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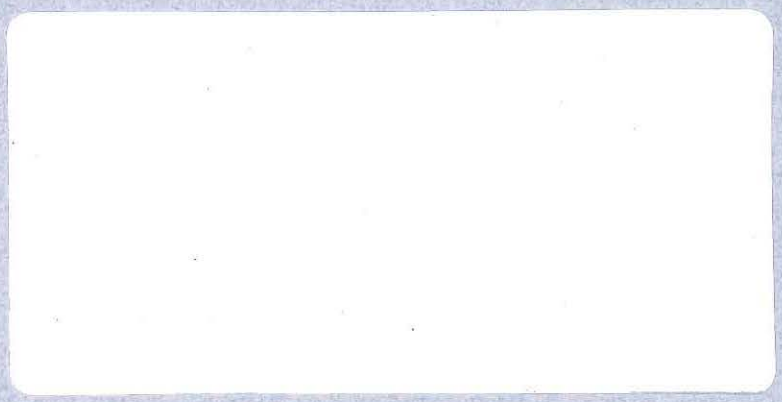

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Final Sediment Remedial Design Plan

Former Stanley Tools Facility (MID 099 124 299) Fowlerville, Michigan

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Submitted to:

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1.0 INTRODUCTION

Johnson Controls, Inc. (JCI) currently holds Resource Conservation and Recovery Act (RCRA) corrective action responsibility at the Former Stanley Tools Facility (MID 099 124 299) in Fowlerville, Michigan (**Figure 1**). JCI's goals for the site are to address possible risks to public health and the environment and to promote redevelopment and recovery of ecology.

In October 2002, EPA provided a draft Administrative Order on Consent (AOC) to JCI that was executed in December 2002 for the site (U.S. EPA Docket No. RCRA-05-2003-004). This is a performance-based AOC; the RCRA corrective action process requirements imposed by EPA were significantly streamlined, reducing and/or eliminating the need for formal submittals, approvals to proceed with investigative or remedial activities. The AOC focused on (a) the submittal of the Environmental Indicator Reports (demonstrating stabilization of impacted groundwater migration, and positive control of human health exposures) by February 15, 2004; (b) the Final Corrective Measures Proposal (FCMP) was required to be submitted by February 15, 2004; (c) corrective measures for the site as needed to protect human health and the environment; and (d) submission of a Final Remedy Construction Completion Report. Complete site historical information is contained in the site's administrative record, located at the Fowlerville Public Library in Fowlerville, Michigan.

Remedies are currently in place for soil and groundwater at the site. This Final Sediment Remedial Design Plan has been prepared to address sediment impacts observed at the site the dredging operations.

1.1 Site Background

The site is located at 425 Frank Street, in Fowlerville, Livingston County, Michigan (**Figure 1**) and measures approximately 14 acres in size. Following soil cleanup in 2003, a portion of the site was sold to, and re-developed by American Compounding Specialties, Inc. The remainder of the site is undeveloped. The Site Layout is shown on **Figure 2**.

The site is bordered to the north by the Copeland Construction property and Grand River Avenue; to the south by the CSX rail line; to the west by the Red Cedar River; and to the east by Veterans Drive (formerly Detroit Street). The area surrounding the site is largely commercial and light industrial with some interspersed residential properties to the north, east, and south. A variety of businesses operate in the immediate vicinity of the site, including; a metals shop, an auto parts store, an auto body shop, a video store, a warehouse, and the local VFW hall.

In 1949, Utilex Manufacturing Company first developed the site for zinc die casting operations. The plant underwent several expansions and ownership transfers between 1949 and 1980 at

which time Stanley Tools purchased the site. Plating operations being conducted produced a variety of liquid wastes and sludges that were treated on-site using multiple treatment/holding pits and/or lagoons. The plant was closed in 1985 and remained unused until 1993 at which time the buildings were demolished and JCI purchase of the former Stanley Tools facility. Several environmental activities were performed at the site between 1988 and 2002 to assess the extent of historic impacts at the site. These investigations included multiple soil and water investigations; sampling and analysis; a RCRA Facility Investigation (RFI); and several Interim Measures (IMs). These activities were summarized in a RFI Report submitted to the EPA in October 2001.

In 2003, over 90,000 tons of impacted soils were removed from the site; groundwater characterization was completed; and Draft Environmental Indicator (EI) reports for "Groundwater Under Control" and "Human Health Under Control" were prepared and submitted as drafts for USEPA review. These reports, as well as the FCMP, were submitted in February 2004 and contained the following conclusion.

- Soil impacts at the site were remediated and no further action for soil was required.
- Residual groundwater impacts at the site were expected to improve because the soil sources were removed and that groundwater should be controlled with the proposed monitoring program conducted under a Mixing Zone Determination issued by the State of Michigan.
- Institutional controls would be placed on soil and groundwater at the site.
- Sediments did not pose a threat to human receptors, but comparison of sediment data to available screening criteria indicated potential ecological impacts. It was recommended that an ecological study be completed to develop site-specific cleanup levels protective of ecological receptors. Sediment removal, as appropriate, would then follow.

In 2006, USEPA issued a Statement of Basis for the site and held public comment. A Final Decision later accepted the sediment recommendation from the FCMP and JCI began work on implementing the ecological study to identify site-specific sediment cleanup levels protective of ecological receptors.

The ecological study was completed in 2007, by Entact, Inc. of Chicago, Illinois and was presented in a document entitled, "Technical Report: March 2008 Groundwater Monitoring Program Results and Baseline Ecological Risk Assessment" (BERA). Following USEPA review of the BERA, the USEPA issued a letter on June 19, 2009 associated with implementing corrective action for the sediment. As a result, JCI initiated work on the development of a Sediment Remedial Design Plan (RDP) dated January 29, 2010 and later an Addendum to Sediment Remedial Design Plan date November 10, 2010.

Over the next year a series of conference calls and meetings took place to work collaboratively with the USEPA to complete the evaluation of risk posed by the site, and to solicit input from the Michigan Department of Environmental Quality (MDEQ). The outcome of this collaborative effort is summarized in a letter issued from the USEPA December 5, 2011. On March 8, 2012, the MDEQ issued a letter concurring with USEPA's December 2011 assessment and conclusions. The December 5, 2011 letter requested that an addendum to the BERA be issued summarizing additional criteria and developments since March 2008. The BERA Addendum was prepared and submitted on June 7, 2012 by CTI. This document established the general removal areas for remedial action based on analytical result comparison to Remedial Objectives (ROs). The BERA also assessed sediments to remain in place (and not be dredged) with conservative ecological screening criteria. The data from areas to remain in place were evaluated using direct criteria comparison including Mean PEC Quotient calculations.

1.2 Previous Investigations

Complete historical information for the site is contained in the site's administrative record, located at the Fowlerville Public Library in Fowlerville, Michigan. Among them several key documents were used during the preparation of Plan:

- Documentation of Environmental Indicators Determination, Current Human Health Under Control, RCRIS Code (CA 725) (Earth Tech/Weston, February 2004);
- Documentation of Environmental Indicators Determination, Migration of Contaminated Groundwater Under Control, RCRIS Code (CA 750) (Earth Tech/Weston, February 2004);
- Final Corrective Measures Proposal (Earth Tech/Weston, February 2004);
- Sediment Technical Memorandum, Appendix C of Final Corrective Measures Proposal (Earth Tech/Weston, February 2004);
- Statement of Basis (USEPA, 2006);
- Final Decision and Response to Comments, Selection of Remedial Alternative (USEPA, 2006);
- Technical Report: March 2008 Groundwater Monitoring Program Results and Baseline Ecological Risk Assessment" (Entact, 2008);
- USEPA letter regarding corrective measure implementation for sediment (USEPA June 19, 2009).
- Sediment Remedial Design Plan (CTI, January 29, 2010);
- Addendum to Sediment Remedial Design Plan (CTI, November 10, 2010);
- USEPA letter regarding evaluation of risk posed by the site (USEPA, December 5, 2011);
- Michigan Department of Environmental Quality (MDEQ) letter concurring with USEPA's December 2011 assessment and conclusions (MDEQ, March 8, 2012); and
- BERA Addendum (CTI, June 7, 2012).

1.3 Purpose and Objective

This document supersedes Sediment Remedial Design Plan dated January 29, 2010 and the addendum dated November 10, 2010 for the removal of impacted sediments in the Red Cedar River (River). The planned dredging project meets the requirements set forth by the USEPA in the (a) Statement of Basis and (b) the Final Decision and Response to Comments, both of which were issued in 2006. The objectives of this document are to:

- Summarize the sediment removal design plan;
- Define the extent of sediment removal;
- Describe the methodology proposed to complete the sediment removal; and
- Establish quality controls measures for use during dredging.

2.0 SEDIMENT REMOVAL PLAN

In accordance with the BERA Addendum dated June 7, 2012, soft sediments are proposed to be removed from Red Cedar River in two areas near the CSX Railroad crossing in the south and Grand River Avenue in the north. In an effort to refine the dredging areas, a survey was conducted on November 1, 2012 to develop stationing and to assist in calculating an estimated volume of sediment to be removed (discussed further in the following sections). In general, the survey stationed areas along the River beginning with designation 0-20 in the south and ending with 13+50 in the north (refer to **Figure 3** for stationing locations). In addition, the survey assessed the thickness of the soft sediment along to Creek to discern from the underlying hardpan. Cross sections of this assessment are depicted on **Figures 4-1** through **4-33**.

In accordance with the conclusions presented in the BERA Addendum, the following areas are proposed for dredging in relation to stationing described above:

- All soft sediments from Station 0-20 through 5+00 (Area 1); and
- All soft sediments from Station 11+00 through 13+50 (Area 2).

In general, the upper layer of sediment is characterized by soft grain material that overlies a compacted sand layer within the River (hardpan). Historic sample results, as well as a recent boundary sampling event (described further below), indicated that impacted material is retained in the soft sediment and absent in the hardpan material. Therefore, the sediment removal plan detailed in the following sections summaries the process by which the River will be remediated by removing the fine soft sediments from the defined areas.

2.1 Extent of Sediment Removal

The dredging area north of CSX Railroad crossing, herein refer to as Area 1 (Stations 0-20 to 05+00), measures approximately 14,338 square feet (SF). The dredging area south of Grand River Avenue, herein referred to as Area 2 (Stations 11+00 to 13+50), measures approximately 6,252 SF. Please refer to **Figure 3** for the location of Areas 1 and 2 respectively.

The fine soft sediment to the hardpan will be removed between the toes of the bank on either side of the River without undermining bank stability. The following sections describe how the dredging areas were defined, as well as the proposed method to complete the dredging.

2.2 Pre-Dredging Survey

As presented in historic documents, areas of concern along the River have been defined through sample collection and comparison to conservative ecological screening criteria. To delineate the dredging areas and estimate the quantity of soft sediment located within Areas 1 and 2, a survey was performed on November 1, 2012.

The survey was conducted along the River at 25-foot intervals for the length of the site (refer to **Figure 3** for stationing). At each stationing, sediment elevation measurements were taken every two feet beginning from one bank and ending at the other. The in-river measurements were performed to estimate the thickness of fine soft sediment overlaying the hardpan. This was done utilizing a 0.5-inch diameter survey pole equipped with a prism was used to shoot x, y and z with a total station first at the water elevation at the edge of the river and then pushing it into the fine sediment until refusal at the hard pan every two feet or so. At the same location shot with the total station for top of hardpan, a survey level rod was used to measure depth of the top of fine soft sediment below water surface. The elevation differences between the water surface and top of the soft fine sediment and top of hardpan allowed for of the calculation soft sediment thickness. This data was used to create cross-sections of the river every 25 feet within the removal areas. The cross-section are shown in **Figures 4-1** through **4-33** and include water surface, top of soft sediment, and top of hardpan. In addition, the cross-section figures also include the approximate location of collected sediment samples used to support the dredging area boundaries. The cross-sections were created in CAD to scale and the area of soft sediment at each cross section was determined and shown on the figures in square feet. **Table 1** uses the cross sectional areas at each to calculate the volume of soft sediment above the hardpan representing each station. The volume of soft sediment within Areas 1 and 2 is 858 cubic yards as shown on **Table 1**. These elevations measurements will be utilized by the dredging operator to help guide the excavator as described in the methodology approach below.

2.3 Dredging Area Boundary Sampling

CTI performed a Dredging Area Boundary Sampling event in accordance with the scope of work outlined in the November 1, 2012 correspondence sent to Region V EPA. In general, the dredge area boundary samples were collected to supplement the originally proposed dredge areas in the BERA Addendum. The supplemental samples were believed necessary since the extent of the original dredging areas were not supported by sample data. As a result, the additional samples were collected at the dredging areas terminus to provided supportive data for the proposed extent of dredging (refer to **Table 2** for summary table of results and **Figure 3 and 4** for sample locations).

The sampling event included the collection of ten (10) samples. At each location, a sediment sample was collected from the fine soft sediment at surface to 1 foot below sediment surface (bss). An additional sample was also collected from the underlying hardpan interval approximately 1 to 2 foot bss (refer to **Appendix A** for Sample Collection Logs).

Samples collected from locations adjacent to the proposed dredge areas were analyzed by the laboratory while samples collected off-set of the proposed dredge areas were placed on hold pending receipt of the first results. Samples were submitted Trimatrix Laboratories under chain

of custody and analyzed for the same laboratory analytical suite used during the 2009 sediment sampling effort (refer to **Appendix B** for Laboratory Reports). Results of the sampling event and Mean Probable Effect Concentration (PECs) quotients in accordance with the "Consensus-Based Sediment Quality Guidelines" prepared by the Wisconsin Department of Natural Resources (WDNR) in 2003 performed in the BERA Addendum at the request of USEPA Region V, to evaluate the risk of contaminants in sediments are presented on **Table 3**. Interpretation of the data acquired during the sampling event included the following:

- Soft sediment samples collected at E0+00 and W0+00 verified previously observed impacts in 2009 at transect A. The 0-12 inch samples at East and West both locations exceeded site ROs and had Mean PEC Quotients of 1.02 and 0.58 respectively which are above the 0.5 value indicating the soft fine sediments are toxic and shall remain part of the removal action. This location is near the southern terminus of Area 1 (south of the CSX Railroad Crossing). An additional sample was not collected at stationing 0-20 because this location was free of soft sediment. As a result, this location (0-20) is defensible to represent the southern extent of dredging Area 1.

- Hardpan samples collected at E0+00 and W0+00 did not have detections that exceeded ROs. The Mean PEC Quotients for the East and West hardpan samples locations were 0.12 and 0.06 respectively. These values are below the 0.5 value indicating sediment toxicity based on MacDonald, et al. 2000. This confirms that hardpan sediments are not considered toxic and only soft sediments require removal.

- Soft sediment samples collected at E5+00 and W5+00, located at the northern terminus of Area 1, both east and west soft sediment locations have calculated Mean PEC Quotient of 0.07 and 0.04 respectively. These values are below the 0.5 value indicating sediment toxicity based on MacDonald, et al. 2000. Therefore, this location is defensible to represent the northern extent of dredging Area 1.

- Hardpan samples collected at E5+00 and W5+00 did not have detections that exceeded the ROs. The Mean PEC Quotients for the East and West hardpan samples locations were 0.12 and 0.08 respectively. These values are below the 0.5 value indicating sediment toxicity based on MacDonald, et al. 2000. This confirms that hardpan sediments are not considered toxic and only soft sediments require removal.

- Soft sediment samples collected at E13+50 and W13+50, located at the northern terminus of Area 2, both had a calculated Mean PEC Quotients of 0.10. These values are below the 0.5 value indicating sediment toxicity based on MacDonald, et al. 2000. Therefore, this location is defensible to represent the northern extent of dredging Area 2.

- Hardpan samples collected at E13+50 and W13+50 did not have detections that exceeded the ROs. The Mean PEC Quotients for the East and West hardpan samples locations were 0.11 and 0.14 respectively. These values are below the 0.5 value indicating sediment toxicity based on MacDonald, et al. 2000. This confirms that hardpan sediments are not considered toxic and only soft sediments require removal.

- The Red Cedar River riverbed consists of a hardpan layer located approximately 6 to 24 inches beneath fine soft sediment. Analytical data collected throughout the course of this project have indicated that the hardpan located beneath the fine soft sediment does not exceed ROs and has mean PECs Quotients below 0.5 (refer to **Tables 2 and 3**). Based on this information, confirmation sampling is not necessary to document design compliance as indicated in the MDEQ RRD Operational Memorandum No. 4; *Site Characterization and Remediation Verification*: "If remediation is designed for removal of sediments to a specific depth or some erosion-resistant surface (e.g., hardpan), bathymetric or geophysical surveys could be used to determine compliance with the design."

2.4 Sediment Removal Methodology

The following section describes the sediment dredging methodology. At this time Terra Contracting, LLC (Terra) located in Kalamazoo, Michigan has been selected to perform sediment dredging operations. Terra is an environmental contracting company that provides environmental services that include soil, water and sediment remediation. Contractor selection was based on Terra experience with similar sediment remediation projects in Michigan and familiarity with the dredging process presented below.

2.4.1 Site Preparation

Portions of the proposed sediment removal area are located near wetlands, mitigation floodplains and dense vegetation/mature trees. **Appendix C** provides the National Wetland Inventory based wetland map, FEMA Flood Insurance Map for the Site. Because of the presence of wetlands and floodplains, site access and work area access are dependent on obtaining relevant permits. Permitting is further discussed in *Section 5.0*.

To access Area 2, removable composite mats will be laid across the wetland area as necessary depending of site conditions at the time of removal to facilitate equipment movements while minimizing wetland impacts (refer to **Figure 5** for Site Access Plan). In addition, a limited number of trees will need to be downed to allow access to Area 2. Terra Contracting has identified these trees and marked them with flagging. In an effort to mitigate damage to wildlife, CTI contracted Dr. Allen Kurta to assess potential impacts to the Indiana Bat. In a report dated November 19, 2012, Dr. Kutra stated that "the Stanley Tools property has a low-quality habitat

for the Indiana bats. Removal of trees to provide access for heavy machinery and creation of a haul road is not likely to have an adverse effect on Indiana bats." Dr. Kurta further recommended that to remove any potential danger, tree removal should be done during winter (November 1 through March 31), when the bats are safely in hibernation in Indiana and Kentucky. Refer to **Appendix D** for the *Removal of Contaminated Sediments and Habitat for the Endangered Indiana Bat at the Stanley Tools Site, Fowlerville, Michigan.*

To provide a crossing access for work trucks accessing the Area 2 removal, it will be necessary to bridge the existing drainage ditch that collects storm drainage for a portion of the village of Fowlerville., Composite or wood decking, with culvert piping as necessary will be used minimized impacts to the surrounding area and eliminate rutting that may disturb drainage patterns (refer to **Figure 5**). Impacts to drainage and wetlands made during the removal activities will be repaired at the end of the removal action by the contractor.

Access for a majority of the work will be off of Veterans Drive which runs North and South on the East side of the site (refer to **Figure 5**). JCI owns or has access agreements in place for a majority of the work area shown. The dredging contractor will mobilize the materials, equipment, tools and personnel necessary to complete the work to the project site. The project will involve mobilizing the following equipment to the site: a PC300HD long-reach excavator with GPS capabilities, a PC138 excavator, WA320 loader with bucket and fork attachments, two (2) JCB714 off-road trucks, four (4) 12-cubic yard rock boxes, and several composite crane mats. Once all equipment and personnel are onsite, the area will be prepared prior to initiating work. This will involve installing sanitary facilities, ensuring drinking water is available onsite, constructing the mixing sediment solidification pad, laying composite crane mats (as necessary), and installing turbidity curtains (discussed below).

One additional access constraint is related to the close proximity (approximately 60 feet) of the CSX Railroad ROW and bridge. As a result, and access agreement with the CSX Railroad will be obtained to remove sediment in this vicinity. Negotiations with the Railroad may impact project schedule.

2.4.2 In-Channel Dredging

The dredging method proposed by Terra Contracting involves excavating impacted sediment without interrupting the flow of the River. This is method incorporates the use of a containment system of turbidity curtains to mitigate downstream impacts. The curtains are flexible, impermeable barriers that trap suspended sediment. These curtains are generally weighted or staked into place at the bottom to ensure that sediment does not travel under the curtain. All dredging work will be performed within the curtains.

The dredging methodology will involve installing two turbidity curtains at Area 1 and at Area 2. Initially, these curtains will divide the dredging areas in half by installing the curtains down the centerline of the River and enclosing the both ends to the same side of the river, effectively encapsulating the sediments to be removed. Both curtains will be anchored to the riverbed shore on the western side of the river to start. Sediment will be removed using a PC300HD long-reach excavator equipped with GPS technology. The excavator will initiate work at Area 1 and work downstream within the turbidity curtain containment. A protective drape will be installed as a precaution to direct any spillage from the excavator bucket back into the silt curtain enclosed area where the excavator bucket will cross the unprotected portion of the river. Once all sediment has been dredged from this Area 1, the excavator and crews will move to Area 2 site and work within the confines of the second turbidity curtain. After the excavation areas on the west bank of the river have been dredged and the removal of all soft sediments has been confirmed, the anchor points for the turbidity curtain will be shifted to the eastern shore and the central portion of the silt curtain will be repositioned to enclose all remaining sediments for removal. Again, the two turbidity curtains will enclose the work zones and dredging will again commence at the upstream point and progress downstream.

As mentioned previously, the elevations points acquired during the pre-remediation survey for the fine soft sediment and the hardpan will be utilized by the GPS-capable excavator. The elevations will be loaded into the equipment to help achieve the most efficient and complete removal of the soft sediments. This software is tied into real time kinetic (RTK) global positioning system (GPS) units and boom position sensors mounted to the dredge excavator to provide targeted removal by the dredging activities in the field with sufficient overlap to ensure complete removal. Periodically an assessment of the removal efficiency fine soft sediment removal will be performed as described in the following section.

2.4.3 Dredging Removal Assessment

The goal of the remediation is to remove all fine soft sediments in the dredging areas. To assess that the fine soft sediments has been excavated, a process has been established. Similar to the pre-remediation survey, a 0.5-inch diameter metal probe will be used to assess the presence of fine soft sediment and hardpan. Ten random probes of the bottom surface will be completed and documented on the verification log. If a soft sediment deposit is found it shall be mapped and marked for subsequent removal. The logs will be shared with the agencies upon completion along with any additional removal efforts that are warranted. In the event the subsequent removal is necessary, a second log will be generated to document to process. Each log will clearly indicate the start/stop station, date and time of inspection, side of river being inspected (East or West) and results. The purpose of each log will also be stated as such, initial inspection, follow up inspection following additional removal, and so forth. The completed logs will be

incorporated in the remediation verification report for documentation of the removal of fine sediments. The sample verification log to be used is provided in **Appendix E**.

As stated previously in this Plan, the Red Cedar River riverbed consists of a hardpan located approximately 6 to 24 inches beneath fine soft sediment. Analytical data collected throughout the course of this project have indicated that the hardpan located beneath the fine soft sediment consists of sediment that does not exceed ROs and have mean PEC quotients below 0.5. Based on this information, confirmation sampling is not necessary to document design compliance as indicated in the MDEQ RRD Operational Memorandum No. 4; *Site Characterization and Remediation Verification*: "If remediation is designed for removal of sediments to a specific depth or some erosion-resistant surface (e.g., hardpan), bathymetric or geophysical surveys could be used to determine compliance with the design".

2.4.4 Solidification Process

The sediment solidification process will be performed on mixing pad that will be constructed on the southeast corner of the project site (refer to **Figure 5**). The area where the mixing pad is to be built will be covered with 40-mil HDPE liner followed by composite mats. As material is dredged from the River, it will be transported to the mixing pad using two JCB714 off-road trucks. The material will then be placed directly into rock boxes and mixed with Calciment, a solidification reagent. The material will be mixed using a PC138 excavator. Once material is significantly solidified, the sediment will be removed from the rock boxes and stockpiled within the mixing pad.

As a means of assessing the ability of the Calciment solidifying reagent, a sample of the River sediment was sent to Terra Contracting for testing. Based on the results of the trial solidification, the Calciment is expected to completely solidify the saturated sediment for landfill disposal. Refer to **Appendix F** for solidification trial results.

2.4.5 Transportation and Disposal

After the material is completely solidified, the PC138 will load the stockpiled material into gravel trains for off-site disposal. Venice Park Waste Management landfill located approximately 30 miles from the project site will be used to dispose the stabilized dredged material. Waste Manifest will be sign by JCI (or an authorized agent) prior to transport. Upon return from the landfill, trip tickets with recorded tons or cubic yards will be collected and retained by an onsite representative to document disposal.

