04/21/16 16:52	CZD0347	CD62122
Naphthalene	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
n-Butylbenzene	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
n-Propylbenzene	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
sec-Butylbenzene	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
Styrene	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
tert-Butylbenzene	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
Tertiary-amyl methyl ether	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
Tetrachloroethene	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
Tetrahydrofuran	ND (0.886)		8260B		1	04/21/16 16:52	CZD0347	CD62122
Toluene	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-9
Date Sampled: 04/19/16 08:45
Percent Solids: 89
Initial Volume: 22
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1604514
ESS Laboratory Sample ID: 1604514-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
trans-1,2-Dichloroethene	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
trans-1,3-Dichloropropene	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
Trichloroethene	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
Trichlorofluoromethane	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
Vinyl Chloride	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
Xylene O	ND (0.177)		8260B		1	04/21/16 16:52	CZD0347	CD62122
Xylene P,M	ND (0.354)		8260B		1	04/21/16 16:52	CZD0347	CD62122
Xylenes (Total)	ND (0.354)		8260B		1	04/21/16 16:52		[CALC]

	%Recovery	*Qualifier*	*Limits*
Surrogate: 1,2-Dichloroethane-d4	*102 %*		*70-130*
Surrogate: 4-Bromofluorobenzene	*95 %*		*70-130*
Surrogate: Dibromofluoromethane	*105 %*		*70-130*
Surrogate: Toluene-d8	*104 %*		*70-130*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-9
Date Sampled: 04/19/16 08:45
Percent Solids: 89
Initial Volume: 19.3
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 1604514
ESS Laboratory Sample ID: 1604514-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DPS
Prepared: 4/20/16 10:10

8100M Total Petroleum Hydrocarbons

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Total Petroleum Hydrocarbons	**97.3** (11.6)		8100M		1	04/20/16 14:27	CZD0320	CD61915

	%Recovery	Qualifier	Limits
Surrogate: O-Terphenyl	*92 %*		*40-140*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-9
Date Sampled: 04/19/16 08:45
Percent Solids: 89
Initial Volume: 14.6
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1604514
ESS Laboratory Sample ID: 1604514-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: IBM
Prepared: 4/20/16 11:10

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,2,4-Trichlorobenzene	ND (0.384)		8270D		1	04/21/16 1:04	CZD0340	CD62018
1,2-Dichlorobenzene	ND (0.384)		8270D		1	04/21/16 1:04	CZD0340	CD62018
1,3-Dichlorobenzene	ND (0.384)		8270D		1	04/21/16 1:04	CZD0340	CD62018
1,4-Dichlorobenzene	ND (0.384)		8270D		1	04/21/16 1:04	CZD0340	CD62018
2,4,5-Trichlorophenol	ND (0.384)		8270D		1	04/21/16 1:04	CZD0340	CD62018
2,4,6-Trichlorophenol	ND (0.384)		8270D		1	04/21/16 1:04	CZD0340	CD62018
2,4-Dichlorophenol	ND (0.384)		8270D		1	04/21/16 1:04	CZD0340	CD62018
2,4-Dimethylphenol	ND (0.384)		8270D		1	04/21/16 1:04	CZD0340	CD62018
2,4-Dinitrophenol	ND (1.92)		8270D		1	04/21/16 1:04	CZD0340	CD62018
2,4-Dinitrotoluene	ND (0.384)		8270D		1	04/21/16 1:04	CZD0340	CD62018
2,6-Dinitrotoluene	ND (0.384)		8270D		1	04/21/16 1:04	CZD0340	CD62018
2-Chloronaphthalene	ND (0.384)		8270D		1	04/21/16 1:04	CZD0340	CD62018
2-Chlorophenol	ND (0.384)		8270D		1	04/21/16 1:04	CZD0340	CD62018
2-Methylnaphthalene	ND (0.384)		8270D		1	04/21/16 1:04	CZD0340	CD62018
2-Methylphenol	ND (0.384)		8270D		1	04/21/16 1:04	CZD0340	CD62018
2-Nitrophenol	ND (0.384)		8270D		1	04/21/16 1:04	CZD0340	CD62018
3,3´-Dichlorobenzidine	ND (0.768)		8270D		1	04/21/16 1:04	CZD0340	CD62018
3+4-Methylphenol	ND (0.768)		8270D		1	04/21/16 1:04	CZD0340	CD62018
4-Bromophenyl-phenylether	ND (0.384)		8270D		1	04/21/16 1:04	CZD0340	CD62018
4-Chloroaniline	ND (0.768)		8270D		1	04/21/16 1:04	CZD0340	CD62018
4-Nitrophenol	ND (1.92)		8270D		1	04/21/16 1:04	CZD0340	CD62018
Acenaphthene	ND (0.384)		8270D		1	04/21/16 1:04	CZD0340	CD62018
Acenaphthylene	ND (0.384)		8270D		1	04/21/16 1:04	CZD0340	CD62018
Acetophenone	ND (0.768)		8270D		1	04/21/16 1:04	CZD0340	CD62018
Aniline	ND (1.92)		8270D		1	04/21/16 1:04	CZD0340	CD62018
Anthracene	ND (0.384)		8270D		1	04/21/16 1:04	CZD0340	CD62018
Azobenzene	ND (0.384)		8270D		1	04/21/16 1:04	CZD0340	CD62018
Benzo(a)anthracene	**0.451** (0.384)		8270D		1	04/21/16 1:04	CZD0340	CD62018
Benzo(a)pyrene	**0.390** (0.192)		8270D		1	04/21/16 1:04	CZD0340	CD62018
Benzo(b)fluoranthene	**0.501** (0.384)		8270D		1	04/21/16 1:04	CZD0340	CD62018
Benzo(g,h,i)perylene	ND (0.384)		8270D		1	04/21/16 1:04	CZD0340	CD62018
Benzo(k)fluoranthene	ND (0.384)		8270D		1	04/21/16 1:04	CZD0340	CD62018

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-9
Date Sampled: 04/19/16 08:45
Percent Solids: 89
Initial Volume: 14.6
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1604514
ESS Laboratory Sample ID: 1604514-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: IBM
Prepared: 4/20/16 11:10

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
bis(2-Chloroethoxy)methane	ND (0.384)		8270D		1	04/21/16 1:04	CZD0340	CD62018
bis(2-Chloroethyl)ether	ND (0.384)		8270D		1	04/21/16 1:04	CZD0340	CD62018
bis(2-chloroisopropyl)Ether	ND (0.384)		8270D		1	04/21/16 1:04	CZD0340	CD62018
bis(2-Ethylhexyl)phthalate	ND (0.384)		8270D		1	04/21/16 1:04	CZD0340	CD62018
Butylbenzylphthalate	ND (0.384)		8270D		1	04/21/16 1:04	CZD0340	CD62018
Chrysene	**0.436** (0.192)		8270D		1	04/21/16 1:04	CZD0340	CD62018
Dibenzo(a,h)Anthracene	ND (0.192)		8270D		1	04/21/16 1:04	CZD0340	CD62018
Dibenzofuran	ND (0.384)		8270D		1	04/21/16 1:04	CZD0340	CD62018
Diethylphthalate	ND (0.384)		8270D		1	04/21/16 1:04	CZD0340	CD62018
Dimethylphthalate	ND (0.384)		8270D		1	04/21/16 1:04	CZD0340	CD62018
Di-n-butylphthalate	ND (0.384)		8270D		1	04/21/16 1:04	CZD0340	CD62018
Di-n-octylphthalate	ND (0.384)		8270D		1	04/21/16 1:04	CZD0340	CD62018
Fluoranthene	**1.03** (0.384)		8270D		1	04/21/16 1:04	CZD0340	CD62018
Fluorene	ND (0.384)		8270D		1	04/21/16 1:04	CZD0340	CD62018
Hexachlorobenzene	ND (0.384)		8270D		1	04/21/16 1:04	CZD0340	CD62018
Hexachlorobutadiene	ND (0.384)		8270D		1	04/21/16 1:04	CZD0340	CD62018
Hexachloroethane	ND (0.384)		8270D		1	04/21/16 1:04	CZD0340	CD62018
Indeno(1,2,3-cd)Pyrene	ND (0.384)		8270D		1	04/21/16 1:04	CZD0340	CD62018
Isophorone	ND (0.384)		8270D		1	04/21/16 1:04	CZD0340	CD62018
Naphthalene	ND (0.384)		8270D		1	04/21/16 1:04	CZD0340	CD62018
Nitrobenzene	ND (0.384)		8270D		1	04/21/16 1:04	CZD0340	CD62018
N-Nitrosodimethylamine	ND (0.384)		8270D		1	04/21/16 1:04	CZD0340	CD62018
Pentachlorophenol	ND (1.92)		8270D		1	04/21/16 1:04	CZD0340	CD62018
Phenanthrene	**0.534** (0.384)		8270D		1	04/21/16 1:04	CZD0340	CD62018
Phenol	ND (0.384)		8270D		1	04/21/16 1:04	CZD0340	CD62018
Pyrene	**0.716** (0.384)		8270D		1	04/21/16 1:04	CZD0340	CD62018

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichlorobenzene-d4	*63 %*		*30-130*
Surrogate: 2,4,6-Tribromophenol	*72 %*		*30-130*
Surrogate: 2-Chlorophenol-d4	*67 %*		*30-130*
Surrogate: 2-Fluorobiphenyl	*66 %*		*30-130*
Surrogate: 2-Fluorophenol	*64 %*		*30-130*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-9
Date Sampled: 04/19/16 08:45
Percent Solids: 89
Initial Volume: 14.6
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1604514
ESS Laboratory Sample ID: 1604514-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: IBM
Prepared: 4/20/16 11:10

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Surrogate: Nitrobenzene-d5		*63 %*		*30-130*				
Surrogate: Phenol-d6		*67 %*		*30-130*				
Surrogate: p-Terphenyl-d14		*65 %*		*30-130*				

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-9
Date Sampled: 04/19/16 08:45
Percent Solids: 89

ESS Laboratory Work Order: 1604514
ESS Laboratory Sample ID: 1604514-01
Sample Matrix: Soil

Classical Chemistry

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	Units	Batch
Conductivity	**WL 746** (5)		9050A		1	JLK	04/21/16 17:38	umhos/cm	CD62128
Corrosivity (pH)	**7.62** (N/A)		9045		1	JLK	04/19/16 21:15	S.U.	CD61943
Corrosivity (pH) Sample Temp	**Soil pH measured in water at 19 ºC.**								
Eh (ORP)	**WL 454** (N/A)		2580		1	JLK	04/19/16 21:15	mv	CD61939
Flashpoint	**> 200** (N/A)		1010		1	EEM	04/22/16 10:20	°F	CD62219
Reactive Cyanide	ND (2.0)		7.3.3.2		1	EEM	04/23/16 15:32	mg/kg	CD62224
Reactive Sulfide	ND (2.0)		7.3.4.1		1	EEM	04/23/16 15:32	mg/kg	CD62224

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-10
Date Sampled: 04/19/16 09:35
Percent Solids: 91

ESS Laboratory Work Order: 1604514
ESS Laboratory Sample ID: 1604514-02
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Arsenic	**16.3** (2.71)		6010C		1	KJK	04/22/16 23:39	2.03	100	CD62209
Barium	**40.2** (2.71)		6010C		1	KJK	04/22/16 23:39	2.03	100	CD62209
Cadmium	ND (0.54)		6010C		1	KJK	04/22/16 23:39	2.03	100	CD62209
Chromium	**14.3** (1.08)		6010C		1	KJK	04/22/16 23:39	2.03	100	CD62209
Lead	**84.3** (5.41)		6010C		1	KJK	04/22/16 23:39	2.03	100	CD62209
Mercury	**0.128** (0.034)		7471B		1	PJP	04/25/16 11:34	0.64	40	CD62211
Selenium	ND (2.71)		7010		5	KJK	04/23/16 17:55	2.03	100	CD62209
Silver	**0.68** (0.54)		6010C		1	KJK	04/22/16 23:39	2.03	100	CD62209

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-10
Date Sampled: 04/19/16 09:35
Percent Solids: 91
Initial Volume: 12.6
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1604514
ESS Laboratory Sample ID: 1604514-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1,1,2-Tetrachloroethane	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
1,1,1-Trichloroethane	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
1,1,2,2-Tetrachloroethane	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
1,1,2-Trichloroethane	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
1,1-Dichloroethane	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
1,1-Dichloroethene	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
1,1-Dichloropropene	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
1,2,3-Trichlorobenzene	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
1,2,3-Trichloropropane	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
1,2,4-Trichlorobenzene	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
1,2,4-Trimethylbenzene	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
1,2-Dibromo-3-Chloropropane	ND (1.41)		8260B		1	04/21/16 17:19	CZD0347	CD62122
1,2-Dibromoethane	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
1,2-Dichlorobenzene	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
1,2-Dichloroethane	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
1,2-Dichloropropane	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
1,3,5-Trimethylbenzene	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
1,3-Dichlorobenzene	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
1,3-Dichloropropane	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
1,4-Dichlorobenzene	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
1,4-Dioxane - Screen	ND (56.2)		8260B		1	04/21/16 17:19	CZD0347	CD62122
2,2-Dichloropropane	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
2-Butanone	ND (1.41)		8260B		1	04/21/16 17:19	CZD0347	CD62122
2-Chlorotoluene	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
2-Hexanone	ND (1.41)		8260B		1	04/21/16 17:19	CZD0347	CD62122
4-Chlorotoluene	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
4-Isopropyltoluene	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
4-Methyl-2-Pentanone	ND (1.41)		8260B		1	04/21/16 17:19	CZD0347	CD62122
Acetone	ND (1.41)		8260B		1	04/21/16 17:19	CZD0347	CD62122
Benzene	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
Bromobenzene	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
Bromochloromethane	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-10
Date Sampled: 04/19/16 09:35
Percent Solids: 91
Initial Volume: 12.6
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1604514
ESS Laboratory Sample ID: 1604514-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Bromodichloromethane	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
Bromoform	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
Bromomethane	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
Carbon Disulfide	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
Carbon Tetrachloride	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
Chlorobenzene	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
Chloroethane	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
Chloroform	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
Chloromethane	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
cis-1,2-Dichloroethene	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
cis-1,3-Dichloropropene	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
Dibromochloromethane	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
Dibromomethane	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
Dichlorodifluoromethane	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
Diethyl Ether	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
Di-isopropyl ether	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
Ethyl tertiary-butyl ether	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
Ethylbenzene	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
Hexachlorobutadiene	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
Isopropylbenzene	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
Methyl tert-Butyl Ether	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
Methylene Chloride	ND (0.562)		8260B		1	04/21/16 17:19	CZD0347	CD62122
Naphthalene	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
n-Butylbenzene	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
n-Propylbenzene	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
sec-Butylbenzene	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
Styrene	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
tert-Butylbenzene	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
Tertiary-amyl methyl ether	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
Tetrachloroethene	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
Tetrahydrofuran	ND (1.41)		8260B		1	04/21/16 17:19	CZD0347	CD62122
Toluene	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-10
Date Sampled: 04/19/16 09:35
Percent Solids: 91
Initial Volume: 12.6
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1604514
ESS Laboratory Sample ID: 1604514-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
trans-1,2-Dichloroethene	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
trans-1,3-Dichloropropene	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
Trichloroethene	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
Trichlorofluoromethane	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
Vinyl Chloride	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
Xylene O	ND (0.281)		8260B		1	04/21/16 17:19	CZD0347	CD62122
Xylene P,M	ND (0.562)		8260B		1	04/21/16 17:19	CZD0347	CD62122
Xylenes (Total)	ND (0.562)		8260B		1	04/21/16 17:19		[CALC]

	%Recovery	*Qualifier*	*Limits*
Surrogate: 1,2-Dichloroethane-d4	*94 %*		*70-130*
Surrogate: 4-Bromofluorobenzene	*95 %*		*70-130*
Surrogate: Dibromofluoromethane	*100 %*		*70-130*
Surrogate: Toluene-d8	*97 %*		*70-130*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-10
Date Sampled: 04/19/16 09:35
Percent Solids: 91
Initial Volume: 20.5
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 1604514
ESS Laboratory Sample ID: 1604514-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DPS
Prepared: 4/20/16 10:10

8100M Total Petroleum Hydrocarbons

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Total Petroleum Hydrocarbons	**35.9** (10.7)		8100M		1	04/20/16 15:07	CZD0320	CD61915

	%Recovery	Qualifier	Limits
Surrogate: O-Terphenyl	*93 %*		*40-140*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-10
Date Sampled: 04/19/16 09:35
Percent Solids: 91
Initial Volume: 14.9
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1604514
ESS Laboratory Sample ID: 1604514-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: IBM
Prepared: 4/20/16 11:10

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,2,4-Trichlorobenzene	ND (0.368)		8270D		1	04/21/16 1:39	CZD0340	CD62018
1,2-Dichlorobenzene	ND (0.368)		8270D		1	04/21/16 1:39	CZD0340	CD62018
1,3-Dichlorobenzene	ND (0.368)		8270D		1	04/21/16 1:39	CZD0340	CD62018
1,4-Dichlorobenzene	ND (0.368)		8270D		1	04/21/16 1:39	CZD0340	CD62018
2,4,5-Trichlorophenol	ND (0.368)		8270D		1	04/21/16 1:39	CZD0340	CD62018
2,4,6-Trichlorophenol	ND (0.368)		8270D		1	04/21/16 1:39	CZD0340	CD62018
2,4-Dichlorophenol	ND (0.368)		8270D		1	04/21/16 1:39	CZD0340	CD62018
2,4-Dimethylphenol	ND (0.368)		8270D		1	04/21/16 1:39	CZD0340	CD62018
2,4-Dinitrophenol	ND (1.85)		8270D		1	04/21/16 1:39	CZD0340	CD62018
2,4-Dinitrotoluene	ND (0.368)		8270D		1	04/21/16 1:39	CZD0340	CD62018
2,6-Dinitrotoluene	ND (0.368)		8270D		1	04/21/16 1:39	CZD0340	CD62018
2-Chloronaphthalene	ND (0.368)		8270D		1	04/21/16 1:39	CZD0340	CD62018
2-Chlorophenol	ND (0.368)		8270D		1	04/21/16 1:39	CZD0340	CD62018
2-Methylnaphthalene	ND (0.368)		8270D		1	04/21/16 1:39	CZD0340	CD62018
2-Methylphenol	ND (0.368)		8270D		1	04/21/16 1:39	CZD0340	CD62018
2-Nitrophenol	ND (0.368)		8270D		1	04/21/16 1:39	CZD0340	CD62018
3,3´-Dichlorobenzidine	ND (0.737)		8270D		1	04/21/16 1:39	CZD0340	CD62018
3+4-Methylphenol	ND (0.737)		8270D		1	04/21/16 1:39	CZD0340	CD62018
4-Bromophenyl-phenylether	ND (0.368)		8270D		1	04/21/16 1:39	CZD0340	CD62018
4-Chloroaniline	ND (0.737)		8270D		1	04/21/16 1:39	CZD0340	CD62018
4-Nitrophenol	ND (1.85)		8270D		1	04/21/16 1:39	CZD0340	CD62018
Acenaphthene	ND (0.368)		8270D		1	04/21/16 1:39	CZD0340	CD62018
Acenaphthylene	ND (0.368)		8270D		1	04/21/16 1:39	CZD0340	CD62018
Acetophenone	ND (0.737)		8270D		1	04/21/16 1:39	CZD0340	CD62018
Aniline	ND (1.85)		8270D		1	04/21/16 1:39	CZD0340	CD62018
Anthracene	ND (0.368)		8270D		1	04/21/16 1:39	CZD0340	CD62018
Azobenzene	ND (0.368)		8270D		1	04/21/16 1:39	CZD0340	CD62018
Benzo(a)anthracene	ND (0.368)		8270D		1	04/21/16 1:39	CZD0340	CD62018
Benzo(a)pyrene	ND (0.185)		8270D		1	04/21/16 1:39	CZD0340	CD62018
Benzo(b)fluoranthene	ND (0.368)		8270D		1	04/21/16 1:39	CZD0340	CD62018
Benzo(g,h,i)perylene	ND (0.368)		8270D		1	04/21/16 1:39	CZD0340	CD62018
Benzo(k)fluoranthene	ND (0.368)		8270D		1	04/21/16 1:39	CZD0340	CD62018

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-10
Date Sampled: 04/19/16 09:35
Percent Solids: 91
Initial Volume: 14.9
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1604514
ESS Laboratory Sample ID: 1604514-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: IBM
Prepared: 4/20/16 11:10

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
bis(2-Chloroethoxy)methane	ND (0.368)		8270D		1	04/21/16 1:39	CZD0340	CD62018
bis(2-Chloroethyl)ether	ND (0.368)		8270D		1	04/21/16 1:39	CZD0340	CD62018
bis(2-chloroisopropyl)Ether	ND (0.368)		8270D		1	04/21/16 1:39	CZD0340	CD62018
bis(2-Ethylhexyl)phthalate	ND (0.368)		8270D		1	04/21/16 1:39	CZD0340	CD62018
Butylbenzylphthalate	ND (0.368)		8270D		1	04/21/16 1:39	CZD0340	CD62018
Chrysene	ND (0.185)		8270D		1	04/21/16 1:39	CZD0340	CD62018
Dibenzo(a,h)Anthracene	ND (0.185)		8270D		1	04/21/16 1:39	CZD0340	CD62018
Dibenzofuran	ND (0.368)		8270D		1	04/21/16 1:39	CZD0340	CD62018
Diethylphthalate	ND (0.368)		8270D		1	04/21/16 1:39	CZD0340	CD62018
Dimethylphthalate	ND (0.368)		8270D		1	04/21/16 1:39	CZD0340	CD62018
Di-n-butylphthalate	ND (0.368)		8270D		1	04/21/16 1:39	CZD0340	CD62018
Di-n-octylphthalate	ND (0.368)		8270D		1	04/21/16 1:39	CZD0340	CD62018
Fluoranthene	ND (0.368)		8270D		1	04/21/16 1:39	CZD0340	CD62018
Fluorene	ND (0.368)		8270D		1	04/21/16 1:39	CZD0340	CD62018
Hexachlorobenzene	ND (0.368)		8270D		1	04/21/16 1:39	CZD0340	CD62018
Hexachlorobutadiene	ND (0.368)		8270D		1	04/21/16 1:39	CZD0340	CD62018
Hexachloroethane	ND (0.368)		8270D		1	04/21/16 1:39	CZD0340	CD62018
Indeno(1,2,3-cd)Pyrene	ND (0.368)		8270D		1	04/21/16 1:39	CZD0340	CD62018
Isophorone	ND (0.368)		8270D		1	04/21/16 1:39	CZD0340	CD62018
Naphthalene	ND (0.368)		8270D		1	04/21/16 1:39	CZD0340	CD62018
Nitrobenzene	ND (0.368)		8270D		1	04/21/16 1:39	CZD0340	CD62018
N-Nitrosodimethylamine	ND (0.368)		8270D		1	04/21/16 1:39	CZD0340	CD62018
Pentachlorophenol	ND (1.85)		8270D		1	04/21/16 1:39	CZD0340	CD62018
Phenanthrene	ND (0.368)		8270D		1	04/21/16 1:39	CZD0340	CD62018
Phenol	ND (0.368)		8270D		1	04/21/16 1:39	CZD0340	CD62018
Pyrene	ND (0.368)		8270D		1	04/21/16 1:39	CZD0340	CD62018