2.5 Quality Control

To assess that the project is being performed in accordance with the scope of work presented herein, an on-site CTI personnel will performed QA/QC operations. Activities will be recorded in the field log and will include assessment of the following:

2.5.1 Dredging Oversight

CTI personnel will provide oversight during dredging operations to support remedial objectives. Visual inspections of the sediment removal process will be performed to assess removal operation is executed in accordance with the outlined scope of work. Operation notes will be recorded in a field log book documenting dates and times, weather conditions, on-site personnel, and approximate dredging locations. Photographic documentation will also be performed to coincide with observations. In addition, dredging verification will also be performed as described in *Section 2.4.3.*

2.5.2 Loading and On-site Transportation Inspections

During dredging operations, inspections of the sediment removal, loading process and on-site transportation will be documented to assess that proper methodology is being performed. Oversight will appraise that Best Management Practices (BMPs) are being followed to mitigate potential spills during loading and transportation. Observations will be recorded in the field log book to document potential issues that need to be addressed through clean-up or to assess whether a modification to operation plans is warranted.

Prior to transportation to the landfill

2.5.3 Sediment Solidification Oversight

Oversight will be performed on dredged sediment that has been transported to the staging area to assess the solidification process. In cooperation with the subcontractor, a waste characterization sample will be collected and analyzed to determine if the material conforms will landfill disposal requirements.

2.5.4 Turbidity Monitoring Program

The following section describes the turbidity monitoring program to be implemented during dredging operations. The program has been designed to monitor the potential re-suspension of sediment during dredging operations to mitigate downstream sediment migration and protect aquatic health. As described previously, dredging operations will incorporate a turbidity curtain to reduce the downstream migration of suspended sediment. As a means of assessing the efficiency of this containment, turbidly monitoring will be incorporated. In general, turbidity

measurements will be compared to established action levels to assess whether operation responses are needed to dredging procedures.

2.5.4.1 Equipment

Based on the relatively narrow width of the work area and a shallow water column, a long handled dip sample is proposed to collect water samples for turbidity testing. Once collected the samples will be analyzed with a Hach 2100P portable field turbidimeter (or equivalent), which adheres to the EPA 180.1 method. The turbidimeter utilizes a Rapidly Settling Turbidity™ (RST) mode to provide accurate, repeatable measurements for even rapidly settling samples. The meter stores up to 500 measurements and records the date and time, operator ID, reading mode, sample ID, sample number, units, calibration time, and calibration status. Monitoring required for turbidity shall be measured in Nephelometric Turbidity Units (NTU). Refer to **Appendix G** for Operation Manual.

2.5.4.2 Sampling Methodology

Turbidity samples will be collected and analyzed with the equipment described above. Samples will be collected from the approximate middle of the water column, at a distance of one-hundred (100) feet downstream from the turbidity curtain. One sample will be collected approximately every thirty (30) minutes of dredging operations to assess downstream conditions. Sample results will be recorded in field log book or on a sampling form.

To determine the turbidity action levels, background turbidity data will be obtained prior to dredging using spot-sampling from three locations (upstream of work area, within the work area, and downstream of work area). The background levels will be utilized to provide baseline conditions of the River to assess for variations among sample points.

In the event that turbidity baseline levels are within 10 NTUs of each other, the upstream data will be used to assess turbidity results during dredging. In the event that variations of 10 NTUs exist among baseline sampling points, the downstream data will be used to assess turbidly results during dredging. For the purposes of this plan, turbidity results above 50 NTU of the applicable background data will be used as the action level to assess dredging operations responses.

2.5.4.3 Establishing Turbidity Baseline

Prior to daily dredging operations, samples will be collected approximately 100 feet upstream of the dredging area, within the dredging area and 100 feet downstream of the dredging area utilizing the equipment and methodology described previously. Five samples from each location will be collected to established an average turbidly value at each location. The results will be used to determine the appropriate compliance point during dredging (described in previous section) and to assess turbidity samples collected during dredging operations. As described

previously, turbidity results above 50 NTU of the applicable background data will be used as the response action level (discussed in the following section).

Sudden changes in steam dynamics can occur as a result of bank erosion and weather influences. As a result, the upstream baseline data will be reevaluated once during the course of the dredging day, as well as during any large changes in weather conditions (e.g. rainstorm). The reevaluation will help protect against false positive turbidly results during dredging operations.

2.5.5 Potential Dredging Operation Responses

In the event that monitoring indicates that turbidity levels are in excess of 50 NTU above background, one or more of the following response may be initiated:

- Re-assess current upstream background concentrations;
- Increase turbidity monitoring frequency to 10-30 minutes as a means of verifying repeated exceedance of action level. Three additional exceedances may warrant implementation of one of the following;
    - Optimize, modify or slow down dredging operations to minimize sediment re-suspension;
    - Adjust turbidity curtains to increase suspended sediment capture;
    - Modification or change of dredging equipment;
    - Halt dredging to assess alteration to dredging operations.

2.6 Site Restoration

Site restoration practices, with regards to the River, will not involve the use of fill material to augment the dredge areas. As a means of avoiding any negative ecosystem effects or foreign contamination, the River will be allowed to naturally undergo sedimentation. For the upland areas general housekeeping activities will be completed to bring the site to a neat and orderly appearance. Any wetland areas damaged by the work will be restored to the extent practical to pre-construction conditions. All equipment used onsite will be dry decontaminated on the lined decontamination pad. All waste collected from the decontamination will be collected and disposed with the liner. The decontamination pad will then be deconstructed and transported off-site for disposal at an approved landfill. All disturbed area above the flood plain (not wetland areas) will be mulched and seeded.

2.7 Remedy Construction Completion Report

A Remedy Construction Complete report will be prepared and submitted to USEPA to document the interim action for sediments. This report will describe the site activities completed during

the sediment removal process, as well as the verification process and documentation. The report will also contain records of photographs and transportation/disposal manifests to fully document the interim action for sediments.

3.0 PERMITTING

3.1 Joint Permit Application

The Michigan Department of Natural Resources and Environment (MDNRE) regulate activities where land and water interface. In accordance with Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, a permit is required for these activities in order to show avoidance of wetland resources to the greatest extent possible or minimization of unavoidable wetland impacts. Similarly, in accordance with Part 31, Water Resources Protection, of the Natural Resources and Environmental Protection Act (NREPA), 1994 PA 451, as amended, a permit is required to show avoidance of alteration of 100-year floodplain. **Appendix C** shows the designated wetlands and floodplain at and around the site.

Access to Area 2 will involve the installation of a temporary access road that will incorporate the use of composite mating and decking to navigate wetland and drainage areas as necessary. The MDEQ/USACE Joint Permit Application (JPA) package covers permit requirements pursuant to state and federal rules and regulations for activities involving dredging, wetlands, and floodplain. MDEQ/USACE JPA has been prepared and submitted for approval. Please note that the review time to determine if an application is administratively complete, processing ranges from 15 to 30 days. Technical processing time, after the application is determined to be administratively complete, ranges from 60 to 90 days. The permit application was submitted on January 10, 2013.

4.0 SCHEDULE FOR SEDIMENT REMOVAL

An proposed project schedule is presented in a Gantt Chart provided in **Appendix H**. Based on the schedule, tasks have been complete through procurement of MDEQ pre-application letter. The Joint Permit application has been submitted for approval. Upon approval of the permit, and regulatory concurrence from Region V regarding the preceding Plan, the project will recommence. Please be advised that MDEQ Field Staff Inspection has already been completed and a copy of the Pre-application Letter has been provided in **Appendix I**.

The schedule presented in **Appendix H** assumes that a Correction Request will not be issued by the State of Michigan, and that a public hearing will be required. Additional schedule updates will be provided under separate cover as permitting milestones are reached. Final scheduling of the dredging effort will be governed by issuance of the permit.

5.0 RE-ESTABLISHMENT OF SOFT SEDIMENT IN DREDGED AREAS

The goals for the site are to address possible risks to public health and the environment and to promote redevelopment and recovery of ecology. The dredging will remove impacted sediment from the Red Cedar River will achieve these goals. The remaining sediments outside of the proposed dredge areas, both soft sediment and hardpan sediments, do not exceed ROs and have mean PEC Quotients below 0.5.

The following bullets provide a framework for the re-establishment of soft sediment:

- Impacts are found in the soft fine sediment layer that overlies the compacted sand layer (hardpan) in the areas depicted on **Figure 3**. All soft fine sediment above the hardpan layer will be removed from these areas.
- Soft sediments not included within the proposed dredging areas do not exceed the ROs and are below Mean PEC Quotient of 0.5 indicating sediments are not considered toxic to human health and the environment. Soft sediments outside of the proposed dredge area will remain in place.
- Hardpan sediments, including those underlying the proposed dredging areas, do not exceed the ROs and are below the Mean PEC Quotient of 0.5 indicating that these sediments are not considered toxic to human health and the environment. Hardpan sediments will remain in place.

At the conclusion of the dredging effort, the dredge areas will be devoid of soft sediment and no replacement of the soft sediment layer (above the hardpan) is proposed. Natural hydraulic process operating the stream will cause the soft sediment bedload above the hardpan in dredged areas to re-establish itself. For Dredge Area 1, the primary source for replacement bedload soft sediment is the upper reach of the stream south of CSX bridge, an area that is off-site in the upstream direction (south). For Dredge Area 2, the primary source for sediment to re-establish the bedload will be soft sediments between Stations 5+00 and 11+00. These sediments have been shown to be below ROs and to have mean PEC Quotients below 0.5.

In summary, impacted soft sediment will be removed and replaced over time by un-impacted sediments located upstream of the dredged areas. For this reason, additional monitoring of the River is not proposed following dredging activities.

TABLES

Table 1:
Dredging Volume Estimates

South Removal Area

Station	Cross-Sectional Area (SF)	Equivalent Length(ft.)	In Place Volume (CF)	In-Place Volume (CY)
0-20	0	10	0.0	0.0
0+00	10.31	22.5	232.0	8.6
0+25	37.11	25	927.8	34.4
0+50	56.3	25	1407.5	52.1
0+75	46.4	25	1160.0	43.0
1+00	22.56	25	564.0	20.9
1+25	14.79	25	369.8	13.7
1+50	12.86	25	321.5	11.9
1+75	5.08	25	127.0	4.7
2+00	17.85	25	446.3	16.5
2+25	25.67	25	641.8	23.8
2+50	23.54	25	588.5	21.8
2+75	21.48	25	537.0	19.9
3+00	7.51	25	187.8	7.0
3+25	22.63	25	565.8	21.0
3+50	35.83	25	895.8	33.2
3+75	39.09	25	977.3	36.2
4+00	47.68	25	1192.0	44.1
4+25	37.99	25	949.8	35.2
4+50	16.25	25	406.3	15.0
4+75	18.46	25	461.5	17.1
5+00	9.43	12.5	117.9	4.4
			Total	**484.3**

North Removal Area

Station	Cross-Sectional Area (SF)	Equivalent Length(ft.)	In Place Volume (CF)	In-Place Volume (CY)
11+00	7.55	12.5	94.4	3.5
11+25	40.43	25	1010.8	37.4
11+50	50.46	25	1261.5	46.7
11+75	38.85	25	971.3	36.0
12+00	35.03	25	875.8	32.4
12+25	42.44	25	1061.0	39.3
12+50	35.99	25	899.8	33.3
12+75	34.49	25	862.3	31.9
13+00	39.81	25	995.3	36.9
13+25	51.24	25	1281.0	47.4
13+50	62.18	12.5	777.3	28.8
			Total	**373.7**

Grand Total	**858.0**	**CY**

Table 2
Analytical Summary Results
Former Stanley Tool Facility (MID 099 124 299)
Fowlerville, Michigan

	Remedial Objectives	R5 RCRA Sediment ESL	CAS #	Units	Location	E 0+00	W 0+00	SD-A1	SD-A2	SDB3*	SD-C1	SD-C3	SD-E3*	SD-F1	SD-G2	SD-H1	E 5+00	E 5+00	W 5+00	W 5+00	SD-I1*	SD-I1*	SD-I1*	SD-I1*
					Field ID:	E 0+00 (12-24)	W 0+00 (12-24)	SDA11224-042303-01	SDA21224-042303-01	SDB3-3642-101703-01	SDC11224-042203-01	SDC3-4248-101703-01	SDE31224-042203-01	SDF1-1224-101603-01	SDG2-1227-101603-01	SDHI-2436-101603-01	E 5+00 (0-12)	E 5+00 (12-24)	W 5+00 (0-12)	W 5+00 (12-24)	SDI1-0012-101503-01	SDI1-1224-101503-01	SDI1-2445-101503-01	SDI1-2445-101503-02
					Date Sampled:	41215	41215	4/23/2003	4/23/2003	10/17/2003	4/22/2003	10/17/2003	4/22/2003	10/16/2003	10/16/2003	10/16/2003	41214	41214	41214	41214	10/15/2003	10/15/2003	10/15/2003	10/15/2003
					Data Type	Origional	Origional	Original	Original	Original	Original	Original	Original	Original	Sand	Original	Ongional	Original	Original	Original	Original	Original	Original	Duplicate
					Material Type	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sediment	Sand	Sediment	Sand	Sediment	Sand	Sediment	Sediment	Sand	Sand
					Sample Event	2012	2012	2003	2003	2003	2003	2003	2003	2003	2003	2003	2012	2012	2012	2012	2003	2003	2003	2003
					Depth (inches)	12 - 24	12 - 24	12 - 24	12 - 24	36 - 42	12 - 24	42 - 48	12 - 24	12 - 24	12 - 27	24 - 36	0 - 12	12 - 24	0 - 12	12 - 24	0 - 12	12 - 0	24 - 45	24 - 45
Volatile Organic Compounds																								
1,1,1,2-Tetrachloroethane	-	-	630-20-6	µg/kg		61 U	57 U	73 U	63 U	56 U	50 U	86 U	58 U	54 U	62 U	58 U	57 U	56 U	63 U	70 U	78 U	58 U	56 U	50 U
1,1,1-Trichloroethane	-	213	71-55-6	µg/kg		61 U	57 U	73 U	63 U	56 U	50 U	86 U	58 U	54 U	62 U	58 U	57 U	56 U	63 U	70 U	78 U	58 U	56 U	50 U
1,1,2,2-Tetrachloroethane	-	850	79-34-5	µg/kg		61 U	57 U	73 U	63 U	56 U	50 U	86 U	58 U	54 U	62 U	58 U	57 U	56 U	63 U	70 U	78 U	58 U	56 U	50 U
1,1,2-Trichloroethane	-	518	79-00-5	µg/kg		61 U	57 U	73 U	63 U	56 U	50 U	86 U	58 U	54 U	62 U	58 U	57 U	56 U	63 U	70 U	78 U	58 U	56 U	50 U
1,1-Dichloroethane	-	0.575	75-34-3	µg/kg		66	57 U	*73 U*	73	*56 U*	30 J	24 J	*58 U*	*54 U*	*62 U*	*58 U*	57 U	56 U	63 U	70 U	*78 U*	*58 U*	*56 U*	*50 U*
1,1-Dichloroethene	-	19.4	75-35-4	µg/kg		61 U	57 U	*73 U*	*63 U*	*56 U*	*50 U*	*86 U*	*58 U*	*54 U*	*62 U*	*58 U*	57 U	56 U	63 U	70 U	*78 U*	*58 U*	*56 U*	*50 U*
1,1-Dichloropropylene	-	-	563-58-6	µg/kg		61 U	57 U	73 U	63 U	56 U	50 U	86 U	58 U	54 U	62 U	58 U	57 U	56 U	63 U	70 U	78 U	58 U	56 U	50 U
1,2,3-Trichlorobenzene	-	-	87-61-6	µg/kg		61 U	57 U	370 U	320 U	280 U	250 U	430 U	290 U	270 U	310 U	290 U	57 U	56 U	63 U	70 U	390 U	290 U	280 U	250 U
1,2,3-Trichloropropane	-	-	96-18-4	µg/kg		61 U	57 U	73 U	63 U	56 U	50 U	86 U	58 U	54 U	62 U	58 U	57 U	56 U	63 U	70 U	78 U	58 U	56 U	50 U
1,2,4-Trichlorobenzene	-	5062	120-82-1	µg/kg		61 U	57 U	73 U	63 U	56 U	50 U	86 U	58 U	54 U	NA	NA	57 U	56 U	63 U	70 U	NA	NA	NA	NA
1,2,4-Trimethylbenzene	-	-	95-63-6	µg/kg		61 U	57 U	24 JB	16 JB	56 U	28 JB	86 U	58 U	18 J	62 U	58 U	57 U	56 U	63 U	70 U	78 U	9.2 J	56 U	50 U
1,2-Dibromo-3-chloropropane	-	-	96-12-8	µg/kg		310 U	280 U	73 U	63 U	56 U	50 U	86 U	58 U	54 U	62 U	58 U	290 U	280 U	310 U	350 U	78 U	58 U	56 U	50 U
1,2-Dichlorobenzene	-	294	95-50-1	µg/kg		34 J	57 U	73 U	63 U	56 U	18 J	86 U	58 U	54 U	*330 U, 62 U*	*330 U, 58 U*	57 U	56 U	63 U	70 U	*330 U, 78 U*	*330 U, 58 U*	*330 U, 56 U*	*330 U, 50 U*
1,2-Dichloroethane	-	260	107-06-2	µg/kg		61 U	57 U	73 U	63 U	56 U	50 U	86 U	58 U	54 U	62 U	58 U	57 U	56 U	63 U	70 U	78 U	58 U	56 U	50 U
1,2-Dichloroethene	-	-	540-59-0	µg/kg		3100	110 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	110 U	110 U	130 U	140 U	NA	NA	NA	NA
1,2-Dichloropropane	-	333	78-87-5	µg/kg		61 U	57 U	73 U	63 U	56 U	50 U	86 U	58 U	54 U	62 U	58 U	57 U	56 U	63 U	70 U	78 U	58 U	56 U	50 U
1,3,5-Trimethylbenzene	-	-	108-67-8	µg/kg		61 U	57 U	73 U	63 U	56 U	11 JB	86 U	58 U	54 U	62 U	58 U	57 U	56 U	63 U	70 U	78 U	58 U	56 U	50 U
1,3-Dichlorobenzene	-	1315	541-73-1	µg/kg		61 U	57 U	73 U	63 U	56 U	50 U	86 U	58 U	54 U	330 U, 62 U	330 U, 58 U	57 U	56 U	63 U	70 U	330 U, 78 U	330 U, 58 U	330 U, 56 U	330 U, 50 U
1,3-Dichloropropane	-	-	142-28-9	µg/kg		61 U	57 U	73 U	63 U	56 U	50 U	86 U	58 U	54 U	62 U	58 U	57 U	56 U	63 U	70 U	78 U	58 U	56 U	50 U
1,4-Dichlorobenzene	-	318	106-46-7	µg/kg		20 J	57 U	73 U	63 U	56 U	50 U	86 U	58 U	54 U	NA	NA	57 U	56 U	63 U	70 U	NA	NA	NA	NA
2,2-Dichloropropane	-	-	594-20-7	µg/kg		61 U	57 U	73 U	63 U	56 U	50 U	86 U	58 U	54 U	62 U	58 U	57 U	56 U	63 U	70 U	78 U	58 U	56 U	50 U
2-Chlorotoluene	-	-	95-49-8	µg/kg		61 U	57 U	73 U	63 U	56 U	50 U	86 U	58 U	54 U	62 U	58 U	57 U	56 U	63 U	70 U	78 U	58 U	56 U	50 U
2-Hexanone	-	58.2	591-78-6	µg/kg		3100 U	2800 U	*730 U*	*630 U*	*560 U*	*500 U*	*860 U*	*580 U*	*540 U*	*620 U*	*580 U*	2900 U	2800 U	3100 U	3500 U	*780 U*	*580 U*	*560 U*	*500 U*
4-Chlorotoluene	-	-	106-43-4	µg/kg		61 U	57 U	73 U	63 U	56 U	50 U	86 U	58 U	54 U	62 U	58 U	57 U	56 U	63 U	70 U	78 U	58 U	56 U	50 U
4-Isopropyltoluene	-	-	99-87-6	µg/kg		61 U	57 U	73 U	63 U	56 U	50 U	86 U	58 U	54 U	62 U	58 U	57 U	56 U	63 U	70 U	78 U	58 U	56 U	50 U
4-Methyl-2-pentanone	-	25.1	108-10-1	µg/kg		3100 U	2800 U	*730 U*	*630 U*	*560 U*	*500 U*	*860 U*	*580 U*	*540 U*	*620 U*	*580 U*	2900 U	2800 U	3100 U	3500 U	*780 U*	*580 U*	*560 U*	*500 U*
Acetone	-	9.9	67-64-1	µg/kg		920 U	850 U	*240 JB*	*220 JB*	320 J	*160 JB*	670 J	*210 JB*	440 J	820	390 J	860 U	850 U	940 U	1000 U	400 J	250 J	310 J	*500 U*
Acrolein	-	0.00152	107-02-8	µg/kg		310 U	280 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	290 U	280 U	310 U	350 U	NA	NA	NA	NA
Benzene	-	142	71-43-2	µg/kg		61 U	57 U	73 U	63 U	56 U	50 U	86 U	58 U	54 U	62 U	58 U	57 U	56 U	63 U	70 U	78 U	58 U	56 U	50 U
Bromobenzene	-	-	108-86-1	µg/kg		61 U	57 U	73 U	63 U	56 U	50 U	86 U	58 U	54 U	62 U	58 U	57 U	56 U	63 U	70 U	78 U	58 U	56 U	50 U
Bromochloromethane	-	-	74-97-5	µg/kg		61 U	57 U	73 U	63 U	56 U	50 U	86 U	58 U	54 U	62 U	58 U	57 U	56 U	63 U	70 U	78 U	58 U	56 U	50 U
Bromoform	-	492	75-25-2	µg/kg		61 U	57 U	73 U	63 U	56 U	50 U	86 U	58 U	54 U	62 U	58 U	57 U	56 U	63 U	70 U	78 U	58 U	56 U	50 U
Bromomethane	-	-	74-83-9	µg/kg		61 U	57 U	73 U	63 U	56 U	50 U	86 U	58 U	54 U	62 U	58 U	57 U	56 U	63 U	70 U	78 U	58 U	56 U	50 U
Carbon disulfide	-	23.9	75-15-0	µg/kg		310 U	280 U	*730 U*	*630 U*	*560 U*	*500 U*	43 J	*580 U*	*540 U*	*620 U*	*580 U*	17 J	32 J	30 J	22 J	27 J	13 J	*560 U*	*500 U*
Carbon tetrachloride	-	1450	56-23-5	µg/kg		61 U	57 U	73 U	63 U	56 U	50 U	86 U	58 U	54 U	62 U	58 U	57 U	56 U	63 U	70 U	78 U	58 U	56 U	50 U
Chlorobenzene	-	291	108-90-7	µg/kg		21 J	57 U	73 U	63 U	56 U	50 U	86 U	58 U	54 U	62 U	58 U	57 U	56 U	63 U	70 U	78 U	58 U	56 U	50 U
Chloroethane	-	-	75-00-3	µg/kg		61 U	57 U	73 U	63 U	56 U	50 U	86 U	58 U	54 U	62 U	58 U	57 U	56 U	63 U	70 U	78 U	58 U	56 U	50 U
Chloroform	-	121	67-66-3	µg/kg		61 U	57 U	21 J	13 J	56 U	16 J	86 U	14 J	54 U	62 U	58 U	57 U	56 U	63 U	70 U	78 U	58 U	56 U	50 U
Chloromethane	-	-	74-87-3	µg/kg		61 U	57 U	23 J	28 J	56 U	20 J	86 U	58 U	54 U	62 U	58 U	57 U	56 U	63 U	70 U	78 U	58 U	56 U	50 U
cis-1,2-Dichloroethene	-	-	156-59-2	µg/kg		2900	57 U	73 U	1100	120	710	30 J	58 U	54 U	62 U	58 U	57 U	56 U	63 U	70 U	78 U	58 U	56 U	50 U
cis-1,3-Dichloropropene	-	-	10061-01-5	µg/kg		61 U	57 U	73 U	63 U	56 U	50 U	86 U	58 U	54 U	62 U	58 U	57 U	56 U	63 U	70 U	78 U	58 U	56 U	50 U
Dibromochloromethane	-	-	124-48-1	µg/kg		61 U	57 U	73 U	63 U	56 U	50 U	86 U	58 U	54 U	62 U	58 U	57 U	56 U	63 U	70 U	78 U	58 U	56 U	50 U
Dibromomethane	-	-	74-95-3	µg/kg		61 U	57 U	73 U	63 U	56 U	50 U	86 U	58 U	54 U	62 U	58 U	57 U	56 U	63 U	70 U	78 U	58 U	56 U	50 U
Dichlorobromomethane	-	-	75-27-4	µg/kg		61 U	57 U	73 U	63 U	56 U	50 U	86 U	58 U	54 U	62 U	58 U	57 U	56 U	63 U	70 U	78 U	58 U	56 U	50 U
Dichlorodifluoromethane	-	-	75-71-8	µg/kg		61 U	57 U	73 U	63 U	56 U	50 U	86 U	58 U	54 U	62 U	58 U	57 U	56 U	63 U	70 U	78 U	58 U	56 U	50 U
Ethylbenzene	-	175	100-41-4	µg/kg		61 U	57 U	73 U	63 U	56 U	50 U	86 U	58 U	54 U	62 U	58 U	57 U	56 U	63 U	70 U	78 U	58 U	56 U	50 U
Ethylene dibromide	-	-	106-93-4	µg/kg		61 U	57 U	73 U	63 U	56 U	50 U	86 U	58 U	54 U	62 U	58 U	57 U	56 U	63 U	70 U	78 U	58 U	56 U	50 U
Hexachlorobutadiene	-	26.5	87-68-3	µg/kg		61 U	57 U	*29 JB*	*630 U*	*280 U*	*500 U*	*430 U*	*580 U*	*270 U*	NA	NA	57 U	56 U	63 U	70 U	NA	NA	NA	NA
Isopropylbenzene	-	-	98-82-8	µg/kg		61 U	57 U	73 U	63 U	56 U	50 U	86 U	58 U	54 U	62 U	58 U	57 U	56 U	63 U	70 U	78 U	58 U	56 U	50 U
Methyl ethyl ketone	-	42.4	78-93-3	µg/kg		3100 U	2800 U	140 J	100 J	480 J	*500 U*	300 J	200 J	550	430 J	600	2900 U	2800 U	3100 U	3500 U	460 J	350 J	250 J	290 J
Methyl tert butyl ether	-	-	1634-04-4	µg/kg		61 U	57 U	730 U	630 U	560 U	500 U	860 U	580 U	540 U	620 U	580 U	57 U	56 U	63 U	70 U	780 U	580 U	560 U	500 U
Methylene chloride	-	159	75-09-2	µg/kg		310 U	280 U	73 U	63 U	46 J	50 U	50 J	58 U	32 J	41 J	29 J	290 U	280 U	130 J	350 U	62 J	31 J	31 J	46 J
n-Butylbenzene	-	-	104-51-8	µg/kg		17 J	57 U	73 U	63 U	56 U	50 U	86 U	58 U	54 U	62 U	58 U	57 U	56 U	63 U	70 U	78 U	58 U	56 U	50 U
n-Propylbenzene	-	-	103-65-1	µg/kg		61 U	57 U	73 U	63 U	56 U	50 U	86 U	58 U	54 U	62 U	58 U	57 U	56 U	63 U	70 U	78 U	58 U	56 U	50 U
Naphthalene	-	176	91-20-3	µg/kg		6.7 J	280 U	16 JB	11 JB	*280 U*	7 JB	*430 U*	9 JB	*270 U*	*310 U, 330 U*	*290 U, 330 U*	290 U	280 U	310 U	350 U	*330 U, 390 U*	*290 U, 330 U*	*280 U, 330 U*	*250 U, 330 U*
o-Xylene	-	-	95-47-6	µg/kg		61 U	57 U	73 U	63 U	56 U	50 U	86 U	58 U	54 U	62 U	58 U	57 U	56 U	63 U	70 U	78 U	58 U	56 U	50 U
sec-Butylbenzene	-	-	135-98-8	µg/kg		61 U	57 U	73 U	63 U	56 U	50 U	86 U	58 U	54 U	62 U	58 U	57 U	56 U	63 U	70 U	78 U	58 U	56 U	50 U
Styrene	-	254	100-42-5	µg/kg		61 U	57 U	73 U	63 U	56 U	50 U	86 U	58 U	54 U	62 U	58 U	57 U	56 U	63 U	70 U	78 U	58 U	56 U	50 U
tert-Butylbenzene	-	-	98-06-6	µg/kg		61 U	57 U	73 U	63 U	56 U	50 U	86 U	58 U	54 U	62 U	58 U	57 U	56 U	63 U	70 U	78 U	58 U	56 U	50 U
Tetrachloroethene	-	990	127-18-4	µg/kg		61 U	57 U	73 U	63 U	56 U	50 U	86 U	58 U	54 U	62 U	58 U	57 U	56 U	63 U	70 U	78 U	58 U	56 U	50 U
Toluene	-	1220	108-88-3	µg/kg		61 U	57 U	73 U	63 U	56 U	50 U	86 U	58 U	12 J	62 U	58 U	57 U	56 U	63 U	70 U	13 J	8.1 J	6.7 J	5.8 J
trans-1,2-Dichloroethylene	-	654	156-60-5	µg/kg		200	57 U	73 U	78	56 U	88	86 U	58 U	54 U	62 U	58 U	57 U	56 U	63 U	70 U	78 U	58 U	56 U	50 U
trans-1,3-Dichloropropene	-	-	10061-02-6	µg/kg		61 U	57 U	73 U	63 U	56 U	50 U	86 U	58 U	54 U	62 U	58 U	57 U	56 U	63 U	70 U	78 U	58 U	56 U	50 U
Trichloroethene	-	112	79-01-6	µg/kg		61 U	57 U	73 U	63 U	56 U	690	86 U	25 JB	54 U	62 U	58 U	57 U	56 U	63 U	70 U	78 U	58 U	56 U	50 U
Trichlorofluoromethane	-	-	75-69-4	µg/kg		61 U	57 U	73 U	63 U	56 U	50 U	86 U	58 U	54 U	62 U	58 U	57 U	56 U	49 J	70 U	78 U	58 U	56 U	50 U
Vinyl chloride	-	202	75-01-4	µg/kg		280	31 J	73 U	63 U	56 U	50 U	86 U	58 U	54 U	62 U	58 U	57 U	56 U	63 U	70 U	78 U	58 U	56 U	50 U
Xylene, Meta + Para	-	-	Not Applicable	µg/kg		120 U	110 U	35 J	130 U	110 U	100 U	170 U	120 U	25 J	120 U	120 U	110 U	110 U	130 U	140 U	160 U	120 U	110 U	100 U