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichlorobenzene-d4	*66 %*		*30-130*
Surrogate: 2,4,6-Tribromophenol	*79 %*		*30-130*
Surrogate: 2-Chlorophenol-d4	*68 %*		*30-130*
Surrogate: 2-Fluorobiphenyl	*68 %*		*30-130*
Surrogate: 2-Fluorophenol	*65 %*		*30-130*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-10
Date Sampled: 04/19/16 09:35
Percent Solids: 91
Initial Volume: 14.9
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1604514
ESS Laboratory Sample ID: 1604514-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: IBM
Prepared: 4/20/16 11:10

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Surrogate: Nitrobenzene-d5		*66 %*		*30-130*				
Surrogate: Phenol-d6		*69 %*		*30-130*				
Surrogate: p-Terphenyl-d14		*66 %*		*30-130*				

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-10
Date Sampled: 04/19/16 09:35
Percent Solids: 91

ESS Laboratory Work Order: 1604514
ESS Laboratory Sample ID: 1604514-02
Sample Matrix: Soil

Classical Chemistry

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	Units	Batch
Conductivity	**WL 150** (5)		9050A		1	JLK	04/21/16 17:38	umhos/cm	CD62128
Corrosivity (pH)	**7.43** (N/A)		9045		1	JLK	04/19/16 21:15	S.U.	CD61943
Corrosivity (pH) Sample Temp	**Soil pH measured in water at 19 ºC.**								
Eh (ORP)	**WL 442** (N/A)		2580		1	JLK	04/19/16 21:15	mv	CD61939
Flashpoint	**> 200** (N/A)		1010		1	EEM	04/22/16 10:20	°F	CD62219
Reactive Cyanide	ND (2.0)		7.3.3.2		1	EEM	04/23/16 15:32	mg/kg	CD62224
Reactive Sulfide	ND (2.0)		7.3.4.1		1	EEM	04/23/16 15:32	mg/kg	CD62224

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-11
Date Sampled: 04/19/16 10:00
Percent Solids: 95

ESS Laboratory Work Order: 1604514
ESS Laboratory Sample ID: 1604514-03
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Arsenic	**14.3** (2.18)		6010C		1	KJK	04/22/16 23:43	2.42	100	CD62209
Barium	**24.2** (2.18)		6010C		1	KJK	04/22/16 23:43	2.42	100	CD62209
Cadmium	ND (0.44)		6010C		1	KJK	04/22/16 23:43	2.42	100	CD62209
Chromium	**13.7** (0.87)		6010C		1	KJK	04/22/16 23:43	2.42	100	CD62209
Lead	**12.8** (4.37)		6010C		1	KJK	04/22/16 23:43	2.42	100	CD62209
Mercury	**0.044** (0.032)		7471B		1	PJP	04/25/16 11:36	0.65	40	CD62211
Selenium	ND (2.18)		7010		5	KJK	04/23/16 18:01	2.42	100	CD62209
Silver	**0.68** (0.44)		6010C		1	KJK	04/22/16 23:43	2.42	100	CD62209

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-11
Date Sampled: 04/19/16 10:00
Percent Solids: 95
Initial Volume: 23.9
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1604514
ESS Laboratory Sample ID: 1604514-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1,1,2-Tetrachloroethane	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
1,1,1-Trichloroethane	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
1,1,2,2-Tetrachloroethane	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
1,1,2-Trichloroethane	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
1,1-Dichloroethane	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
1,1-Dichloroethene	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
1,1-Dichloropropene	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
1,2,3-Trichlorobenzene	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
1,2,3-Trichloropropane	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
1,2,4-Trichlorobenzene	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
1,2,4-Trimethylbenzene	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
1,2-Dibromo-3-Chloropropane	ND (0.721)		8260B		1	04/21/16 17:45	CZD0347	CD62122
1,2-Dibromoethane	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
1,2-Dichlorobenzene	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
1,2-Dichloroethane	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
1,2-Dichloropropane	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
1,3,5-Trimethylbenzene	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
1,3-Dichlorobenzene	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
1,3-Dichloropropane	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
1,4-Dichlorobenzene	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
1,4-Dioxane - Screen	ND (28.8)		8260B		1	04/21/16 17:45	CZD0347	CD62122
2,2-Dichloropropane	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
2-Butanone	ND (0.721)		8260B		1	04/21/16 17:45	CZD0347	CD62122
2-Chlorotoluene	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
2-Hexanone	ND (0.721)		8260B		1	04/21/16 17:45	CZD0347	CD62122
4-Chlorotoluene	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
4-Isopropyltoluene	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
4-Methyl-2-Pentanone	ND (0.721)		8260B		1	04/21/16 17:45	CZD0347	CD62122
Acetone	ND (0.721)		8260B		1	04/21/16 17:45	CZD0347	CD62122
Benzene	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
Bromobenzene	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
Bromochloromethane	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-11
Date Sampled: 04/19/16 10:00
Percent Solids: 95
Initial Volume: 23.9
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1604514
ESS Laboratory Sample ID: 1604514-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Bromodichloromethane	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
Bromoform	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
Bromomethane	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
Carbon Disulfide	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
Carbon Tetrachloride	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
Chlorobenzene	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
Chloroethane	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
Chloroform	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
Chloromethane	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
cis-1,2-Dichloroethene	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
cis-1,3-Dichloropropene	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
Dibromochloromethane	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
Dibromomethane	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
Dichlorodifluoromethane	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
Diethyl Ether	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
Di-isopropyl ether	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
Ethyl tertiary-butyl ether	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
Ethylbenzene	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
Hexachlorobutadiene	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
Isopropylbenzene	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
Methyl tert-Butyl Ether	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
Methylene Chloride	ND (0.288)		8260B		1	04/21/16 17:45	CZD0347	CD62122
Naphthalene	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
n-Butylbenzene	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
n-Propylbenzene	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
sec-Butylbenzene	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
Styrene	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
tert-Butylbenzene	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
Tertiary-amyl methyl ether	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
Tetrachloroethene	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
Tetrahydrofuran	ND (0.721)		8260B		1	04/21/16 17:45	CZD0347	CD62122
Toluene	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-11
Date Sampled: 04/19/16 10:00
Percent Solids: 95
Initial Volume: 23.9
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1604514
ESS Laboratory Sample ID: 1604514-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
trans-1,2-Dichloroethene	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
trans-1,3-Dichloropropene	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
Trichloroethene	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
Trichlorofluoromethane	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
Vinyl Chloride	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
Xylene O	ND (0.144)		8260B		1	04/21/16 17:45	CZD0347	CD62122
Xylene P,M	ND (0.288)		8260B		1	04/21/16 17:45	CZD0347	CD62122
Xylenes (Total)	ND (0.288)		8260B		1	04/21/16 17:45		[CALC]

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichloroethane-d4	*88 %*		*70-130*
Surrogate: 4-Bromofluorobenzene	*92 %*		*70-130*
Surrogate: Dibromofluoromethane	*91 %*		*70-130*
Surrogate: Toluene-d8	*94 %*		*70-130*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-11
Date Sampled: 04/19/16 10:00
Percent Solids: 95
Initial Volume: 19.3
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 1604514
ESS Laboratory Sample ID: 1604514-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DPS
Prepared: 4/20/16 10:10

8100M Total Petroleum Hydrocarbons

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Total Petroleum Hydrocarbons	ND (11.0)		8100M		1	04/20/16 15:46	CZD0320	CD61915

	%Recovery	Qualifier	Limits
Surrogate: O-Terphenyl	*87 %*		*40-140*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-11
Date Sampled: 04/19/16 10:00
Percent Solids: 95
Initial Volume: 15.5
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1604514
ESS Laboratory Sample ID: 1604514-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: IBM
Prepared: 4/20/16 11:10

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,2,4-Trichlorobenzene	ND (0.341)		8270D		1	04/20/16 16:33	CZD0322	CD62018
1,2-Dichlorobenzene	ND (0.341)		8270D		1	04/20/16 16:33	CZD0322	CD62018
1,3-Dichlorobenzene	ND (0.341)		8270D		1	04/20/16 16:33	CZD0322	CD62018
1,4-Dichlorobenzene	ND (0.341)		8270D		1	04/20/16 16:33	CZD0322	CD62018
2,4,5-Trichlorophenol	ND (0.341)		8270D		1	04/20/16 16:33	CZD0322	CD62018
2,4,6-Trichlorophenol	ND (0.341)		8270D		1	04/20/16 16:33	CZD0322	CD62018
2,4-Dichlorophenol	ND (0.341)		8270D		1	04/20/16 16:33	CZD0322	CD62018
2,4-Dimethylphenol	ND (0.341)		8270D		1	04/20/16 16:33	CZD0322	CD62018
2,4-Dinitrophenol	ND (1.71)		8270D		1	04/20/16 16:33	CZD0322	CD62018
2,4-Dinitrotoluene	ND (0.341)		8270D		1	04/20/16 16:33	CZD0322	CD62018
2,6-Dinitrotoluene	ND (0.341)		8270D		1	04/20/16 16:33	CZD0322	CD62018
2-Chloronaphthalene	ND (0.341)		8270D		1	04/20/16 16:33	CZD0322	CD62018
2-Chlorophenol	ND (0.341)		8270D		1	04/20/16 16:33	CZD0322	CD62018
2-Methylnaphthalene	ND (0.341)		8270D		1	04/20/16 16:33	CZD0322	CD62018
2-Methylphenol	ND (0.341)		8270D		1	04/20/16 16:33	CZD0322	CD62018
2-Nitrophenol	ND (0.341)		8270D		1	04/20/16 16:33	CZD0322	CD62018
3,3´-Dichlorobenzidine	ND (0.682)		8270D		1	04/20/16 16:33	CZD0322	CD62018
3+4-Methylphenol	ND (0.682)		8270D		1	04/20/16 16:33	CZD0322	CD62018
4-Bromophenyl-phenylether	ND (0.341)		8270D		1	04/20/16 16:33	CZD0322	CD62018
4-Chloroaniline	ND (0.682)		8270D		1	04/20/16 16:33	CZD0322	CD62018
4-Nitrophenol	ND (1.71)		8270D		1	04/20/16 16:33	CZD0322	CD62018
Acenaphthene	ND (0.341)		8270D		1	04/20/16 16:33	CZD0322	CD62018
Acenaphthylene	ND (0.341)		8270D		1	04/20/16 16:33	CZD0322	CD62018
Acetophenone	ND (0.682)		8270D		1	04/20/16 16:33	CZD0322	CD62018
Aniline	ND (1.71)		8270D		1	04/20/16 16:33	CZD0322	CD62018
Anthracene	ND (0.341)		8270D		1	04/20/16 16:33	CZD0322	CD62018
Azobenzene	ND (0.341)		8270D		1	04/20/16 16:33	CZD0322	CD62018
Benzo(a)anthracene	ND (0.341)		8270D		1	04/20/16 16:33	CZD0322	CD62018
Benzo(a)pyrene	ND (0.171)		8270D		1	04/20/16 16:33	CZD0322	CD62018
Benzo(b)fluoranthene	ND (0.341)		8270D		1	04/20/16 16:33	CZD0322	CD62018
Benzo(g,h,i)perylene	ND (0.341)		8270D		1	04/20/16 16:33	CZD0322	CD62018
Benzo(k)fluoranthene	ND (0.341)		8270D		1	04/20/16 16:33	CZD0322	CD62018

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-11
Date Sampled: 04/19/16 10:00
Percent Solids: 95
Initial Volume: 15.5
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1604514
ESS Laboratory Sample ID: 1604514-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: IBM
Prepared: 4/20/16 11:10

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
bis(2-Chloroethoxy)methane	ND (0.341)		8270D		1	04/20/16 16:33	CZD0322	CD62018
bis(2-Chloroethyl)ether	ND (0.341)		8270D		1	04/20/16 16:33	CZD0322	CD62018
bis(2-chloroisopropyl)Ether	ND (0.341)		8270D		1	04/20/16 16:33	CZD0322	CD62018
bis(2-Ethylhexyl)phthalate	ND (0.341)		8270D		1	04/20/16 16:33	CZD0322	CD62018
Butylbenzylphthalate	ND (0.341)		8270D		1	04/20/16 16:33	CZD0322	CD62018
Chrysene	ND (0.171)		8270D		1	04/20/16 16:33	CZD0322	CD62018
Dibenzo(a,h)Anthracene	ND (0.171)		8270D		1	04/20/16 16:33	CZD0322	CD62018
Dibenzofuran	ND (0.341)		8270D		1	04/20/16 16:33	CZD0322	CD62018
Diethylphthalate	ND (0.341)		8270D		1	04/20/16 16:33	CZD0322	CD62018
Dimethylphthalate	ND (0.341)		8270D		1	04/20/16 16:33	CZD0322	CD62018
Di-n-butylphthalate	ND (0.341)		8270D		1	04/20/16 16:33	CZD0322	CD62018
Di-n-octylphthalate	ND (0.341)		8270D		1	04/20/16 16:33	CZD0322	CD62018
Fluoranthene	ND (0.341)		8270D		1	04/20/16 16:33	CZD0322	CD62018
Fluorene	ND (0.341)		8270D		1	04/20/16 16:33	CZD0322	CD62018
Hexachlorobenzene	ND (0.341)		8270D		1	04/20/16 16:33	CZD0322	CD62018
Hexachlorobutadiene	ND (0.341)		8270D		1	04/20/16 16:33	CZD0322	CD62018
Hexachloroethane	ND (0.341)		8270D		1	04/20/16 16:33	CZD0322	CD62018
Indeno(1,2,3-cd)Pyrene	ND (0.341)		8270D		1	04/20/16 16:33	CZD0322	CD62018
Isophorone	ND (0.341)		8270D		1	04/20/16 16:33	CZD0322	CD62018
Naphthalene	ND (0.341)		8270D		1	04/20/16 16:33	CZD0322	CD62018
Nitrobenzene	ND (0.341)		8270D		1	04/20/16 16:33	CZD0322	CD62018
N-Nitrosodimethylamine	ND (0.341)		8270D		1	04/20/16 16:33	CZD0322	CD62018
Pentachlorophenol	ND (1.71)		8270D		1	04/20/16 16:33	CZD0322	CD62018
Phenanthrene	ND (0.341)		8270D		1	04/20/16 16:33	CZD0322	CD62018
Phenol	ND (0.341)		8270D		1	04/20/16 16:33	CZD0322	CD62018
Pyrene	ND (0.341)		8270D		1	04/20/16 16:33	CZD0322	CD62018

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichlorobenzene-d4	*69 %*		*30-130*
Surrogate: 2,4,6-Tribromophenol	*65 %*		*30-130*
Surrogate: 2-Chlorophenol-d4	*72 %*		*30-130*
Surrogate: 2-Fluorobiphenyl	*69 %*		*30-130*
Surrogate: 2-Fluorophenol	*68 %*		*30-130*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-11
Date Sampled: 04/19/16 10:00
Percent Solids: 95
Initial Volume: 15.5
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1604514
ESS Laboratory Sample ID: 1604514-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: IBM
Prepared: 4/20/16 11:10

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Surrogate: Nitrobenzene-d5		*68 %*		*30-130*				
Surrogate: Phenol-d6		*72 %*		*30-130*				
Surrogate: p-Terphenyl-d14		*77 %*		*30-130*				

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-11
Date Sampled: 04/19/16 10:00
Percent Solids: 95

ESS Laboratory Work Order: 1604514
ESS Laboratory Sample ID: 1604514-03
Sample Matrix: Soil

Classical Chemistry

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	Units	Batch
Conductivity	**WL 13** (5)		9050A		1	JLK	04/21/16 17:38	umhos/cm	CD62128
Corrosivity (pH)	**7.52** (N/A)		9045		1	JLK	04/19/16 21:15	S.U.	CD61943
Corrosivity (pH) Sample Temp	**Soil pH measured in water at 18.9 ºC.**								
Eh (ORP)	**WL 457** (N/A)		2580		1	JLK	04/19/16 21:15	mv	CD61939
Flashpoint	**> 200** (N/A)		1010		1	EEM	04/22/16 10:20	°F	CD62219
Reactive Cyanide	ND (2.0)		7.3.3.2		1	EEM	04/23/16 15:32	mg/kg	CD62224
Reactive Sulfide	ND (2.0)		7.3.4.1		1	EEM	04/23/16 15:32	mg/kg	CD62224

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-12
Date Sampled: 04/19/16 11:30
Percent Solids: 93

ESS Laboratory Work Order: 1604514
ESS Laboratory Sample ID: 1604514-04
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Arsenic	**14.2** (2.13)		6010C		1	KJK	04/23/16 0:16	2.52	100	CD62209
Barium	**23.1** (2.13)		6010C		1	KJK	04/23/16 0:16	2.52	100	CD62209
Cadmium	ND (0.43)		6010C		1	KJK	04/23/16 0:16	2.52	100	CD62209
Chromium	**14.9** (0.85)		6010C		1	KJK	04/23/16 0:16	2.52	100	CD62209
Lead	**17.2** (4.26)		6010C		1	KJK	04/23/16 0:16	2.52	100	CD62209
Mercury	ND (0.033)		7471B		1	PJP	04/25/16 11:46	0.65	40	CD62211
Selenium	ND (2.13)		7010		5	KJK	04/23/16 18:58	2.52	100	CD62209
Silver	**0.66** (0.43)		6010C		1	KJK	04/23/16 0:16	2.52	100	CD62209

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-12
Date Sampled: 04/19/16 11:30
Percent Solids: 93
Initial Volume: 18.8
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1604514
ESS Laboratory Sample ID: 1604514-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1,1,2-Tetrachloroethane	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
1,1,1-Trichloroethane	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
1,1,2,2-Tetrachloroethane	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
1,1,2-Trichloroethane	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
1,1-Dichloroethane	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
1,1-Dichloroethene	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
1,1-Dichloropropene	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
1,2,3-Trichlorobenzene	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
1,2,3-Trichloropropane	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
1,2,4-Trichlorobenzene	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
1,2,4-Trimethylbenzene	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
1,2-Dibromo-3-Chloropropane	ND (0.931)		8260B		1	04/21/16 18:11	CZD0347	CD62122
1,2-Dibromoethane	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
1,2-Dichlorobenzene	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
1,2-Dichloroethane	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
1,2-Dichloropropane	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
1,3,5-Trimethylbenzene	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
1,3-Dichlorobenzene	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
1,3-Dichloropropane	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
1,4-Dichlorobenzene	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
1,4-Dioxane - Screen	ND (37.2)		8260B		1	04/21/16 18:11	CZD0347	CD62122
2,2-Dichloropropane	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
2-Butanone	ND (0.931)		8260B		1	04/21/16 18:11	CZD0347	CD62122
2-Chlorotoluene	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
2-Hexanone	ND (0.931)		8260B		1	04/21/16 18:11	CZD0347	CD62122
4-Chlorotoluene	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
4-Isopropyltoluene	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
4-Methyl-2-Pentanone	ND (0.931)		8260B		1	04/21/16 18:11	CZD0347	CD62122
Acetone	ND (0.931)		8260B		1	04/21/16 18:11	CZD0347	CD62122
Benzene	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
Bromobenzene	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
Bromochloromethane	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-12
Date Sampled: 04/19/16 11:30
Percent Solids: 93
Initial Volume: 18.8
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1604514
ESS Laboratory Sample ID: 1604514-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Bromodichloromethane	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
Bromoform	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
Bromomethane	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
Carbon Disulfide	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
Carbon Tetrachloride	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
Chlorobenzene	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
Chloroethane	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
Chloroform	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
Chloromethane	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
cis-1,2-Dichloroethene	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
cis-1,3-Dichloropropene	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
Dibromochloromethane	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
Dibromomethane	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
Dichlorodifluoromethane	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
Diethyl Ether	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
Di-isopropyl ether	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
Ethyl tertiary-butyl ether	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
Ethylbenzene	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
Hexachlorobutadiene	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
Isopropylbenzene	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
Methyl tert-Butyl Ether	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
Methylene Chloride	ND (0.372)		8260B		1	04/21/16 18:11	CZD0347	CD62122
Naphthalene	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
n-Butylbenzene	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
n-Propylbenzene	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
sec-Butylbenzene	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
Styrene	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
tert-Butylbenzene	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
Tertiary-amyl methyl ether	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
Tetrachloroethene	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
Tetrahydrofuran	ND (0.931)		8260B		1	04/21/16 18:11	CZD0347	CD62122
Toluene	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-12
Date Sampled: 04/19/16 11:30
Percent Solids: 93
Initial Volume: 18.8
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1604514
ESS Laboratory Sample ID: 1604514-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
trans-1,2-Dichloroethene	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
trans-1,3-Dichloropropene	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
Trichloroethene	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
Trichlorofluoromethane	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
Vinyl Chloride	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
Xylene O	ND (0.186)		8260B		1	04/21/16 18:11	CZD0347	CD62122
Xylene P,M	ND (0.372)		8260B		1	04/21/16 18:11	CZD0347	CD62122
Xylenes (Total)	ND (0.372)		8260B		1	04/21/16 18:11		[CALC]

	%Recovery	*Qualifier*	*Limits*
Surrogate: 1,2-Dichloroethane-d4	*93 %*		*70-130*
Surrogate: 4-Bromofluorobenzene	*94 %*		*70-130*
Surrogate: Dibromofluoromethane	*100 %*		*70-130*
Surrogate: Toluene-d8	*98 %*		*70-130*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-12
Date Sampled: 04/19/16 11:30
Percent Solids: 93
Initial Volume: 20.4
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 1604514
ESS Laboratory Sample ID: 1604514-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DPS
Prepared: 4/20/16 10:10

8100M Total Petroleum Hydrocarbons

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Total Petroleum Hydrocarbons	ND (10.5)		8100M		1	04/20/16 16:26	CZD0320	CD61915

	%Recovery	Qualifier	Limits
Surrogate: O-Terphenyl	*92 %*		*40-140*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-12
Date Sampled: 04/19/16 11:30
Percent Solids: 93
Initial Volume: 14.1
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1604514
ESS Laboratory Sample ID: 1604514-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: IBM
Prepared: 4/20/16 11:10

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,2,4-Trichlorobenzene	ND (0.380)		8270D		1	04/20/16 17:08	CZD0322	CD62018
1,2-Dichlorobenzene	ND (0.380)		8270D		1	04/20/16 17:08	CZD0322	CD62018
1,3-Dichlorobenzene	ND (0.380)		8270D		1	04/20/16 17:08	CZD0322	CD62018
1,4-Dichlorobenzene	ND (0.380)		8270D		1	04/20/16 17:08	CZD0322	CD62018
2,4,5-Trichlorophenol	ND (0.380)		8270D		1	04/20/16 17:08	CZD0322	CD62018
2,4,6-Trichlorophenol	ND (0.380)		8270D		1	04/20/16 17:08	CZD0322	CD62018
2,4-Dichlorophenol	ND (0.380)		8270D		1	04/20/16 17:08	CZD0322	CD62018
2,4-Dimethylphenol	ND (0.380)		8270D		1	04/20/16 17:08	CZD0322	CD62018
2,4-Dinitrophenol	ND (1.91)		8270D		1	04/20/16 17:08	CZD0322	CD62018
2,4-Dinitrotoluene	ND (0.380)		8270D		1	04/20/16 17:08	CZD0322	CD62018
2,6-Dinitrotoluene	ND (0.380)		8270D		1	04/20/16 17:08	CZD0322	CD62018
2-Chloronaphthalene	ND (0.380)		8270D		1	04/20/16 17:08	CZD0322	CD62018
2-Chlorophenol	ND (0.380)		8270D		1	04/20/16 17:08	CZD0322	CD62018
2-Methylnaphthalene	ND (0.380)		8270D		1	04/20/16 17:08	CZD0322	CD62018
2-Methylphenol	ND (0.380)		8270D		1	04/20/16 17:08	CZD0322	CD62018
2-Nitrophenol	ND (0.380)		8270D		1	04/20/16 17:08	CZD0322	CD62018
3,3´-Dichlorobenzidine	ND (0.762)		8270D		1	04/20/16 17:08	CZD0322	CD62018
3+4-Methylphenol	ND (0.762)		8270D		1	04/20/16 17:08	CZD0322	CD62018
4-Bromophenyl-phenylether	ND (0.380)		8270D		1	04/20/16 17:08	CZD0322	CD62018
4-Chloroaniline	ND (0.762)		8270D		1	04/20/16 17:08	CZD0322	CD62018
4-Nitrophenol	ND (1.91)		8270D		1	04/20/16 17:08	CZD0322	CD62018
Acenaphthene	ND (0.380)		8270D		1	04/20/16 17:08	CZD0322	CD62018
Acenaphthylene	ND (0.380)		8270D		1	04/20/16 17:08	CZD0322	CD62018
Acetophenone	ND (0.762)		8270D		1	04/20/16 17:08	CZD0322	CD62018
Aniline	ND (1.91)		8270D		1	04/20/16 17:08	CZD0322	CD62018
Anthracene	ND (0.380)		8270D		1	04/20/16 17:08	CZD0322	CD62018
Azobenzene	ND (0.380)		8270D		1	04/20/16 17:08	CZD0322	CD62018
Benzo(a)anthracene	ND (0.380)		8270D		1	04/20/16 17:08	CZD0322	CD62018
Benzo(a)pyrene	ND (0.191)		8270D		1	04/20/16 17:08	CZD0322	CD62018
Benzo(b)fluoranthene	ND (0.380)		8270D		1	04/20/16 17:08	CZD0322	CD62018
Benzo(g,h,i)perylene	ND (0.380)		8270D		1	04/20/16 17:08	CZD0322	CD62018
Benzo(k)fluoranthene	ND (0.380)		8270D		1	04/20/16 17:08	CZD0322	CD62018

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-12
Date Sampled: 04/19/16 11:30
Percent Solids: 93
Initial Volume: 14.1
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1604514
ESS Laboratory Sample ID: 1604514-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: IBM
Prepared: 4/20/16 11:10

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
bis(2-Chloroethoxy)methane	ND (0.380)		8270D		1	04/20/16 17:08	CZD0322	CD62018
bis(2-Chloroethyl)ether	ND (0.380)		8270D		1	04/20/16 17:08	CZD0322	CD62018
bis(2-chloroisopropyl)Ether	ND (0.380)		8270D		1	04/20/16 17:08	CZD0322	CD62018
bis(2-Ethylhexyl)phthalate	ND (0.380)		8270D		1	04/20/16 17:08	CZD0322	CD62018
Butylbenzylphthalate	ND (0.380)		8270D		1	04/20/16 17:08	CZD0322	CD62018
Chrysene	ND (0.191)		8270D		1	04/20/16 17:08	CZD0322	CD62018
Dibenzo(a,h)Anthracene	ND (0.191)		8270D		1	04/20/16 17:08	CZD0322	CD62018
Dibenzofuran	ND (0.380)		8270D		1	04/20/16 17:08	CZD0322	CD62018
Diethylphthalate	ND (0.380)		8270D		1	04/20/16 17:08	CZD0322	CD62018
Dimethylphthalate	ND (0.380)		8270D		1	04/20/16 17:08	CZD0322	CD62018
Di-n-butylphthalate	ND (0.380)		8270D		1	04/20/16 17:08	CZD0322	CD62018
Di-n-octylphthalate	ND (0.380)		8270D		1	04/20/16 17:08	CZD0322	CD62018
Fluoranthene	ND (0.380)		8270D		1	04/20/16 17:08	CZD0322	CD62018
Fluorene	ND (0.380)		8270D		1	04/20/16 17:08	CZD0322	CD62018
Hexachlorobenzene	ND (0.380)		8270D		1	04/20/16 17:08	CZD0322	CD62018
Hexachlorobutadiene	ND (0.380)		8270D		1	04/20/16 17:08	CZD0322	CD62018
Hexachloroethane	ND (0.380)		8270D		1	04/20/16 17:08	CZD0322	CD62018
Indeno(1,2,3-cd)Pyrene	ND (0.380)		8270D		1	04/20/16 17:08	CZD0322	CD62018
Isophorone	ND (0.380)		8270D		1	04/20/16 17:08	CZD0322	CD62018
Naphthalene	ND (0.380)		8270D		1	04/20/16 17:08	CZD0322	CD62018
Nitrobenzene	ND (0.380)		8270D		1	04/20/16 17:08	CZD0322	CD62018
N-Nitrosodimethylamine	ND (0.380)		8270D		1	04/20/16 17:08	CZD0322	CD62018
Pentachlorophenol	ND (1.91)		8270D		1	04/20/16 17:08	CZD0322	CD62018
Phenanthrene	ND (0.380)		8270D		1	04/20/16 17:08	CZD0322	CD62018
Phenol	ND (0.380)		8270D		1	04/20/16 17:08	CZD0322	CD62018
Pyrene	ND (0.380)		8270D		1	04/20/16 17:08	CZD0322	CD62018

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichlorobenzene-d4	*56 %*		*30-130*
Surrogate: 2,4,6-Tribromophenol	*61 %*		*30-130*
Surrogate: 2-Chlorophenol-d4	*58 %*		*30-130*
Surrogate: 2-Fluorobiphenyl	*58 %*		*30-130*
Surrogate: 2-Fluorophenol	*55 %*		*30-130*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-12
Date Sampled: 04/19/16 11:30
Percent Solids: 93
Initial Volume: 14.1
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1604514
ESS Laboratory Sample ID: 1604514-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: IBM
Prepared: 4/20/16 11:10

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Surrogate: Nitrobenzene-d5		*56 %*		*30-130*				
Surrogate: Phenol-d6		*58 %*		*30-130*				
Surrogate: p-Terphenyl-d14		*68 %*		*30-130*				

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-12
Date Sampled: 04/19/16 11:30
Percent Solids: 93

ESS Laboratory Work Order: 1604514
ESS Laboratory Sample ID: 1604514-04
Sample Matrix: Soil

Classical Chemistry

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	Units	Batch
Conductivity	**WL 11** (5)		9050A		1	JLK	04/21/16 17:38	umhos/cm	CD62128
Corrosivity (pH)	**6.98** (N/A)		9045		1	JLK	04/19/16 21:15	S.U.	CD61943
Corrosivity (pH) Sample Temp	**Soil pH measured in water at 19 ºC.**								
Eh (ORP)	**WL 472** (N/A)		2580		1	JLK	04/19/16 21:15	mv	CD61939
Flashpoint	**> 200** (N/A)		1010		1	EEM	04/22/16 10:20	°F	CD62219
Reactive Cyanide	ND (2.0)		7.3.3.2		1	EEM	04/23/16 15:32	mg/kg	CD62224
Reactive Sulfide	ND (2.0)		7.3.4.1		1	EEM	04/23/16 15:32	mg/kg	CD62224

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604514

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Total Metals										
Batch CD62209 - 3050B										
Blank										
Arsenic	ND	2.50	mg/kg wet							
Barium	ND	2.50	mg/kg wet							
Cadmium	ND	0.50	mg/kg wet							
Chromium	ND	1.00	mg/kg wet							
Lead	ND	5.00	mg/kg wet							
Selenium	ND	0.50	mg/kg wet							
Selenium	ND	5.00	mg/kg wet							
Silver	ND	0.50	mg/kg wet							
LCS										
Arsenic	169	9.26	mg/kg wet	161.0		105	80-120			
Barium	389	9.26	mg/kg wet	351.0		111	80-120			
Cadmium	183	1.85	mg/kg wet	190.0		96	80-120			
Chromium	90.9	3.70	mg/kg wet	87.90		103	80-120			
Lead	145	18.5	mg/kg wet	138.0		105	80-120			
Selenium	313	46.3	mg/kg wet	305.0		103	80-120			
Selenium	310	18.5	mg/kg wet	305.0		102	80-120			
Silver	60.1	1.85	mg/kg wet	58.00		104	80-120			
LCS Dup										
Arsenic	164	9.43	mg/kg wet	161.0		102	80-120	3	20	
Barium	353	9.43	mg/kg wet	351.0		101	80-120	10	20	
Cadmium	180	1.89	mg/kg wet	190.0		95	80-120	2	20	
Chromium	89.4	3.77	mg/kg wet	87.90		102	80-120	2	20	
Lead	142	18.9	mg/kg wet	138.0		103	80-120	3	20	
Selenium	300	47.2	mg/kg wet	305.0		98	80-120	4	20	
Selenium	303	18.9	mg/kg wet	305.0		99	80-120	2	20	
Silver	58.9	1.89	mg/kg wet	58.00		102	80-120	2	20	
5035/8260B Volatile Organic Compounds / Methanol										
Batch CD62122 - 5035										
Blank										
1,1,1,2-Tetrachloroethane	ND	0.200	mg/kg wet							
1,1,1-Trichloroethane	ND	0.200	mg/kg wet							
1,1,2,2-Tetrachloroethane	ND	0.200	mg/kg wet							
1,1,2-Trichloroethane	ND	0.200	mg/kg wet							
1,1-Dichloroethane	ND	0.200	mg/kg wet							
1,1-Dichloroethene	ND	0.200	mg/kg wet							
1,1-Dichloropropene	ND	0.200	mg/kg wet							
1,2,3-Trichlorobenzene	ND	0.200	mg/kg wet							
1,2,3-Trichloropropane	ND	0.200	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.200	mg/kg wet							
1,2,4-Trimethylbenzene	ND	0.200	mg/kg wet							
1,2-Dibromo-3-Chloropropane	ND	1.00	mg/kg wet							
1,2-Dibromoethane	ND	0.200	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604514

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Methanol										
Batch CD62122 - 5035										
1,2-Dichlorobenzene	ND	0.200	mg/kg wet							
1,2-Dichloroethane	ND	0.200	mg/kg wet							
1,2-Dichloropropane	ND	0.200	mg/kg wet							
1,3,5-Trimethylbenzene	ND	0.200	mg/kg wet							
1,3-Dichlorobenzene	ND	0.200	mg/kg wet							
1,3-Dichloropropane	ND	0.200	mg/kg wet							
1,4-Dichlorobenzene	ND	0.200	mg/kg wet							
1,4-Dioxane - Screen	ND	40.0	mg/kg wet							
2,2-Dichloropropane	ND	0.200	mg/kg wet							
2-Butanone	ND	1.00	mg/kg wet							
2-Chlorotoluene	ND	0.200	mg/kg wet							
2-Hexanone	ND	1.00	mg/kg wet							
4-Chlorotoluene	ND	0.200	mg/kg wet							
4-Isopropyltoluene	ND	0.200	mg/kg wet							
4-Methyl-2-Pentanone	ND	1.00	mg/kg wet							
Acetone	ND	1.00	mg/kg wet							
Benzene	ND	0.200	mg/kg wet							
Bromobenzene	ND	0.200	mg/kg wet							
Bromochloromethane	ND	0.200	mg/kg wet							
Bromodichloromethane	ND	0.200	mg/kg wet							
Bromoform	ND	0.200	mg/kg wet							
Bromomethane	ND	0.200	mg/kg wet							
Carbon Disulfide	ND	0.200	mg/kg wet							
Carbon Tetrachloride	ND	0.200	mg/kg wet							
Chlorobenzene	ND	0.200	mg/kg wet							
Chloroethane	ND	0.200	mg/kg wet							
Chloroform	ND	0.200	mg/kg wet							
Chloromethane	ND	0.200	mg/kg wet							
cis-1,2-Dichloroethene	ND	0.200	mg/kg wet							
cis-1,3-Dichloropropene	ND	0.200	mg/kg wet							
Dibromochloromethane	ND	0.200	mg/kg wet							
Dibromomethane	ND	0.200	mg/kg wet							
Dichlorodifluoromethane	ND	0.200	mg/kg wet							
Diethyl Ether	ND	0.200	mg/kg wet							
Di-isopropyl ether	ND	0.200	mg/kg wet							
Ethyl tertiary-butyl ether	ND	0.200	mg/kg wet							
Ethylbenzene	ND	0.200	mg/kg wet							
Hexachlorobutadiene	ND	0.200	mg/kg wet							
Isopropylbenzene	ND	0.200	mg/kg wet							
Methyl tert-Butyl Ether	ND	0.200	mg/kg wet							
Methylene Chloride	ND	0.400	mg/kg wet							
Naphthalene	ND	0.200	mg/kg wet							
n-Butylbenzene	ND	0.200	mg/kg wet							
n-Propylbenzene	ND	0.200	mg/kg wet							
sec-Butylbenzene	ND	0.200	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604514

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Methanol										
Batch CD62122 - 5035										
Styrene	ND	0.200	mg/kg wet							
tert-Butylbenzene	ND	0.200	mg/kg wet							
Tertiary-amyl methyl ether	ND	0.200	mg/kg wet							
Tetrachloroethene	ND	0.200	mg/kg wet							
Tetrahydrofuran	ND	1.00	mg/kg wet							
Toluene	ND	0.200	mg/kg wet							
trans-1,2-Dichloroethene	ND	0.200	mg/kg wet							
trans-1,3-Dichloropropene	ND	0.200	mg/kg wet							
Trichloroethene	ND	0.200	mg/kg wet							
Trichlorofluoromethane	ND	0.200	mg/kg wet							
Vinyl Chloride	ND	0.200	mg/kg wet							
Xylene O	ND	0.200	mg/kg wet							
Xylene P,M	ND	0.400	mg/kg wet							
Xylenes (Total)	ND	0.400	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	*4.33*		mg/kg wet	*5.000*		*87*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*4.32*		mg/kg wet	*5.000*		*86*	*70-130*			
Surrogate: Dibromofluoromethane	*4.74*		mg/kg wet	*5.000*		*95*	*70-130*			
Surrogate: Toluene-d8	*5.38*		mg/kg wet	*5.000*		*108*	*70-130*			
LCS										
1,1,1,2-Tetrachloroethane	1.92	0.200	mg/kg wet	2.000		96	70-130			
1,1,1-Trichloroethane	1.75	0.200	mg/kg wet	2.000		87	70-130			
1,1,2,2-Tetrachloroethane	1.97	0.200	mg/kg wet	2.000		98	70-130			
1,1,2-Trichloroethane	1.78	0.200	mg/kg wet	2.000		89	70-130			
1,1-Dichloroethane	1.78	0.200	mg/kg wet	2.000		89	70-130			
1,1-Dichloroethene	2.29	0.200	mg/kg wet	2.000		115	70-130			
1,1-Dichloropropene	1.87	0.200	mg/kg wet	2.000		94	70-130			
1,2,3-Trichlorobenzene	2.30	0.200	mg/kg wet	2.000		115	70-130			
1,2,3-Trichloropropane	1.97	0.200	mg/kg wet	2.000		99	70-130			
1,2,4-Trichlorobenzene	2.15	0.200	mg/kg wet	2.000		108	70-130			
1,2,4-Trimethylbenzene	1.92	0.200	mg/kg wet	2.000		96	70-130			
1,2-Dibromo-3-Chloropropane	2.22	1.00	mg/kg wet	2.000		111	70-130			
1,2-Dibromoethane	2.01	0.200	mg/kg wet	2.000		100	70-130			
1,2-Dichlorobenzene	2.07	0.200	mg/kg wet	2.000		103	70-130			
1,2-Dichloroethane	1.79	0.200	mg/kg wet	2.000		90	70-130			
1,2-Dichloropropane	1.85	0.200	mg/kg wet	2.000		93	70-130			
1,3,5-Trimethylbenzene	2.00	0.200	mg/kg wet	2.000		100	70-130			
1,3-Dichlorobenzene	2.06	0.200	mg/kg wet	2.000		103	70-130			
1,3-Dichloropropane	2.11	0.200	mg/kg wet	2.000		105	70-130			
1,4-Dichlorobenzene	2.04	0.200	mg/kg wet	2.000		102	70-130			
1,4-Dioxane - Screen	39.2	40.0	mg/kg wet	40.00		98	44-241			
2,2-Dichloropropane	1.77	0.200	mg/kg wet	2.000		88	70-130			
2-Butanone	8.68	1.00	mg/kg wet	10.00		87	70-130			
2-Chlorotoluene	2.14	0.200	mg/kg wet	2.000		107	70-130			
2-Hexanone	10.9	1.00	mg/kg wet	10.00		109	70-130			
4-Chlorotoluene	2.15	0.200	mg/kg wet	2.000		107	70-130			

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604514

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Methanol										
Batch CD62122 - 5035										
4-Isopropyltoluene	2.03	0.200	mg/kg wet	2.000		102	70-130			
4-Methyl-2-Pentanone	10.2	1.00	mg/kg wet	10.00		102	70-130			
Acetone	11.6	1.00	mg/kg wet	10.00		116	70-130			
Benzene	1.84	0.200	mg/kg wet	2.000		92	70-130			
Bromobenzene	2.16	0.200	mg/kg wet	2.000		108	70-130			
Bromochloromethane	1.85	0.200	mg/kg wet	2.000		93	70-130			
Bromodichloromethane	1.77	0.200	mg/kg wet	2.000		88	70-130			
Bromoform	1.90	0.200	mg/kg wet	2.000		95	70-130			
Bromomethane	2.15	0.200	mg/kg wet	2.000		108	70-130			
Carbon Disulfide	2.16	0.200	mg/kg wet	2.000		108	70-130			
Carbon Tetrachloride	1.81	0.200	mg/kg wet	2.000		90	70-130			
Chlorobenzene	1.95	0.200	mg/kg wet	2.000		98	70-130			
Chloroethane	1.71	0.200	mg/kg wet	2.000		85	70-130			
Chloroform	1.73	0.200	mg/kg wet	2.000		87	70-130			
Chloromethane	1.62	0.200	mg/kg wet	2.000		81	70-130			
cis-1,2-Dichloroethene	1.96	0.200	mg/kg wet	2.000		98	70-130			
cis-1,3-Dichloropropene	1.96	0.200	mg/kg wet	2.000		98	70-130			
Dibromochloromethane	2.11	0.200	mg/kg wet	2.000		105	70-130			
Dibromomethane	1.84	0.200	mg/kg wet	2.000		92	70-130			
Dichlorodifluoromethane	1.43	0.200	mg/kg wet	2.000		72	70-130			
Diethyl Ether	2.40	0.200	mg/kg wet	2.000		120	70-130			
Di-isopropyl ether	1.78	0.200	mg/kg wet	2.000		89	70-130			
Ethyl tertiary-butyl ether	1.89	0.200	mg/kg wet	2.000		94	70-130			
Ethylbenzene	2.09	0.200	mg/kg wet	2.000		104	70-130			
Hexachlorobutadiene	2.33	0.200	mg/kg wet	2.000		117	70-130			
Isopropylbenzene	2.04	0.200	mg/kg wet	2.000		102	70-130			
Methyl tert-Butyl Ether	1.90	0.200	mg/kg wet	2.000		95	70-130			
Methylene Chloride	1.96	0.400	mg/kg wet	2.000		98	70-130			
Naphthalene	2.25	0.200	mg/kg wet	2.000		113	70-130			
n-Butylbenzene	2.07	0.200	mg/kg wet	2.000		104	70-130			
n-Propylbenzene	2.03	0.200	mg/kg wet	2.000		101	70-130			
sec-Butylbenzene	2.14	0.200	mg/kg wet	2.000		107	70-130			
Styrene	1.89	0.200	mg/kg wet	2.000		95	70-130			
tert-Butylbenzene	2.09	0.200	mg/kg wet	2.000		104	70-130			
Tertiary-amyl methyl ether	1.85	0.200	mg/kg wet	2.000		92	70-130			
Tetrachloroethene	1.69	0.200	mg/kg wet	2.000		84	70-130			
Tetrahydrofuran	2.08	1.00	mg/kg wet	2.000		104	70-130			
Toluene	1.99	0.200	mg/kg wet	2.000		100	70-130			
trans-1,2-Dichloroethene	1.99	0.200	mg/kg wet	2.000		100	70-130			
trans-1,3-Dichloropropene	1.90	0.200	mg/kg wet	2.000		95	70-130			
Trichloroethene	1.84	0.200	mg/kg wet	2.000		92	70-130			
Trichlorofluoromethane	1.75	0.200	mg/kg wet	2.000		88	70-130			
Vinyl Chloride	1.71	0.200	mg/kg wet	2.000		85	70-130			
Xylene O	1.98	0.200	mg/kg wet	2.000		99	70-130			
Xylene P,M	4.02	0.400	mg/kg wet	4.000		100	70-130			