Table 2
Analytical Summary Results
Former Stanley Tool Facility (MID 099 124 299)
Fowlerville, Michigan

	Remedial Objectives	R5 RCRA Sediment ESL	CAS #	Units	Location	E 0+00	W 0+00	SD-A1	SD-A2	SDB3*	SD-C1	SD-C3	SD-E3*	SD-F1	SD-G2	SD-H1	E 5+00	E 5+00	W 5+00	W 5+00	SD-I1*	SD-I1*	SD-I1*	SD-I1*
					Field ID:	E 0+00 (12-24)	W 0+00 (12-24)	SDA11224-042303-01	SDA21224-042303-01	SDB3-3642-101703-01	SDC11224-042203-01	SDC3-4248-101703-01	SDE31224-042203-01	SDF1-1224-101603-01	SDG2-1227-101603-01	SDHI-2436-101603-01	E 5+00 (0-12)	E 5+00 (12-24)	W 5+00 (0-12)	W 5+00 (12-24)	SDI1-0012-101503-01	SDI1-1224-101503-01	SDI1-2445-101503-01	SDI1-2445-101503-02
					Date Sampled:	41215	41215	4/23/2003	4/23/2003	10/17/2003	4/22/2003	10/17/2003	4/22/2003	10/16/2003	10/16/2003	10/16/2003	41214	41214	41214	41214	10/15/2003	10/15/2003	10/15/2003	10/15/2003
					Data Type	Original	Original	Original	Original	Original	Original	Original	Original	Original	Sand	Original	Original	Original	Original	Original	Original	Original	Original	Duplicate
					Material Type	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sediment	Sand	Sediment	Sand	Sediment	Sand	Sediment	Sediment	Sand	Sand
					Sample Event	2012	2012	2003	2003	2003	2003	2003	2003	2003	2003	2003	2012	2012	2012	2012	2003	2003	2003	2003
					Depth (inches)	12 - 24	12 - 24	12 - 24	12 - 24	36 - 42	12 - 24	42 - 48	12 - 24	12 - 24	12 - 27	24 - 36	0 - 12	12 - 24	0 - 12	12 - 24	0 - 12	12 - 0	24 - 45	24 - 45
Semi-Volatile Organic Compounds																								
1,2,4-Trichlorobenzene	-	**5062**	120-82-1	µg/kg		61 U	57 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U, 62 U	330 U, 58 U	57 U	56 U	63 U	70 U	330 U, 78 U	330 U, 58 U	330 U, 56 U	330 U, 50 U
1,2-Benzphenanthracene	-	-	218-01-9	µg/kg		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	-	**294**	95-50-1	µg/kg		34 J	57 U	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	NA	NA	57 U	56 U	63 U	70 U	NA	NA	NA	NA
1,3-Dichlorobenzene	-	**1315**	541-73-1	µg/kg		61 U	57 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	NA	57 U	56 U	63 U	70 U	NA	NA	NA	NA
1,4-Dichlorobenzene	-	**318**	106-46-7	µg/kg		20 J	57 U	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U, 62 U*	*330 U, 58 U*	57 U	56 U	63 U	70 U	*330 U, 78 U*	*330 U, 58 U*	*330 U, 56 U*	*330 U, 50 U*
2,4,5-Trichlorophenol	-	-	95-95-4	µg/kg		110 U	19 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	21 U	100 U	21 U	120 U	330 U	330 U	330 U	330 U
2,4,6-Trichlorophenol	-	**208**	88-06-2	µg/kg		110 U	19 U	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	21 U	100 U	21 U	120 U	*330 U*	*330 U*	*330 U*	*330 U*
2,4-Dichlorophenol	-	**81.7**	120-83-2	µg/kg		220 U	38 U	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	42 U	200 U	42 U	230 U	*330 U*	*330 U*	*330 U*	*330 U*
2,4-Dimethylphenol	-	**304**	105-67-9	µg/kg		1100 U	190 U	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	210 U	1000 U	210 U	1200 U	*330 U*	*330 U*	*330 U*	*330 U*
2,4-Dinitrophenol	-	**6.21**	51-28-5	µg/kg		1100 U	190 U	*1700 U*	*1700 U*	*1700 U*	*1700 U*	*1700 U*	*1700 U*	*1700 U*	*1700 U*	*1700 U*	210 U	1000 U	210 U	1200 U	*1700 U*	*1700 U*	*1700 U*	*1700 U*
2,4-Dinitrotoluene	-	**14.4**	121-14-2	µg/kg		220 U	38 U	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	42 U	200 U	42 U	230 U	*330 U*	*330 U*	*330 U*	*330 U*
2,6-Dinitrotoluene	-	**39.8**	606-20-2	µg/kg		110 U	19 U	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	21 U	100 U	21 U	120 U	*330 U*	*330 U*	*330 U*	*330 U*
2-Chloronaphthalene	-	**417**	91-58-7	µg/kg		110 U	19 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	21 U	100 U	21 U	120 U	330 U	330 U	330 U	330 U
2-Chlorophenol	-	**31.9**	95-57-8	µg/kg		110 U	19 U	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	21 U	100 U	21 U	120 U	*330 U*	*330 U*	*330 U*	*330 U*
2-Methylnaphthalene	-	**20.2**	91-57-6	µg/kg		16 J	19 U	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	21 U	100 U	21 U	120 U	*330 U*	*330 U*	*330 U*	*330 U*
2-Methylphenol	-	-	95-48-7	µg/kg		110 U	19 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	21 U	100 U	21 U	120 U	330 U	330 U	330 U	330 U
2-Nitroaniline	-	-	88-74-4	µg/kg		110 U	19 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	21 U	100 U	21 U	120 U	1700 U	1700 U	1700 U	1700 U
2-Nitrophenol	-	-	88-75-5	µg/kg		110 U	19 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	21 U	100 U	21 U	120 U	330 U	330 U	330 U	330 U
3,3-Dichlorobenzidine	-	**127**	91-94-1	µg/kg		5500 U	940 U	*2000 U*	*2000 U*	*2000 U*	*2000 U*	*2000 U*	*2000 U*	*2000 U*	*2000 U*	*2000 U*	1100 U	5100 U	1000 U	5800 U	*2000 U*	*2000 U*	*2000 U*	*2000 U*
3,4-Methylphenol	-	-	108-39-4	µg/kg		110 U	19 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	21 U	100 U	21 U	120 U	NA	NA	NA	NA
3-Nitroaniline	-	-	99-09-2	µg/kg		220 U	38 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	42 U	200 U	42 U	230 U	1700 U	1700 U	1700 U	1700 U
4,6-Dinitro-2-methylphenol	-	-	534-52-1	µg/kg		1100 U	190 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	210 U	1000 U	210 U	1200 U	1700 U	1700 U	1700 U	1700 U
4-Bromophenyl-phenylether	-	**1550**	101-55-3	µg/kg		440 U	75 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	84 U	410 U	84 U	460 U	330 U	330 U	330 U	330 U
4-Chloroaniline	-	**146**	106-47-8	µg/kg		440 U	75 U	*1700 U*	*1700 U*	*1700 U*	*1700 U*	*1700 U*	*1700 U*	*1700 U*	*1700 U*	*1700 U*	84 U	410 U	84 U	460 U	*1700 U*	*1700 U*	*1700 U*	*1700 U*
4-Chlorophenyl-phenylether	-	-	7005-72-3	µg/kg		110 U	19 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	21 U	100 U	21 U	120 U	330 U	330 U	330 U	330 U
4-Methylphenol	-	-	106-44-5	µg/kg		110 U	19 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	21 U	100 U	21 U	120 U	330 U	330 U	330 U	330 U
4-Nitroaniline	-	-	100-01-6	µg/kg		220 U	38 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	42 U	200 U	42 U	230 U	1700 U	1700 U	1700 U	1700 U
4-Nitrophenol	-	**13.3**	100-02-7	µg/kg		4400 U	750 U	*1700 U*	*1700 U*	*1700 U*	*1700 U*	*1700 U*	*1700 U*	*1700 U*	*1700 U*	*1700 U*	840 U	4100 U	840 U	4600 U	*1700 U*	*1700 U*	*1700 U*	*1700 U*
Acenaphthene	-	**6.71**	83-32-9	µg/kg		110 U	3.3 J	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	21 U	21 U	21 U	120 U	*330 U*	*330 U*	*330 U*	*330 U*
Acenaphthylene	-	**5.87**	208-96-8	µg/kg		110 U	19 U	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	21 U	21 U	21 U	120 U	*330 U*	*330 U*	*330 U*	*330 U*
Anthracene	-	**57.2**	120-12-7	µg/kg		110 U	19 U	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	21 U	100 U	21 U	120 U	*330 U*	*330 U*	*330 U*	*330 U*
Benz(a)anthracene	-	**108**	56-55-3	µg/kg		11 J	4.1 J	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	4.3 J	100 U	2.5 J	11 J	*330 U*	*330 U*	*330 U*	*330 U*
Benzidine	-	-	92-87-5	µg/kg		4400 U	750 U	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	840 U	4100 U	840 U	4600 U	5000 U	5000 U	5000 U	5000 U
Benzo(a)pyrene	-	**150**	50-32-8	µg/kg		11 J	3.7 J	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	2.6 J	100 U	2.1 J	9.1 J	*330 U*	*330 U*	*330 U*	*330 U*
Benzo(b)fluoranthene	-	**10400**	205-99-2	µg/kg		110 U	5.9 J	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	5.2 J	100 U	4.6 J	14 J	330 U	330 U	330 U	330 U
Benzo(g,h,i)perylene	-	**170**	191-24-2	µg/kg		6.7 J	5.5 J	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	5.2 J	6.2 J	2.5 J	6.8 J	*330 U*	*330 U*	*330 U*	*330 U*
Benzo(k)fluoranthene	-	**240**	207-08-9	µg/kg		110 U	19 U	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	21 U	100 U	21 U	120 U	*330 U*	*330 U*	*330 U*	*330 U*
Benzoic acid	-	-	65-85-0	µg/kg		2200 U	380 U	3300 U	3300 U	3300 U	3300 U	3300 U	3300 U	3300 U	30 J	3300 U	420 U	2000 U	420 U	2300 U	3300 U	3300 U	5.8 J	3300 U
Benzyl alcohol	-	**1.04**	100-51-6	µg/kg		110 U	4.8 J	*1300 U*	*1300 U*	*1300 U*	*1300 U*	*1300 U*	*1300 U*	*1300 U*	*1300 U*	*1300 U*	5.6 J	100 U	21 U	120 U	*1300 U*	*1300 U*	*1300 U*	*1300 U*
bis(2-Chloroethoxy)methane	-	-	111-91-1	µg/kg		110 U	19 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	21 U	100 U	21 U	120 U	330 U	330 U	330 U	330 U
bis(2-Chloroethyl)ether	-	**3520**	111-44-4	µg/kg		110 U	19 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	21 U	100 U	21 U	120 U	100 U	100 U	100 U	100 U
bis(2-Chloroisopropyl)ether	-	-	108-60-1	µg/kg		110 U	19 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	21 U	100 U	21 U	120 U	330 U	330 U	330 U	330 U
bis(2-Ethylhexyl)phthalate	-	**182**	117-81-7	µg/kg		NA	NA	52 J	44 J	9.5 J	36 J	24 J	51 J	16 J	13 J	10 J	NA	NA	NA	NA	23 J	19 J	19 J	16 J
Butyl benzyl phthalate	-	**1970**	85-68-7	µg/kg		220 U	38 U	320 J	330 U	5 J	330 U	7.5 J	330 U	330 U	330 U	330 U	42 U	200 U	42 U	230 U	330 U	330 U	330 U	330 U
Carbazole	-	-	86-74-8	µg/kg		1100 U	190 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	210 U	1000 U	210 U	1200 U	330 U	330 U	330 U	330 U
Chrysene	-	**166**	218-01-9	µg/kg		9.0 J	5.2 J	*330 U*	*330 U*	3.1 J	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	3.5 J	100 U	2.1 J	9.1 J	*330 U*	*330 U*	*330 U*	*330 U*
Di-N-Butyl phthalate	-	**1114**	84-74-2	µg/kg		440 U	75 U	330 U	330 U	27 J	58 J	76 J	58 J	49 J	27 J	28 J	84 U	410 U	84 U	460 U	57 J	40 J	31 J	40 J
Di-N-Octyl phthalate	-	**40600**	117-84-0	µg/kg		110 U	19 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	21 U	100 U	21 U	120 U	330 U	330 U	330 U	330 U
Dibenz(a,h)anthracene	-	**33**	53-70-3	µg/kg		220 U	1.5 J	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	42 U	200 U	42 U	230 U	*330 U*	*330 U*	*330 U*	*330 U*
Dibenzofuran	-	**449**	132-64-9	µg/kg		110 U	19 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	21 U	100 U	21 U	120 U	330 U	330 U	330 U	330 U
Diethylphthalate	-	**295**	84-66-2	µg/kg		110 U	20 U	*330 U*	*330 U*	5.8 J	*330 U*	10 J	*330 U*	7.8 J	5.1 J	5.9 J	21 U	100 U	21 U	120 U	15 J	12 J	8.9 J	9.5 J
Dimethyl phthalate	-	-	131-11-3	µg/kg		110 U	19 U	3300 U	3300 U	3300 U	3300 U	3300 U	3300 U	3300 U	3300 U	3300 U	21 U	100 U	21 U	120 U	3300 U	3300 U	3300 U	3300 U
Fluoranthene	-	**423**	206-44-0	µg/kg		16 J	4.8 J	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	4.8 J	6.2 J	4.2 J	14 J	330 U	330 U	330 U	330 U
Fluorene	-	**77.4**	86-73-7	µg/kg		9.0 J	1.1 J	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	42 U	200 U	42 U	230 U	*330 U*	*330 U*	*330 U*	*330 U*
Hexachlorobenzene	-	**20**	118-74-1	µg/kg		110 U	19 U	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	21 U	100 U	21 U	120 U	*330 U*	*330 U*	*330 U*	*330 U*
Hexachlorobutadiene	-	**26.5**	87-68-3	µg/kg		61 U	57 U	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U, 330 U*	*290 U, 330 U*	57 U	56 U	63 U	70 U	*330 U, 390 U*	*290 U, 330 U*	*280 U, 330 U*	*250 U, 330 U*
Hexachlorocyclopentadiene	-	**901**	77-47-4	µg/kg		110 U	19 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	21 U	100 U	21 U	120 U	330 U	330 U	330 U	330 U
Hexachloroethane	-	**584**	67-72-1	µg/kg		110 U	19 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	21 U	100 U	21 U	120 U	330 U	330 U	330 U	330 U
Indeno(1,2,3-cd)pyrene	-	**200**	193-39-5	µg/kg		220 U	38 U	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	42 U	200 U	42 U	230 U	*330 U*	*330 U*	*330 U*	*330 U*
Isophorone	-	**432**	78-59-1	µg/kg		110 U	19 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	21 U	100 U	21 U	120 U	330 U	330 U	330 U	330 U
N-Nitroso-di-N-propylamine	-	-	621-64-7	µg/kg		110 U	19 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	21 U	100 U	21 U	120 U	330 U	330 U	330 U	330 U
N-Nitrosodiphenylamine	-	-	86-30-6	µg/kg		110 U	19 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	21 U	100 U	21 U	120 U	330 U	330 U	330 U	330 U
Naphthalene	-	**176**	91-20-3	µg/kg		6.7 J	280 U	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	NA	NA	290 U	280 U	310 U	350 U	NA	NA	NA	NA
Nitrobenzene	-	**145**	98-95-3	µg/kg		110 U	19 U	*200 U*	*200 U*	*200 U*	*200 U*	*200 U*	*200 U*	*200 U*	*200 U*	*200 U*	21 U	100 U	21 U	120 U	*200 U*	*200 U*	*200 U*	*200 U*
p-Chloro-m-cresol	-	**388**	59-50-7	µg/kg		110 U	19 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	21 U	100 U	21 U	120 U	330 U	330 U	330 U	330 U
Pentachlorophenol	-	**23000**	87-86-5	µg/kg		1100 U	190 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	210 U	1000 U	210 U	1200 U	800 U	800 U	800 U	800 U
Phenanthrene	-	**204**	85-01-8	µg/kg		13 J	4.1 J	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	3.9 J	100 U	2.1 J	6.8 J	*330 U*	*330 U*	*330 U*	*330 U*
Phenol	-	**49.1**	108-95-2	µg/kg		1100 U	190 U	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	210 U	1000 U	210 U	1200 U	*330 U*	*330 U*	*330 U*	*330 U*
PNAs, Total	-	-	TPNA	µg/kg		NA	NA	NA	NA	6.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	-	**195**	129-00-0	µg/kg		18 J	8.1 J	*330 U*	*330 U*	3.2 J	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	6.9 J	100 U	5.4 J	14 J	*330 U*	*330 U*	*330 U*	*330 U*

Table 2
Analytical Summary Results
Former Stanley Tool Facility (MID 099 124 299)
Fowlerville, Michigan