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604514

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Methanol										
Batch CD62122 - [CALC]										
Xylenes (Total)	5.99	0.400	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	*4.31*		mg/kg wet	*5.000*		*86*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*5.07*		mg/kg wet	*5.000*		*101*	*70-130*			
Surrogate: Dibromofluoromethane	*4.65*		mg/kg wet	*5.000*		*93*	*70-130*			
Surrogate: Toluene-d8	*5.60*		mg/kg wet	*5.000*		*112*	*70-130*			
LCS Dup										
1,1,1,2-Tetrachloroethane	1.87	0.200	mg/kg wet	2.000		94	70-130	3	25	
1,1,1-Trichloroethane	1.78	0.200	mg/kg wet	2.000		89	70-130	2	25	
1,1,2,2-Tetrachloroethane	1.93	0.200	mg/kg wet	2.000		96	70-130	2	25	
1,1,2-Trichloroethane	1.71	0.200	mg/kg wet	2.000		85	70-130	4	25	
1,1-Dichloroethane	1.72	0.200	mg/kg wet	2.000		86	70-130	4	25	
1,1-Dichloroethene	2.38	0.200	mg/kg wet	2.000		119	70-130	4	25	
1,1-Dichloropropene	1.86	0.200	mg/kg wet	2.000		93	70-130	0.8	25	
1,2,3-Trichlorobenzene	2.05	0.200	mg/kg wet	2.000		102	70-130	12	25	
1,2,3-Trichloropropane	1.87	0.200	mg/kg wet	2.000		93	70-130	6	25	
1,2,4-Trichlorobenzene	2.06	0.200	mg/kg wet	2.000		103	70-130	4	25	
1,2,4-Trimethylbenzene	1.88	0.200	mg/kg wet	2.000		94	70-130	2	25	
1,2-Dibromo-3-Chloropropane	1.85	1.00	mg/kg wet	2.000		93	70-130	18	25	
1,2-Dibromoethane	2.00	0.200	mg/kg wet	2.000		100	70-130	0.4	25	
1,2-Dichlorobenzene	2.01	0.200	mg/kg wet	2.000		100	70-130	3	25	
1,2-Dichloroethane	1.74	0.200	mg/kg wet	2.000		87	70-130	3	25	
1,2-Dichloropropane	1.81	0.200	mg/kg wet	2.000		91	70-130	2	25	
1,3,5-Trimethylbenzene	1.91	0.200	mg/kg wet	2.000		96	70-130	5	25	
1,3-Dichlorobenzene	2.01	0.200	mg/kg wet	2.000		100	70-130	2	25	
1,3-Dichloropropane	2.09	0.200	mg/kg wet	2.000		105	70-130	0.7	25	
1,4-Dichlorobenzene	2.02	0.200	mg/kg wet	2.000		101	70-130	1	25	
1,4-Dioxane - Screen	41.9	40.0	mg/kg wet	40.00		105	44-241	7	200	
2,2-Dichloropropane	1.80	0.200	mg/kg wet	2.000		90	70-130	2	25	
2-Butanone	8.52	1.00	mg/kg wet	10.00		85	70-130	2	25	
2-Chlorotoluene	2.08	0.200	mg/kg wet	2.000		104	70-130	3	25	
2-Hexanone	9.63	1.00	mg/kg wet	10.00		96	70-130	12	25	
4-Chlorotoluene	2.07	0.200	mg/kg wet	2.000		104	70-130	3	25	
4-Isopropyltoluene	1.89	0.200	mg/kg wet	2.000		94	70-130	7	25	
4-Methyl-2-Pentanone	9.44	1.00	mg/kg wet	10.00		94	70-130	8	25	
Acetone	10.2	1.00	mg/kg wet	10.00		102	70-130	12	25	
Benzene	1.87	0.200	mg/kg wet	2.000		93	70-130	1	25	
Bromobenzene	2.06	0.200	mg/kg wet	2.000		103	70-130	5	25	
Bromochloromethane	1.77	0.200	mg/kg wet	2.000		89	70-130	4	25	
Bromodichloromethane	1.78	0.200	mg/kg wet	2.000		89	70-130	0.3	25	
Bromoform	1.78	0.200	mg/kg wet	2.000		89	70-130	6	25	
Bromomethane	2.11	0.200	mg/kg wet	2.000		106	70-130	2	25	
Carbon Disulfide	2.11	0.200	mg/kg wet	2.000		106	70-130	2	25	
Carbon Tetrachloride	1.86	0.200	mg/kg wet	2.000		93	70-130	3	25	
Chlorobenzene	1.98	0.200	mg/kg wet	2.000		99	70-130	1	25	
Chloroethane	1.81	0.200	mg/kg wet	2.000		91	70-130	6	25	

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604514

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Methanol										
Batch CD62122 - 5035										
Chloroform	1.73	0.200	mg/kg wet	2.000		87	70-130	0.1	25	
Chloromethane	1.52	0.200	mg/kg wet	2.000		76	70-130	6	25	
cis-1,2-Dichloroethene	1.95	0.200	mg/kg wet	2.000		98	70-130	0.3	25	
cis-1,3-Dichloropropene	1.98	0.200	mg/kg wet	2.000		99	70-130	0.7	25	
Dibromochloromethane	2.06	0.200	mg/kg wet	2.000		103	70-130	2	25	
Dibromomethane	1.76	0.200	mg/kg wet	2.000		88	70-130	4	25	
Dichlorodifluoromethane	1.46	0.200	mg/kg wet	2.000		73	70-130	2	25	
Diethyl Ether	2.43	0.200	mg/kg wet	2.000		121	70-130	1	25	
Di-isopropyl ether	1.83	0.200	mg/kg wet	2.000		91	70-130	3	25	
Ethyl tertiary-butyl ether	1.89	0.200	mg/kg wet	2.000		94	70-130	0.1	25	
Ethylbenzene	2.09	0.200	mg/kg wet	2.000		105	70-130	0.3	25	
Hexachlorobutadiene	2.23	0.200	mg/kg wet	2.000		112	70-130	4	25	
Isopropylbenzene	2.02	0.200	mg/kg wet	2.000		101	70-130	1	25	
Methyl tert-Butyl Ether	1.87	0.200	mg/kg wet	2.000		94	70-130	2	25	
Methylene Chloride	1.95	0.400	mg/kg wet	2.000		98	70-130	0.7	25	
Naphthalene	2.07	0.200	mg/kg wet	2.000		104	70-130	8	25	
n-Butylbenzene	1.92	0.200	mg/kg wet	2.000		96	70-130	7	25	
n-Propylbenzene	1.95	0.200	mg/kg wet	2.000		98	70-130	4	25	
sec-Butylbenzene	1.98	0.200	mg/kg wet	2.000		99	70-130	8	25	
Styrene	1.89	0.200	mg/kg wet	2.000		94	70-130	0.3	25	
tert-Butylbenzene	2.02	0.200	mg/kg wet	2.000		101	70-130	3	25	
Tertiary-amyl methyl ether	1.93	0.200	mg/kg wet	2.000		96	70-130	4	25	
Tetrachloroethene	1.65	0.200	mg/kg wet	2.000		83	70-130	2	25	
Tetrahydrofuran	2.20	1.00	mg/kg wet	2.000		110	70-130	6	25	
Toluene	2.01	0.200	mg/kg wet	2.000		101	70-130	1	25	
trans-1,2-Dichloroethene	1.99	0.200	mg/kg wet	2.000		100	70-130	0	25	
trans-1,3-Dichloropropene	1.86	0.200	mg/kg wet	2.000		93	70-130	3	25	
Trichloroethene	1.85	0.200	mg/kg wet	2.000		93	70-130	0.5	25	
Trichlorofluoromethane	1.76	0.200	mg/kg wet	2.000		88	70-130	0.8	25	
Vinyl Chloride	1.71	0.200	mg/kg wet	2.000		86	70-130	0.4	25	
Xylene O	1.94	0.200	mg/kg wet	2.000		97	70-130	2	25	
Xylene P,M	3.94	0.400	mg/kg wet	4.000		99	70-130	2	25	
Xylenes (Total)	5.88	0.400	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	*4.41*		mg/kg wet	*5.000*		*88*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*4.98*		mg/kg wet	*5.000*		*100*	*70-130*			
Surrogate: Dibromofluoromethane	*4.69*		mg/kg wet	*5.000*		*94*	*70-130*			
Surrogate: Toluene-d8	*5.60*		mg/kg wet	*5.000*		*112*	*70-130*			
8100M Total Petroleum Hydrocarbons										
Batch CD61915 - 3546										
Blank										
Decane (C10)	ND	0.2	mg/kg wet							
Docosane (C22)	ND	0.2	mg/kg wet							
Dodecane (C12)	ND	0.2	mg/kg wet							
Eicosane (C20)	ND	0.2	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604514

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8100M Total Petroleum Hydrocarbons										
Batch CD61915 - 3546										
Hexacosane (C26)	ND	0.2	mg/kg wet							
Hexadecane (C16)	ND	0.2	mg/kg wet							
Hexatriacontane (C36)	ND	0.2	mg/kg wet							
Nonadecane (C19)	ND	0.2	mg/kg wet							
Nonane (C9)	ND	0.2	mg/kg wet							
Octacosane (C28)	ND	0.2	mg/kg wet							
Octadecane (C18)	ND	0.2	mg/kg wet							
Tetracosane (C24)	ND	0.2	mg/kg wet							
Tetradecane (C14)	ND	0.2	mg/kg wet							
Total Petroleum Hydrocarbons	ND	10.0	mg/kg wet							
Triacontane (C30)	ND	0.2	mg/kg wet							
Surrogate: O-Terphenyl	*3.87*		mg/kg wet	*5.000*		*77*	*40-140*			
LCS										
Decane (C10)	1.7	0.2	mg/kg wet	2.500		66	40-140			
Docosane (C22)	2.0	0.2	mg/kg wet	2.500		81	40-140			
Dodecane (C12)	1.8	0.2	mg/kg wet	2.500		70	40-140			
Eicosane (C20)	2.0	0.2	mg/kg wet	2.500		82	40-140			
Hexacosane (C26)	2.1	0.2	mg/kg wet	2.500		82	40-140			
Hexadecane (C16)	1.9	0.2	mg/kg wet	2.500		77	40-140			
Hexatriacontane (C36)	1.9	0.2	mg/kg wet	2.500		75	40-140			
Nonadecane (C19)	2.0	0.2	mg/kg wet	2.500		81	40-140			
Nonane (C9)	1.5	0.2	mg/kg wet	2.500		60	30-140			
Octacosane (C28)	2.0	0.2	mg/kg wet	2.500		80	40-140			
Octadecane (C18)	2.0	0.2	mg/kg wet	2.500		80	40-140			
Tetracosane (C24)	1.9	0.2	mg/kg wet	2.500		77	40-140			
Tetradecane (C14)	1.9	0.2	mg/kg wet	2.500		77	40-140			
Total Petroleum Hydrocarbons	24.0	10.0	mg/kg wet	35.00		69	40-140			
Triacontane (C30)	2.0	0.2	mg/kg wet	2.500		80	40-140			
Surrogate: O-Terphenyl	*3.75*		mg/kg wet	*5.000*		*75*	*40-140*			
LCS Dup										
Decane (C10)	1.8	0.2	mg/kg wet	2.500		71	40-140	8	25	
Docosane (C22)	2.1	0.2	mg/kg wet	2.500		85	40-140	5	25	
Dodecane (C12)	1.9	0.2	mg/kg wet	2.500		77	40-140	8	25	
Eicosane (C20)	2.1	0.2	mg/kg wet	2.500		86	40-140	5	25	
Hexacosane (C26)	2.2	0.2	mg/kg wet	2.500		86	40-140	5	25	
Hexadecane (C16)	2.0	0.2	mg/kg wet	2.500		82	40-140	5	25	
Hexatriacontane (C36)	1.9	0.2	mg/kg wet	2.500		76	40-140	1	25	
Nonadecane (C19)	2.1	0.2	mg/kg wet	2.500		85	40-140	5	25	
Nonane (C9)	1.6	0.2	mg/kg wet	2.500		65	30-140	7	25	
Octacosane (C28)	2.1	0.2	mg/kg wet	2.500		83	40-140	5	25	
Octadecane (C18)	2.1	0.2	mg/kg wet	2.500		84	40-140	5	25	
Tetracosane (C24)	2.0	0.2	mg/kg wet	2.500		81	40-140	5	25	
Tetradecane (C14)	2.0	0.2	mg/kg wet	2.500		80	40-140	4	25	

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604514

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8100M Total Petroleum Hydrocarbons										
Batch CD61915 - 3546										
Total Petroleum Hydrocarbons	25.2	10.0	mg/kg wet	35.00		72	40-140	5	25	
Triacontane (C30)	2.1	0.2	mg/kg wet	2.500		83	40-140	5	25	
Surrogate: O-Terphenyl	*3.95*		mg/kg wet	*5.000*		*79*	*40-140*			
8270D Semi-Volatile Organic Compounds										
Batch CD62018 - 3546										
Blank										
1,2,4-Trichlorobenzene	ND	0.333	mg/kg wet							
1,2-Dichlorobenzene	ND	0.333	mg/kg wet							
1,3-Dichlorobenzene	ND	0.333	mg/kg wet							
1,4-Dichlorobenzene	ND	0.333	mg/kg wet							
2,4,5-Trichlorophenol	ND	0.333	mg/kg wet							
2,4,6-Trichlorophenol	ND	0.333	mg/kg wet							
2,4-Dichlorophenol	ND	0.333	mg/kg wet							
2,4-Dimethylphenol	ND	0.333	mg/kg wet							
2,4-Dinitrophenol	ND	1.67	mg/kg wet							
2,4-Dinitrotoluene	ND	0.333	mg/kg wet							
2,6-Dinitrotoluene	ND	0.333	mg/kg wet							
2-Chloronaphthalene	ND	0.333	mg/kg wet							
2-Chlorophenol	ND	0.333	mg/kg wet							
2-Methylnaphthalene	ND	0.333	mg/kg wet							
2-Methylphenol	ND	0.333	mg/kg wet							
2-Nitrophenol	ND	0.333	mg/kg wet							
3,3´-Dichlorobenzidine	ND	0.667	mg/kg wet							
3+4-Methylphenol	ND	0.667	mg/kg wet							
4-Bromophenyl-phenylether	ND	0.333	mg/kg wet							
4-Chloroaniline	ND	0.667	mg/kg wet							
4-Nitrophenol	ND	1.67	mg/kg wet							
Acenaphthene	ND	0.333	mg/kg wet							
Acenaphthylene	ND	0.333	mg/kg wet							
Acetophenone	ND	0.667	mg/kg wet							
Aniline	ND	1.67	mg/kg wet							
Anthracene	ND	0.333	mg/kg wet							
Azobenzene	ND	0.333	mg/kg wet							
Benzo(a)anthracene	ND	0.333	mg/kg wet							
Benzo(a)pyrene	ND	0.167	mg/kg wet							
Benzo(b)fluoranthene	ND	0.333	mg/kg wet							
Benzo(g,h,i)perylene	ND	0.333	mg/kg wet							
Benzo(k)fluoranthene	ND	0.333	mg/kg wet							
bis(2-Chloroethoxy)methane	ND	0.333	mg/kg wet							
bis(2-Chloroethyl)ether	ND	0.333	mg/kg wet							
bis(2-chloroisopropyl)Ether	ND	0.333	mg/kg wet							
bis(2-Ethylhexyl)phthalate	ND	0.333	mg/kg wet							
Butylbenzylphthalate	ND	0.333	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604514

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CD62018 - 3546										
Chrysene	ND	0.167	mg/kg wet							
Dibenzo(a,h)Anthracene	ND	0.167	mg/kg wet							
Dibenzofuran	ND	0.333	mg/kg wet							
Diethylphthalate	ND	0.333	mg/kg wet							
Dimethylphthalate	ND	0.333	mg/kg wet							
Di-n-butylphthalate	ND	0.333	mg/kg wet							
Di-n-octylphthalate	ND	0.333	mg/kg wet							
Fluoranthene	ND	0.333	mg/kg wet							
Fluorene	ND	0.333	mg/kg wet							
Hexachlorobenzene	ND	0.333	mg/kg wet							
Hexachlorobutadiene	ND	0.333	mg/kg wet							
Hexachloroethane	ND	0.333	mg/kg wet							
Indeno(1,2,3-cd)Pyrene	ND	0.333	mg/kg wet							
Isophorone	ND	0.333	mg/kg wet							
Naphthalene	ND	0.333	mg/kg wet							
Nitrobenzene	ND	0.333	mg/kg wet							
N-Nitrosodimethylamine	ND	0.333	mg/kg wet							
Pentachlorophenol	ND	1.67	mg/kg wet							
Phenanthrene	ND	0.333	mg/kg wet							
Phenol	ND	0.333	mg/kg wet							
Pyrene	ND	0.333	mg/kg wet							
Surrogate: 1,2-Dichlorobenzene-d4	*2.26*		mg/kg wet	*3.333*		*68*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*3.39*		mg/kg wet	*5.000*		*68*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.48*		mg/kg wet	*5.000*		*70*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.20*		mg/kg wet	*3.333*		*66*	*30-130*			
Surrogate: 2-Fluorophenol	*3.32*		mg/kg wet	*5.000*		*66*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.21*		mg/kg wet	*3.333*		*66*	*30-130*			
Surrogate: Phenol-d6	*3.53*		mg/kg wet	*5.000*		*71*	*30-130*			
Surrogate: p-Terphenyl-d14	*2.81*		mg/kg wet	*3.333*		*84*	*30-130*			
LCS										
1,2,4-Trichlorobenzene	1.95	0.333	mg/kg wet	3.333		59	40-140			
1,2-Dichlorobenzene	1.89	0.333	mg/kg wet	3.333		57	40-140			
1,3-Dichlorobenzene	1.87	0.333	mg/kg wet	3.333		56	40-140			
1,4-Dichlorobenzene	1.88	0.333	mg/kg wet	3.333		57	40-140			
2,4,5-Trichlorophenol	2.76	0.333	mg/kg wet	3.333		83	30-130			
2,4,6-Trichlorophenol	2.61	0.333	mg/kg wet	3.333		78	30-130			
2,4-Dichlorophenol	2.19	0.333	mg/kg wet	3.333		66	30-130			
2,4-Dimethylphenol	2.14	0.333	mg/kg wet	3.333		64	30-130			
2,4-Dinitrophenol	2.63	1.67	mg/kg wet	3.333		79	30-130			
2,4-Dinitrotoluene	3.18	0.333	mg/kg wet	3.333		95	40-140			
2,6-Dinitrotoluene	2.69	0.333	mg/kg wet	3.333		81	40-140			
2-Chloronaphthalene	1.90	0.333	mg/kg wet	3.333		57	40-140			
2-Chlorophenol	1.90	0.333	mg/kg wet	3.333		57	30-130			
2-Methylnaphthalene	1.93	0.333	mg/kg wet	3.333		58	40-140			
2-Methylphenol	1.97	0.333	mg/kg wet	3.333		59	30-130			

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604514

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CD62018 - 3546										
2-Nitrophenol	1.93	0.333	mg/kg wet	3.333		58	30-130			
3,3´-Dichlorobenzidine	2.36	0.667	mg/kg wet	3.333		71	40-140			
3+4-Methylphenol	4.58	0.667	mg/kg wet	6.667		69	30-130			
4-Bromophenyl-phenylether	2.67	0.333	mg/kg wet	3.333		80	40-140			
4-Chloroaniline	1.99	0.667	mg/kg wet	3.333		60	40-140			
4-Nitrophenol	2.79	1.67	mg/kg wet	3.333		84	30-130			
Acenaphthene	2.25	0.333	mg/kg wet	3.333		68	40-140			
Acenaphthylene	2.29	0.333	mg/kg wet	3.333		69	40-140			
Acetophenone	1.96	0.667	mg/kg wet	3.333		59	40-140			
Aniline	1.54	1.67	mg/kg wet	3.333		46	40-140			
Anthracene	2.75	0.333	mg/kg wet	3.333		83	40-140			
Azobenzene	2.35	0.333	mg/kg wet	3.333		71	40-140			
Benzo(a)anthracene	2.85	0.333	mg/kg wet	3.333		85	40-140			
Benzo(a)pyrene	2.93	0.167	mg/kg wet	3.333		88	40-140			
Benzo(b)fluoranthene	2.98	0.333	mg/kg wet	3.333		89	40-140			
Benzo(g,h,i)perylene	2.92	0.333	mg/kg wet	3.333		88	40-140			
Benzo(k)fluoranthene	2.65	0.333	mg/kg wet	3.333		80	40-140			
bis(2-Chloroethoxy)methane	1.93	0.333	mg/kg wet	3.333		58	40-140			
bis(2-Chloroethyl)ether	1.85	0.333	mg/kg wet	3.333		56	40-140			
bis(2-chloroisopropyl)Ether	1.84	0.333	mg/kg wet	3.333		55	40-140			
bis(2-Ethylhexyl)phthalate	3.38	0.333	mg/kg wet	3.333		102	40-140			
Butylbenzylphthalate	3.14	0.333	mg/kg wet	3.333		94	40-140			
Chrysene	2.84	0.167	mg/kg wet	3.333		85	40-140			
Dibenzo(a,h)Anthracene	3.00	0.167	mg/kg wet	3.333		90	40-140			
Dibenzofuran	2.33	0.333	mg/kg wet	3.333		70	40-140			
Diethylphthalate	2.90	0.333	mg/kg wet	3.333		87	40-140			
Dimethylphthalate	2.70	0.333	mg/kg wet	3.333		81	40-140			
Di-n-butylphthalate	3.20	0.333	mg/kg wet	3.333		96	40-140			
Di-n-octylphthalate	2.96	0.333	mg/kg wet	3.333		89	40-140			
Fluoranthene	2.98	0.333	mg/kg wet	3.333		89	40-140			
Fluorene	2.53	0.333	mg/kg wet	3.333		76	40-140			
Hexachlorobenzene	2.58	0.333	mg/kg wet	3.333		77	40-140			
Hexachlorobutadiene	1.90	0.333	mg/kg wet	3.333		57	40-140			
Hexachloroethane	1.84	0.333	mg/kg wet	3.333		55	40-140			
Indeno(1,2,3-cd)Pyrene	2.99	0.333	mg/kg wet	3.333		90	40-140			
Isophorone	1.97	0.333	mg/kg wet	3.333		59	40-140			
Naphthalene	1.96	0.333	mg/kg wet	3.333		59	40-140			
Nitrobenzene	1.81	0.333	mg/kg wet	3.333		54	40-140			
N-Nitrosodimethylamine	1.35	0.333	mg/kg wet	3.333		41	40-140			
Pentachlorophenol	2.72	1.67	mg/kg wet	3.333		82	30-130			
Phenanthrene	2.66	0.333	mg/kg wet	3.333		80	40-140			
Phenol	1.88	0.333	mg/kg wet	3.333		56	30-130			
Pyrene	2.78	0.333	mg/kg wet	3.333		83	40-140			
Surrogate: 1,2-Dichlorobenzene-d4	*1.94*		mg/kg wet	*3.333*		*58*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*4.26*		mg/kg wet	*5.000*		*85*	*30-130*			

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604514

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CD62018 - 3546										
Surrogate: 2-Chlorophenol-d4	*3.04*		mg/kg wet	*5.000*		*61*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.09*		mg/kg wet	*3.333*		*63*	*30-130*			
Surrogate: 2-Fluorophenol	*2.85*		mg/kg wet	*5.000*		*57*	*30-130*			
Surrogate: Nitrobenzene-d5	*1.93*		mg/kg wet	*3.333*		*58*	*30-130*			
Surrogate: Phenol-d6	*3.05*		mg/kg wet	*5.000*		*61*	*30-130*			
Surrogate: p-Terphenyl-d14	*3.05*		mg/kg wet	*3.333*		*92*	*30-130*			
LCS Dup										
1,2,4-Trichlorobenzene	1.91	0.333	mg/kg wet	3.333		57	40-140	2	30	
1,2-Dichlorobenzene	1.80	0.333	mg/kg wet	3.333		54	40-140	5	30	
1,3-Dichlorobenzene	1.79	0.333	mg/kg wet	3.333		54	40-140	5	30	
1,4-Dichlorobenzene	1.78	0.333	mg/kg wet	3.333		53	40-140	5	30	
2,4,5-Trichlorophenol	2.69	0.333	mg/kg wet	3.333		81	30-130	3	30	
2,4,6-Trichlorophenol	2.55	0.333	mg/kg wet	3.333		76	30-130	2	30	
2,4-Dichlorophenol	2.10	0.333	mg/kg wet	3.333		63	30-130	4	30	
2,4-Dimethylphenol	2.06	0.333	mg/kg wet	3.333		62	30-130	4	30	
2,4-Dinitrophenol	2.73	1.67	mg/kg wet	3.333		82	30-130	4	30	
2,4-Dinitrotoluene	3.01	0.333	mg/kg wet	3.333		90	40-140	5	30	
2,6-Dinitrotoluene	2.56	0.333	mg/kg wet	3.333		77	40-140	5	30	
2-Chloronaphthalene	1.85	0.333	mg/kg wet	3.333		56	40-140	3	30	
2-Chlorophenol	1.81	0.333	mg/kg wet	3.333		54	30-130	5	30	
2-Methylnaphthalene	1.85	0.333	mg/kg wet	3.333		55	40-140	4	30	
2-Methylphenol	1.88	0.333	mg/kg wet	3.333		56	30-130	5	30	
2-Nitrophenol	1.85	0.333	mg/kg wet	3.333		56	30-130	4	30	
3,3´-Dichlorobenzidine	1.98	0.667	mg/kg wet	3.333		59	40-140	17	30	
3+4-Methylphenol	4.18	0.667	mg/kg wet	6.667		63	30-130	9	30	
4-Bromophenyl-phenylether	2.57	0.333	mg/kg wet	3.333		77	40-140	4	30	
4-Chloroaniline	1.76	0.667	mg/kg wet	3.333		53	40-140	12	30	
4-Nitrophenol	2.76	1.67	mg/kg wet	3.333		83	30-130	1	30	
Acenaphthene	2.19	0.333	mg/kg wet	3.333		66	40-140	3	30	
Acenaphthylene	2.22	0.333	mg/kg wet	3.333		67	40-140	3	30	
Acetophenone	1.89	0.667	mg/kg wet	3.333		57	40-140	4	30	
Aniline	1.32	1.67	mg/kg wet	3.333		40	40-140	16	30	
Anthracene	2.62	0.333	mg/kg wet	3.333		79	40-140	5	30	
Azobenzene	2.25	0.333	mg/kg wet	3.333		67	40-140	4	30	
Benzo(a)anthracene	2.70	0.333	mg/kg wet	3.333		81	40-140	5	30	
Benzo(a)pyrene	2.80	0.167	mg/kg wet	3.333		84	40-140	4	30	
Benzo(b)fluoranthene	2.91	0.333	mg/kg wet	3.333		87	40-140	3	30	
Benzo(g,h,i)perylene	2.85	0.333	mg/kg wet	3.333		85	40-140	3	30	
Benzo(k)fluoranthene	2.51	0.333	mg/kg wet	3.333		75	40-140	5	30	
bis(2-Chloroethoxy)methane	1.87	0.333	mg/kg wet	3.333		56	40-140	3	30	
bis(2-Chloroethyl)ether	1.78	0.333	mg/kg wet	3.333		53	40-140	4	30	
bis(2-chloroisopropyl)Ether	1.77	0.333	mg/kg wet	3.333		53	40-140	4	30	
bis(2-Ethylhexyl)phthalate	3.17	0.333	mg/kg wet	3.333		95	40-140	7	30	
Butylbenzylphthalate	2.94	0.333	mg/kg wet	3.333		88	40-140	6	30	
Chrysene	2.68	0.167	mg/kg wet	3.333		80	40-140	6	30	

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604514

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CD62018 - 3546										
Dibenzo(a,h)Anthracene	2.91	0.167	mg/kg wet	3.333		87	40-140	3	30	
Dibenzofuran	2.25	0.333	mg/kg wet	3.333		67	40-140	4	30	
Diethylphthalate	2.77	0.333	mg/kg wet	3.333		83	40-140	5	30	
Dimethylphthalate	2.58	0.333	mg/kg wet	3.333		78	40-140	4	30	
Di-n-butylphthalate	3.04	0.333	mg/kg wet	3.333		91	40-140	5	30	
Di-n-octylphthalate	2.85	0.333	mg/kg wet	3.333		85	40-140	4	30	
Fluoranthene	2.83	0.333	mg/kg wet	3.333		85	40-140	5	30	
Fluorene	2.41	0.333	mg/kg wet	3.333		72	40-140	5	30	
Hexachlorobenzene	2.47	0.333	mg/kg wet	3.333		74	40-140	4	30	
Hexachlorobutadiene	1.82	0.333	mg/kg wet	3.333		55	40-140	4	30	
Hexachloroethane	1.73	0.333	mg/kg wet	3.333		52	40-140	6	30	
Indeno(1,2,3-cd)Pyrene	2.89	0.333	mg/kg wet	3.333		87	40-140	3	30	
Isophorone	1.89	0.333	mg/kg wet	3.333		57	40-140	4	30	
Naphthalene	1.88	0.333	mg/kg wet	3.333		56	40-140	4	30	
Nitrobenzene	1.74	0.333	mg/kg wet	3.333		52	40-140	4	30	
N-Nitrosodimethylamine	1.26	0.333	mg/kg wet	3.333		38	40-140	7	30	B-
Pentachlorophenol	2.80	1.67	mg/kg wet	3.333		84	30-130	3	30	
Phenanthrene	2.54	0.333	mg/kg wet	3.333		76	40-140	4	30	
Phenol	1.90	0.333	mg/kg wet	3.333		57	30-130	1	30	
Pyrene	2.57	0.333	mg/kg wet	3.333		77	40-140	8	30	
Surrogate: 1,2-Dichlorobenzene-d4	*1.80*		mg/kg wet	*3.333*		*54*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*4.04*		mg/kg wet	*5.000*		*81*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*2.83*		mg/kg wet	*5.000*		*57*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*1.95*		mg/kg wet	*3.333*		*59*	*30-130*			
Surrogate: 2-Fluorophenol	*2.66*		mg/kg wet	*5.000*		*53*	*30-130*			
Surrogate: Nitrobenzene-d5	*1.80*		mg/kg wet	*3.333*		*54*	*30-130*			
Surrogate: Phenol-d6	*2.81*		mg/kg wet	*5.000*		*56*	*30-130*			
Surrogate: p-Terphenyl-d14	*2.74*		mg/kg wet	*3.333*		*82*	*30-130*			
Classical Chemistry										
Batch CD62128 - General Preparation										
Blank										
Conductivity	ND	5	umhos/cm							
LCS										
Conductivity	1400		umhos/cm	1411		99	90-110			
Batch CD62219 - General Preparation										
Reference										
Flashpoint	81		°F	81.00		100	97.9-102.1			
Batch CD62224 - General Preparation										
Blank										
Reactive Cyanide	ND	2.0	mg/kg							
Reactive Sulfide	ND	2.0	mg/kg							
LCS										

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604514

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Classical Chemistry										
Batch CD62224 - General Preparation										
Reactive Cyanide	3.9	2.0	mg/kg	100.3		4	0.68-5.41			
Reactive Sulfide	0.2	2.0	mg/kg	10.00		2	0-44			

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292 ESS Laboratory Work Order: 1604514

Notes and Definitions

Z-10a	Soil pH measured in water at 19 ºC.
Z-10	Soil pH measured in water at 18.9 ºC.
WL	Results obtained from a deionized water leach of the sample.
U	Analyte included in the analysis, but not detected
Q	Calibration required quadratic regression (Q).
D	Diluted.
CD+	Continuing Calibration %Diff/Drift is above control limit (CD+).
CD-	Continuing Calibration %Diff/Drift is below control limit (CD-).
B-	Blank Spike recovery is below lower control limit (B-).
>	Greater than.
ND	Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DL	Detection Limit
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
NR	No Recovery
[CALC]	Calculated Analyte
SUB	Subcontracted analysis; see attached report

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604514

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179
http://www.health.ri.gov/find/labs/analytical/ESS.pdf

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002
http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/documents/AllLabs.xls

Massachusetts Potable and Non Potable Water: M-RI002
http://public.dep.state.ma.us/Labcert/Labcert.aspx

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424
http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313
http://www.wadsworth.org/labcert/elap/comm.html

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006
http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752
http://www.depweb.state.pa.us/portal/server.pt/community/labs/13780/laboratory_accreditation_program/590095

ESS Laboratory Sample and Cooler Receipt Checklist

Client: Tighe & Bond - KPB/TB/MM

Shipped/Delivered Via: ESS Courier

ESS Project ID: 1604514
Date Received: 4/19/2016
Project Due Date: 4/26/2016
Days for Project: 5 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 1.6 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** Yes / No / NA
10. Were any analyses received outside of hold time? Yes / No

11. Any Subcontracting needed? Yes / No
    ESS Sample IDs:
    Analysis:
    TAT:
12. Were VOAs received? Yes / No
    a. Air bubbles in aqueous VOAs? Yes / No
    b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
    a. If metals preserved upon receipt: Date: Time: By:
    b. Low Level VOAs brought to freezer: Date: Time: By:

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / No
    a. Was there a need to contact the client? Yes / No
    Who was contacted? Date: Time: By:

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	27681	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
01	27685	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
01	27867	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
01	27871	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
02	27680	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	27684	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
02	27866	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	27870	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
03	27679	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	27683	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
03	27865	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	27869	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
04	27678	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	27682	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
04	27864	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	27868	Yes	NA	Yes	VOA Vial - Methanol	MeOH	

2nd Review
Are barcode labels on correct containers? Yes / No

Completed By: Date & Time: 4/19/16 1627

ESS Laboratory Sample and Cooler Receipt Checklist

Client: Tighe & Bond - KPB/TB/MM

ESS Project ID: 1604514

Date Received: 4/19/2016

Reviewed By:

Date & Time: 4/19/16 1740

ESS Laboratory

Division of Thielsch Engineering, Inc.
185 Frances Avenue, Cranston, RI 02910-2211
Tel. (401) 461-7181 Fax (401) 461-4486
www.esslaboratory.com

CHAIN OF CUSTODY

Page 1 of 1

Turn Time ✓ Standard Other _____
If faster than 5 days, prior approval by laboratory is required # _____
State where samples were collected from: (MA) RI CT NH NJ NY ME Other _____
Is this project for any of the following: (MA-MCP*) Navy USACE Other _____

Reporting Limits: RCS-1

ESS LAB PROJECT ID: 1604514

Electronic Deliverable: ___ Yes ___ No Format Excel, PDF

Co. Name: Tighe + Bond
Project #: N-1023-56
Project Name (20 Char. or less): Station 292
Contact Person: Michael Martin
Address: 4 Barlows landing
City: Pocasset State: MA Zip: 02559 PO#:
Telephone #: Fax #: Email Address: MEMartin@TigheBond.com

Circle and/or Write Required Analysis

ESS LAB Sample#	Date	Collection Time	COMP	GRAB	MATRIX	Sample Identification (20 Char. or less)	Number of Containers	Type of Containers	624 / 8260	524.2	8021 MTBE/BTEX	VPH / 8015 GRO	8100 PAH	EPH / 8015 DRO	No Targets	8081 Pesticides	8082 PCB	608 Pesticides	608 PCB	625 / 8270	PAH only	RCRA8	RCRA5	PP13	TAL23	TCLP8	MCP	MCPw/Hg	NBC7	PH / Conductivity	ORP	Reactive Cyanide, Sulfide	Ignitability	Flashpoint		
1	4/19/16	845	X		S	~~Disp-9~~ Disp-9	4	AG	X				X		X					X		X	X							X	X	X	X	X		
2	↓	935		X	S	Disp-10	4	↓	X				X		X					X		X	X							X	X	X	X	X		
3		10:00		X	S	Disp-11	4		X				X		X					X		X	X							X	X	X	X	X		
4		11:30	X		S	Disp-12	4		X				X		X					X		X	X							X	X	X	X	X		

Container Type: P-Poly G-Glass S-Sterile V-VOA
Matrix: S-Soil SD-Solid D-Sludge WW-Waste Water GW-Ground Water SW-Surface Water DW-Drinking Water O-Oil W-Wipes F-Filters

Cooler Present ___ Yes ___ No
Seals Intact ___ Yes ___ No NA: _____
Cooler Temp: 1.6

Internal Use Only
[ ] Pickup
[ ] Technicians _____

Comments: Run TCLP if exceeds 20x

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
[signature]	4/19/16 14:33	[signature]	4/19/16 14:35	[signature]	4/19/16 0:03	[signature]	4/19/16 0615
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time

*MADEP requires that all additional calibrated analytes found during analysis be disclosed.

Please fax all changes to Chain of Custody in writing.

1 (White) Lab Copy 2 (Yellow) Client Receipt

CERTIFICATE OF ANALYSIS

Michael Martin
Tighe & Bond
4 Barlows Landing Road, Unit 15
Pocasset, MA 02559

RE: Station 292 (N-1023-056)
ESS Laboratory Work Order Number: 1604644

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED
By ESS Laboratory at 1:12 pm, May 03, 2016

Analytical Summary
The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with NELAC Standards, A2LA and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604644

SAMPLE RECEIPT

The following samples were received on April 22, 2016 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has performed and reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Data Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

Question I: All samples for Metals and EPH were analyzed for a subset of the required MCP list per the client's request.

Lab Number	Sample Name	Matrix	Analysis
1604644-02	Disp-13	Soil	1010, 2580, 6010C, 6020A, 7.3.3.2, 7.3.4.1, 7471B, 8082A, 8100M, 8260B, 8270D, 9045, 9050A

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292 ESS Laboratory Work Order: 1604644

PROJECT NARRATIVE

8100M Total Petroleum Hydrocarbons

CZD0424-CCV2 **Continuing Calibration %Diff/Drift is below control limit (CD-).**
Hexatriacontane (C36) (38% @ 25%)

CZD0424-CCV3 **Continuing Calibration %Diff/Drift is below control limit (CD-).**
Hexatriacontane (C36) (35% @ 25%)

8270D Semi-Volatile Organic Compounds

CZD0358-CCV1 **Calibration required quadratic regression (Q).**
2,4-Dinitrophenol (110% @ 80-120%)

CZD0358-CCV1 **Continuing Calibration %Diff/Drift is below control limit (CD-).**
N-Nitrosodimethylamine (25% @ 20%)

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

Definitions of Quality Control Parameters

Semivolatile Organics Internal Standard Information

Semivolatile Organics Surrogate Information

Volatile Organics Internal Standard Information

Volatile Organics Surrogate Information

EPH and VPH Alkane Lists

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604644

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

1010A - Flashpoint
6010C - ICP
6020A - ICP MS
7010 - Graphite Furnace
7196A - Hexavalent Chromium
7470A - Aqueous Mercury
7471B - Solid Mercury
8011 - EDB/DBCP/TCP
8015D - GRO/DRO
8081B - Pesticides
8082A - PCB
8100M - TPH
8151A - Herbicides
8260B - VOA
8270D - SVOA
8270D SIM - SVOA Low Level
9014 - Cyanide
9038 - Sulfate
9040C - Aqueous pH
9045D - Solid pH (Corrosivity)
9050A - Specific Conductance
9056A - Anions (IC)
9060A - TOC
9095B - Paint Filter
MADEP 04-1.1 - EPH / VPH

Prep Methods

3005A - Aqueous ICP Digestion
3020A - Aqueous Graphite Furnace / ICP MS Digestion
3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
3060A - Solid Hexavalent Chromium Digestion
3510C - Separatory Funnel Extraction
3520C - Liquid / Liquid Extraction
3540C - Manual Soxhlet Extraction
3541 - Automated Soxhlet Extraction
3546 - Microwave Extraction
3580A - Waste Dilution
5030B - Aqueous Purge and Trap
5030C - Aqueous Purge and Trap
5035 - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604644

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **1604644-02**

Matrices: ( ) Ground Water/Surface Water (X) Soil/Sediment ( ) Drinking Water ( ) Air ( ) Other:_____

CAM Protocol (check all that apply below):

(X) 8260 VOC CAM II A	(X) 7470/7471 Hg CAM III B	( ) MassDEP VPH CAM IV A	( ) 8081 Pesticides CAM V B	( ) 7196 Hex Cr CAM VI B	( ) MassDEP APH CAM IX A
(X) 8270 SVOC CAM II B	( ) 7010 Metals CAM III C	(X) MassDEP EPH CAM IV B	( ) 8151 Herbicides CAM V C	( ) 8330 Explosives CAM VIII A	( ) TO-15 VOC CAM IX B
(X) 6010 Metals CAM III A	(X) 6020 Metals CAM III D	(X) 8082 PCB CAM V A	( ) 6860 Perchlorate CAM VIII B	( ) 9014 Total Cyanide/PAC CAM VI A	

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	Yes (X) No ( )
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	Yes (X) No ( )
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	Yes (X) No ( )
D	Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	Yes (X) No ( )
E	a. VPH, EPH, APH and TO-15 only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	Yes (X) No ( )
	b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	Yes ( ) No ( )
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	Yes (X) No ( )

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)?	Yes (X) No ( )*
	Data User Note: ***Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.***	
H	Were **all** QC performance standards specified in the CAM protocol(s) achieved?	Yes ( ) No (X)*
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	Yes ( ) No (X)*

****All negative responses must be addressed in an attached laboratory narrative.***

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: _____ Date: May 03, 2016
Printed Name: Laurel Stoddard Position: Laboratory Director

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-13
Date Sampled: 04/22/16 10:00
Percent Solids: 86

ESS Laboratory Work Order: 1604644
ESS Laboratory Sample ID: 1604644-02
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Arsenic	**14.0** (2.59)		6010C		1	JP	04/25/16 23:14	2.25	100	CD62505
Barium	**31.7** (2.59)		6010C		1	JP	04/25/16 23:14	2.25	100	CD62505
Cadmium	ND (0.52)		6010C		1	JP	04/25/16 23:14	2.25	100	CD62505
Chromium	**11.9** (1.04)		6010C		1	JP	04/25/16 23:14	2.25	100	CD62505
Lead	**56.7** (5.18)		6010C		1	JP	04/25/16 23:14	2.25	100	CD62505
Mercury	**0.062** (0.037)		7471B		1	PJP	04/25/16 13:22	0.62	40	CD62507
Selenium	**0.62** (0.52)		6020A		20	NAR	05/02/16 17:26	2.25	100	CD62505
Silver	ND (0.52)		6010C		1	JP	04/25/16 23:14	2.25	100	CD62505