	Remedial Objectives	R5 RCRA Sediment ESL	CAS #	Units	Location	E 0+00	W 0+00	SD-A1	SD-A2	SDB3*	SD-C1	SD-C3	SD-E3*	SD-F1	SD-G2	SD-H1	E 5+00	E 5+00	W 5+00	W 5+00	SD-I1*	SD-I1*	SD-I1*	SD-I1*
					Field ID:	E 0+00 (12-24)	W 0+00 (12-24)	SDA11224-042303-01	SDA21224-042303-01	SDB3-3642-101703-01	SDC11224-042203-01	SDC3-4248-101703-01	SDE31224-042203-01	SDF1-1224-101603-01	SDG2-1227-101603-01	SDHI-2436-101603-01	E 5+00 (0-12)	E 5+00 (12-24)	W 5+00 (0-12)	W 5+00 (12-24)	SDI1-0012-101503-01	SDI1-1224-101503-01	SDI1-2445-101503-01	SDI1-2445-101503-02
					Date Sampled:	41215	41215	4/23/2003	4/23/2003	10/17/2003	4/22/2003	10/17/2003	4/22/2003	10/16/2003	10/16/2003	10/16/2003	41214	41214	41214	41214	10/15/2003	10/15/2003	10/15/2003	10/15/2003
					Data Type	Origional	Origional	Original	Original	Original	Original	Original	Original	Original	Sand	Original	Origional	Origional	Origional	Origional	Original	Original	Original	Duplicate
					Material Type	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sediment	Sand	Sediment	Sand	Sediment	Sand	Sediment	Sediment	Sand	Sand
					Sample Event	2012	2012	2003	2003	2003	2003	2003	2003	2003	2003	2003	2012	2012	2012	2012	2003	2003	2003	2003
					Depth (inches)	12 - 24	12 - 24	12 - 24	12 - 24	36 - 42	12 - 24	42 - 48	12 - 24	12 - 24	12 - 27	24 - 36	0 - 12	12 - 24	0 - 12	12 - 24	0 - 12	12 - 0	24 - 45	24 - 45
Polychlorinated Biphenyls (PCBs):																								
PCB, Total	-	**59.8**	TPCB	µg/kg	8.6 J	370 U	NA	NA	NA	NA	NA	34 J	NA	NA	NA	420 U	3.8 J	410 U	460 U	NA	NA	NA	NA
PCB-1016	-	**59.8**	12674-11-2	µg/kg	430 U	370 U	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	420 U	410 U	410 U	460 U	*330 U*	*330 U*	*330 U*	*330 U*
PCB-1221	-	**59.8**	11104-28-2	µg/kg	430 U	370 U	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	420 U	410 U	410 U	460 U	*330 U*	*330 U*	*330 U*	*330 U*
PCB-1232	-	**59.8**	11141-16-5	µg/kg	430 U	370 U	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	420 U	410 U	410 U	460 U	*330 U*	*330 U*	*330 U*	*330 U*
PCB-1242	-	**59.8**	53469-21-9	µg/kg	430 U	370 U	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	420 U	410 U	410 U	460 U	*330 U*	*330 U*	*330 U*	*330 U*
PCB-1248	-	**59.8**	12672-29-6	µg/kg	19 J	370 U	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	34 J	*330 U*	NA	NA	420 U	3.8 J	410 U	460 U	NA	NA	NA	NA
PCB-1254	-	**59.8**	11097-69-1	µg/kg	430 U	370 U	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	420 U	410 U	410 U	460 U	*330 U*	*330 U*	*330 U*	*330 U*
PCB-1260	-	**59.8**	11096-82-5	µg/kg	430 U	370 U	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	420 U	410 U	410 U	460 U	*330 U*	*330 U*	*330 U*	*330 U*
Total Metals:																								
Aluminum, Total	-	-	7429-90-5	mg/kg	2400	6000	NA	NA	NA	NA	NA	NA	NA	NA	NA	2100	3400	2600	4000	NA	NA	NA	NA
Arsenic, Total	-	**9.79**	7440-38-2	mg/kg	6.7	2.8	8.4	3	**14**	3.4	**17**	1.4	2.4	3.6	5.3	4.1	3.6	4.6	**12**	8.9	**18**	6.3	**10**
Barium, Total	-	-	7440-39-3	mg/kg	33	30	40	7.5	15	7.1	56	9.9	17	6.7	37	20	21	14	31	54	13	11	8.4
Cadmium, Total	-	**0.99**	7440-43-9	mg/kg	0.096	0.043 J	0.55	0.28	0.071	0.28	0.18	0.29	0.041 J	0.027 J	0.14	0.079	0.093	0.084	0.15	0.21	0.068	0.056 J	0.053 J
Chromium, Total	**110**	**43.4**	7440-47-3	mg/kg	19	10	7.6	4.8	7	4.4	7.3	4.8	4.7	4.5	13	7.1	7.5	5.1	8.2	26	9.8	5.2	4.2
Copper, Total	**91**	**31.6**	7440-50-8	mg/kg	21	9.1	9.5	4.4	6.5	9.9	**39**	3.7	2.5	1.8	11	5.0	6.3	3.7	6.4	17	3.1	3.3	2
Lead, Total	**83**	**35.8**	7439-92-1	mg/kg	4.5	4.1	14	2	3.2	2.7	5.2	2.2	3.2	1.6	5.9	3.5	4.2	2.2	4.6	7.5	2.9	2.4	1.9
Mercury, Total	-	**0.174**	7439-97-6	mg/kg	0.023 J	0.0079 J	0.024 J	0.1 U	0.0091 J	0.1 U	0.052 J	0.1 U	0.1 U	0.1 U	0.019 J	0.050 U	0.050 U	0.050 U	0.015 J	0.057 J	0.015 J	0.0096 J	0.1 U
Nickel, Total	**49**	**22.7**	7440-02-0	mg/kg	19	14	10	8.2	8.4	**34**	**40**	6.2	5.5	6.5	12	5.6	8.5	5.7	8.9	11	7.9	7	9.1
Selenium, Total	-	-	7782-49-2	mg/kg	0.26	0.19	0.75	0.22 J	0.18 J	0.35	0.41	0.17 J	0.1 J	0.23 U	0.13 J	0.20	0.16	0.22	0.27	0.36	0.12 J	0.16 J	0.29
Silver, Total	-	**0.5**	7440-22-4	mg/kg	0.031 J	0.073	0.082 J	0.036 J	0.045 J	0.037 J	0.054 J	0.042 J	0.033 J	0.023 J	0.083 J	0.025 J	0.051	0.033 J	0.051	0.061 J	0.046 J	0.039 J	0.038 J
Zinc, Total	**460**	**121**	7440-66-6	mg/kg	120	22	35	13	16	11	26	21	10	8.9	36	20	22	14	23	50	15	11	7.1
Chromium(VI)	-	-	18540-29-9	mg/kg	2.5 U	2.3 U	26 U	2 U	2 U	2 U	2.7 U	2 U	2 U	2 U	2 U	2.3 U	2.2 U	2.5 U	1.7 J	2 U	0.42 J	0.34 J	2 U
Miscellaneous Parameters:																							
Cyanide, Free	-	**0.1**	57-12-5	mg/kg	0.22	NA	*0.5 U*	*0.5 U*	*0.5 U*	*0.5 U*	*0.5 U*	*0.5 U*	*0.5 U*	NA	NA	**0.17**	NA	NA	NA	NA	NA	NA	NA
Cyanide, Total	-	**0.1**	57-12-5	mg/kg	0.45	0.45	*0.2 U*	0.03 J	*0.2 U*	*0.2 U*	*0.2 U*	*0.2 U*	*0.2 U*	*0.2 U*	**0.74**	**0.17**	0.12 U	0.13 U	0.14 U	*0.2 U*	*0.2 U*	*0.2 U*	*0.2 U*

Notes:

NA - Indicates that the sample was not analyzed for that parameter.

U - Indicates that the result was not detected above the Method Detection Limit (MDL).

J - Indicates an estimated value with the result detection above the Method Detection Limit (MDL)but below the Reporting Limit (RL).

B - Indicates that that compound was also detected in a Blank and qualified as a likely lab contaminant.

Values that are Bold and Underlined Exceed the Remedial Objectives

Values that are Bold indicate an exceedance of R5 RCRA Sediment ESL.

Table 2
Analytical Summary Results
Former Stanley Tool Facility (MID 099 124 299)
Fowlerville, Michigan

				Location	SD-I2*	SD-I2*	SD-I2*	SD-I3	SD-I3*	SD-I3*	SD-J1	SD-J1*	SD-J1*	SD-J2	SD-J2	SD-J2	SD-J2	SD-J3	SD-J3*	SD-K1	SD-K2*	SD-K2*	SD-K1
				Field ID:	SDI2-0012-101503-01	SDI2-1224-101503-01	SDI2-2436-101503-01	SDI3-0012-101503-01	SDI3-1231-101503-01	SDI3-1231-101503-02	SDJ1012-042203-01	SDJ11224-042203-01	SDJ11224-042203-02	SDJ2-0012-101503-01	SD-J2-001	SD-J2-001/FD	SDJ2-1224-101503-01	SDJ3012-042203-01	SDJ31224-042203-01	SDK1-0012-101503-01	SDK2-0012-101503-01	SDK2-1224-101503-01	SDK1-1224-101503-01
				Date Sampled:	10/15/2003	10/15/2003	10/15/2003	10/15/2003	10/15/2003	10/15/2003	4/22/2003	4/22/2003	4/22/2003	10/15/2003	7/24/2007	7/24/2007	10/15/2003	4/22/2003	4/22/2003	10/15/2003	10/15/2003	10/15/2003	10/15/2003
				Data Type	Original	Original	Original	Original	Original	Duplicate	Original	Original	Duplicate	Original	Original	Duplicate	Original	Original	Original	Original	Original	Original	Original
				Material Type	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
				Sample Event	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2007	2007	2003	2003	2003	2003	2003	2003	2003
				Depth (inches)	0 - 12	12 - 24	24 - 36	0 - 12	12 - 31	12 - 31	0 - 12	12 - 24	12 - 24	0 - 12	0 - 12	0 - 12	12 - 24	0 - 12	12 - 24	0 - 12	0 - 12	12 - 0	12 - 24
	Remedial Objectives	R5 RCRA Sediment ESL	CAS #	Units																			
Volatile Organic Compounds																							
1,1,1,2-Tetrachloroethane	-	-	630-20-6	µg/kg	62 U	57 U	68 U	120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U
1,1,1-Trichloroethane	-	**213**	71-55-6	µg/kg	62 U	57 U	68 U	120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U
1,1,2,2-Tetrachloroethane	-	**850**	79-34-5	µg/kg	62 U	57 U	68 U	120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U
1,1,2-Trichloroethane	-	**518**	79-00-5	µg/kg	62 U	57 U	68 U	120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U
1,1-Dichloroethane	-	**0.575**	75-34-3	µg/kg	*62 U*	*57 U*	*68 U*	*120 U*	*59 U*	*56 U*	*77 U*	*57 U*	*56 U*	*56 U*	NA	NA	*65 U*	*84 U*	*77 U*	*80 U*	*56 U*	*59 U*	*77 U*
1,1-Dichloroethene	-	**19.4**	75-35-4	µg/kg	*62 U*	*57 U*	*68 U*	*120 U*	*59 U*	*56 U*	*77 U*	*57 U*	*56 U*	*56 U*	NA	NA	*65 U*	*84 U*	*77 U*	*80 U*	*56 U*	*59 U*	*77 U*
1,1-Dichloropropylene	-	-	563-58-6	µg/kg	62 U	57 U	68 U	120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U
1,2,3-Trichlorobenzene	-	-	87-61-6	µg/kg	310 U	280 U	340 U	610 U	290 U	280 U	380 U	290 U	280 U	280 U	NA	NA	320 U	420 U	390 U	400 U	280 U	290 U	380 U
1,2,3-Trichloropropane	-	-	96-18-4	µg/kg	62 U	57 U	68 U	120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U
1,2,4-Trichlorobenzene	-	**5062**	120-82-1	µg/kg	NA	NA	NA	NA	NA	NA	77 U	57 U	56 U	NA	NA	NA	NA	84 U	77 U	NA	NA	NA	NA
1,2,4-Trimethylbenzene	-	-	95-63-6	µg/kg	62 U	57 U	68 U	120 U	59 U	56 U	77 U	57 U	10 JB	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	12 J	77 U
1,2-Dibromo-3-chloropropane	-	-	96-12-8	µg/kg	62 U	57 U	68 U	120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U
1,2-Dichlorobenzene	-	**294**	95-50-1	µg/kg	*330 U, 62 U*	*330 U, 57 U*	*330 U, 68 U*	*120 U, 330 U*	*330 U, 59 U*	*330 U, 56 U*	77 U	57 U	56 U	*330 U, 56 U*	NA	NA	*330 U, 65 U*	84 U	77 U	*330 U, 80 U*	*330 U, 56 U*	*330 U, 59 U*	*330 U, 77 U*
1,2-Dichloroethane	-	**260**	107-06-2	µg/kg	62 U	57 U	68 U	120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U
1,2-Dichloroethene	-	-	540-59-0	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	-	**333**	78-87-5	µg/kg	62 U	57 U	68 U	120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U
1,3,5-Trimethylbenzene	-	-	108-67-8	µg/kg	62 U	57 U	68 U	120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U
1,3-Dichlorobenzene	-	**1315**	541-73-1	µg/kg	330 U, 62 U	330 U, 57 U	330 U, 68 U	120 U, 330 U	330 U, 59 U	330 U, 56 U	77 U	57 U	56 U	330 U, 56 U	NA	NA	330 U, 65 U	84 U	77 U	330 U, 80 U	330 U, 56 U	330 U, 59 U	330 U, 77 U
1,3-Dichloropropane	-	-	142-28-9	µg/kg	62 U	57 U	68 U	120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U
1,4-Dichlorobenzene	-	**318**	106-46-7	µg/kg	NA	NA	NA	NA	NA	NA	77 U	57 U	56 U	NA	NA	NA	NA	84 U	77 U	NA	NA	NA	NA
2,2-Dichloropropane	-	-	594-20-7	µg/kg	62 U	57 U	68 U	120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U
2-Chlorotoluene	-	-	95-49-8	µg/kg	62 U	57 U	68 U	120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U
2-Hexanone	-	**58.2**	591-78-6	µg/kg	*620 U*	*570 U*	*680 U*	*1200 U*	*590 U*	*560 U*	*770 U*	*570 U*	*560 U*	*560 U*	NA	NA	*650 U*	*840 U*	*770 U*	*800 U*	*560 U*	*590 U*	*770 U*
4-Chlorotoluene	-	-	106-43-4	µg/kg	62 U	57 U	68 U	120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U
4-Isopropyltoluene	-	-	99-87-6	µg/kg	62 U	57 U	68 U	120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U
4-Methyl-2-pentanone	-	**25.1**	108-10-1	µg/kg	*620 U*	*570 U*	*680 U*	*1200 U*	*590 U*	*560 U*	*770 U*	*570 U*	*560 U*	*560 U*	NA	NA	*650 U*	*840 U*	*770 U*	*800 U*	*560 U*	*590 U*	*770 U*
Acetone	-	**9.9**	67-64-1	µg/kg	340 J	300 J	320 J	590 J	380 J	460 J	*260 JB*	*190 JB*	*190 JB*	250 J	NA	NA	*650 U*	*340 JB*	*250 JB*	710 J	*560 U*	300 J	550 J
Acrolein	-	**0.00152**	107-02-8	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	-	**142**	71-43-2	µg/kg	62 U	57 U	68 U	120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U
Bromobenzene	-	-	108-86-1	µg/kg	62 U	57 U	68 U	120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U
Bromochloromethane	-	-	74-97-5	µg/kg	62 U	57 U	68 U	120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U
Bromoform	-	**492**	75-25-2	µg/kg	62 U	57 U	68 U	120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U
Bromomethane	-	-	74-83-9	µg/kg	62 U	57 U	68 U	120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U
Carbon disulfide	-	**23.9**	75-15-0	µg/kg	16 J	*570 U*	12 J	*1200 U*	14 J	*560 U*	28 J	*570 U*	*560 U*	15 J	NA	NA	41 J	*840 U*	22 J	*800 U*	*560 U*	*590 U*	52 J
Carbon tetrachloride	-	**1450**	56-23-5	µg/kg	62 U	57 U	68 U	120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U
Chlorobenzene	-	**291**	108-90-7	µg/kg	62 U	57 U	68 U	120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U
Chloroethane	-	-	75-00-3	µg/kg	62 U	57 U	68 U	120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U
Chloroform	-	**121**	67-66-3	µg/kg	62 U	57 U	68 U	120 U	59 U	56 U	14 J	12 J	16 J	56 U	NA	NA	65 U	18 J	15 J	80 U	56 U	59 U	77 U
Chloromethane	-	-	74-87-3	µg/kg	62 U	57 U	68 U	120 U	59 U	56 U	77 U	57 U	16 J	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U
cis-1,2-Dichloroethene	-	-	156-59-2	µg/kg	62 U	57 U	68 U	120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U
cis-1,3-Dichloropropene	-	-	10061-01-5	µg/kg	62 U	57 U	68 U	120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U
Dibromochloromethane	-	-	124-48-1	µg/kg	62 U	57 U	68 U	120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U
Dibromomethane	-	-	74-95-3	µg/kg	62 U	57 U	68 U	120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U
Dichlorobromomethane	-	-	75-27-4	µg/kg	62 U	57 U	68 U	120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U
Dichlorodifluoromethane	-	-	75-71-8	µg/kg	62 U	57 U	68 U	120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U
Ethylbenzene	-	**175**	100-41-4	µg/kg	62 U	57 U	68 U	120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	8.2 J	77 U
Ethylene dibromide	-	-	106-93-4	µg/kg	62 U	57 U	68 U	120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U
Hexachlorobutadiene	-	**26.5**	87-68-3	µg/kg	NA	NA	NA	NA	NA	NA	*770 U*	*570 U*	*560 U*	NA	NA	NA	NA	*840 U*	*770 U*	NA	NA	NA	NA
Isopropylbenzene	-	-	98-82-8	µg/kg	62 U	57 U	68 U	120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U
Methyl ethyl ketone	-	**42.4**	78-93-3	µg/kg	400 J	360 J	500 J	640 J	*590 U*	230 J	150 J	92 J	110 J	290 J	NA	NA	420 J	230 J	170 J	690 J	380 J	450 J	570 J
Methyl tert butyl ether	-	-	1634-04-4	µg/kg	620 U	570 U	680 U	1200 U	590 U	560 U	770 U	570 U	560 U	560 U	NA	NA	650 U	840 U	770 U	800 U	560 U	590 U	770 U
Methylene chloride	-	**159**	75-09-2	µg/kg	36 J	30 J	56 J	90 J	29 J	43 J	77 U	57 U	56 U	17 J	NA	NA	54 J	84 U	77 U	27 J	10 J	29 J	38 J
n-Butylbenzene	-	-	104-51-8	µg/kg	62 U	57 U	68 U	120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U
n-Propylbenzene	-	-	103-65-1	µg/kg	62 U	57 U	68 U	120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U
Naphthalene	-	**176**	91-20-3	µg/kg	*310 U, 330 U*	*280 U, 330 U*	*330 U, 340 U*	*330 U, 610 U*	*290 U, 330 U*	*280 U, 330 U*	12 JB	9 JB	140 U	*280 U, 330 U*	NA	NA	*320 U, 330 U*	11 JB	*190 U*	330 U, 400 U	280 U, 330 U	290 U, 330 U	330 U, 380 U
o-Xylene	-	-	95-47-6	µg/kg	62 U	57 U	68 U	120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U
sec-Butylbenzene	-	-	135-98-8	µg/kg	62 U	57 U	68 U	120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U
Styrene	-	**254**	100-42-5	µg/kg	62 U	57 U	68 U	120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U
tert-Butylbenzene	-	-	98-06-6	µg/kg	62 U	57 U	68 U	120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U
Tetrachloroethene	-	**990**	127-18-4	µg/kg	62 U	57 U	68 U	120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U
Toluene	-	**1220**	108-88-3	µg/kg	14 J	6 J	68 U	16 J	59 U	56 U	77 U	57 U	56 U	11 J	NA	NA	15 J	84 U	77 U	80 U	56 U	18 J	77 U
trans-1,2-Dichloroethylene	-	**654**	156-60-5	µg/kg	62 U	57 U	68 U	120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U
trans-1,3-Dichloropropene	-	-	10061-02-6	µg/kg	62 U	57 U	68 U	120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U
Trichloroethene	-	**112**	79-01-6	µg/kg	62 U	57 U	68 U	*120 U*	59 U	56 U	48 JB	57 U	56 U	56 U	NA	NA	65 U	54 JB	37 JB	80 U	56 U	59 U	77 U
Trichlorofluoromethane	-	-	75-69-4	µg/kg	62 U	57 U	68 U	120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U
Vinyl chloride	-	**202**	75-01-4	µg/kg	62 U	57 U	68 U	120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U
Xylene, Meta + Para	-	-	Not Applicable	µg/kg	120 U	110 U	140 U	240 U	120 U	110 U	150 U	110 U	110 U	110 U	NA	NA	130 U	170 U	150 U	160 U	110 U	22 J	150 U

Table 2
Analytical Summary Results
Former Stanley Tool Facility (MID 099 124 299)
Fowlerville, Michigan