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-13
Date Sampled: 04/22/16 10:00
Percent Solids: 86
Initial Volume: 13.4
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1604644
ESS Laboratory Sample ID: 1604644-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1,1,2-Tetrachloroethane	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
1,1,1-Trichloroethane	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
1,1,2,2-Tetrachloroethane	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
1,1,2-Trichloroethane	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
1,1-Dichloroethane	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
1,1-Dichloroethene	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
1,1-Dichloropropene	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
1,2,3-Trichlorobenzene	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
1,2,3-Trichloropropane	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
1,2,4-Trichlorobenzene	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
1,2,4-Trimethylbenzene	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
1,2-Dibromo-3-Chloropropane	ND (1.47)		8260B		1	04/26/16 14:32	CZD0399	CD62627
1,2-Dibromoethane	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
1,2-Dichlorobenzene	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
1,2-Dichloroethane	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
1,2-Dichloropropane	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
1,3,5-Trimethylbenzene	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
1,3-Dichlorobenzene	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
1,3-Dichloropropane	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
1,4-Dichlorobenzene	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
1,4-Dioxane - Screen	ND (58.8)		8260B		1	04/26/16 14:32	CZD0399	CD62627
2,2-Dichloropropane	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
2-Butanone	ND (1.47)		8260B		1	04/26/16 14:32	CZD0399	CD62627
2-Chlorotoluene	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
2-Hexanone	ND (1.47)		8260B		1	04/26/16 14:32	CZD0399	CD62627
4-Chlorotoluene	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
4-Isopropyltoluene	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
4-Methyl-2-Pentanone	ND (1.47)		8260B		1	04/26/16 14:32	CZD0399	CD62627
Acetone	ND (1.47)		8260B		1	04/26/16 14:32	CZD0399	CD62627
Benzene	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
Bromobenzene	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
Bromochloromethane	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-13
Date Sampled: 04/22/16 10:00
Percent Solids: 86
Initial Volume: 13.4
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1604644
ESS Laboratory Sample ID: 1604644-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Bromodichloromethane	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
Bromoform	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
Bromomethane	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
Carbon Disulfide	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
Carbon Tetrachloride	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
Chlorobenzene	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
Chloroethane	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
Chloroform	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
Chloromethane	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
cis-1,2-Dichloroethene	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
cis-1,3-Dichloropropene	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
Dibromochloromethane	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
Dibromomethane	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
Dichlorodifluoromethane	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
Diethyl Ether	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
Di-isopropyl ether	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
Ethyl tertiary-butyl ether	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
Ethylbenzene	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
Hexachlorobutadiene	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
Isopropylbenzene	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
Methyl tert-Butyl Ether	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
Methylene Chloride	ND (0.588)		8260B		1	04/26/16 14:32	CZD0399	CD62627
Naphthalene	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
n-Butylbenzene	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
n-Propylbenzene	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
sec-Butylbenzene	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
Styrene	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
tert-Butylbenzene	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
Tertiary-amyl methyl ether	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
Tetrachloroethene	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
Tetrahydrofuran	ND (1.47)		8260B		1	04/26/16 14:32	CZD0399	CD62627
Toluene	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-13
Date Sampled: 04/22/16 10:00
Percent Solids: 86
Initial Volume: 13.4
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1604644
ESS Laboratory Sample ID: 1604644-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
trans-1,2-Dichloroethene	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
trans-1,3-Dichloropropene	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
Trichloroethene	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
Trichlorofluoromethane	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
Vinyl Chloride	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
Xylene O	ND (0.294)		8260B		1	04/26/16 14:32	CZD0399	CD62627
Xylene P,M	ND (0.588)		8260B		1	04/26/16 14:32	CZD0399	CD62627
Xylenes (Total)	ND (0.588)		8260B		1	04/26/16 14:32		[CALC]

	%Recovery	*Qualifier*	*Limits*
Surrogate: 1,2-Dichloroethane-d4	*107 %*		*70-130*
Surrogate: 4-Bromofluorobenzene	*96 %*		*70-130*
Surrogate: Dibromofluoromethane	*111 %*		*70-130*
Surrogate: Toluene-d8	*99 %*		*70-130*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-13
Date Sampled: 04/22/16 10:00
Percent Solids: 86
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1604644
ESS Laboratory Sample ID: 1604644-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 4/22/16 17:34
Cleanup Method: 3665A

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.0598)		8082A		1	04/25/16 21:52		CD62204
Aroclor 1221	ND (0.0598)		8082A		1	04/25/16 21:52		CD62204
Aroclor 1232	ND (0.0598)		8082A		1	04/25/16 21:52		CD62204
Aroclor 1242	ND (0.0598)		8082A		1	04/25/16 21:52		CD62204
Aroclor 1248	ND (0.0598)		8082A		1	04/25/16 21:52		CD62204
Aroclor 1254	**0.0814** (0.0598)		8082A		1	04/25/16 21:52		CD62204
Aroclor 1260	ND (0.0598)		8082A		1	04/25/16 21:52		CD62204
Aroclor 1262	ND (0.0598)		8082A		1	04/25/16 21:52		CD62204
Aroclor 1268	ND (0.0598)		8082A		1	04/25/16 21:52		CD62204

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*85 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*88 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*76 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*79 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-13
Date Sampled: 04/22/16 10:00
Percent Solids: 86
Initial Volume: 19
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 1604644
ESS Laboratory Sample ID: 1604644-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DPS
Prepared: 4/25/16 11:45

8100M Total Petroleum Hydrocarbons

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Total Petroleum Hydrocarbons	**34.8** (12.3)		8100M		1	04/28/16 7:37	CZD0424	CD62514

	%Recovery	Qualifier	Limits
Surrogate: O-Terphenyl	*70 %*		*40-140*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-13
Date Sampled: 04/22/16 10:00
Percent Solids: 86
Initial Volume: 14.4
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1604644
ESS Laboratory Sample ID: 1604644-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: VSC
Prepared: 4/25/16 15:11

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,2,4-Trichlorobenzene	ND (0.404)		8270D		1	04/25/16 19:47	CZD0358	CD62516
1,2-Dichlorobenzene	ND (0.404)		8270D		1	04/25/16 19:47	CZD0358	CD62516
1,3-Dichlorobenzene	ND (0.404)		8270D		1	04/25/16 19:47	CZD0358	CD62516
1,4-Dichlorobenzene	ND (0.404)		8270D		1	04/25/16 19:47	CZD0358	CD62516
2,4,5-Trichlorophenol	ND (0.404)		8270D		1	04/25/16 19:47	CZD0358	CD62516
2,4,6-Trichlorophenol	ND (0.404)		8270D		1	04/25/16 19:47	CZD0358	CD62516
2,4-Dichlorophenol	ND (0.404)		8270D		1	04/25/16 19:47	CZD0358	CD62516
2,4-Dimethylphenol	ND (0.404)		8270D		1	04/25/16 19:47	CZD0358	CD62516
2,4-Dinitrophenol	ND (2.03)		8270D		1	04/25/16 19:47	CZD0358	CD62516
2,4-Dinitrotoluene	ND (0.404)		8270D		1	04/25/16 19:47	CZD0358	CD62516
2,6-Dinitrotoluene	ND (0.404)		8270D		1	04/25/16 19:47	CZD0358	CD62516
2-Chloronaphthalene	ND (0.404)		8270D		1	04/25/16 19:47	CZD0358	CD62516
2-Chlorophenol	ND (0.404)		8270D		1	04/25/16 19:47	CZD0358	CD62516
2-Methylnaphthalene	ND (0.404)		8270D		1	04/25/16 19:47	CZD0358	CD62516
2-Methylphenol	ND (0.404)		8270D		1	04/25/16 19:47	CZD0358	CD62516
2-Nitrophenol	ND (0.404)		8270D		1	04/25/16 19:47	CZD0358	CD62516
3,3´-Dichlorobenzidine	ND (0.810)		8270D		1	04/25/16 19:47	CZD0358	CD62516
3+4-Methylphenol	ND (0.810)		8270D		1	04/25/16 19:47	CZD0358	CD62516
4-Bromophenyl-phenylether	ND (0.404)		8270D		1	04/25/16 19:47	CZD0358	CD62516
4-Chloroaniline	ND (0.810)		8270D		1	04/25/16 19:47	CZD0358	CD62516
4-Nitrophenol	ND (2.03)		8270D		1	04/25/16 19:47	CZD0358	CD62516
Acenaphthene	ND (0.404)		8270D		1	04/25/16 19:47	CZD0358	CD62516
Acenaphthylene	ND (0.404)		8270D		1	04/25/16 19:47	CZD0358	CD62516
Acetophenone	ND (0.810)		8270D		1	04/25/16 19:47	CZD0358	CD62516
Aniline	ND (2.03)		8270D		1	04/25/16 19:47	CZD0358	CD62516
Anthracene	ND (0.404)		8270D		1	04/25/16 19:47	CZD0358	CD62516
Azobenzene	ND (0.404)		8270D		1	04/25/16 19:47	CZD0358	CD62516
Benzo(a)anthracene	ND (0.404)		8270D		1	04/25/16 19:47	CZD0358	CD62516
Benzo(a)pyrene	ND (0.203)		8270D		1	04/25/16 19:47	CZD0358	CD62516
Benzo(b)fluoranthene	ND (0.404)		8270D		1	04/25/16 19:47	CZD0358	CD62516
Benzo(g,h,i)perylene	ND (0.404)		8270D		1	04/25/16 19:47	CZD0358	CD62516
Benzo(k)fluoranthene	ND (0.404)		8270D		1	04/25/16 19:47	CZD0358	CD62516

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-13
Date Sampled: 04/22/16 10:00
Percent Solids: 86
Initial Volume: 14.4
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1604644
ESS Laboratory Sample ID: 1604644-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: VSC
Prepared: 4/25/16 15:11

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
bis(2-Chloroethoxy)methane	ND (0.404)		8270D		1	04/25/16 19:47	CZD0358	CD62516
bis(2-Chloroethyl)ether	ND (0.404)		8270D		1	04/25/16 19:47	CZD0358	CD62516
bis(2-chloroisopropyl)Ether	ND (0.404)		8270D		1	04/25/16 19:47	CZD0358	CD62516
bis(2-Ethylhexyl)phthalate	ND (0.404)		8270D		1	04/25/16 19:47	CZD0358	CD62516
Butylbenzylphthalate	ND (0.404)		8270D		1	04/25/16 19:47	CZD0358	CD62516
Chrysene	ND (0.203)		8270D		1	04/25/16 19:47	CZD0358	CD62516
Dibenzo(a,h)Anthracene	ND (0.203)		8270D		1	04/25/16 19:47	CZD0358	CD62516
Dibenzofuran	ND (0.404)		8270D		1	04/25/16 19:47	CZD0358	CD62516
Diethylphthalate	ND (0.404)		8270D		1	04/25/16 19:47	CZD0358	CD62516
Dimethylphthalate	ND (0.404)		8270D		1	04/25/16 19:47	CZD0358	CD62516
Di-n-butylphthalate	ND (0.404)		8270D		1	04/25/16 19:47	CZD0358	CD62516
Di-n-octylphthalate	ND (0.404)		8270D		1	04/25/16 19:47	CZD0358	CD62516
Fluoranthene	ND (0.404)		8270D		1	04/25/16 19:47	CZD0358	CD62516
Fluorene	ND (0.404)		8270D		1	04/25/16 19:47	CZD0358	CD62516
Hexachlorobenzene	ND (0.404)		8270D		1	04/25/16 19:47	CZD0358	CD62516
Hexachlorobutadiene	ND (0.404)		8270D		1	04/25/16 19:47	CZD0358	CD62516
Hexachloroethane	ND (0.404)		8270D		1	04/25/16 19:47	CZD0358	CD62516
Indeno(1,2,3-cd)Pyrene	ND (0.404)		8270D		1	04/25/16 19:47	CZD0358	CD62516
Isophorone	ND (0.404)		8270D		1	04/25/16 19:47	CZD0358	CD62516
Naphthalene	ND (0.404)		8270D		1	04/25/16 19:47	CZD0358	CD62516
Nitrobenzene	ND (0.404)		8270D		1	04/25/16 19:47	CZD0358	CD62516
N-Nitrosodimethylamine	ND (0.404)		8270D		1	04/25/16 19:47	CZD0358	CD62516
Pentachlorophenol	ND (2.03)		8270D		1	04/25/16 19:47	CZD0358	CD62516
Phenanthrene	ND (0.404)		8270D		1	04/25/16 19:47	CZD0358	CD62516
Phenol	ND (0.404)		8270D		1	04/25/16 19:47	CZD0358	CD62516
Pyrene	ND (0.404)		8270D		1	04/25/16 19:47	CZD0358	CD62516

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichlorobenzene-d4	*62 %*		*30-130*
Surrogate: 2,4,6-Tribromophenol	*67 %*		*30-130*
Surrogate: 2-Chlorophenol-d4	*63 %*		*30-130*
Surrogate: 2-Fluorobiphenyl	*65 %*		*30-130*
Surrogate: 2-Fluorophenol	*60 %*		*30-130*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-13
Date Sampled: 04/22/16 10:00
Percent Solids: 86
Initial Volume: 14.4
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 1604644
ESS Laboratory Sample ID: 1604644-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: VSC
Prepared: 4/25/16 15:11

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Surrogate: Nitrobenzene-d5		*62 %*		*30-130*				
Surrogate: Phenol-d6		*61 %*		*30-130*				
Surrogate: p-Terphenyl-d14		*69 %*		*30-130*				

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292
Client Sample ID: Disp-13
Date Sampled: 04/22/16 10:00
Percent Solids: 86

ESS Laboratory Work Order: 1604644
ESS Laboratory Sample ID: 1604644-02
Sample Matrix: Soil

Classical Chemistry

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	Units	Batch
Conductivity	**WL 16** (5)		9050A		1	JLK	04/28/16 15:32	umhos/cm	CD62743
Corrosivity (pH)	**6.58** (N/A)		9045		1	JLK	04/22/16 20:58	S.U.	CD62233
Corrosivity (pH) Sample Temp	**Soil pH measured in water at 20.6 ºC.**								
Eh (ORP)	**WL 372** (N/A)		2580		1	JLK	04/22/16 20:58	mv	CD62238
Flashpoint	**> 200** (N/A)		1010		1	EEM	04/25/16 16:00	°F	CD62518
Reactive Cyanide	ND (2.0)		7.3.3.2		1	MJV	04/25/16 11:56	mg/kg	CD62520
Reactive Sulfide	ND (2.0)		7.3.4.1		1	MJV	04/25/16 11:56	mg/kg	CD62520

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604644

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Total Metals										
Batch CD62505 - 3050B										
Blank										
Arsenic	ND	2.50	mg/kg wet							
Barium	ND	2.50	mg/kg wet							
Cadmium	ND	0.50	mg/kg wet							
Chromium	ND	1.00	mg/kg wet							
Lead	ND	5.00	mg/kg wet							
Selenium	ND	0.50	mg/kg wet							
Silver	ND	0.50	mg/kg wet							
LCS										
Arsenic	152	9.62	mg/kg wet	161.0		95	80-120			
Barium	315	9.62	mg/kg wet	351.0		90	80-120			
Cadmium	173	1.92	mg/kg wet	190.0		91	80-120			
Chromium	82.9	3.85	mg/kg wet	87.90		94	80-120			
Lead	134	19.2	mg/kg wet	138.0		97	80-120			
Selenium	361	24.0	mg/kg wet	305.0		118	80-120			
Silver	55.7	1.92	mg/kg wet	58.00		96	80-120			
LCS Dup										
Arsenic	144	8.33	mg/kg wet	161.0		90	80-120	5	20	
Barium	306	8.33	mg/kg wet	351.0		87	80-120	3	20	
Cadmium	162	1.67	mg/kg wet	190.0		85	80-120	6	20	
Chromium	77.1	3.33	mg/kg wet	87.90		88	80-120	7	20	
Lead	126	16.7	mg/kg wet	138.0		92	80-120	6	20	
Selenium	297	20.8	mg/kg wet	305.0		97	80-120	19	30	
Silver	52.4	1.67	mg/kg wet	58.00		90	80-120	6	20	
Batch CD62507 - 7471B										
Blank										
Mercury	ND	0.033	mg/kg wet							
LCS										
Mercury	20.2	1.83	mg/kg wet	15.90		127	51-148			
LCS Dup										
Mercury	17.5	1.60	mg/kg wet	15.90		110	80-120	14	20	
5035/8260B Volatile Organic Compounds / Methanol										
Batch CD62627 - 5035										
Blank										
1,1,1,2-Tetrachloroethane	ND	0.200	mg/kg wet							
1,1,1-Trichloroethane	ND	0.200	mg/kg wet							
1,1,2,2-Tetrachloroethane	ND	0.200	mg/kg wet							
1,1,2-Trichloroethane	ND	0.200	mg/kg wet							
1,1-Dichloroethane	ND	0.200	mg/kg wet							
1,1-Dichloroethene	ND	0.200	mg/kg wet							
1,1-Dichloropropene	ND	0.200	mg/kg wet							
1,2,3-Trichlorobenzene	ND	0.200	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604644

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Methanol										
Batch CD62627 - 5035										
1,2,3-Trichloropropane	ND	0.200	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.200	mg/kg wet							
1,2,4-Trimethylbenzene	ND	0.200	mg/kg wet							
1,2-Dibromo-3-Chloropropane	ND	1.00	mg/kg wet							
1,2-Dibromoethane	ND	0.200	mg/kg wet							
1,2-Dichlorobenzene	ND	0.200	mg/kg wet							
1,2-Dichloroethane	ND	0.200	mg/kg wet							
1,2-Dichloropropane	ND	0.200	mg/kg wet							
1,3,5-Trimethylbenzene	ND	0.200	mg/kg wet							
1,3-Dichlorobenzene	ND	0.200	mg/kg wet							
1,3-Dichloropropane	ND	0.200	mg/kg wet							
1,4-Dichlorobenzene	ND	0.200	mg/kg wet							
1,4-Dioxane - Screen	ND	40.0	mg/kg wet							
2,2-Dichloropropane	ND	0.200	mg/kg wet							
2-Butanone	ND	1.00	mg/kg wet							
2-Chlorotoluene	ND	0.200	mg/kg wet							
2-Hexanone	ND	1.00	mg/kg wet							
4-Chlorotoluene	ND	0.200	mg/kg wet							
4-Isopropyltoluene	ND	0.200	mg/kg wet							
4-Methyl-2-Pentanone	ND	1.00	mg/kg wet							
Acetone	ND	1.00	mg/kg wet							
Benzene	ND	0.200	mg/kg wet							
Bromobenzene	ND	0.200	mg/kg wet							
Bromochloromethane	ND	0.200	mg/kg wet							
Bromodichloromethane	ND	0.200	mg/kg wet							
Bromoform	ND	0.200	mg/kg wet							
Bromomethane	ND	0.200	mg/kg wet							
Carbon Disulfide	ND	0.200	mg/kg wet							
Carbon Tetrachloride	ND	0.200	mg/kg wet							
Chlorobenzene	ND	0.200	mg/kg wet							
Chloroethane	ND	0.200	mg/kg wet							
Chloroform	ND	0.200	mg/kg wet							
Chloromethane	ND	0.200	mg/kg wet							
cis-1,2-Dichloroethene	ND	0.200	mg/kg wet							
cis-1,3-Dichloropropene	ND	0.200	mg/kg wet							
Dibromochloromethane	ND	0.200	mg/kg wet							
Dibromomethane	ND	0.200	mg/kg wet							
Dichlorodifluoromethane	ND	0.200	mg/kg wet							
Diethyl Ether	ND	0.200	mg/kg wet							
Di-isopropyl ether	ND	0.200	mg/kg wet							
Ethyl tertiary-butyl ether	ND	0.200	mg/kg wet							
Ethylbenzene	ND	0.200	mg/kg wet							
Hexachlorobutadiene	ND	0.200	mg/kg wet							
Isopropylbenzene	ND	0.200	mg/kg wet							
Methyl tert-Butyl Ether	ND	0.200	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604644

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Methanol										
Batch CD62627 - 5035										
Methylene Chloride	ND	0.400	mg/kg wet							
Naphthalene	ND	0.200	mg/kg wet							
n-Butylbenzene	ND	0.200	mg/kg wet							
n-Propylbenzene	ND	0.200	mg/kg wet							
sec-Butylbenzene	ND	0.200	mg/kg wet							
Styrene	ND	0.200	mg/kg wet							
tert-Butylbenzene	ND	0.200	mg/kg wet							
Tertiary-amyl methyl ether	ND	0.200	mg/kg wet							
Tetrachloroethene	ND	0.200	mg/kg wet							
Tetrahydrofuran	ND	1.00	mg/kg wet							
Toluene	ND	0.200	mg/kg wet							
trans-1,2-Dichloroethene	ND	0.200	mg/kg wet							
trans-1,3-Dichloropropene	ND	0.200	mg/kg wet							
Trichloroethene	ND	0.200	mg/kg wet							
Trichlorofluoromethane	ND	0.200	mg/kg wet							
Vinyl Chloride	ND	0.200	mg/kg wet							
Xylene O	ND	0.200	mg/kg wet							
Xylene P,M	ND	0.400	mg/kg wet							
Xylenes (Total)	ND	0.400	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	*4.74*		mg/kg wet	*5.000*		*95*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*4.22*		mg/kg wet	*5.000*		*84*	*70-130*			
Surrogate: Dibromofluoromethane	*4.87*		mg/kg wet	*5.000*		*97*	*70-130*			
Surrogate: Toluene-d8	*4.38*		mg/kg wet	*5.000*		*88*	*70-130*			
LCS										
1,1,1,2-Tetrachloroethane	2.00	0.200	mg/kg wet	2.000		100	70-130			
1,1,1-Trichloroethane	1.90	0.200	mg/kg wet	2.000		95	70-130			
1,1,2,2-Tetrachloroethane	2.10	0.200	mg/kg wet	2.000		105	70-130			
1,1,2-Trichloroethane	2.21	0.200	mg/kg wet	2.000		111	70-130			
1,1-Dichloroethane	1.88	0.200	mg/kg wet	2.000		94	70-130			
1,1-Dichloroethene	2.32	0.200	mg/kg wet	2.000		116	70-130			
1,1-Dichloropropene	1.99	0.200	mg/kg wet	2.000		100	70-130			
1,2,3-Trichlorobenzene	2.08	0.200	mg/kg wet	2.000		104	70-130			
1,2,3-Trichloropropane	1.94	0.200	mg/kg wet	2.000		97	70-130			
1,2,4-Trichlorobenzene	2.14	0.200	mg/kg wet	2.000		107	70-130			
1,2,4-Trimethylbenzene	1.92	0.200	mg/kg wet	2.000		96	70-130			
1,2-Dibromo-3-Chloropropane	1.94	1.00	mg/kg wet	2.000		97	70-130			
1,2-Dibromoethane	1.92	0.200	mg/kg wet	2.000		96	70-130			
1,2-Dichlorobenzene	2.02	0.200	mg/kg wet	2.000		101	70-130			
1,2-Dichloroethane	1.93	0.200	mg/kg wet	2.000		96	70-130			
1,2-Dichloropropane	1.96	0.200	mg/kg wet	2.000		98	70-130			
1,3,5-Trimethylbenzene	1.99	0.200	mg/kg wet	2.000		100	70-130			
1,3-Dichlorobenzene	2.04	0.200	mg/kg wet	2.000		102	70-130			
1,3-Dichloropropane	1.99	0.200	mg/kg wet	2.000		99	70-130			
1,4-Dichlorobenzene	2.02	0.200	mg/kg wet	2.000		101	70-130			
1,4-Dioxane - Screen	44.2	40.0	mg/kg wet	40.00		110	44-241			