				Location	SD-I2*	SD-I2*	SD-I2*	SD-I3	SD-I3*	SD-I3*	SD-J1	SD-J1*	SD-J1*	SD-J2	SD-J2	SD-J2	SD-J2	SD-J3	SD-J3*	SD-K1	SD-K2*	SD-K2*	SD-K1
				Field ID:	SDI2-0012-101503-01	SDI2-1224-101503-01	SDI2-2436-101503-01	SDI3-0012-101503-01	SDI3-1231-101503-01	SDI3-1231-101503-02	SDJ1012-042203-01	SDJ11224-042203-01	SDJ11224-042203-02	SDJ2-0012-101503-01	SD-J2-001	SD-J2-001/FD	SDJ2-1224-101503-01	SDJ3012-042203-01	SDJ31224-042203-01	SDK1-0012-101503-01	SDK2-0012-101503-01	SDK2-1224-101503-01	SDK1-1224-101503-01
				Date Sampled:	10/15/2003	10/15/2003	10/15/2003	10/15/2003	10/15/2003	10/15/2003	4/22/2003	4/22/2003	4/22/2003	10/15/2003	7/24/2007	7/24/2007	10/15/2003	4/22/2003	4/22/2003	10/15/2003	10/15/2003	10/15/2003	10/15/2003
				Data Type	Original	Original	Original	Original	Original	Duplicate	Original	Original	Duplicate	Original	Original	Duplicate	Original	Original	Original	Original	Original	Original	Original
				Material Type	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
				Sample Event	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2007	2007	2003	2003	2003	2003	2003	2003	2003
				Depth (inches)	0 - 12	12 - 24	24 - 36	0 - 12	12 - 31	12 - 31	0 - 12	12 - 24	12 - 24	0 - 12	0 - 12	0 - 12	12 - 24	0 - 12	12 - 24	0 - 12	0 - 12	12 - 0	12 - 24
	Remedial Objectives	R5 RCRA Sediment ESL	CAS #	Units																			
Semi-Volatile Organic Compounds																							
1,2,4-Trichlorobenzene	-	**5062**	120-82-1	µg/kg	330 U, 62 U	330 U, 57 U	330 U, 68 U	120 U, 330 U	330 U, 59 U	330 U, 56 U	330 U	330 U	330 U	330 U, 56 U	NA	NA	330 U, 65 U	330 U	330 U	330 U, 80 U	330 U, 56 U	330 U, 59 U	330 U, 77 U
1,2-Benzphenanthracene	-	-	218-01-9	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	-	**294**	95-50-1	µg/kg	NA	NA	NA	NA	NA	NA	*330 U*	*330 U*	*330 U*	NA	NA	NA	NA	*330 U*	*330 U*	NA	NA	NA	NA
1,3-Dichlorobenzene	-	**1315**	541-73-1	µg/kg	NA	NA	NA	NA	NA	NA	330 U	330 U	330 U	NA	NA	NA	NA	330 U	330 U	NA	NA	NA	NA
1,4-Dichlorobenzene	-	**318**	106-46-7	µg/kg	*330 U, 62 U*	*330 U, 57 U*	*330 U, 68 U*	*120 U, 330 U*	*330 U, 59 U*	*330 U, 56 U*	*330 U*	*330 U*	*330 U*	*330 U, 56 U*	NA	NA	*330 U, 65 U*	*330 U*	*330 U*	*330 U, 80 U*	*330 U, 56 U*	*330 U, 59 U*	*330 U, 77 U*
2,4,5-Trichlorophenol	-	-	95-95-4	µg/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U
2,4,6-Trichlorophenol	-	**208**	88-06-2	µg/kg	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	NA	NA	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*
2,4-Dichlorophenol	-	**81.7**	120-83-2	µg/kg	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	NA	NA	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*
2,4-Dimethylphenol	-	**304**	105-67-9	µg/kg	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	NA	NA	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*
2,4-Dinitrophenol	-	**6.21**	51-28-5	µg/kg	*1700 U*	*1700 U*	*1700 U*	*1700 U*	*1700 U*	*1700 U*	*1700 U*	*1700 U*	*1700 U*	*1700 U*	NA	NA	*1700 U*	*1700 U*	*1700 U*	*1700 U*	*1700 U*	*1700 U*	*1700 U*
2,4-Dinitrotoluene	-	**14.4**	121-14-2	µg/kg	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	NA	NA	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*
2,6-Dinitrotoluene	-	**39.8**	606-20-2	µg/kg	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	NA	NA	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*
2-Chloronaphthalene	-	**417**	91-58-7	µg/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U
2-Chlorophenol	-	**31.9**	95-57-8	µg/kg	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	NA	NA	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*
2-Methylnaphthalene	-	**20.2**	91-57-6	µg/kg	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	NA	NA	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*
2-Methylphenol	-	-	95-48-7	µg/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U
2-Nitroaniline	-	-	88-74-4	µg/kg	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	NA	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U
2-Nitrophenol	-	-	88-75-5	µg/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U
3,3-Dichlorobenzidine	-	**127**	91-94-1	µg/kg	*2000 U*	*2000 U*	*2000 U*	*2000 U*	*2000 U*	*2000 U*	*2000 U*	*2000 U*	*2000 U*	*2000 U*	NA	NA	*2000 U*	*2000 U*	*2000 U*	*2000 U*	*2000 U*	*2000 U*	*2000 U*
3,4-Methylphenol	-	-	108-39-4	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	-	-	99-09-2	µg/kg	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	NA	NA	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U
4,6-Dinitro-2-methylphenol	-	-	534-52-1	µg/kg	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	NA	NA	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U
4-Bromophenyl-phenylether	-	**1550**	101-55-3	µg/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U
4-Chloroaniline	-	**146**	106-47-8	µg/kg	*1700 U*	*1700 U*	*1700 U*	*1700 U*	*1700 U*	*1700 U*	*1700 U*	*1700 U*	*1700 U*	*1700 U*	NA	NA	*1700 U*	*1700 U*	*1700 U*	*1700 U*	*1700 U*	*1700 U*	*1700 U*
4-Chlorophenyl-phenylether	-	-	7005-72-3	µg/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U
4-Methylphenol	-	-	106-44-5	µg/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U
4-Nitroaniline	-	-	100-01-6	µg/kg	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	NA	NA	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U
4-Nitrophenol	-	**13.3**	100-02-7	µg/kg	*1700 U*	*1700 U*	*1700 U*	*1700 U*	*1700 U*	*1700 U*	*1700 U*	*1700 U*	*1700 U*	*1700 U*	NA	NA	*1700 U*	*1700 U*	*1700 U*	*1700 U*	*1700 U*	*1700 U*	*1700 U*
Acenaphthene	-	**6.71**	83-32-9	µg/kg	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*1320 U*	*1410 U*	11 J	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*
Acenaphthylene	-	**5.87**	208-96-8	µg/kg	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*2650 U*	*2820 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*
Anthracene	-	**57.2**	120-12-7	µg/kg	5.3 J	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*1320 U*	*1410 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*
Benz(a)anthracene	-	**108**	56-55-3	µg/kg	28 J	*330 U*	*330 U*	16 J	*330 U*	*330 U*	63 J	*330 U*	*330 U*	8 J	*661 U*	*706 U*	6.9 J	*330 U*	*330 U*	9.5 J	*330 U*	*330 U*	*330 U*
Benzidine	-	-	92-87-5	µg/kg	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	NA	NA	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U
Benzo(a)pyrene	-	**150**	50-32-8	µg/kg	23 J	*330 U*	*330 U*	22 J	*330 U*	*330 U*	72 J	*330 U*	*330 U*	7.5 J	66.1 U	70.6 U	6.7 J	*330 U*	*330 U*	9.5 J	*330 U*	*330 U*	*330 U*
Benzo(b)fluoranthene	-	**10400**	205-99-2	µg/kg	22 J	330 U	330 U	20 J	330 U	330 U	89 J	330 U	330 U	9.8 J	661 U	706 U	7.2 J	330 U	330 U	10 J	330 U	330 U	330 U
Benzo(g,h,i)perylene	-	**170**	191-24-2	µg/kg	14 J	*330 U*	*330 U*	15 J	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	6.3 J	*1320 U*	*1410 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*
Benzo(k)fluoranthene	-	**240**	207-08-9	µg/kg	15 J	*330 U*	*330 U*	21 J	*330 U*	*330 U*	74 J	*330 U*	*330 U*	8.4 J	*1320 U*	*1410 U*	7.5 J	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*
Benzoic acid	-	-	65-85-0	µg/kg	3300 U	130 J	6.4 J	98 J	8.1 J	11 J	3300 U	3300 U	3300 U	18 J	NA	NA	16 J	3300 U	320 J	35 J	3300 U	3300 U	110 J
Benzyl alcohol	-	**1.04**	100-51-6	µg/kg	*1300 U*	*1300 U*	*1300 U*	*1300 U*	*1300 U*	*1300 U*	*1300 U*	*1300 U*	*1300 U*	*1300 U*	NA	NA	*1300 U*	*1300 U*	*1300 U*	*1300 U*	*1300 U*	*1300 U*	*1300 U*
bis(2-Chloroethoxy)methane	-	-	111-91-1	µg/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U
bis(2-Chloroethyl)ether	-	**3520**	111-44-4	µg/kg	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	NA	NA	100 U	100 U	100 U	100 U	100 U	100 U	100 U
bis(2-Chloroisopropyl)ether	-	-	108-60-1	µg/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U
bis(2-Ethylhexyl)phthalate	-	**182**	117-81-7	µg/kg	13 J	18 J	18 J	38 J	19 J	17 J	110 J	71 J	*330 U*	43 J	NA	NA	36 J	90 J	56 J	16 J	9.1 J	9.5 J	13 J
Butyl benzyl phthalate	-	**1970**	85-68-7	µg/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U
Carbazole	-	-	86-74-8	µg/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U
Chrysene	-	**166**	218-01-9	µg/kg	26 J	*330 U*	*330 U*	22 J	*330 U*	*330 U*	65 J	*330 U*	*330 U*	9 J	*1320 U*	*1410 U*	6.7 J	*330 U*	*330 U*	12 J	*330 U*	*330 U*	*330 U*
Di-N-Butyl phthalate	-	**1114**	84-74-2	µg/kg	28 J	34 J	52 J	85 J	35 J	32 J	81 J	330 U	59 J	51 J	NA	NA	330 U	88 J	330 U	21 J	20 J	20 J	26 J
Di-N-Octyl phthalate	-	**40600**	117-84-0	µg/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U
Dibenz(a,h)anthracene	-	**33**	53-70-3	µg/kg	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*66.1 U*	*70.6 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*
Dibenzofuran	-	**449**	132-64-9	µg/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U
Diethylphthalate	-	**295**	84-66-2	µg/kg	11 J	9.4 J	14 J	17 J	7.8 J	6.4 J	*330 U*	*330 U*	*330 U*	14 J	NA	NA	16 J	*330 U*	*330 U*	4.5 J	4.3 J	4.1 J	5.3 J
Dimethyl phthalate	-	-	131-11-3	µg/kg	3300 U	3300 U	3300 U	3300 U	3300 U	3300 U	3300 U	3300 U	3300 U	3300 U	NA	NA	3300 U	3300 U	3300 U	3300 U	3300 U	3300 U	3300 U
Fluoranthene	-	**423**	206-44-0	µg/kg	43 J	330 U	330 U	45 J	330 U	330 U	210 J	330 U	330 U	18 J	*1320 U*	*1410 U*	21 J	330 U	330 U	17 J	330 U	330 U	330 U
Fluorene	-	**77.4**	86-73-7	µg/kg	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*1320 U*	*1410 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*
Hexachlorobenzene	-	**20**	118-74-1	µg/kg	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	NA	NA	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*
Hexachlorobutadiene	-	**26.5**	87-68-3	µg/kg	*310 U, 330 U*	*280 U, 330 U*	*330 U, 340 U*	*330 U, 610 U*	*290 U, 330 U*	*280 U, 330 U*	*330 U*	*330 U*	*330 U*	*280 U, 330 U*	NA	NA	*320 U, 330 U*	*330 U*	*330 U*	*330 U, 400 U*	*280 U, 330 U*	*290 U, 330 U*	*330 U, 380 U*
Hexachlorocyclopentadiene	-	**901**	77-47-4	µg/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U
Hexachloroethane	-	**584**	67-72-1	µg/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U
Indeno(1,2,3-cd)pyrene	-	**200**	193-39-5	µg/kg	14 J	*330 U*	*330 U*	14 J	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	5.3 J	*661 U*	*706 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*
Isophorone	-	**432**	78-59-1	µg/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U
N-Nitroso-di-N-propylamine	-	-	621-64-7	µg/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U
N-Nitrosodiphenylamine	-	-	86-30-6	µg/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U
Naphthalene	-	**176**	91-20-3	µg/kg	NA	NA	NA	NA	NA	NA	*330 U*	*330 U*	*330 U*	NA	*1320 U*	*1410 U*	NA	*330 U*	*330 U*	NA	NA	NA	NA
Nitrobenzene	-	**145**	98-95-3	µg/kg	*200 U*	*200 U*	*200 U*	*200 U*	*200 U*	*200 U*	*200 U*	*200 U*	*200 U*	*200 U*	NA	NA	*200 U*	*200 U*	*200 U*	*200 U*	*200 U*	*200 U*	*200 U*
p-Chloro-m-cresol	-	**388**	59-50-7	µg/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U
Pentachlorophenol	-	**23000**	87-86-5	µg/kg	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	NA	NA	800 U	800 U	800 U	800 U	800 U	800 U	800 U
Phenanthrene	-	**204**	85-01-8	µg/kg	11 J	*330 U*	*330 U*	15 J	*330 U*	*330 U*	67 J	*330 U*	*330 U*	9.3 J	*1320 U*	*1410 U*	4.7 J	*330 U*	*330 U*	6.5 J	*330 U*	*330 U*	*330 U*
Phenol	-	**49.1**	108-95-2	µg/kg	*330 U*	19 J	*330 U*	*330 U*	*330 U*	330 U	*330 U*	*330 U*	*330 U*	*330 U*	NA	NA	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*
PNAs, Total	-	-	TPNA	µg/kg	NA	NA	NA	NA	NA	NA	820	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	-	**195**	129-00-0	µg/kg	42 J	*330 U*	*330 U*	31 J	*330 U*	*330 U*	180 J	*330 U*	*330 U*	16 J	*1320 U*	*1410 U*	18 J	*330 U*	*330 U*	14 J	*330 U*	*330 U*	*330 U*

Table 2
Analytical Summary Results
Former Stanley Tool Facility (MID 099 124 299)
Fowlerville, Michigan

				Location	SD-I2*	SD-I2*	SD-I2*	SD-I3	SD-I3*	SD-I3*	SD-J1	SD-J1*	SD-J1*	SD-J2	SD-J2	SD-J2	SD-J2	SD-J3	SD-J3*	SD-K1	SD-K2*	SD-K2*	SD-K1
				Field ID:	SDI2-0012-101503-01	SDI2-1224-101503-01	SDI2-2436-101503-01	SDI3-0012-101503-01	SDI3-1231-101503-01	SDI3-1231-101503-02	SDJ1012-042203-01	SDJ11224-042203-01	SDJ11224-042203-02	SDJ2-0012-101503-01	SD-J2-001	SD-J2-001/FD	SDJ2-1224-101503-01	SDJ3012-042203-01	SDJ31224-042203-01	SDK1-0012-101503-01	SDK2-0012-101503-01	SDK2-1224-101503-01	SDK1-1224-101503-01
				Date Sampled:	10/15/2003	10/15/2003	10/15/2003	10/15/2003	10/15/2003	10/15/2003	4/22/2003	4/22/2003	4/22/2003	10/15/2003	7/24/2007	7/24/2007	10/15/2003	4/22/2003	4/22/2003	10/15/2003	10/15/2003	10/15/2003	10/15/2003
				Data Type	Original	Original	Original	Original	Original	Duplicate	Original	Original	Duplicate	Original	Original	Duplicate	Original	Original	Original	Original	Original	Original	Original
				Material Type	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
				Sample Event	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2007	2007	2003	2003	2003	2003	2003	2003	2003
				Depth (inches)	0 - 12	12 - 24	24 - 36	0 - 12	12 - 31	12 - 31	0 - 12	12 - 24	12 - 24	0 - 12	0 - 12	0 - 12	12 - 24	0 - 12	12 - 24	0 - 12	0 - 12	12 - 0	12 - 24
	Remedial Objectives	R5 RCRA Sediment ESL	CAS #	Units																			
Polychlorinated Biphenyls (PCBs):																							
PCB, Total	-	**59.8**	TPCB	µg/kg	NA	NA	NA	NA	NA	NA	**126 J**	7 J	NA	NA	NA	NA	NA	22.4 J	NA	NA	NA	NA	NA
PCB-1016	-	**59.8**	12674-11-2	µg/kg	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	0.045 U	31.1 U	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*
PCB-1221	-	**59.8**	11104-28-2	µg/kg	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	0.045 U	31.1 U	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*
PCB-1232	-	**59.8**	11141-16-5	µg/kg	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	0.045 U	31.1 U	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*
PCB-1242	-	**59.8**	53469-21-9	µg/kg	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	0.045 U	31.1 U	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*
PCB-1248	-	**59.8**	12672-29-6	µg/kg	NA	NA	NA	NA	NA	NA	**110 J**	7 J	*330 U*	NA	0.045 U	31.1 U	NA	13 J	*330 U*	NA	NA	NA	NA
PCB-1254	-	**59.8**	11097-69-1	µg/kg	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	0.045 U	31.1 U	*330 U*	*330 UJ*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*
PCB-1260	-	**59.8**	11096-82-5	µg/kg	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	*330 U*	16 J	*330 U*	*330 U*	*330 U*	0.045 U	31.1 U	*330 U*	9.4 J	*330 U*	22 J	*330 U*	*330 U*	*330 U*
Total Metals:																							
Aluminum, Total	-	-	7429-90-5	mg/kg	NA	NA	NA	NA	NA	NA	5260	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic, Total	-	**9.79**	7440-38-2	mg/kg	4.9	3.4	6.4	**18**	3.4	4.6	8.7	1.7	2.8	8.4	5.04	6.28	7.2	7.8	**14**	**13**	2.3	1.4	9.6
Barium, Total	-	-	7440-39-3	mg/kg	17	7	11	128	18	18	74	10	8.2	48	NA	NA	29	47	62	114	6.1	5.4	73
Cadmium, Total	-	**0.99**	7440-43-9	mg/kg	0.076	0.029 J	0.054 J	0.42	0.069	0.081	0.72	0.24	0.23	0.23	0.757 U	0.706 U	0.1	0.45	0.53	0.4	0.031 J	0.041 J	0.25
Chromium, Total	**110**	**43.4**	7440-47-3	mg/kg	10	3.6	4.1	**102**	13	12	40	7.5	5.3	**74**	11.3	13.5	35	40	10	**109**	4.4	3.7	23
Copper, Total	**91**	**31.6**	7440-50-8	mg/kg	2.8	0.8 J	1.2 J	**82**	11	8	**47**	5.4	4.1	**64**	14.47	12.5	26	**34**	11	**73**	2.2	2.2	16
Lead, Total	**83**	**35.8**	7439-92-1	mg/kg	5.7	1.5	1.6	17	3.2	3.9	12	2.4	2.1	16	4.16	4.18	8.3	9.1	6.2	20	1.7	1.6	9.4
Mercury, Total	-	**0.174**	7439-97-6	mg/kg	0.031 J	0.012 J	0.012 J	0.12	0.021 J	0.019 J	0.04 J	0.1 U	0.011 J	0.038 J	NA	NA	0.024 J	0.031 J	0.028 J	0.1	0.1 U	0.1 U	0.082 J
Nickel, Total	**49**	**22.7**	7440-02-0	mg/kg	6.1	3.5	3.8	**39**	8.9	8.6	**26**	7.5	6.9	**34**	8.04	8.62	20	19	12	**29**	5.2	4.5	12
Selenium, Total	-	-	7782-49-2	mg/kg	0.14 J	0.33 U	0.13 J	0.65	0.15 J	1.9	0.48	0.43	0.24	0.33	NA	NA	0.18 J	0.43	0.58	0.61	0.11 J	0.091 J	0.51
Silver, Total	-	**0.5**	7440-22-4	mg/kg	0.033 J	0.019 J	0.023 J	0.13 J	0.045 J	0.058 J	0.092 J	0.049 J	0.028 J	0.12 J	NA	NA	0.037 J	0.087 J	0.073 J	0.077 J	0.025 J	0.02 J	0.078 J
Zinc, Total	**460**	**121**	7440-66-6	mg/kg	19	9.9	8.8	114	19	18	89	22	12	108	29.7	31.4	51	61	34	**139**	9.2	10	49
Chromium(VI)	-	-	18540-29-9	mg/kg	2 U	2 U	3	26	1.8 J	2 U	2.1 U	2 U	2 U	2 U			2 U	12 U	22 U	2 U	2 U	2 U	2 U
Miscellaneous Parameters:																							
Cyanide, Free	-	**0.1**	57-12-5	mg/kg	NA	NA	NA	NA	NA	NA	*0.5 U*	*0.5 U*	*0.5 U*	NA	NA	NA	NA	*0.5 U*	*0.5 U*	NA	NA	NA	NA
Cyanide, Total	-	**0.1**	57-12-5	mg/kg	*0.2 U*	*0.2 U*	*0.2 U*	**1.5**	*0.2 U*	*0.2 U*	0.07 J	0.02 J	*0.2 U*	**0.32**	NA	NA	**0.16 J**	0.08 J	0.02 J	**0.18 J**	*0.2 U*	*0.2 U*	**0.74**

Notes:
NA - Indicates that the sample was not analyzed for that parameter.
U - Indicates that the result was not detected above the Method Detection Limit (MDL).
J - Indicates an estimated value with the result detection above the Method Detection Limit (MDL)but below the Reporting Limit (RL).
B - Indicates that that compound was also detected in a Blank and qualified as a likely lab contaminant.
Values that are Bold and Underlined Exceed the Remedial Objectives
Values that are Bold indicate an exceedance of R5 RCRA Sediment ESL.

Table 2
Analytical Summary Results
Former Stanley Tool Facility (MID 099 124 299)
Fowlerville, Michigan

				Location	SD-K3	SD-K3*	SD-LU1*	SD-LU2*	SD-LU3*	SD-L1 (2003 SD-L3)	SD-L1* (2003 SD-L3)	SD-L1 (2003 SD-L3)	SD-L2	SD-L2	SD-L3 (2003 SD-L1)	SD-L3 (2003 SD-L1)	SD-L3 (2003 SD-L1)	SD-L3 (2003 SD-L1)	SD-L3* (2003 SD-L1)	E 13+50	E 13+50	W 13+50	W 13+50
				Field ID:	SDK3-0012-101503-01	SDK3-1224-101503-01	LU-09-SD-1A 0911479-02	LU-09-SD-2A 0911479-03	LU-09-SD-3A 0911479-01	SDL3012 052003-01	L-09-SD-1A 0911479-04	SDL31224 052003-01	SDL2012 052003-01	L-09-SD-2A 0911425-22	SDL1012 052003-01	SDL1012 052003-02	L-09-SD-3A 0911479-05	SDL11224 052003-01	L-09-SD-3B 0911479-06	E 13+50 (0-12)	E 13+50 (12-24)	W 13+50 (0-12)	W 13+50 (12-24)
				Date Sampled:	10/15/2003	10/15/2003	40140	40140	40140	5/20/2003	40140	5/20/2003	5/20/2003	40136	5/20/2003	5/20/2003	40140	5/20/2003	40140	11/1/2012	11/1/2012	11/1/2012	11/1/2012
				Data Type	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Duplicate	Original	Original	Original	Original	Original	Original	Original
				Material Type	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
				Sample Event	2003	2003	2009	2009	2009	2003	2009	2003	2003	2009	2003	2003	2009	2003	2009	2012	2012	2012	2012
				Depth (inches)	0 - 12	12 - 24	0 - 12	0 - 10	0 - 13	0 - 12	0 - 10	12 - 24	0 - 12	0 - 15	0 - 12	0 - 12	0 - 15	12 - 24	15 - 31	0 - 12	12 - 24	0 - 12	12 - 24
	Remedial Objectives	R5 RCRA Sediment ESL	CAS #	Units																			
Volatile Organic Compounds																							
1,1,1,2-Tetrachloroethane	-	-	630-20-6	µg/kg	67 U	55 U	62 U	59 U	65 U	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	97 U	73 U	99 U	59 U
1,1,1-Trichloroethane	-	213	71-55-6	µg/kg	67 U	55 U	62 U	59 U	65 U	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	97 U	73 U	99 U	59 U
1,1,2,2-Tetrachloroethane	-	850	79-34-5	µg/kg	67 U	55 U	62 U	59 U	65 U	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	97 U	73 U	99 U	59 U
1,1,2-Trichloroethane	-	518	79-00-5	µg/kg	67 U	55 U	62 U	59 U	65 U	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	97 U	73 U	99 U	59 U
1,1-Dichloroethane	-	0.575	75-34-3	µg/kg	*67 U*	*55 U*	*62 U*	*59 U*	*65 U*	*57 U*	*56 U*	*60 U*	*58 U*	*58 U*	*82 U*	*81 U*	*65 U*	*68 U*	*67 U*	97 U	73 U	99 U	59 U
1,1-Dichloroethene	-	19.4	75-35-4	µg/kg	*67 U*	*55 U*	*62 U*	*59 U*	*65 U*	*57 U*	*56 U*	*60 U*	*58 U*	*58 U*	*82 U*	*81 U*	*65 U*	*68 U*	*67 U*	97 U	73 U	99 U	59 U
1,1-Dichloropropylene	-	-	563-58-6	µg/kg	67 U	55 U	62 U	59 U	65 U	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	97 U	73 U	99 U	59 U
1,2,3-Trichlorobenzene	-	-	87-61-6	µg/kg	330 U	270 U	62 U	59 U	65 U	290 U	56 U	300 U	290 U	58 U	410 U	400 U	65 U	340 U	67 U	97 U	73 U	99 U	59 U
1,2,3-Trichloropropane	-	-	96-18-4	µg/kg	67 U	55 U	62 U	59 U	65 U	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	97 U	73 U	99 U	59 U
1,2,4-Trichlorobenzene	-	5062	120-82-1	µg/kg	NA	NA	62 U	59 U	65 U	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	97 U	73 U	99 U	98 U
1,2,4-Trimethylbenzene	-	-	95-63-6	µg/kg	11 J	55 U	62 U	59 U	65 U	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	97 U	73 U	99 U	59 U
1,2-Dibromo-3-chloropropane	-	-	96-12-8	µg/kg	67 U	55 U	310 U	290 U	330 U	57 U	280 U	60 U	58 U	290 U	82 U	81 U	330 U	68 U	330 U	480 U	360 U	500 U	290 U
1,2-Dichlorobenzene	-	294	95-50-1	µg/kg	*330 U, 67 U*	*330 U, 55 U*	62 U	59 U	65 U	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	97 U	73 U	99 U	98 U
1,2-Dichloroethane	-	260	107-06-2	µg/kg	67 U	55 U	62 U	59 U	65 U	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	97 U	73 U	99 U	59 U
1,2-Dichloroethene	-	-	540-59-0	µg/kg	NA	NA	120 U	120 U	130 U	NA	110 U	NA	NA	120 U	NA	NA	130 U	NA	130 U	190 U	150 U	200 U	120 U
1,2-Dichloropropane	-	333	78-87-5	µg/kg	67 U	55 U	62 U	59 U	65 U	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	97 U	73 U	99 U	59 U
1,3,5-Trimethylbenzene	-	-	108-67-8	µg/kg	67 U	55 U	62 U	59 U	65 U	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	97 U	73 U	99 U	59 U
1,3-Dichlorobenzene	-	1315	541-73-1	µg/kg	330 U, 67 U	330 U, 55 U	62 U	59 U	65 U	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	97 U	73 U	99 U	98 U
1,3-Dichloropropane	-	-	142-28-9	µg/kg	67 U	55 U	62 U	59 U	65 U	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	97 U	73 U	99 U	59 U
1,4-Dichlorobenzene	-	318	106-46-7	µg/kg	NA	NA	62 U	59 U	65 U	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	97 U	73 U	99 U	98 U
2,2-Dichloropropane	-	-	594-20-7	µg/kg	67 U	55 U	62 U	59 U	65 U	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	97 U	73 U	99 U	59 U
2-Chlorotoluene	-	-	95-49-8	µg/kg	67 U	55 U	62 U	59 U	65 U	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	97 U	73 U	99 U	59 U
2-Hexanone	-	58.2	591-78-6	µg/kg	*670 U*	*550 U*	*3100 U*	*2900 U*	*3300 U*	*570 U*	*2800 U*	*600 U*	*580 U*	*2900 U*	*820 U*	*810 U*	*3300 U*	*680 U*	*3300 U*	4800 U	3600 U	5000 U	2900 U
4-Chlorotoluene	-	-	106-43-4	µg/kg	67 U	55 U	62 U	59 U	65 U	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	97 U	73 U	99 U	59 U
4-Isopropyltoluene	-	-	99-87-6	µg/kg	67 U	55 U	62 U	59 U	65 U	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	97 U	73 U	99 U	59 U
4-Methyl-2-pentanone	-	25.1	108-10-1	µg/kg	*670 U*	*550 U*	*3100 U*	*2900 U*	*3300 U*	*570 U*	*2800 U*	*600 U*	*580 U*	*2900 U*	*820 U*	*810 U*	*3300 U*	*680 U*	*3300 U*	4800 U	3600 U	5000 U	2900 U
Acetone	-	9.9	67-64-1	µg/kg	*670 U*	*550 U*	*840 U*	110 J	180 J	*570 U*	*840 U*	*600 U*	*580 U*	240 J*	*820 U*	*810 U*	170 J	*680 U*	130 J	1500 U	1100 U	1500 U	880 U
Acrolein	-	0.00152	107-02-8	µg/kg	NA	NA	*310 U*	*290 U*	*330 U*	NA	*280 U*	NA	NA	*290 U*	NA	NA	*330 U*	NA	*330 U*	480 U	360 U	500 U	290 U
Benzene	-	142	71-43-2	µg/kg	67 U	55 U	62 U	59 U	65 U	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	97 U	73 U	99 U	59 U
Bromobenzene	-	-	108-86-1	µg/kg	67 U	55 U	62 U	59 U	65 U	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	97 U	73 U	99 U	59 U
Bromochloromethane	-	-	74-97-5	µg/kg	67 U	55 U	62 U	59 U	65 U	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	97 U	73 U	99 U	59 U
Bromoform	-	492	75-25-2	µg/kg	67 U	55 U	62 U	59 U	65 U	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	97 U	73 U	99 U	59 U
Bromomethane	-	-	74-83-9	µg/kg	67 U	55 U	62 U	59 U	65 U	57 U	56 U	60 U	58 U	58 U	130	81 U	65 U	61 J	67 U	97 U	73 U	99 U	59 U
Carbon disulfide	-	23.9	75-15-0	µg/kg	*670 U*	*550 U*	*310 U*	*290 U*	*330 U*	*570 U*	*280 U*	*600 U*	*580 U*	*290 U*	*820 U*	*810 U*	*330 U*	*680 U*	*330 U*	32 J	25 J	500 U	40 J
Carbon tetrachloride	-	1450	56-23-5	µg/kg	67 U	55 U	62 U	59 U	65 U	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	97 U	73 U	99 U	59 U
Chlorobenzene	-	291	108-90-7	µg/kg	67 U	55 U	62 U	59 U	65 U	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	97 U	73 U	99 U	59 U
Chloroethane	-	-	75-00-3	µg/kg	67 U	55 U	62 U	59 U	65 U	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	97 U	73 U	99 U	59 U
Chloroform	-	121	67-66-3	µg/kg	67 U	55 U	62 U	59 U	65 U	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	97 U	73 U	99 U	59 U
Chloromethane	-	-	74-87-3	µg/kg	67 U	55 U	62 U	59 U	65 U	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	97 U	73 U	99 U	59 U
cis-1,2-Dichloroethene	-	-	156-59-2	µg/kg	67 U	55 U	62 U	59 U	65 U	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	97 U	73 U	99 U	59 U
cis-1,3-Dichloropropene	-	-	10061-01-5	µg/kg	67 U	55 U	62 U	59 U	65 U	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	97 U	73 U	99 U	59 U
Dibromochloromethane	-	-	124-48-1	µg/kg	67 U	55 U	62 U	59 U	65 U	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	97 U	73 U	99 U	59 U
Dibromomethane	-	-	74-95-3	µg/kg	67 U	55 U	62 U	59 U	65 U	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	97 U	73 U	99 U	59 U
Dichlorobromomethane	-	-	75-27-4	µg/kg	67 U	55 U	NA	NA	NA	57 U	NA	60 U	58 U	NA	82 U	81 U	NA	68 U	NA	97 U	73 U	99 U	59 U
Dichlorodifluoromethane	-	-	75-71-8	µg/kg	67 U	55 U	62 U	59 U	65 U	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	97 U	73 U	99 U	59 U
Ethylbenzene	-	175	100-41-4	µg/kg	67 U	55 U	62 U	59 U	65 U	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	97 U	73 U	99 U	59 U
Ethylene dibromide	-	-	106-93-4	µg/kg	67 U	55 U	62 U	59 U	65 U	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	97 U	73 U	99 U	59 U
Hexachlorobutadiene	-	26.5	87-68-3	µg/kg	NA	NA	*62 U*	*59 U*	*65 U*	*570 U*	*56 U*	*600 U*	*580 U*	*58 U*	*820 U*	*810 U*	*65 U*	*680 U*	*67 U*	97 U	73 U	99 U	98 U
Isopropylbenzene	-	-	98-82-8	µg/kg	67 U	55 U	62 U	59 U	65 U	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	97 U	73 U	99 U	59 U
Methyl ethyl ketone	-	42.4	78-93-3	µg/kg	620 J	340 J	52 J	52 J	78 J	*570 U*	52 J	*600 U*	*580 U*	*2900 U*	*820 U*	*810 U*	78 J	*680 U*	70 J	4800 U	3600 U	5000 U	2900 U
Methyl tert butyl ether	-	-	1634-04-4	µg/kg	670 U	550 U	62 U	59 U	65 U	570 U	56 U	600 U	580 U	58 U	820 U	810 U	65 U	680 U	67 U	97 U	73 U	99 U	98 U
Methylene chloride	-	159	75-09-2	µg/kg	45 J	16 J	61 J	30 J	44 J	390	41 J	400	370	60 J	82 U	81 U	43 J	68 U	40 J	480 U	44 J	500 U	290 U
n-Butylbenzene	-	-	104-51-8	µg/kg	67 U	55 U	62 U	59 U	65 U	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	97 U	73 U	99 U	59 U
n-Propylbenzene	-	-	103-65-1	µg/kg	67 U	55 U	62 U	59 U	65 U	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	97 U	73 U	99 U	59 U
Naphthalene	-	176	91-20-3	µg/kg	330 U	270 U, 330 U	310 U	290 U	*330 U*	140 U	*280 U*	150 U	140 U	*290 U*	*210 U*	*200 U*	*330 U*	170 U	*330 U*	480 U	360 U	500 U	98 U
o-Xylene	-	-	95-47-6	µg/kg	67 U	55 U	62 U	59 U	65 U	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	97 U	73 U	99 U	59 U
sec-Butylbenzene	-	-	135-98-8	µg/kg	67 U	55 U	62 U	59 U	65 U	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	97 U	73 U	99 U	59 U
Styrene	-	254	100-42-5	µg/kg	67 U	55 U	62 U	59 U	65 U	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	97 U	73 U	99 U	59 U
tert-Butylbenzene	-	-	98-06-6	µg/kg	67 U	55 U	62 U	59 U	65 U	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	97 U	73 U	99 U	59 U
Tetrachloroethene	-	990	127-18-4	µg/kg	67 U	22 J	62 U	59 U	65 U	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	97 U	73 U	99 U	59 U
Toluene	-	1220	108-88-3	µg/kg	17 J	8.8 J	62 U	59 U	65 U	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	29 J	97 U	73 U	99 U	59 U
trans-1,2-Dichloroethylene	-	654	156-60-5	µg/kg	67 U	55 U	62 U	59 U	65 U	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	97 U	73 U	99 U	59 U
trans-1,3-Dichloropropene	-	-	10061-02-6	µg/kg	67 U	55 U	62 U	59 U	65 U	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	97 U	73 U	99 U	59 U
Trichloroethene	-	112	79-01-6	µg/kg	67 U	55 U	62 U	59 U	65 U	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	97 U	73 U	99 U	59 U
Trichlorofluoromethane	-	-	75-69-4	µg/kg	67 U	55 U	62 U	59 U	65 U	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	97 U	25 J	99 U	17 J
Vinyl chloride	-	202	75-01-4	µg/kg	67 U	55 U	62 U	59 U	65 U	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	97 U	73 U	99 U	59 U
Xylene, Meta + Para	-	-	Not Applicable	µg/kg	130 U	110 U	120 U	120 U	130 U	110 U	110 U	120 U	120 U	120 U	160 U	160 U	130 U	140 U	130 U	190 U	150 U	200 U	120 U

Table 2
Analytical Summary Results
Former Stanley Tool Facility (MID 099 124 299)
Fowlerville, Michigan

	Location	SD-K3	SD-K3*	SD-LU1*	SD-LU2*	SD-LU3*	SD-L1 (2003 SD-L3)	SD-L1* (2003 SD-L3)	SD-L1 (2003 SD-L3)	SD-L2	SD-L2	SD-L3 (2003 SD-L1)	SD-L3 (2003 SD-L1)	SD-L3 (2003 SD-L1)	SD-L3 (2003 SD-L1)	SD-L3* (2003 SD-L1)	E 13+50	E 13+50	W 13+50	W 13+50
	Field ID:	SDK3-0012-101503-01	SDK3-1224-101503-01	LU-09-SD-1A 0911479-02	LU-09-SD-2A 0911479-03	LU-09-SD-3A 0911479-01	SDL3012 052003-01	L-09-SD-1A 0911479-04	SDL31224 052003-01	SDL2012 052003-01	L-09-SD-2A 0911425-22	SDL1012 052003-01	SDL1012 052003-02	L-09-SD-3A 0911479-05	SDL11224 052003-01	L-09-SD-3B 0911479-06	E 13+50 (0-12)	E 13+50 (12-24)	W 13+50 (0-12)	W 13+50 (12-24)
	Date Sampled:	10/15/2003	10/15/2003	40140	40140	40140	5/20/2003	40140	5/20/2003	5/20/2003	40136	5/20/2003	5/20/2003	40140	5/20/2003	40140	11/1/2012	11/1/2012	11/1/2012	11/1/2012
	Data Type	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Duplicate	Original	Original	Original	Original	Original	Original	Original
	Material Type	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
	Sample Event	2003	2003	2009	2009	2009	2003	2009	2003	2003	2009	2003	2003	2009	2003	2009	2012	2012	2012	2012
	Depth (inches)	0 - 12	12 - 24	0 - 12	0 - 10	0 - 13	0 - 12	0 - 10	12 - 24	0 - 12	0 - 15	0 - 12	0 - 12	0 - 15	12 - 24	15 - 31	0 - 12	12 - 24	0 - 12	12 - 24
	Remedial Objectives	R5 RCRA Sediment ESL	CAS #	Units																
Semi-Volatile Organic Compounds																				
1,2,4-Trichlorobenzene	-	**5062**	120-82-1	µg/kg	330 U, 67 U	330 U, 55 U	62 U	59 U	65 U	330 UJ	56 U	330 UJ	330 UJ	58 U	330 UJ	330 UJ	65 U	330 UJ	67 U	97 U	73 U	99 U	98 U
1,2-Benzphenanthracene	-	-	218-01-9	µg/kg	NA	NA	32	13 J	98	NA	19 U	NA	NA	72	NA	NA	83	NA	41	NA	NA	NA	NA
1,2-Dichlorobenzene	-	**294**	95-50-1	µg/kg	NA	NA	62 U	59 U	65 U	*330 UJ*	56 U	*330 UJ*	*330 UJ*	58 U	*330 UJ*	*330 UJ*	65 U	*330 UJ*	67 U	97 U	73 U	99 U	98 U
1,3-Dichlorobenzene	-	**1315**	541-73-1	µg/kg	NA	NA	62 U	59 U	65 U	330 UJ	56 U	330 UJ	330 UJ	58 U	330 UJ	330 UJ	65 U	330 UJ	67 U	97 U	73 U	99 U	98 U
1,4-Dichlorobenzene	-	**318**	106-46-7	µg/kg	*330 U, 67 U*	*330 U, 55 U*	62 U	59 U	65 U	*330 UJ*	56 U	*330 UJ*	*330 UJ*	58 U	*330 UJ*	*330 UJ*	65 U	*330 UJ*	67 U	97 U	73 U	99 U	98 U
2,4,5-Trichlorophenol	-	-	95-95-4	µg/kg	330 U	330 U	23 U	20 U	23 U	330 UJ	19 U	330 UJ	330 UJ	20 U	330 UJ	330 UJ	23 U	330 UJ	22 U	160 U	120 U	170 U	98 U
2,4,6-Trichlorophenol	-	**208**	88-06-2	µg/kg	*330 U*	*330 U*	23 U	20 U	23 U	*330 UJ*	19 U	*330 UJ*	*330 UJ*	20 U	*330 UJ*	*330 UJ*	23 U	*330 UJ*	22 U	160 U	120 U	170 U	98 U
2,4-Dichlorophenol	-	**81.7**	120-83-2	µg/kg	*330 U*	*330 U*	23 U	20 U	23 U	*330 UJ*	19 U	*330 UJ*	*330 UJ*	20 U	*330 UJ*	*330 UJ*	23 U	*330 UJ*	22 U	320 U	240 U	330 U	200 U
2,4-Dimethylphenol	-	**304**	105-67-9	µg/kg	*330 U*	*330 U*	*450 U*	*390 U*	*470 U*	*330 UJ*	*380 U*	*330 UJ*	*330 UJ*	*390 U*	*330 UJ*	*330 UJ*	*470 U*	*330 UJ*	*440 U*	1600 U	1200 U	1700 U	980 U
2,4-Dinitrophenol	-	**6.21**	51-28-5	µg/kg	*1700 U*	*1700 U*	*450 U*	*390 U*	*470 U*	*1700 UJ*	*380 U*	*1700 UJ*	*1700 UJ*	*390 U*	*1700 UJ*	*1700 UJ*	*470 U*	*1700 UJ*	*440 U*	1600 U	1200 U	1700 U	980 U
2,4-Dinitrotoluene	-	**14.4**	121-14-2	µg/kg	*330 U*	*330 U*	*45 U*	*39 U*	*47 U*	*330 UJ*	*38 U*	*330 UJ*	*330 UJ*	*39 U*	*330 UJ*	*330 UJ*	*47 U*	*330 UJ*	*44 U*	320 U	240 U	330 U	200 U
2,6-Dinitrotoluene	-	**39.8**	606-20-2	µg/kg	*330 U*	*330 U*	23 U	20 U	23 U	*330 UJ*	19 U	*330 UJ*	*330 UJ*	20 U	*330 UJ*	*330 UJ*	23 U	*330 UJ*	22 U	160 U	120 U	170 U	98 U
2-Chloronaphthalene	-	**417**	91-58-7	µg/kg	330 U	330 U	23 U	20 U	23 U	330 UJ	19 U	330 UJ	330 UJ	20 U	330 UJ	330 UJ	23 U	330 UJ	22 U	160 U	120 U	170 U	98 U
2-Chlorophenol	-	**31.9**	95-57-8	µg/kg	*330 U*	*330 U*	23 U	20 U	23 U	*330 UJ*	19 U	*330 UJ*	*330 UJ*	20 U	*330 UJ*	*330 UJ*	23 U	*330 UJ*	22 U	160 U	120 U	170 U	98 U
2-Methylnaphthalene	-	**20.2**	91-57-6	µg/kg	*330 U*	*330 U*	*23 U*	20 U	*23 U*	*330 UJ*	19 U	*330 UJ*	*330 UJ*	20 U	*330 UJ*	*330 UJ*	*23 U*	*330 UJ*	1.8 J	160 U	120 U	170 U	98 U
2-Methylphenol	-	-	95-48-7	µg/kg	330 U	330 U	23 U	20 U	23 U	330 UJ	19 U	330 UJ	330 UJ	20 U	330 UJ	330 UJ	23 U	330 UJ	22 U	160 U	120 U	170 U	98 U
2-Nitroaniline	-	-	88-74-4	µg/kg	1700 U	1700 U	23 U	20 U	23 U	1700 UJ	19 U	1700 UJ	1700 UJ	20 U	1700 UJ	1700 UJ	23 U	1700 UJ	22 U	160 U	120 U	170 U	98 U
2-Nitrophenol	-	-	88-75-5	µg/kg	330 U	330 U	23 U	20 U	23 U	330 UJ	19 U	330 UJ	330 UJ	20 U	330 UJ	330 UJ	23 U	330 UJ	22 U	160 U	120 U	170 U	98 U
3,3-Dichlorobenzidine	-	**127**	91-94-1	µg/kg	*2000 U*	*2000 U*	*230 U*	*200 U*	*230 U*	*2000 UJ*	*190 U*	*2000 UJ*	*2000 UJ*	*200 U*	*2000 UJ*	*2000 UJ*	*230 U*	*2000 UJ*	*220 U*	8100 U	6000 U	8300 U	4900 U
3,4-Methylphenol	-	-	108-39-4	µg/kg	NA	NA	23 U	20 U	23 U	NA	19 U	NA	NA	20 U	NA	NA	23 U	NA	22 U	160 U	120 U	170 U	98 U
3-Nitroaniline	-	-	99-09-2	µg/kg	1700 U	1700 U	45 U	39 U	47 U	1700 UJ	38 U	1700 UJ	1700 UJ	39 U	1700 UJ	1700 UJ	47 U	1700 UJ	44 U	320 U	240 U	330 U	200 U
4,6-Dinitro-2-methylphenol	-	-	534-52-1	µg/kg	1700 U	1700 U	90 U	78 U	93 U	1700 UJ	75 U	1700 UJ	1700 UJ	78 U	1700 UJ	1700 UJ	93 U	1700 UJ	89 U	1600 U	1200 U	1700 U	980 U
4-Bromophenyl-phenylether	-	**1550**	101-55-3	µg/kg	330 U	330 U	23 U	20 U	23 U	330 UJ	19 U	330 UJ	330 UJ	20 U	330 UJ	330 UJ	23 U	330 UJ	22 U	640 U	480 U	660 U	390 U
4-Chloroaniline	-	**146**	106-47-8	µg/kg	*1700 U*	*1700 U*	45 U	39 U	47 U	*1700 UJ*	38 U	*1700 UJ*	*1700 UJ*	39 U	*1700 UJ*	*1700 UJ*	47 U	*1700 UJ*	44 U	640 U	480 U	660 U	390 U
4-Chlorophenyl-phenylether	-	-	7005-72-3	µg/kg	330 U	330 U	23 U	20 U	23 U	330 UJ	19 U	330 UJ	330 UJ	20 U	330 UJ	330 UJ	23 U	330 UJ	22 U	160 U	120 U	170 U	98 U
4-Methylphenol	-	-	106-44-5	µg/kg	330 U	330 U	23 U	20 U	23 U	330 UJ	19 U	330 UJ	330 UJ	20 U	330 UJ	330 UJ	23 U	330 UJ	22 U	160 U	120 U	170 U	98 U
4-Nitroaniline	-	-	100-01-6	µg/kg	1700 U	1700 U	90 U	78 U	93 U	1700 UJ	75 U	1700 UJ	1700 UJ	78 U	1700 UJ	1700 UJ	93 U	1700 UJ	89 U	1600 U	1200 U	1700 U	980 U
4-Nitrophenol	-	**13.3**	100-02-7	µg/kg	*1700 U*	*1700 U*	*450 U*	*390 U*	*470 U*	*1700 UJ*	*380 U*	*1700 UJ*	*1700 UJ*	*390 U*	*1700 UJ*	*1700 UJ*	*470 U*	*1700 UJ*	*440 U*	6400 U	4800 U	6600 U	3900 U
Acenaphthene	-	**6.71**	83-32-9	µg/kg	*330 U*	*330 U*	4.0 J	*20 U*	8.1 J	*330 UJ*	*19 U*	*330 UJ*	*330 UJ*	2.8 J	*330 UJ*	*330 UJ*	8.1 J	*330 UJ*	2.2 J	9.4 J	120 U	16 J	98 U
Acenaphthylene	-	**5.87**	208-96-8	µg/kg	*330 U*	*330 U*	*23 U*	*20 U*	5.6 J	*330 UJ*	*19 U*	*330 UJ*	*330 UJ*	5.1 J	*330 UJ*	*330 UJ*	*23 U*	*330 UJ*	*22 U*	160 U	120 U	170 U	98 U
Anthracene	-	**57.2**	120-12-7	µg/kg	*330 U*	*330 U*	NA	NA	NA	*330 UJ*	NA	*330 UJ*	*330 UJ*	NA	93 J	39 J	NA	*330 UJ*	NA	19 J	120 U	48 J	98 U
Benz(a)anthracene	-	**108**	56-55-3	µg/kg	*330 U*	*330 U*	33	14 J	87	*330 UJ*	3.0 J	*330 UJ*	91 J	81	370 J	190 J	87	*330 UJ*	46	120 J	120 U	240	98 U
Benzidine	-	-	92-87-5	µg/kg	5000 U	5000 U	900 U	780 U	930 U	5000 UJ	750 U	5000 UJ	5000 UJ	780 U	5000 UJ	5000 UJ	930 U	5000 UJ	890 U	6400 U	4800 U	6600 U	3900 U
Benzo(a)pyrene	-	**150**	50-32-8	µg/kg	*330 U*	*330 U*	35	13 J	72	*330 UJ*	3.4 J	*330 UJ*	*330 UJ*	71	300 J	170 J	72	*330 UJ*	45	120 J	7.5 J	250	7.8 J
Benzo(b)fluoranthene	-	**10400**	205-99-2	µg/kg	330 U	330 U	57	18 J	170	330 UJ	4.5 J	330 UJ	110 J	89	420 J	240 J	120	330 UJ	71	170	120 U	420	14 J
Benzo(g,h,i)perylene	-	**170**	191-24-2	µg/kg	*330 U*	*330 U*	24 J	9.3 J	64	*330 UJ*	1.5 J	*330 UJ*	49 J	25 J	200 J	74 J	51	*330 UJ*	26 J	78 J	240 U	160 J	7.8 J
Benzo(k)fluoranthene	-	**240**	207-08-9	µg/kg	*330 U*	*330 U*	20 J	12 J	63	*330 UJ*	19 U	*330 UJ*	69 J	67	190 J	110 J	41	*330 UJ*	18 J	72 J	120 U	120 J	98 U
Benzoic acid	-	-	65-85-0	µg/kg	3300 U	3300 U	450 U	390 U	470 U	3300 UJ	380 U	3300 UJ	3300 UJ	390 U	3300 UJ	3300 UJ	470 U	3300 UJ	440 U	3200 U	2400 U	3300 U	2000 U
Benzyl alcohol	-	**1.04**	100-51-6	µg/kg	*1300 U*	*1300 U*	*23 U*	*20 U*	*23 U*	*1300 UJ*	*19 U*	*1300 UJ*	*1300 UJ*	32	*1300 UJ*	*1300 UJ*	*23 U*	*1300 UJ*	*22 U*	160 U	120 U	170 U	98 U
bis(2-Chloroethoxy)methane	-	-	111-91-1	µg/kg	330 U	330 U	23 U	20 U	23 U	330 UJ	19 U	330 UJ	330 UJ	20 U	330 UJ	330 UJ	23 U	330 UJ	22 U	160 U	120 U	170 U	98 U
bis(2-Chloroethyl)ether	-	**3520**	111-44-4	µg/kg	100 U	100 U	23 U	20 U	23 U	100 UJ	19 U	100 UJ	100 UJ	20 U	100 UJ	100 UJ	23 U	100 UJ	22 U	160 U	120 U	170 U	98 U
bis(2-Chloroisopropyl)ether	-	-	108-60-1	µg/kg	330 U	330 U	NA	NA	NA	330 UJ	NA	330 UJ	330 UJ	NA	330 UJ	330 UJ	NA	330 UJ	NA	160 U	120 U	170 U	98 U
bis(2-Ethylhexyl)phthalate	-	**182**	117-81-7	µg/kg	15 J	16 J	52	14 J	25 J	*330 UJ*	52	*330 UJ*	*330 UJ*	15 J	*330 UJ*	82 J	25 J	*330 UJ*	12 J	NA	NA	NA	NA
Butyl benzyl phthalate	-	**1970**	85-68-7	µg/kg	330 U	330 U	45 U	15 J	7.8 J	330 UJ	22 J	330 UJ	330 UJ	39 U	330 UJ	330 UJ	19 J	330 UJ	44 U	320 U	240 U	330 U	200 U
Carbazole	-	-	86-74-8	µg/kg	330 U	330 U	450 U	390 U	470 U	330 UJ	380 U	330 UJ	330 UJ	390 U	330 UJ	330 UJ	470 U	330 UJ	440 U	1600 U	1200 U	1700 U	980 U
Chrysene	-	**166**	218-01-9	µg/kg	*330 U*	*330 U*	32	13 J	98	*330 UJ*	19 U	*330 UJ*	110 J	72	350 J	180 J	83	*330 UJ*	41	120 J	120 U	260	5.8 J
Di-N-Butyl phthalate	-	**1114**	84-74-2	µg/kg	47 J	35 J	190 J	150 J	72 J	340 J	180 J	18 J	140 J	160 J	160 J	330 UJ	72 J	330 UJ	100 J	640 U	480 U	660 U	390 U
Di-N-Octyl phthalate	-	**40600**	117-84-0	µg/kg	330 U	330 U	19 U	20 U	23 U	330 UJ	19 U	330 UJ	330 UJ	20 U	330 UJ	330 UJ	23 U	330 UJ	22 U	160 U	120 U	170 U	98 U
Dibenz(a,h)anthracene	-	**33**	53-70-3	µg/kg	*330 U*	*330 U*	*45 U*	*39 U*	*47 U*	*330 UJ*	*38 U*	*330 UJ*	*330 UJ*	*39 U*	*330 UJ*	*330 UJ*	*47 U*	*330 UJ*	*44 U*	19 J	240 U	330 U	200 U
Dibenzofuran	-	**449**	132-64-9	µg/kg	330 U	330 U	23 U	20 U	23 U	330 UJ	19 U	330 UJ	330 UJ	20 U	330 UJ	330 UJ	23 U	330 UJ	22 U	160 U	120 U	170 U	98 U
Diethylphthalate	-	**295**	84-66-2	µg/kg	14 J	11 J	23 U	20 U	23 U	*330 UJ*	19 U	*330 UJ*	*330 UJ*	4.4 J	*330 UJ*	*330 UJ*	23 U	*330 UJ*	22 U	160 U	120 U	170 U	98 U
Dimethyl phthalate	-	-	131-11-3	µg/kg	3300 U	3300 U	23 U	20 U	23 U	3300 UJ	19 U	3300 UJ	3300 UJ	20 U	3300 UJ	3300 UJ	23 U	3300 UJ	22 U	160 U	120 U	170 U	98 U
Fluoranthene	-	**423**	206-44-0	µg/kg	330 U	330 U	70	28	240	330 UJ	6.4 J	330 UJ	250 J	190	1000 J	490 J	190	330 UJ	79	220	7.5 J	540	16 J
Fluorene	-	**77.4**	86-73-7	µg/kg	*330 U*	*330 U*	23 U	20 U	23 U	*330 UJ*	19 U	*330 UJ*	*330 UJ*	20 U	57 J	*330 UJ*	23 U	*330 UJ*	22 U	9.4 J	240 U	22 J	200 U
Hexachlorobenzene	-	**20**	118-74-1	µg/kg	*330 U*	*330 U*	*23 U*	20 U	*23 U*	*330 UJ*	19 U	*330 UJ*	*330 UJ*	20 U	*330 UJ*	*330 UJ*	*23 U*	*330 UJ*	*22 U*	160 U	120 U	170 U	98 U
Hexachlorobutadiene	-	**26.5**	87-68-3	µg/kg	*330 U*	*270 U, 330 U*	*62 U*	*59 U*	*65 U*	*330 UJ*	*56 U*	*330 UJ*	*330 UJ*	*58 U*	*330 UJ*	*330 UJ*	*65 U*	*330 UJ*	*67 U*	97 U	73 U	99 U	98 U
Hexachlorocyclopentadiene	-	**901**	77-47-4	µg/kg	330 U	330 U	23 U	20 U	23 U	330 UJ	19 U	330 UJ	330 UJ	20 U	330 UJ	330 UJ	23 U	330 UJ	22 U	160 U	120 U	170 U	98 U
Hexachloroethane	-	**584**	67-72-1	µg/kg	330 U	330 U	23 U	20 U	23 U	330 UJ	19 U	330 UJ	330 UJ	20 U	330 UJ	330 UJ	23 U	330 UJ	22 U	160 U	120 U	170 U	98 U
Indeno(1,2,3-cd)pyrene	-	**200**	193-39-5	µg/kg	*330 U*	*330 U*	38 U	8.1 J	59	*330 UJ*	38 U	*330 UJ*	41 J	22 J	160 J	75 J	41 J	*330 UJ*	26 J	78 J	240 U	140 J	200 U
Isophorone	-	**432**	78-59-1	µg/kg	330 U	330 U	23 U	20 U	23 U	330 UJ	19 U	330 UJ	330 UJ	20 U	330 UJ	330 UJ	23 U	330 UJ	22 U	160 U	120 U	170 U	98 U
N-Nitroso-di-N-propylamine	-	-	621-64-7	µg/kg	330 U	330 U	23 U	20 U	23 U	330 UJ	19 U	330 UJ	330 UJ	20 U	330 UJ	330 UJ	23 U	330 UJ	22 U	160 U	120 U	170 U	98 U
N-Nitrosodiphenylamine	-	-	86-30-6	µg/kg	330 U	330 U	23 U	20 U	23 U	330 UJ	19 U	330 UJ	330 UJ	20 U	330 UJ	330 UJ	23 U	330 UJ	22 U	160 U	120 U	170 U	98 U
Naphthalene	-	**176**	91-20-3	µg/kg	NA	NA	*310 U*	*290 U*	*330 U*	*330 UJ*	*280 U*	*330 UJ*	*330 UJ*	*290 U*	*330 UJ*	*330 UJ*	*330 U*	*330 UJ*	*330 U*	480 U	360 U	500 U	98 U
Nitrobenzene	-	**145**	98-95-3	µg/kg	*200 U*	*200 U*	23 U	20 U	23 U	*200 UJ*	19 U	*200 UJ*	*200 UJ*	20 U	*200 UJ*	*200 UJ*	23 U	*200 UJ*	22 U	160 U	120 U	170 U	98 U
p-Chloro-m-cresol	-	**388**	59-50-7	µg/kg	330 U	330 U	23 U	20 U	23 U	330 UJ	19 U	330 UJ	330 UJ	20 U	330 UJ	330 UJ	23 U	330 UJ	22 U	160 U	120 U	170 U	98 U
Pentachlorophenol	-	**23000**	87-86-5	µg/kg	800 U	800 U	230 U	200 U	230 U	800 UJ	190 U	800 UJ	800 UJ	200 U	800 UJ	800 UJ	230 U	800 UJ	220 U	1600 U	1200 U	1700 U	980 U
Phenanthrene	-	**204**	85-01-8	µg/kg	*330 U*	*330 U*	34	9.7 J	170	*330 UJ*	2.2 J	*330 UJ*	90 J	76	580 J	240 J	110	*330 UJ*	44	82 J	120 U	240	5.8 J
Phenol	-	**49.1**	108-95-2	µg/kg	*330 U*	*330 U*	*230 U*	*200 U*	*230 U*	*330 UJ*	*190 U*	*330 UJ*	*330 UJ*	*200 U*	*330 UJ*	*330 UJ*	*230 U*	*330 UJ*	*220 U*	1600 U	1200 U	1700 U	980 U
PNAs, Total	-	-	TPNA	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	1010	NA	4450	2168	NA	NA	NA	NA	NA	NA	NA
Pyrene	-	**195**	129-00-0	µg/kg	*330 U*	*330 U*	72	27	270	*330 UJ*	4.9 J	*330 UJ*	200 J	160	730 J	360 J	180	*330 UJ*	87	260	10 J	560	14 J