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604644

Quality Control Data

5035/8260B Volatile Organic Compounds / Methanol

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch CD62627 - 5035										
2,2-Dichloropropane	2.10	0.200	mg/kg wet	2.000		105	70-130			
2-Butanone	10.4	1.00	mg/kg wet	10.00		104	70-130			
2-Chlorotoluene	2.05	0.200	mg/kg wet	2.000		102	70-130			
2-Hexanone	11.2	1.00	mg/kg wet	10.00		112	70-130			
4-Chlorotoluene	2.12	0.200	mg/kg wet	2.000		106	70-130			
4-Isopropyltoluene	2.02	0.200	mg/kg wet	2.000		101	70-130			
4-Methyl-2-Pentanone	10.5	1.00	mg/kg wet	10.00		105	70-130			
Acetone	10.1	1.00	mg/kg wet	10.00		101	70-130			
Benzene	1.95	0.200	mg/kg wet	2.000		98	70-130			
Bromobenzene	1.98	0.200	mg/kg wet	2.000		99	70-130			
Bromochloromethane	1.88	0.200	mg/kg wet	2.000		94	70-130			
Bromodichloromethane	2.15	0.200	mg/kg wet	2.000		108	70-130			
Bromoform	1.91	0.200	mg/kg wet	2.000		95	70-130			
Bromomethane	2.20	0.200	mg/kg wet	2.000		110	70-130			
Carbon Disulfide	2.00	0.200	mg/kg wet	2.000		100	70-130			
Carbon Tetrachloride	1.92	0.200	mg/kg wet	2.000		96	70-130			
Chlorobenzene	1.99	0.200	mg/kg wet	2.000		100	70-130			
Chloroethane	1.87	0.200	mg/kg wet	2.000		93	70-130			
Chloroform	1.97	0.200	mg/kg wet	2.000		99	70-130			
Chloromethane	1.83	0.200	mg/kg wet	2.000		92	70-130			
cis-1,2-Dichloroethene	2.11	0.200	mg/kg wet	2.000		105	70-130			
cis-1,3-Dichloropropene	2.03	0.200	mg/kg wet	2.000		101	70-130			
Dibromochloromethane	1.89	0.200	mg/kg wet	2.000		94	70-130			
Dibromomethane	1.83	0.200	mg/kg wet	2.000		91	70-130			
Dichlorodifluoromethane	1.46	0.200	mg/kg wet	2.000		73	70-130			
Diethyl Ether	1.97	0.200	mg/kg wet	2.000		98	70-130			
Di-isopropyl ether	2.01	0.200	mg/kg wet	2.000		100	70-130			
Ethyl tertiary-butyl ether	1.90	0.200	mg/kg wet	2.000		95	70-130			
Ethylbenzene	2.00	0.200	mg/kg wet	2.000		100	70-130			
Hexachlorobutadiene	2.32	0.200	mg/kg wet	2.000		116	70-130			
Isopropylbenzene	2.00	0.200	mg/kg wet	2.000		100	70-130			
Methyl tert-Butyl Ether	1.93	0.200	mg/kg wet	2.000		96	70-130			
Methylene Chloride	2.21	0.400	mg/kg wet	2.000		110	70-130			
Naphthalene	2.11	0.200	mg/kg wet	2.000		106	70-130			
n-Butylbenzene	2.13	0.200	mg/kg wet	2.000		107	70-130			
n-Propylbenzene	2.10	0.200	mg/kg wet	2.000		105	70-130			
sec-Butylbenzene	2.11	0.200	mg/kg wet	2.000		106	70-130			
Styrene	1.95	0.200	mg/kg wet	2.000		97	70-130			
tert-Butylbenzene	1.98	0.200	mg/kg wet	2.000		99	70-130			
Tertiary-amyl methyl ether	1.91	0.200	mg/kg wet	2.000		96	70-130			
Tetrachloroethene	1.52	0.200	mg/kg wet	2.000		76	70-130			
Tetrahydrofuran	1.78	1.00	mg/kg wet	2.000		89	70-130			
Toluene	1.91	0.200	mg/kg wet	2.000		96	70-130			
trans-1,2-Dichloroethene	2.22	0.200	mg/kg wet	2.000		111	70-130			
trans-1,3-Dichloropropene	1.90	0.200	mg/kg wet	2.000		95	70-130			

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604644

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Methanol										
Batch CD62627 - 5035										
Trichloroethene	1.90	0.200	mg/kg wet	2.000		95	70-130			
Trichlorofluoromethane	1.74	0.200	mg/kg wet	2.000		87	70-130			
Vinyl Chloride	1.82	0.200	mg/kg wet	2.000		91	70-130			
Xylene O	1.89	0.200	mg/kg wet	2.000		94	70-130			
Xylene P,M	3.85	0.400	mg/kg wet	4.000		96	70-130			
Xylenes (Total)	5.74	0.400	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	*4.92*		mg/kg wet	*5.000*		*98*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*4.81*		mg/kg wet	*5.000*		*96*	*70-130*			
Surrogate: Dibromofluoromethane	*5.13*		mg/kg wet	*5.000*		*103*	*70-130*			
Surrogate: Toluene-d8	*4.88*		mg/kg wet	*5.000*		*98*	*70-130*			
LCS Dup										
1,1,1,2-Tetrachloroethane	1.91	0.200	mg/kg wet	2.000		96	70-130	5	25	
1,1,1-Trichloroethane	1.89	0.200	mg/kg wet	2.000		94	70-130	0.7	25	
1,1,2,2-Tetrachloroethane	2.05	0.200	mg/kg wet	2.000		102	70-130	3	25	
1,1,2-Trichloroethane	2.12	0.200	mg/kg wet	2.000		106	70-130	4	25	
1,1-Dichloroethane	1.89	0.200	mg/kg wet	2.000		94	70-130	0.4	25	
1,1-Dichloroethene	2.18	0.200	mg/kg wet	2.000		109	70-130	6	25	
1,1-Dichloropropene	1.92	0.200	mg/kg wet	2.000		96	70-130	4	25	
1,2,3-Trichlorobenzene	1.97	0.200	mg/kg wet	2.000		98	70-130	6	25	
1,2,3-Trichloropropane	1.91	0.200	mg/kg wet	2.000		96	70-130	2	25	
1,2,4-Trichlorobenzene	2.00	0.200	mg/kg wet	2.000		100	70-130	7	25	
1,2,4-Trimethylbenzene	1.87	0.200	mg/kg wet	2.000		94	70-130	3	25	
1,2-Dibromo-3-Chloropropane	1.79	1.00	mg/kg wet	2.000		90	70-130	8	25	
1,2-Dibromoethane	1.88	0.200	mg/kg wet	2.000		94	70-130	2	25	
1,2-Dichlorobenzene	1.92	0.200	mg/kg wet	2.000		96	70-130	5	25	
1,2-Dichloroethane	1.93	0.200	mg/kg wet	2.000		96	70-130	0	25	
1,2-Dichloropropane	1.97	0.200	mg/kg wet	2.000		98	70-130	0.2	25	
1,3,5-Trimethylbenzene	1.95	0.200	mg/kg wet	2.000		97	70-130	2	25	
1,3-Dichlorobenzene	2.04	0.200	mg/kg wet	2.000		102	70-130	0.1	25	
1,3-Dichloropropane	1.94	0.200	mg/kg wet	2.000		97	70-130	2	25	
1,4-Dichlorobenzene	1.93	0.200	mg/kg wet	2.000		96	70-130	5	25	
1,4-Dioxane - Screen	41.8	40.0	mg/kg wet	40.00		105	44-241	5	200	
2,2-Dichloropropane	2.08	0.200	mg/kg wet	2.000		104	70-130	1	25	
2-Butanone	9.96	1.00	mg/kg wet	10.00		100	70-130	4	25	
2-Chlorotoluene	1.95	0.200	mg/kg wet	2.000		98	70-130	5	25	
2-Hexanone	9.94	1.00	mg/kg wet	10.00		99	70-130	12	25	
4-Chlorotoluene	2.02	0.200	mg/kg wet	2.000		101	70-130	5	25	
4-Isopropyltoluene	1.94	0.200	mg/kg wet	2.000		97	70-130	4	25	
4-Methyl-2-Pentanone	9.96	1.00	mg/kg wet	10.00		100	70-130	6	25	
Acetone	9.17	1.00	mg/kg wet	10.00		92	70-130	10	25	
Benzene	1.93	0.200	mg/kg wet	2.000		96	70-130	1	25	
Bromobenzene	1.93	0.200	mg/kg wet	2.000		96	70-130	3	25	
Bromochloromethane	1.84	0.200	mg/kg wet	2.000		92	70-130	2	25	
Bromodichloromethane	2.08	0.200	mg/kg wet	2.000		104	70-130	3	25	
Bromoform	1.77	0.200	mg/kg wet	2.000		89	70-130	7	25	

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604644

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Methanol										
Batch CD62627 - 5035										
Bromomethane	2.22	0.200	mg/kg wet	2.000		111	70-130	0.5	25	
Carbon Disulfide	2.02	0.200	mg/kg wet	2.000		101	70-130	0.9	25	
Carbon Tetrachloride	1.92	0.200	mg/kg wet	2.000		96	70-130	0.2	25	
Chlorobenzene	1.95	0.200	mg/kg wet	2.000		98	70-130	2	25	
Chloroethane	1.53	0.200	mg/kg wet	2.000		77	70-130	20	25	
Chloroform	1.91	0.200	mg/kg wet	2.000		96	70-130	3	25	
Chloromethane	1.84	0.200	mg/kg wet	2.000		92	70-130	0.1	25	
cis-1,2-Dichloroethene	2.04	0.200	mg/kg wet	2.000		102	70-130	3	25	
cis-1,3-Dichloropropene	2.01	0.200	mg/kg wet	2.000		100	70-130	0.9	25	
Dibromochloromethane	1.89	0.200	mg/kg wet	2.000		95	70-130	0.3	25	
Dibromomethane	1.85	0.200	mg/kg wet	2.000		92	70-130	1	25	
Dichlorodifluoromethane	1.53	0.200	mg/kg wet	2.000		76	70-130	4	25	
Diethyl Ether	1.83	0.200	mg/kg wet	2.000		92	70-130	7	25	
Di-isopropyl ether	1.96	0.200	mg/kg wet	2.000		98	70-130	2	25	
Ethyl tertiary-butyl ether	1.88	0.200	mg/kg wet	2.000		94	70-130	1	25	
Ethylbenzene	1.94	0.200	mg/kg wet	2.000		97	70-130	3	25	
Hexachlorobutadiene	2.21	0.200	mg/kg wet	2.000		111	70-130	5	25	
Isopropylbenzene	2.01	0.200	mg/kg wet	2.000		100	70-130	0.7	25	
Methyl tert-Butyl Ether	1.86	0.200	mg/kg wet	2.000		93	70-130	3	25	
Methylene Chloride	2.15	0.400	mg/kg wet	2.000		108	70-130	3	25	
Naphthalene	1.91	0.200	mg/kg wet	2.000		96	70-130	10	25	
n-Butylbenzene	2.00	0.200	mg/kg wet	2.000		100	70-130	6	25	
n-Propylbenzene	1.97	0.200	mg/kg wet	2.000		98	70-130	6	25	
sec-Butylbenzene	2.06	0.200	mg/kg wet	2.000		103	70-130	2	25	
Styrene	1.85	0.200	mg/kg wet	2.000		92	70-130	5	25	
tert-Butylbenzene	1.90	0.200	mg/kg wet	2.000		95	70-130	4	25	
Tertiary-amyl methyl ether	1.84	0.200	mg/kg wet	2.000		92	70-130	4	25	
Tetrachloroethene	1.47	0.200	mg/kg wet	2.000		74	70-130	3	25	
Tetrahydrofuran	1.89	1.00	mg/kg wet	2.000		94	70-130	6	25	
Toluene	1.89	0.200	mg/kg wet	2.000		94	70-130	1	25	
trans-1,2-Dichloroethene	2.06	0.200	mg/kg wet	2.000		103	70-130	7	25	
trans-1,3-Dichloropropene	1.86	0.200	mg/kg wet	2.000		93	70-130	2	25	
Trichloroethene	1.88	0.200	mg/kg wet	2.000		94	70-130	0.7	25	
Trichlorofluoromethane	1.73	0.200	mg/kg wet	2.000		86	70-130	0.7	25	
Vinyl Chloride	1.83	0.200	mg/kg wet	2.000		92	70-130	0.4	25	
Xylene O	1.86	0.200	mg/kg wet	2.000		93	70-130	1	25	
Xylene P,M	3.78	0.400	mg/kg wet	4.000		95	70-130	2	25	
Xylenes (Total)	5.65	0.400	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	*4.84*		mg/kg wet	*5.000*		*97*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*4.66*		mg/kg wet	*5.000*		*93*	*70-130*			
Surrogate: Dibromofluoromethane	*5.10*		mg/kg wet	*5.000*		*102*	*70-130*			
Surrogate: Toluene-d8	*4.76*		mg/kg wet	*5.000*		*95*	*70-130*			
8082A Polychlorinated Biphenyls (PCB)										
Batch CD62204 - 3540C										

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604644

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CD62204 - 3540C										
Blank										
Aroclor 1016	ND	0.0500	mg/kg wet							
Aroclor 1221	ND	0.0500	mg/kg wet							
Aroclor 1232	ND	0.0500	mg/kg wet							
Aroclor 1242	ND	0.0500	mg/kg wet							
Aroclor 1248	ND	0.0500	mg/kg wet							
Aroclor 1254	ND	0.0500	mg/kg wet							
Aroclor 1260	ND	0.0500	mg/kg wet							
Aroclor 1262	ND	0.0500	mg/kg wet							
Aroclor 1268	ND	0.0500	mg/kg wet							
Surrogate: Decachlorobiphenyl	*0.0178*		mg/kg wet	*0.02500*		*71*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0176*		mg/kg wet	*0.02500*		*71*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0203*		mg/kg wet	*0.02500*		*81*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0181*		mg/kg wet	*0.02500*		*72*	*30-150*			
LCS										
Aroclor 1016	0.441	0.0500	mg/kg wet	0.5000		88	40-140			
Aroclor 1260	0.442	0.0500	mg/kg wet	0.5000		88	40-140			
Surrogate: Decachlorobiphenyl	*0.0195*		mg/kg wet	*0.02500*		*78*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0197*		mg/kg wet	*0.02500*		*79*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0214*		mg/kg wet	*0.02500*		*86*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0201*		mg/kg wet	*0.02500*		*80*	*30-150*			
LCS Dup										
Aroclor 1016	0.426	0.0500	mg/kg wet	0.5000		85	40-140	3	30	
Aroclor 1260	0.435	0.0500	mg/kg wet	0.5000		87	40-140	2	30	
Surrogate: Decachlorobiphenyl	*0.0190*		mg/kg wet	*0.02500*		*76*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0194*		mg/kg wet	*0.02500*		*77*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0201*		mg/kg wet	*0.02500*		*81*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0188*		mg/kg wet	*0.02500*		*75*	*30-150*			
8100M Total Petroleum Hydrocarbons										
Batch CD62514 - 3546										
Blank										
Decane (C10)	ND	0.2	mg/kg wet							
Docosane (C22)	ND	0.2	mg/kg wet							
Dodecane (C12)	ND	0.2	mg/kg wet							
Eicosane (C20)	ND	0.2	mg/kg wet							
Hexacosane (C26)	ND	0.2	mg/kg wet							
Hexadecane (C16)	ND	0.2	mg/kg wet							
Hexatriacontane (C36)	ND	0.2	mg/kg wet							
Nonadecane (C19)	ND	0.2	mg/kg wet							
Nonane (C9)	ND	0.2	mg/kg wet							
Octacosane (C28)	ND	0.2	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604644

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8100M Total Petroleum Hydrocarbons										
Batch CD62514 - 3546										
Octadecane (C18)	ND	0.2	mg/kg wet							
Tetracosane (C24)	ND	0.2	mg/kg wet							
Tetradecane (C14)	ND	0.2	mg/kg wet							
Total Petroleum Hydrocarbons	ND	10.0	mg/kg wet							
Triacontane (C30)	ND	0.2	mg/kg wet							
Surrogate: O-Terphenyl	*4.31*		mg/kg wet	*5.000*		*86*	*40-140*			
LCS										
Decane (C10)	2.1	0.2	mg/kg wet	2.500		85	40-140			
Docosane (C22)	2.4	0.2	mg/kg wet	2.500		96	40-140			
Dodecane (C12)	2.2	0.2	mg/kg wet	2.500		89	40-140			
Eicosane (C20)	2.4	0.2	mg/kg wet	2.500		97	40-140			
Hexacosane (C26)	2.4	0.2	mg/kg wet	2.500		97	40-140			
Hexadecane (C16)	2.4	0.2	mg/kg wet	2.500		96	40-140			
Hexatriacontane (C36)	2.4	0.2	mg/kg wet	2.500		98	40-140			
Nonadecane (C19)	2.4	0.2	mg/kg wet	2.500		98	40-140			
Nonane (C9)	1.8	0.2	mg/kg wet	2.500		73	30-140			
Octacosane (C28)	2.4	0.2	mg/kg wet	2.500		95	40-140			
Octadecane (C18)	2.4	0.2	mg/kg wet	2.500		95	40-140			
Tetracosane (C24)	2.3	0.2	mg/kg wet	2.500		91	40-140			
Tetradecane (C14)	2.4	0.2	mg/kg wet	2.500		95	40-140			
Total Petroleum Hydrocarbons	32.3	10.0	mg/kg wet	35.00		92	40-140			
Triacontane (C30)	2.4	0.2	mg/kg wet	2.500		96	40-140			
Surrogate: O-Terphenyl	*4.38*		mg/kg wet	*5.000*		*88*	*40-140*			
LCS Dup										
Decane (C10)	2.0	0.2	mg/kg wet	2.500		82	40-140	4	25	
Docosane (C22)	2.5	0.2	mg/kg wet	2.500		100	40-140	4	25	
Dodecane (C12)	2.1	0.2	mg/kg wet	2.500		85	40-140	4	25	
Eicosane (C20)	2.5	0.2	mg/kg wet	2.500		101	40-140	4	25	
Hexacosane (C26)	2.5	0.2	mg/kg wet	2.500		101	40-140	4	25	
Hexadecane (C16)	2.4	0.2	mg/kg wet	2.500		94	40-140	1	25	
Hexatriacontane (C36)	2.5	0.2	mg/kg wet	2.500		102	40-140	4	25	
Nonadecane (C19)	2.5	0.2	mg/kg wet	2.500		100	40-140	3	25	
Nonane (C9)	1.7	0.2	mg/kg wet	2.500		69	30-140	5	25	
Octacosane (C28)	2.5	0.2	mg/kg wet	2.500		98	40-140	4	25	
Octadecane (C18)	2.4	0.2	mg/kg wet	2.500		97	40-140	2	25	
Tetracosane (C24)	2.4	0.2	mg/kg wet	2.500		95	40-140	4	25	
Tetradecane (C14)	2.3	0.2	mg/kg wet	2.500		92	40-140	4	25	
Total Petroleum Hydrocarbons	32.7	10.0	mg/kg wet	35.00		94	40-140	1	25	
Triacontane (C30)	2.5	0.2	mg/kg wet	2.500		99	40-140	4	25	
Surrogate: O-Terphenyl	*4.36*		mg/kg wet	*5.000*		*87*	*40-140*			
8270D Semi-Volatile Organic Compounds										

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604644

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CD62516 - 3546										
Blank										
1,2,4-Trichlorobenzene	ND	0.333	mg/kg wet							
1,2-Dichlorobenzene	ND	0.333	mg/kg wet							
1,3-Dichlorobenzene	ND	0.333	mg/kg wet							
1,4-Dichlorobenzene	ND	0.333	mg/kg wet							
2,4,5-Trichlorophenol	ND	0.333	mg/kg wet							
2,4,6-Trichlorophenol	ND	0.333	mg/kg wet							
2,4-Dichlorophenol	ND	0.333	mg/kg wet							
2,4-Dimethylphenol	ND	0.333	mg/kg wet							
2,4-Dinitrophenol	ND	1.67	mg/kg wet							
2,4-Dinitrotoluene	ND	0.333	mg/kg wet							
2,6-Dinitrotoluene	ND	0.333	mg/kg wet							
2-Chloronaphthalene	ND	0.333	mg/kg wet							
2-Chlorophenol	ND	0.333	mg/kg wet							
2-Methylnaphthalene	ND	0.333	mg/kg wet							
2-Methylphenol	ND	0.333	mg/kg wet							
2-Nitrophenol	ND	0.333	mg/kg wet							
3,3´-Dichlorobenzidine	ND	0.667	mg/kg wet							
3+4-Methylphenol	ND	0.667	mg/kg wet							
4-Bromophenyl-phenylether	ND	0.333	mg/kg wet							
4-Chloroaniline	ND	0.667	mg/kg wet							
4-Nitrophenol	ND	1.67	mg/kg wet							
Acenaphthene	ND	0.333	mg/kg wet							
Acenaphthylene	ND	0.333	mg/kg wet							
Acetophenone	ND	0.667	mg/kg wet							
Aniline	ND	1.67	mg/kg wet							
Anthracene	ND	0.333	mg/kg wet							
Azobenzene	ND	0.333	mg/kg wet							
Benzo(a)anthracene	ND	0.333	mg/kg wet							
Benzo(a)pyrene	ND	0.167	mg/kg wet							
Benzo(b)fluoranthene	ND	0.333	mg/kg wet							
Benzo(g,h,i)perylene	ND	0.333	mg/kg wet							
Benzo(k)fluoranthene	ND	0.333	mg/kg wet							
bis(2-Chloroethoxy)methane	ND	0.333	mg/kg wet							
bis(2-Chloroethyl)ether	ND	0.333	mg/kg wet							
bis(2-chloroisopropyl)Ether	ND	0.333	mg/kg wet							
bis(2-Ethylhexyl)phthalate	ND	0.333	mg/kg wet							
Butylbenzylphthalate	ND	0.333	mg/kg wet							
Chrysene	ND	0.167	mg/kg wet							
Dibenzo(a,h)Anthracene	ND	0.167	mg/kg wet							
Dibenzofuran	ND	0.333	mg/kg wet							
Diethylphthalate	ND	0.333	mg/kg wet							
Dimethylphthalate	ND	0.333	mg/kg wet							
Di-n-butylphthalate	ND	0.333	mg/kg wet							
Di-n-octylphthalate	ND	0.333	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604644

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CD62516 - 3546										
Fluoranthene	ND	0.333	mg/kg wet							
Fluorene	ND	0.333	mg/kg wet							
Hexachlorobenzene	ND	0.333	mg/kg wet							
Hexachlorobutadiene	ND	0.333	mg/kg wet							
Hexachloroethane	ND	0.333	mg/kg wet							
Indeno(1,2,3-cd)Pyrene	ND	0.333	mg/kg wet							
Isophorone	ND	0.333	mg/kg wet							
Naphthalene	ND	0.333	mg/kg wet							
Nitrobenzene	ND	0.333	mg/kg wet							
N-Nitrosodimethylamine	ND	0.333	mg/kg wet							
Pentachlorophenol	ND	1.67	mg/kg wet							
Phenanthrene	ND	0.333	mg/kg wet							
Phenol	ND	0.333	mg/kg wet							
Pyrene	ND	0.333	mg/kg wet							
Surrogate: 1,2-Dichlorobenzene-d4	*2.63*		mg/kg wet	*3.333*		*79*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*3.48*		mg/kg wet	*5.000*		*70*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*4.00*		mg/kg wet	*5.000*		*80*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.66*		mg/kg wet	*3.333*		*80*	*30-130*			
Surrogate: 2-Fluorophenol	*3.86*		mg/kg wet	*5.000*		*77*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.63*		mg/kg wet	*3.333*		*79*	*30-130*			
Surrogate: Phenol-d6	*4.03*		mg/kg wet	*5.000*		*81*	*30-130*			
Surrogate: p-Terphenyl-d14	*2.74*		mg/kg wet	*3.333*		*82*	*30-130*			
LCS										
1,2,4-Trichlorobenzene	2.76	0.333	mg/kg wet	3.333		83	40-140			
1,2-Dichlorobenzene	2.55	0.333	mg/kg wet	3.333		76	40-140			
1,3-Dichlorobenzene	2.55	0.333	mg/kg wet	3.333		76	40-140			
1,4-Dichlorobenzene	2.53	0.333	mg/kg wet	3.333		76	40-140			
2,4,5-Trichlorophenol	3.02	0.333	mg/kg wet	3.333		91	30-130			
2,4,6-Trichlorophenol	2.90	0.333	mg/kg wet	3.333		87	30-130			
2,4-Dichlorophenol	2.74	0.333	mg/kg wet	3.333		82	30-130			
2,4-Dimethylphenol	2.77	0.333	mg/kg wet	3.333		83	30-130			
2,4-Dinitrophenol	2.31	1.67	mg/kg wet	3.333		69	30-130			
2,4-Dinitrotoluene	3.16	0.333	mg/kg wet	3.333		95	40-140			
2,6-Dinitrotoluene	2.82	0.333	mg/kg wet	3.333		85	40-140			
2-Chloronaphthalene	2.49	0.333	mg/kg wet	3.333		75	40-140			
2-Chlorophenol	2.52	0.333	mg/kg wet	3.333		76	30-130			
2-Methylnaphthalene	2.48	0.333	mg/kg wet	3.333		75	40-140			
2-Methylphenol	2.52	0.333	mg/kg wet	3.333		76	30-130			
2-Nitrophenol	2.52	0.333	mg/kg wet	3.333		76	30-130			
3,3´-Dichlorobenzidine	2.23	0.667	mg/kg wet	3.333		67	40-140			
3+4-Methylphenol	6.43	0.667	mg/kg wet	6.667		96	30-130			
4-Bromophenyl-phenylether	2.80	0.333	mg/kg wet	3.333		84	40-140			
4-Chloroaniline	2.35	0.667	mg/kg wet	3.333		70	40-140			
4-Nitrophenol	2.71	1.67	mg/kg wet	3.333		81	30-130			
Acenaphthene	2.70	0.333	mg/kg wet	3.333		81	40-140			

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604644

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CD62516 - 3546										
Acenaphthylene	2.76	0.333	mg/kg wet	3.333		83	40-140			
Acetophenone	2.58	0.667	mg/kg wet	3.333		78	40-140			
Aniline	1.91	1.67	mg/kg wet	3.333		57	40-140			
Anthracene	2.82	0.333	mg/kg wet	3.333		85	40-140			
Azobenzene	2.57	0.333	mg/kg wet	3.333		77	40-140			
Benzo(a)anthracene	2.78	0.333	mg/kg wet	3.333		83	40-140			
Benzo(a)pyrene	2.92	0.167	mg/kg wet	3.333		88	40-140			
Benzo(b)fluoranthene	2.84	0.333	mg/kg wet	3.333		85	40-140			
Benzo(g,h,i)perylene	2.95	0.333	mg/kg wet	3.333		89	40-140			
Benzo(k)fluoranthene	2.84	0.333	mg/kg wet	3.333		85	40-140			
bis(2-Chloroethoxy)methane	2.58	0.333	mg/kg wet	3.333		77	40-140			
bis(2-Chloroethyl)ether	2.46	0.333	mg/kg wet	3.333		74	40-140			
bis(2-chloroisopropyl)Ether	2.46	0.333	mg/kg wet	3.333		74	40-140			
bis(2-Ethylhexyl)phthalate	3.35	0.333	mg/kg wet	3.333		100	40-140			
Butylbenzylphthalate	3.10	0.333	mg/kg wet	3.333		93	40-140			
Chrysene	2.83	0.167	mg/kg wet	3.333		85	40-140			
Dibenzo(a,h)Anthracene	3.02	0.167	mg/kg wet	3.333		91	40-140			
Dibenzofuran	2.68	0.333	mg/kg wet	3.333		80	40-140			
Diethylphthalate	2.94	0.333	mg/kg wet	3.333		88	40-140			
Dimethylphthalate	2.83	0.333	mg/kg wet	3.333		85	40-140			
Di-n-butylphthalate	3.18	0.333	mg/kg wet	3.333		95	40-140			
Di-n-octylphthalate	2.96	0.333	mg/kg wet	3.333		89	40-140			
Fluoranthene	2.98	0.333	mg/kg wet	3.333		89	40-140			
Fluorene	2.75	0.333	mg/kg wet	3.333		82	40-140			
Hexachlorobenzene	2.60	0.333	mg/kg wet	3.333		78	40-140			
Hexachlorobutadiene	2.64	0.333	mg/kg wet	3.333		79	40-140			
Hexachloroethane	2.45	0.333	mg/kg wet	3.333		74	40-140			
Indeno(1,2,3-cd)Pyrene	3.00	0.333	mg/kg wet	3.333		90	40-140			
Isophorone	2.54	0.333	mg/kg wet	3.333		76	40-140			
Naphthalene	2.70	0.333	mg/kg wet	3.333		81	40-140			
Nitrobenzene	2.57	0.333	mg/kg wet	3.333		77	40-140			
N-Nitrosodimethylamine	1.72	0.333	mg/kg wet	3.333		51	40-140			
Pentachlorophenol	2.58	1.67	mg/kg wet	3.333		78	30-130			
Phenanthrene	2.72	0.333	mg/kg wet	3.333		82	40-140			
Phenol	2.75	0.333	mg/kg wet	3.333		83	30-130			
Pyrene	2.64	0.333	mg/kg wet	3.333		79	40-140			
Surrogate: 1,2-Dichlorobenzene-d4	*2.69*		mg/kg wet	*3.333*		*81*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*4.30*		mg/kg wet	*5.000*		*86*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*4.22*		mg/kg wet	*5.000*		*84*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.84*		mg/kg wet	*3.333*		*85*	*30-130*			
Surrogate: 2-Fluorophenol	*4.02*		mg/kg wet	*5.000*		*80*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.79*		mg/kg wet	*3.333*		*84*	*30-130*			
Surrogate: Phenol-d6	*4.13*		mg/kg wet	*5.000*		*83*	*30-130*			
Surrogate: p-Terphenyl-d14	*2.98*		mg/kg wet	*3.333*		*89*	*30-130*			
LCS Dup										

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604644

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CD62516 - 3546										
1,2,4-Trichlorobenzene	2.30	0.333	mg/kg wet	3.333		69	40-140	18	30	
1,2-Dichlorobenzene	2.09	0.333	mg/kg wet	3.333		63	40-140	20	30	
1,3-Dichlorobenzene	2.08	0.333	mg/kg wet	3.333		62	40-140	20	30	
1,4-Dichlorobenzene	2.08	0.333	mg/kg wet	3.333		62	40-140	20	30	
2,4,5-Trichlorophenol	2.55	0.333	mg/kg wet	3.333		77	30-130	17	30	
2,4,6-Trichlorophenol	2.45	0.333	mg/kg wet	3.333		74	30-130	17	30	
2,4-Dichlorophenol	2.27	0.333	mg/kg wet	3.333		68	30-130	19	30	
2,4-Dimethylphenol	2.27	0.333	mg/kg wet	3.333		68	30-130	20	30	
2,4-Dinitrophenol	2.26	1.67	mg/kg wet	3.333		68	30-130	2	30	
2,4-Dinitrotoluene	2.83	0.333	mg/kg wet	3.333		85	40-140	11	30	
2,6-Dinitrotoluene	2.45	0.333	mg/kg wet	3.333		73	40-140	14	30	
2-Chloronaphthalene	2.07	0.333	mg/kg wet	3.333		62	40-140	18	30	
2-Chlorophenol	2.08	0.333	mg/kg wet	3.333		62	30-130	19	30	
2-Methylnaphthalene	2.04	0.333	mg/kg wet	3.333		61	40-140	20	30	
2-Methylphenol	2.07	0.333	mg/kg wet	3.333		62	30-130	20	30	
2-Nitrophenol	2.09	0.333	mg/kg wet	3.333		63	30-130	19	30	
3,3´-Dichlorobenzidine	2.13	0.667	mg/kg wet	3.333		64	40-140	4	30	
3+4-Methylphenol	5.35	0.667	mg/kg wet	6.667		80	30-130	18	30	
4-Bromophenyl-phenylether	2.46	0.333	mg/kg wet	3.333		74	40-140	13	30	
4-Chloroaniline	2.01	0.667	mg/kg wet	3.333		60	40-140	16	30	
4-Nitrophenol	2.45	1.67	mg/kg wet	3.333		74	30-130	10	30	
Acenaphthene	2.25	0.333	mg/kg wet	3.333		68	40-140	18	30	
Acenaphthylene	2.29	0.333	mg/kg wet	3.333		69	40-140	19	30	
Acetophenone	2.10	0.667	mg/kg wet	3.333		63	40-140	21	30	
Aniline	1.65	1.67	mg/kg wet	3.333		50	40-140	15	30	
Anthracene	2.52	0.333	mg/kg wet	3.333		76	40-140	11	30	
Azobenzene	2.24	0.333	mg/kg wet	3.333		67	40-140	14	30	
Benzo(a)anthracene	2.52	0.333	mg/kg wet	3.333		76	40-140	10	30	
Benzo(a)pyrene	2.64	0.167	mg/kg wet	3.333		79	40-140	10	30	
Benzo(b)fluoranthene	2.52	0.333	mg/kg wet	3.333		76	40-140	12	30	
Benzo(g,h,i)perylene	2.65	0.333	mg/kg wet	3.333		80	40-140	11	30	
Benzo(k)fluoranthene	2.61	0.333	mg/kg wet	3.333		78	40-140	8	30	
bis(2-Chloroethoxy)methane	2.13	0.333	mg/kg wet	3.333		64	40-140	19	30	
bis(2-Chloroethyl)ether	2.01	0.333	mg/kg wet	3.333		60	40-140	20	30	
bis(2-chloroisopropyl)Ether	2.02	0.333	mg/kg wet	3.333		61	40-140	20	30	
bis(2-Ethylhexyl)phthalate	2.98	0.333	mg/kg wet	3.333		89	40-140	12	30	
Butylbenzylphthalate	2.77	0.333	mg/kg wet	3.333		83	40-140	11	30	
Chrysene	2.57	0.167	mg/kg wet	3.333		77	40-140	10	30	
Dibenzo(a,h)Anthracene	2.73	0.167	mg/kg wet	3.333		82	40-140	10	30	
Dibenzofuran	2.24	0.333	mg/kg wet	3.333		67	40-140	18	30	
Diethylphthalate	2.60	0.333	mg/kg wet	3.333		78	40-140	12	30	
Dimethylphthalate	2.46	0.333	mg/kg wet	3.333		74	40-140	14	30	
Di-n-butylphthalate	2.87	0.333	mg/kg wet	3.333		86	40-140	10	30	
Di-n-octylphthalate	2.65	0.333	mg/kg wet	3.333		79	40-140	11	30	
Fluoranthene	2.70	0.333	mg/kg wet	3.333		81	40-140	10	30	

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604644

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CD62516 - 3546										
Fluorene	2.33	0.333	mg/kg wet	3.333		70	40-140	16	30	
Hexachlorobenzene	2.34	0.333	mg/kg wet	3.333		70	40-140	10	30	
Hexachlorobutadiene	2.20	0.333	mg/kg wet	3.333		66	40-140	18	30	
Hexachloroethane	2.01	0.333	mg/kg wet	3.333		60	40-140	20	30	
Indeno(1,2,3-cd)Pyrene	2.71	0.333	mg/kg wet	3.333		81	40-140	10	30	
Isophorone	2.10	0.333	mg/kg wet	3.333		63	40-140	19	30	
Naphthalene	2.22	0.333	mg/kg wet	3.333		66	40-140	20	30	
Nitrobenzene	2.10	0.333	mg/kg wet	3.333		63	40-140	20	30	
N-Nitrosodimethylamine	1.43	0.333	mg/kg wet	3.333		43	40-140	18	30	
Pentachlorophenol	2.47	1.67	mg/kg wet	3.333		74	30-130	4	30	
Phenanthrene	2.44	0.333	mg/kg wet	3.333		73	40-140	11	30	
Phenol	2.17	0.333	mg/kg wet	3.333		65	30-130	24	30	
Pyrene	2.38	0.333	mg/kg wet	3.333		71	40-140	10	30	
Surrogate: 1,2-Dichlorobenzene-d4	*2.20*		mg/kg wet	*3.333*		*66*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*3.89*		mg/kg wet	*5.000*		*78*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.43*		mg/kg wet	*5.000*		*69*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.33*		mg/kg wet	*3.333*		*70*	*30-130*			
Surrogate: 2-Fluorophenol	*3.30*		mg/kg wet	*5.000*		*66*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.30*		mg/kg wet	*3.333*		*69*	*30-130*			
Surrogate: Phenol-d6	*3.37*		mg/kg wet	*5.000*		*67*	*30-130*			
Surrogate: p-Terphenyl-d14	*2.68*		mg/kg wet	*3.333*		*81*	*30-130*			
Classical Chemistry										
Batch CD62518 - General Preparation										
Reference										
Flashpoint	81		°F	81.00		100	97.9-102.1			
Batch CD62520 - General Preparation										
Blank										
Reactive Cyanide	ND	2.0	mg/kg							
Reactive Sulfide	ND	2.0	mg/kg							
LCS										
Reactive Cyanide	3.9	2.0	mg/kg	100.3		4	0.68-5.41			
Reactive Sulfide	0.2	2.0	mg/kg	10.00		2	0-44			
Batch CD62743 - General Preparation										
Blank										
Conductivity	ND	5	umhos/cm							
LCS										
Conductivity	1420		umhos/cm	1411		101	90-110			

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292 ESS Laboratory Work Order: 1604644

Notes and Definitions

Z-10	Soil pH measured in water at 20.6 ºC.
WL	Results obtained from a deionized water leach of the sample.
U	Analyte included in the analysis, but not detected
Q	Calibration required quadratic regression (Q).
D	Diluted.
CD-	Continuing Calibration %Diff/Drift is below control limit (CD-).
>	Greater than.
ND	Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DL	Detection Limit
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
NR	No Recovery
[CALC]	Calculated Analyte
SUB	Subcontracted analysis; see attached report

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Station 292

ESS Laboratory Work Order: 1604644

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179
http://www.health.ri.gov/find/labs/analytical/ESS.pdf

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002
http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/documents/AllLabs.xls

Massachusetts Potable and Non Potable Water: M-RI002
http://public.dep.state.ma.us/Labcert/Labcert.aspx

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424
http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313
http://www.wadsworth.org/labcert/elap/comm.html

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006
http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752
http://www.depweb.state.pa.us/portal/server.pt/community/labs/13780/laboratory_accreditation_program/590095

ESS Laboratory Sample and Cooler Receipt Checklist

Client: Tighe & Bond - KPB/TB/MM

Shipped/Delivered Via: ESS Courier

ESS Project ID: 1604644
Date Received: 4/22/2016
Project Due Date: 4/26/2016
Days for Project: 2 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 2.0 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** Yes / No / NA
10. Were any analyses received outside of hold time? Yes / No

11. Any Subcontracting needed? Yes / No
    ESS Sample IDs:
    Analysis:
    TAT:
12. Were VOAs received? Yes / No
    a. Air bubbles in aqueous VOAs? Yes / No
    b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
    a. If metals preserved upon receipt: Date: Time: By:
    b. Low Level VOAs brought to freezer: Date: Time: By:

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / No
    a. Was there a need to contact the client? Yes / No
    Who was contacted? Date: Time: By:

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
~~01~~	~~28727~~	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	28728	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	28729	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	28731	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
02	28791	Yes	NA	Yes	VOA Vial - Methanol	MeOH	

ar 4/25/16

2nd Review
Are barcode labels on correct containers? Yes / No

Completed By: Date & Time: 4.22.16 1645
Reviewed By: Date & Time: 4/22/16 1718

ESS Laboratory Sample and Cooler Receipt Checklist

Client: Tighe & Bond - KPB/TB/MM

Shipped/Delivered Via: ESS Courier

ESS Project ID: 1604644
Date Received: 4/22/2016
Project Due Date: 4/26/2016
Days for Project: 2 Day

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   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 2.0 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** (Yes) / No / NA
10. Were any analyses received outside of hold time? Yes / (No)

11. Any Subcontracting needed? Yes / (No)
    ESS Sample IDs:
    Analysis:
    TAT:
12. Were VOAs received? (Yes) / No
    a. Air bubbles in aqueous VOAs? Yes / No
    b. Does methanol cover soil completely? (Yes) No / NA

13. Are the samples properly preserved? (Yes) / No
    a. If metals preserved upon receipt: Date: Time: By:
    b. Low Level VOAs brought to freezer: Date: Time: By:

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / (No)
    a. Was there a need to contact the client? Yes / No
    Who was contacted? Date: Time: By:

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
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02	28791	Yes	NA	Yes	VOA Vial - Methanol	MeOH	

2nd Review
Are barcode labels on correct containers? (Yes) / No

Completed By: Date & Time: 4.22.16 1645
Reviewed By: Date & Time: 4/22/16 1718

ESS Laboratory

Division of Thielsch Engineering, Inc.

185 Frances Avenue, Cranston, RI 02910-2211
Tel. (401) 461-7181 Fax (401) 461-4486
www.esslaboratory.com

CHAIN OF CUSTODY

ESS Lab # 1604644

Turn Time 48hr Standard Other_____

Regulatory State: MA RI CT NH NJ NY ME Other_____

Is this project for any of the following:(please circle)
MA-MCP Navy USACE CT DEP Other_____

Reporting Limits - RCS-1

Electonic Deliverables Excel Access PDF

Co. Name: Tighe + Bond	Project #: N-1023-56	Project Name: Station 292	
Contact Person: Michael Martin	Address: 4 Barlows Landing		
City: Pocasset	State: MA	Zip: 02559	PO #:
Tel.	Fax.	email: MEMartin@Tighebond.com	

ESS Lab ID	Date	Collection Time	Grab -G Composite-C	Matrix	Sample ID	Pres Code	# of Containers	Type of Container	Vol of Container	PCBs	VOCs	SVOCs	TPH	Conductivity/ORP	pH/corrosivity	Ignitability	Reactive cyanide/sulfide	RCRA 8
MC 4/25/16 1	4/22/16	9:50	C	S	Trench 81/80	NP	1	AG	4oz	X								
2	4/22/16	10:00	C	S	Disp-13	NP/M	4	AG/V		X	X	X	X	X	X	X	X	X

Container Type: P-Poly G-Glass AG-Amber Glass S-Sterile V-VOA

Matrix: S-Soil SD-Solid D-Sludge WW-Wastewater GW-Groundwater SW-Surface Water DW-Drinking Water O-Oil W-Wipes F-Filter

Cooler Present ✓ Yes ____ No

Seals Intact ____ Yes ____ No NA:___

Cooler Temperature: 2.0

Internal Use Only
[ ] Pickup
[ ] Technician___

Preservation Code: 1-NP, 2-HCl, 3-H2SO4, 4-HNO3, 5-NaOH, 6-MeOH, 7-Asorbic Acid, 8-ZnAct, 9-_____

Sampled by: KLL

Comments: TSCA extraction method / Std. TAT for Disp-13

Relinquished by: (Signature, Date & Time)	Received by: (Signature, Date & Time)	Relinquished by: (Signature, Date & Time)	Received by: (Signature, Date & Time)
[signature] 4/22/16	[signature] 4/22/16 15:06	[signature] 4/22/16 16:38	[signature] 4/22/16 1644
Relinquished by: (Signature, Date & Time)	Received by: (Signature, Date & Time)	Relinquished by: (Signature, Date & Time)	Received by: (Signature, Date & Time)

* By circling MA-MCP, client acknowledges samples were collected in accordance with MADEP CAM VIIA

Please fax to the laboratory all changes to Chain of Custody

1 (White) Lab Copy
2 (Yellow) Client Receipt