Table 2
Analytical Summary Results
Former Stanley Tool Facility (MID 099 124 299)
Fowlerville, Michigan

				Location	SD-K3	SD-K3*	SD-LU1*	SD-LU2*	SD-LU3*	SD-L1	SD-L1* (2003 SD-L3)	SD-L1 (2003 SD-L3)	SD-L2	SD-L2	SD-L3 (2003 SD-L1)	SD-L3 (2003 SD-L1)	SD-L3 (2003 SD-L1)	SD-L3 (2003 SD-L1)	SD-L3* (2003 SD-L1)	E 13+50	E 13+50	W 13+50	W 13+50
				Field ID:	SDK3-0012-101503-01	SDK3-1224-101503-01	LU-09-SD-1A 0911479-02	LU-09-SD-2A 0911479-03	LU-09-SD-3A 0911479-01	SDL3012 052003-01	L-09-SD-1A 0911479-04	SDL31224 052003-01	SDL2012 052003-01	L-09-SD-2A 0911425-22	SDL1012 052003-01	SDL1012 052003-02	L-09-SD-3A 0911479-05	SDL11224 052003-01	L-09-SD-3B 0911479-06	E 13+50 (0-12)	E 13+50 (12-24)	W 13+50 (0-12)	W 13+50 (12-24)
				Date Sampled:	10/15/2003	10/15/2003	40140	40140	40140	5/20/2003	40140	5/20/2003	5/20/2003	40136	5/20/2003	5/20/2003	40140	5/20/2003	40140	11/1/2012	11/1/2012	11/1/2012	11/1/2012
				Data Type	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Duplicate	Original	Original	Original	Original	Original	Original	Original
				Material Type	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
				Sample Event	2003	2003	2009	2009	2009	2003	2009	2003	2003	2009	2003	2003	2009	2003	2009	2012	2012	2012	2012
				Depth (inches)	0 - 12	12 - 24	0 - 12	0 - 10	0 - 13	0 - 12	0 - 10	12 - 24	0 - 12	0 - 15	0 - 12	0 - 12	0 - 15	12 - 24	15 - 31	0 - 12	12 - 24	0 - 12	12 - 24
	Remedial Objectives	R5 RCRA Sediment ESL	CAS #	Units																			
Polychlorinated Biphenyls (PCBs):																							
PCB, Total	-	**59.8**	TPCB	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	52 J	NA	38 J	33 J	NA	NA	NA	**235 J**	9.1 J	46.2 J	3.5 J
PCB-1016	-	**59.8**	12674-11-2	µg/kg	*330 U*	*330 U*	*450 U*	*390 U*	*460 U*	*330 U*	*370 U*	*330 U*	*330 U*	*390 U*	*330 U*	*330 U*	*460 U*	*330 U*	*440 U*	640 U	480 U	650 U	390 U
PCB-1221	-	**59.8**	11104-28-2	µg/kg	*330 U*	*330 U*	*450 U*	*390 U*	*460 U*	*330 U*	*370 U*	*330 U*	*330 U*	*390 U*	*330 U*	*330 U*	*460 U*	*330 U*	*440 U*	640 U	480 U	650 U	390 U
PCB-1232	-	**59.8**	11141-16-5	µg/kg	*330 U*	*330 U*	*450 U*	*390 U*	*460 U*	*330 U*	*370 U*	*330 U*	*330 U*	*390 U*	*330 U*	*330 U*	*460 U*	*330 U*	*440 U*	640 U	480 U	650 U	390 U
PCB-1242	-	**59.8**	53469-21-9	µg/kg	*330 U*	*330 U*	*450 U*	*390 U*	*460 U*	*330 U*	*370 U*	*330 U*	*330 U*	*390 U*	*330 U*	*330 U*	*460 U*	*330 U*	*440 U*	640 U	480 U	650 U	390 U
PCB-1248	-	**59.8**	12672-29-6	µg/kg	NA	NA	*370 U*	23 J	27 J	*330 U*	*370 U*	*330 U*	52 J	32 J	38 J	33 J	27 J	*330 U*	*440 U*	**210 J**	9.1 J	38 J	3.5 J
PCB-1254	-	**59.8**	11097-69-1	µg/kg	*330 U*	*330 U*	*450 U*	*390 U*	*460 U*	*330 U*	*370 U*	*330 U*	*330 U*	*390 U*	*330 U*	*330 U*	*460 U*	*330 U*	*440 U*	640 U	480 U	650 U	390 U
PCB-1260	-	**59.8**	11096-82-5	µg/kg	*330 U*	*330 U*	*450 U*	*390 U*	*460 U*	*330 U*	*370 U*	*330 U*	*330 U*	*390 U*	*330 U*	*330 U*	*460 U*	*330 U*	*440 U*	25 J	480 U	8.2 J	390 U
Total Metals:																							
Aluminum, Total	-	-	7429-90-5	mg/kg	NA	NA	2300	2600	1900	NA	1600	NA	NA	2000	NA	NA	1900	NA	2900	3700	3800	3800	6400
Arsenic, Total	-	**9.79**	7440-38-2	mg/kg	2.1	1.5	3.2	3.2	4.5	2.3	2.0	0.84	7.4	6.6	6.3	7	4.5	4.2	4.9	7.6	**16**	9.6	5.4
Barium, Total	-	-	7440-39-3	mg/kg	8.8	6.3	6.0	11	33	7.8	6.0	5.3	29	19	50	45	33	13	29	34	27	50	37
Cadmium, Total	-	**0.99**	7440-43-9	mg/kg	0.039 J	0.042 J	0.10	0.058	0.094	0.22	0.037 J	0.18	0.49	0.11	0.43	0.4	0.094	0.21	0.20	0.20	0.14	0.29	0.20
Chromium, Total	**110**	**43.4**	7440-47-3	mg/kg	3.5	3.9	3.9 B	7.4 B	7.0 B	4.6	3.9 B	4.3	20	18	13	9.7	13 B	5.1	5.3 B	28	6.0	15	17
Copper, Total	**91**	**31.6**	7440-50-8	mg/kg	2.6	3.7	3.6	5.1	8.7	3.8	3.6	3.3	13	12	11	8.7	8.7	4.3	5.4	22	4.6	18	15
Lead, Total	**83**	**35.8**	7439-92-1	mg/kg	1.5	2.4	3.6	2.8	3.5	2.2	1.4	1.5	7.9	4.0	7.6	**27**	3.5	3.7	7.8	11	4.2	7.9	7.1
Mercury, Total	-	**0.174**	7439-97-6	mg/kg	0.1 U	0.1 U	0.050 U	0.036 J	0.050 U	0.1 U	0.050 U	0.1 U	**0.26**	0.045 J	0.1	0.072 J	0.016 J	0.1 U	0.049 J	0.055	0.024 J	0.042 J	0.015 J
Nickel, Total	**49**	**22.7**	7440-02-0	mg/kg	5.4	4.8	9.3	7.4	6.4	6.9	4.9	4.6	13	13	6.7	6.9	6.4	5.8	5.2	14	5.7	9.2	16
Selenium, Total	-	-	7782-49-2	mg/kg	0.11 J	0.11 J	0.18	0.13	0.19	0.073 J	0.099 J	0.052 J	0.26	0.18	0.2 J	0.26 J	0.19	0.073 J	0.28	0.35	0.34	0.54	0.44
Silver, Total	-	**0.5**	7440-22-4	mg/kg	0.024 J	0.031 J	0.057	0.037 J	0.038 J	0.023 J	0.027 J	0.59 U	0.066 J	0.050	0.043 J	0.033 J	0.028 J	0.027 J	0.054	0.042 J	0.039 J	0.047 J	0.088
Zinc, Total	**460**	**121**	7440-66-6	mg/kg	11	11	7.6	20	24	13	7.6	9.5	44	35 B	43	34	24	17	27	52	24	59	45
Chromium(VI)	-	-	18540-29-9	mg/kg	0.51 J	2 U	0.28 J	0.20 J	0.61 J	2.1 U	0.28 J	2 U	2 U	2.3 U	2.6 U	3 U	0.61 J	2 U	1.1 J	0.80 J	2.9 U	1.3 J	2.2 U
Miscellaneous Parameters:																							
Cyanide, Free	-	**0.1**	57-12-5	mg/kg	NA	NA	NA	NA	NA	*0.5 U*	NA	*0.5 U*	*0.5 U*	**1.8**	*0.5 U*	*0.5 U*	NA	*0.5 U*	NA	**0.63**	NA	**1.3**	**0.28**
Cyanide, Total	-	**0.1**	57-12-5	mg/kg	*0.2 U*	*0.2 U*	*0.14 U*	*0.12 U*	*0.14 U*	*0.2 U*	*0.11 U*	*0.2 U*	0.04 J	**1.4**	0.02 U	0.013 J	*0.14 U*	*0.2 U*	*0.13 U*	**0.11 J**	0.15 U	**2.7**	0.030 J

Notes:
NA - Indicates that the sample was not analyzed for that parameter.
U - Indicates that the result was not detected above the Method Detection Limit (MDL).
J - Indicates an estimated value with the result detection above the Method Detection Limit (MDL)but below the Reporting Limit (RL).
B - Indicates that that compound was also detected in a Blank and qualified as a likely lab contaminant.
Values that are Bold and Underlined Exceed the Remedial Objectives
Values that are Bold indicate an exceedance of R5 RCRA Sediment ESL.

Table 3
Mean PEC Q Calculation
Summary of Boundary Samples and Hardpan Samples
Former Stanley Tools Facility
Fowlerville Michigan

Area 1

	E 0+00 (12-24)	W 0+00 (12-24)	SD-A1 (12 - 24)	SD-A2 (12 - 24)	SD-B3* (36 - 42)	SD-C1 (12 - 24)	SD-C3 (42 - 48)	SD-E3* (12 - 24)
PAHs								
Calculated Mean PEC-Qpah	0.05	0.13	0.02	0.11	0.10	0.26	0.11	0.13
Mean PEC-Qpah	0.01	0.04	0.02	0.11	0.16	0.27	0.11	0.13
Metals								
Mean PEC-Qmetals	0.14	0.07	0.11	0.06	0.09	0.12	0.21	0.05
Overall								
Mean PEC-Q overall (PAH Calculated)	0.09	0.10	0.06	0.08	0.10	0.19	0.16	0.09
Mean PEC-Q overall	0.08	0.06	0.06	0.08	0.12	0.19	0.16	0.09

Area 1 (Cont.)

	SD-F1 (12 - 24)	SD-G2 (12 - 27)	SD-H1 (24 - 36)	E 5+00 (0 - 12)	E 5+00 (12 - 24)	W 5+00 (0 - 12)	W 5+00 (12 - 24)
PAHs							
Calculated Mean PEC-Qpah	0.11	0.11	0.11	0.27	0.16	0.09	0.15
Mean PEC-Qpah	0.11	0.11	0.11	0.26	0.16	0.09	0.15
Metals							
Mean PEC-Qmetals	0.04	0.05	0.09	0.05	0.06	0.05	0.06
Overall							
Mean PEC-Q overall (PAH Calculated)	0.07	0.08	0.10	0.16	0.11	0.07	0.11
Mean PEC-Q overall	0.07	0.08	0.10	0.16	0.11	0.07	0.11

Note:
<0.5 is considered acceptable risk

Table 3
Mean PEC Q Calculation
Summary of Boundary Samples and Hardpan Samples
Former Stanley Tools Facility
Fowlerville Michigan

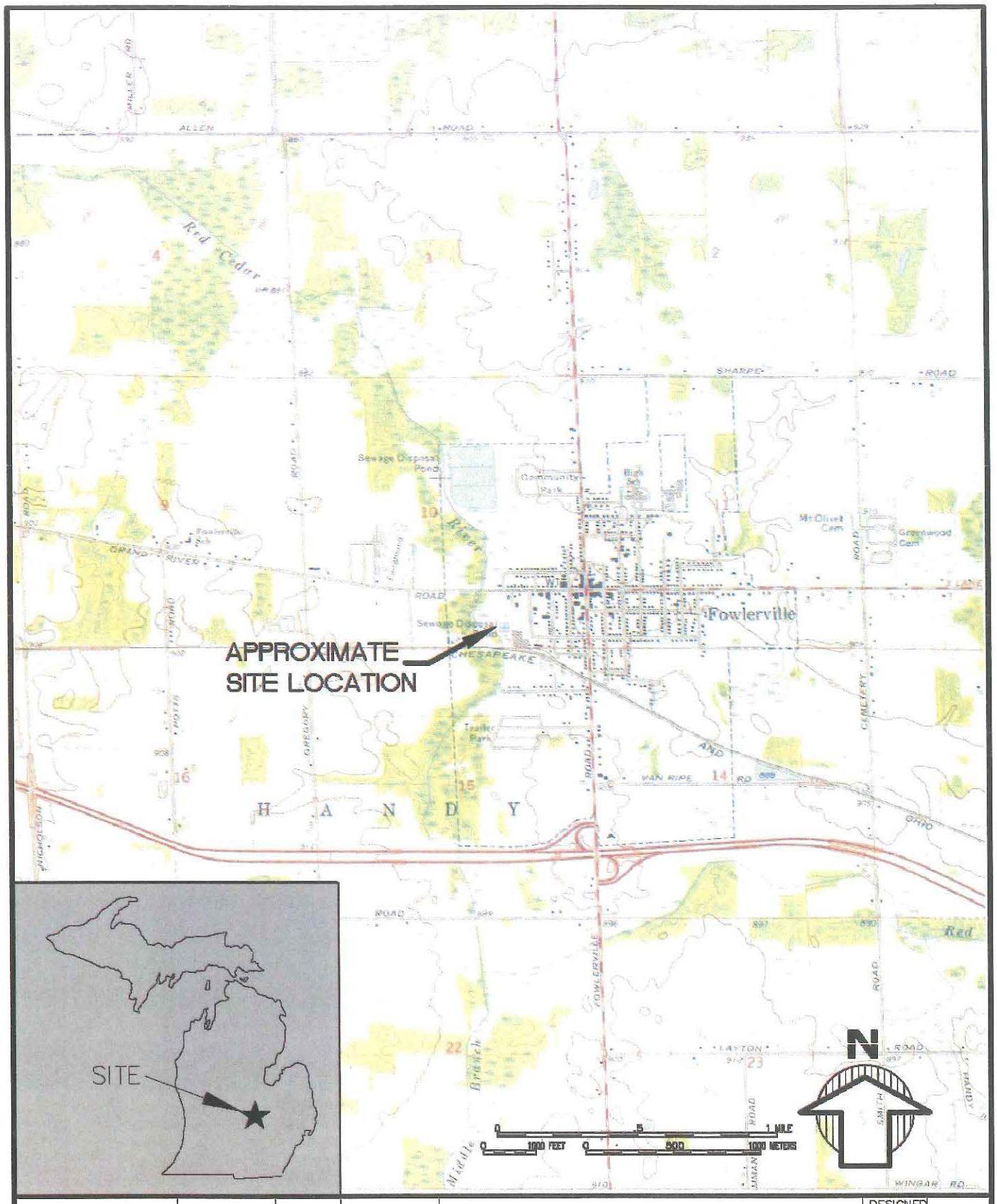
Area 2

	SD-L1 (0 - 10)	SD-L2 (0 - 15)	SD-L3 (0 - 15)	E 13+50 (0-12)	E 13+50 (12-24)	W 13+50 (0-12)	W 13+50 (12-24)
PAHs							
Calculated Mean PEC-Qpah	0.10	0.08	0.13	0.04	0.07	0.05	0.10
Mean PEC-Qpah	0.09	0.12	0.18	0.05	0.07	0.06	0.10
Metals							
Mean PEC-Qmetals	0.03	0.10	0.06	0.14	0.09	0.12	0.11
Overall							
Mean PEC-Q overall (PAH Calculated)	0.07	0.09	0.10	0.09	0.08	0.08	0.11
Mean PEC-Q overall	0.06	0.11	0.12	0.09	0.08	0.09	0.10

Note:
<0.5 is considered acceptable risk

E

FIGURES



CTI and Associates, Inc.	SCALE: NTS	**FIGURE 1**	DESIGNED BY: CK
	PROJECT NO.: 0105010007	**SITE LOCATION MAP**	DRAWN BY: CK
	FILE NAME: F1 SLM.pptx		CHECKED BY: JRD
	DATE: Jan. 2012		APPROVED BY: AJL

0 75 150

SCALE IN FEET

N

LEGEND

- Approximate Location of National Wetland Inventory Boundary
- Approximate Railroad Right of Way (ROW)
- Actual River Boundary Based on 2009 Survey Data

FIGURE NO.	2
PROJECT NO.	0105010007
DATE	Jan 2012
Approved By:	A.J. LONERGAN
Checked By:	J. Dickson
Drawn By:	J. Dickson
Designed By:	J. Dickson

REVISIONS:

Rev. 1 Replace Drawings from January 2010 Submittal

CLIENT: JCI Plymouth, MI

SEDIMENT REMEDIAL DESIGN PLAN

FORMER STANLEY TOOLS FACILITY

(MID 099 124 299), Fowlerville, MI

SITE LAYOUT WITH AERIAL PHOTO

CTI and Associates, Inc.

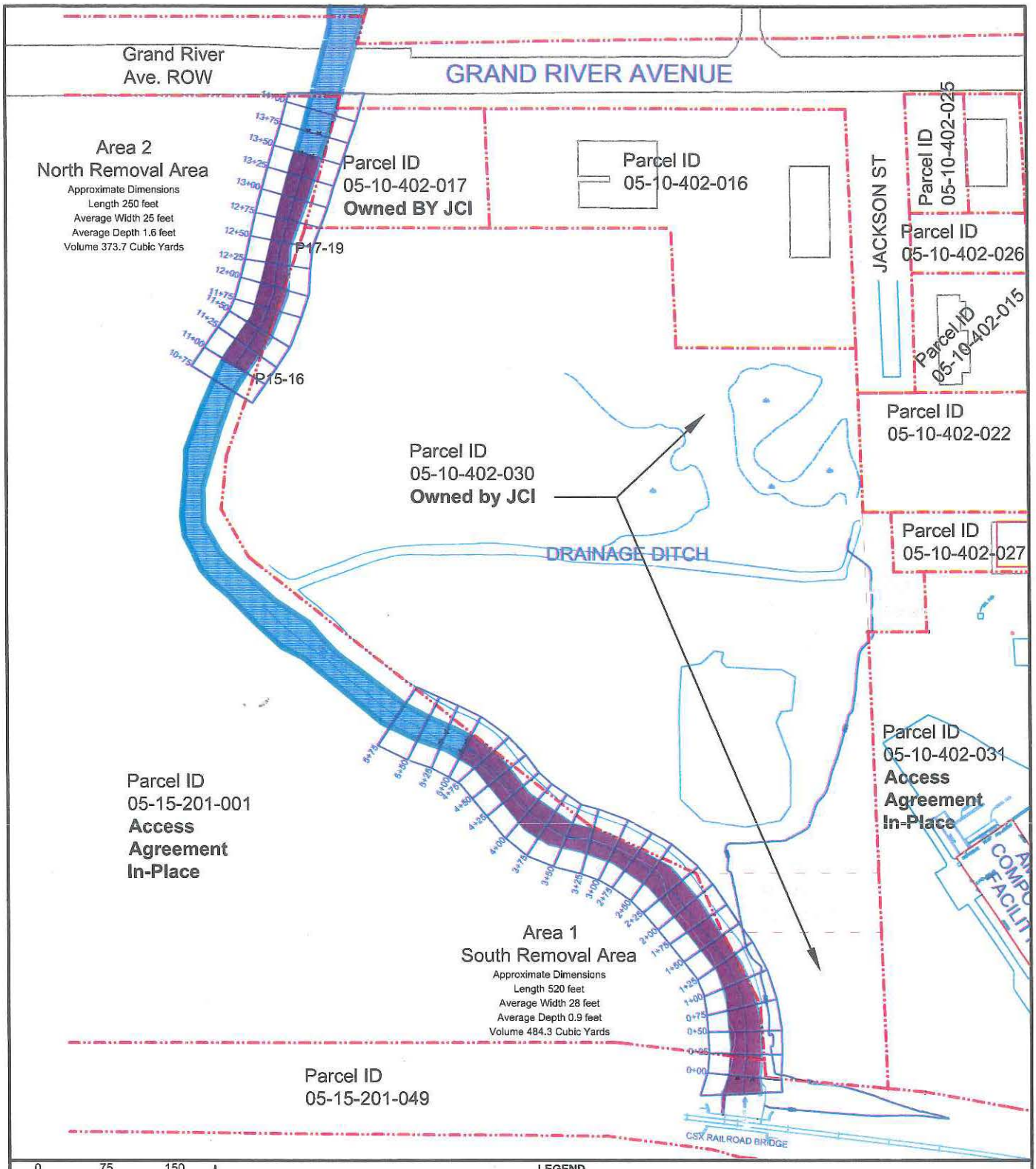


FIGURE NO. 3

PROJECT NO. -

DATE Jan 2013

Drawn By: J. Dickson
Checked By: R. Shebuski
Approved By: A. Lonergan

CLIENT: JCI Plymouth, MI

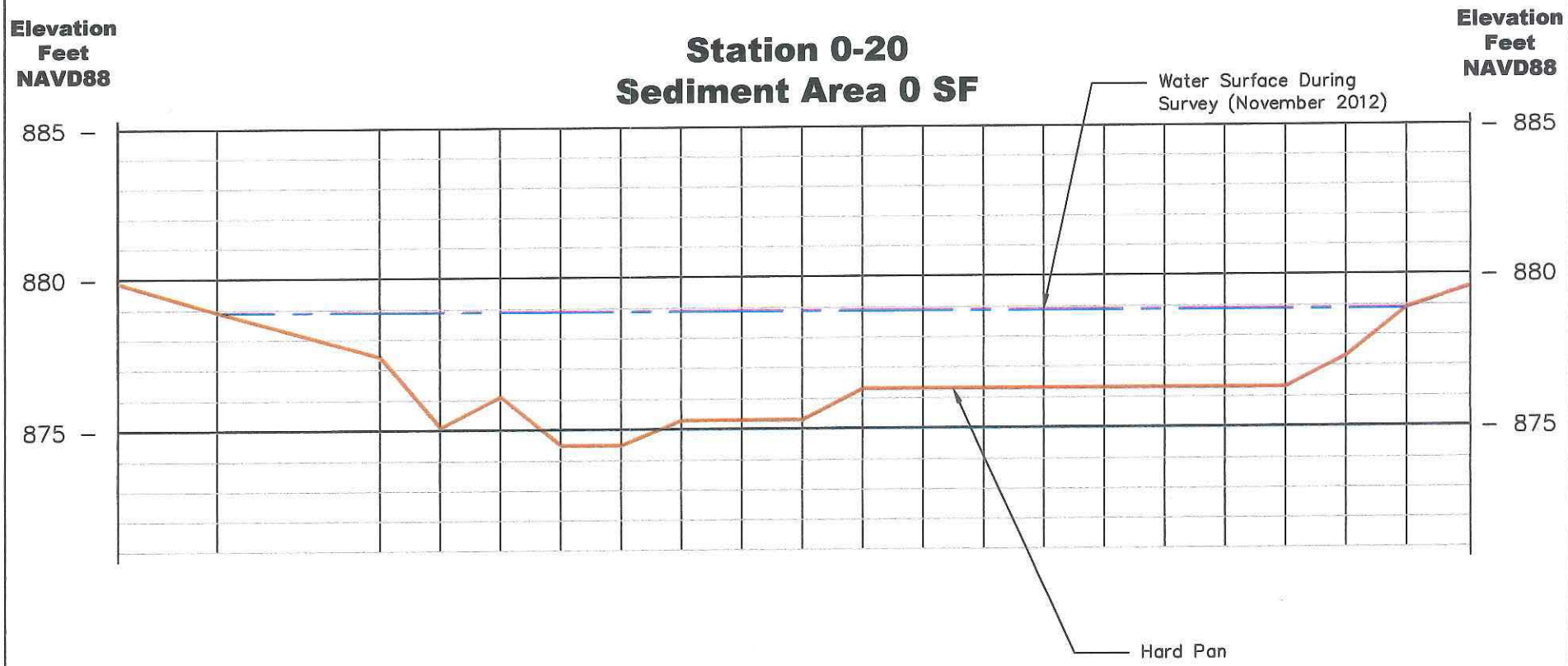
SEDIMENT REMEDIAL DESIGN PLAN

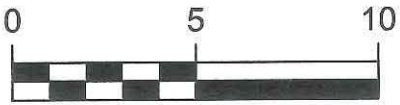
FORMER STANLEY TOOLS FACILITY
(MID 099 124 299), Fowlerville, MI - Livingston County
Survey Stationing
Dredging Locations (Nov 2012)

CT and Associates, Inc.

West Bank

East Bank





SEDIMENT REMEDIAL DESIGN PLAN
FORMER STANLEY TOOLS FACILITY
(MID 099 124 299), Fowlerville, MI - Livingston County

FIGURE 4-1	DATE Dec 2012	Cross-Section Station 0-20	CLIENT: JCI Plymouth, MI	CTI and Associates, Inc.

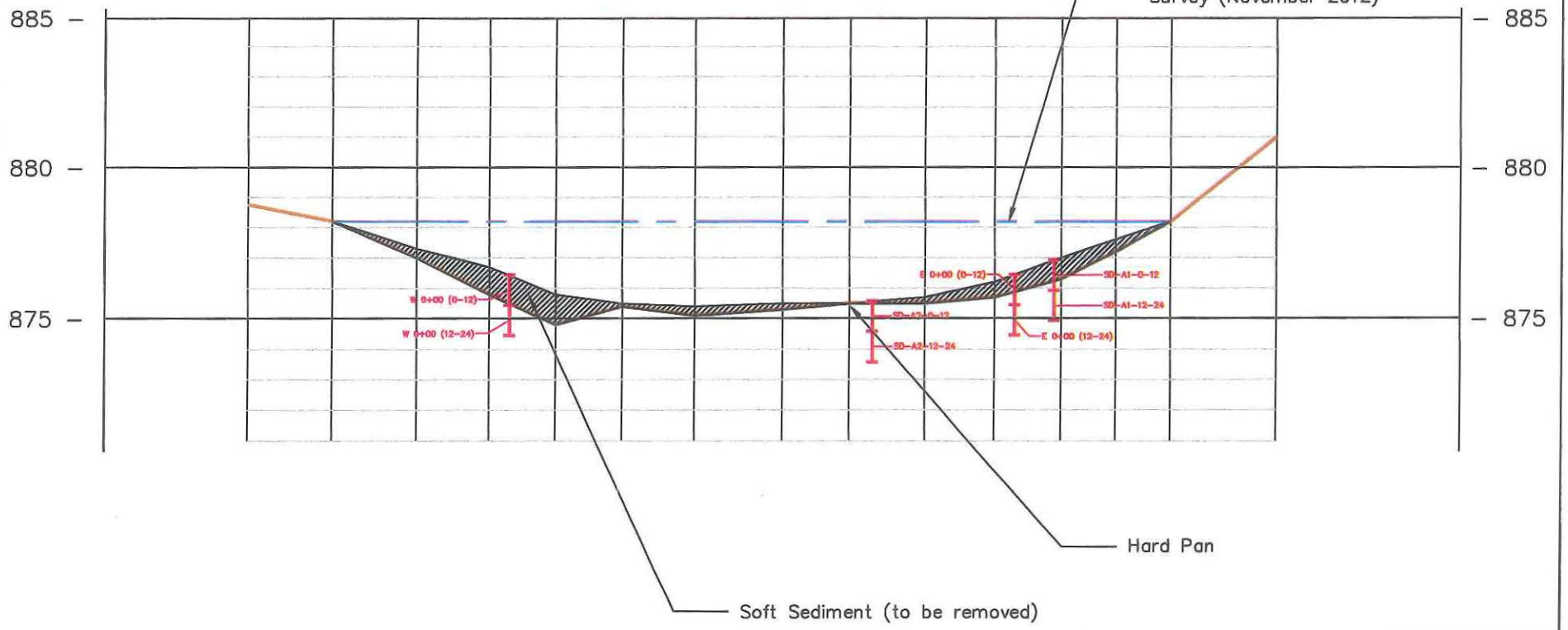
West Bank

East Bank

Elevation Feet NAVD88

Elevation Feet NAVD88

Station 0+00
Sediment Area 10.31SF



0 5 10

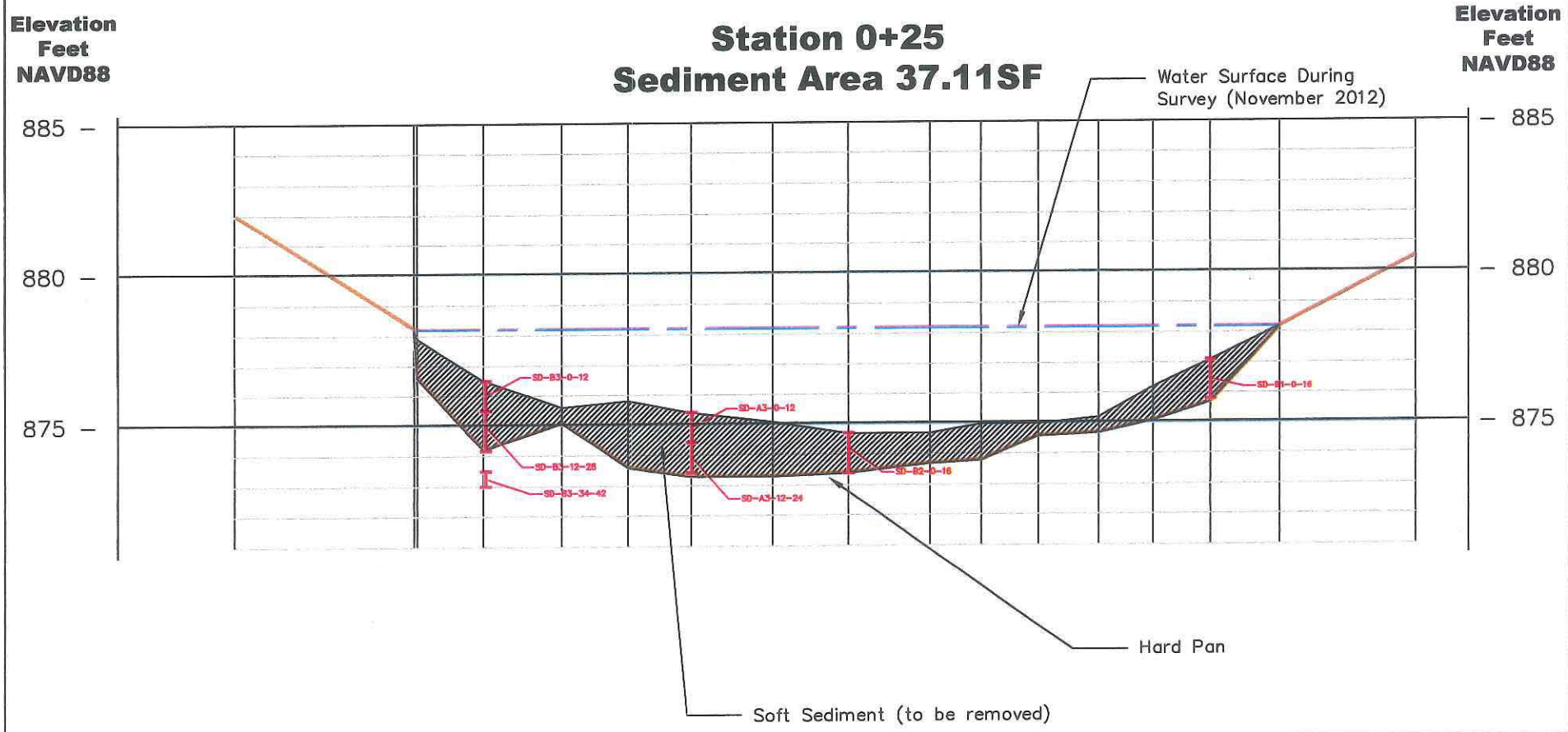
SCALE IN FEET

SEDIMENT REMEDIAL DESIGN PLAN
FORMER STANLEY TOOLS FACILITY
(MID 099 124 299), Fowlerville, MI - Livingston County

FIGURE 4-2	DATE Dec 2012	Cross-Section Station 0+00	CLIENT: JCI Plymouth, MI	CTI and Associates, Inc.

West Bank

East Bank



0 5 10

SCALE IN FEET

SEDIMENT REMEDIAL DESIGN PLAN
FORMER STANLEY TOOLS FACILITY
(MID 099 124 299), Fowlerville, MI - Livingston County

FIGURE 4-3	DATE Dec 2012	Cross-Section Station 0+25	CLIENT: JCI Plymouth, MI	CTI and Associates, Inc.

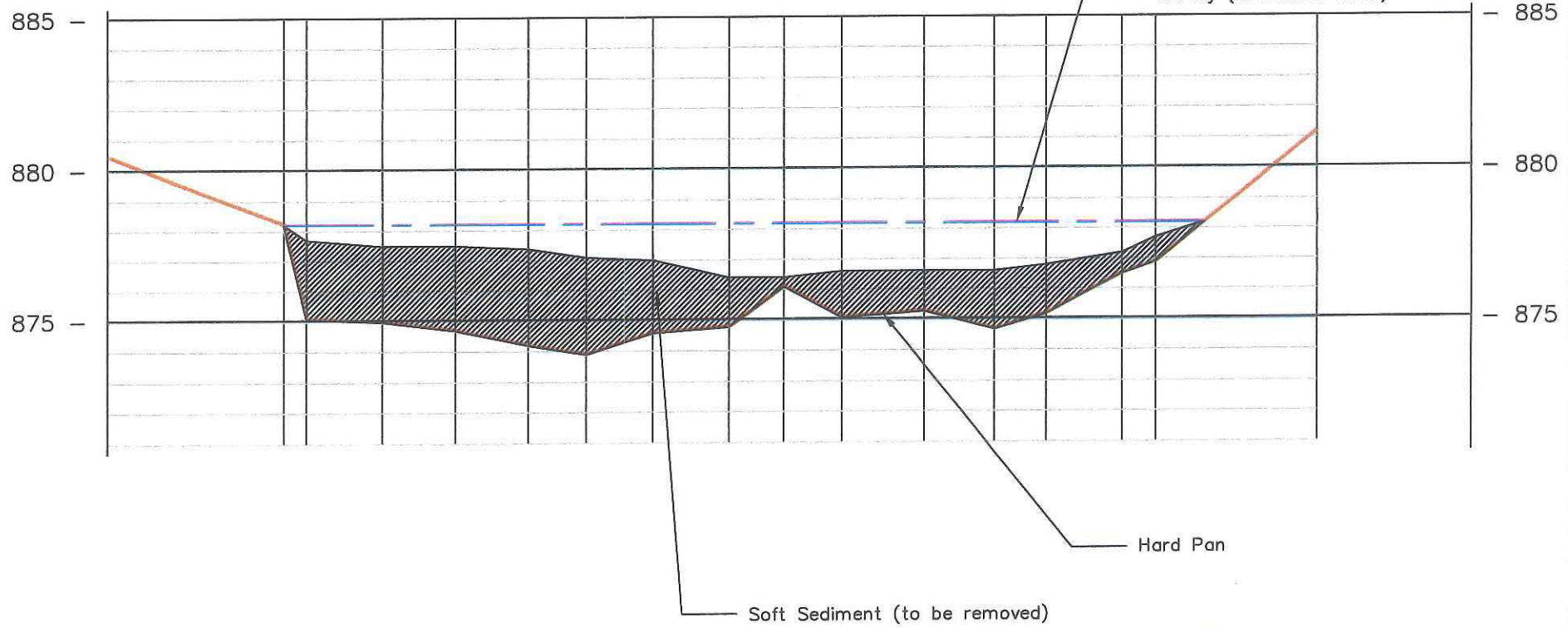
West Bank

East Bank

Elevation Feet NAVD88

Station 0+50
Sediment Area 56.3 SF

Elevation Feet NAVD88



0 5 10

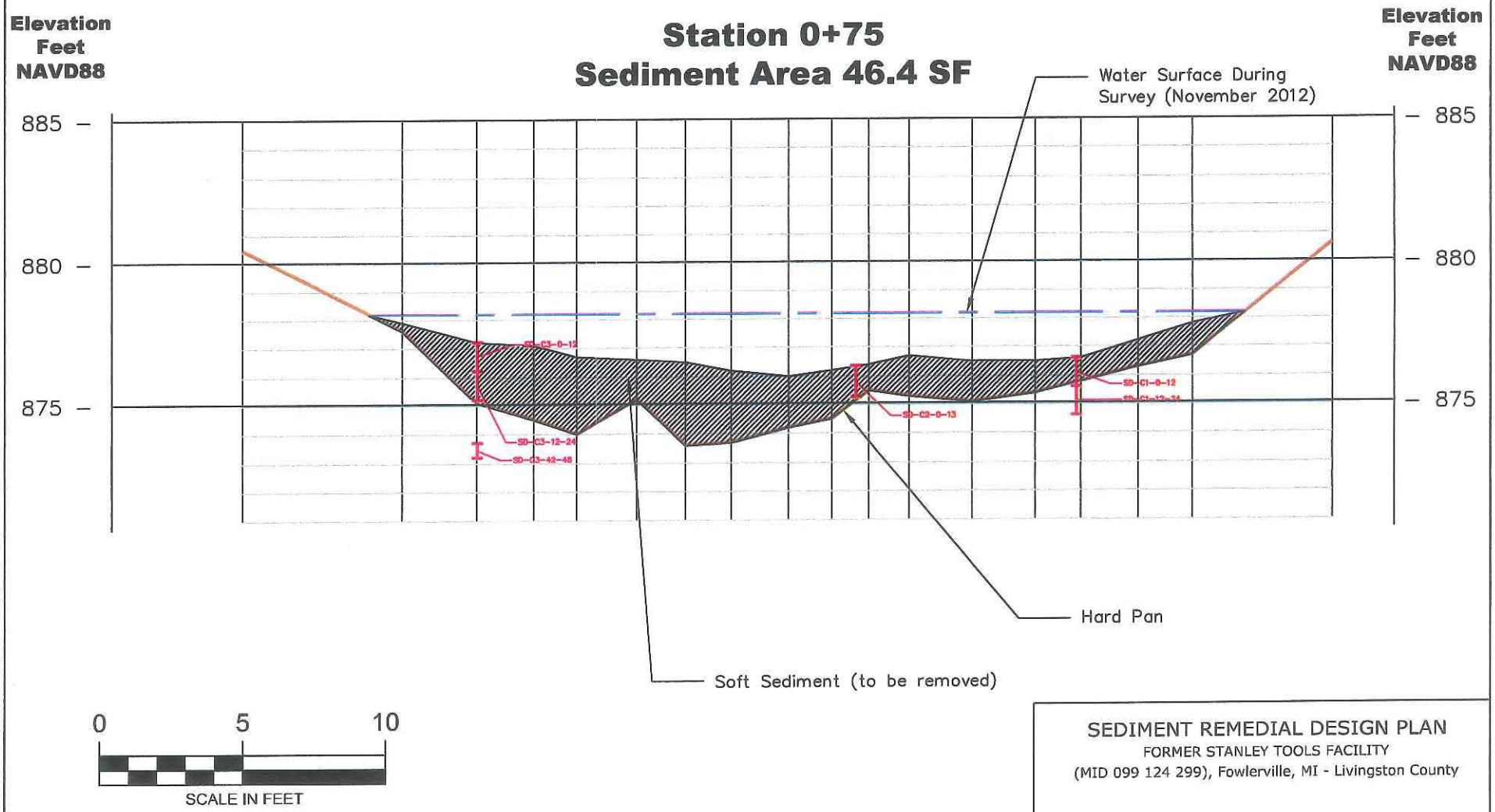
SCALE IN FEET

SEDIMENT REMEDIAL DESIGN PLAN
FORMER STANLEY TOOLS FACILITY
(MID 099 124 299), Fowlerville, MI - Livingston County

FIGURE 4-4	DATE Dec 2012	Cross-Section Station 0+50	CLIENT: JCI Plymouth, MI	CTI and Associates, Inc.

West Bank

East Bank



0 5 10

SCALE IN FEET

SEDIMENT REMEDIAL DESIGN PLAN
FORMER STANLEY TOOLS FACILITY
(MID 099 124 299), Fowlerville, MI - Livingston County

FIGURE 4-5	DATE Dec 2012	Cross-Section Station 0+75	CLIENT: JCI Plymouth, MI	CTI and Associates, Inc.

West Bank

East Bank

Elevation Feet NAVD88

Station 1+00
Sediment Area 22.56 SF

Elevation Feet NAVD88

0 5 10

SCALE IN FEET

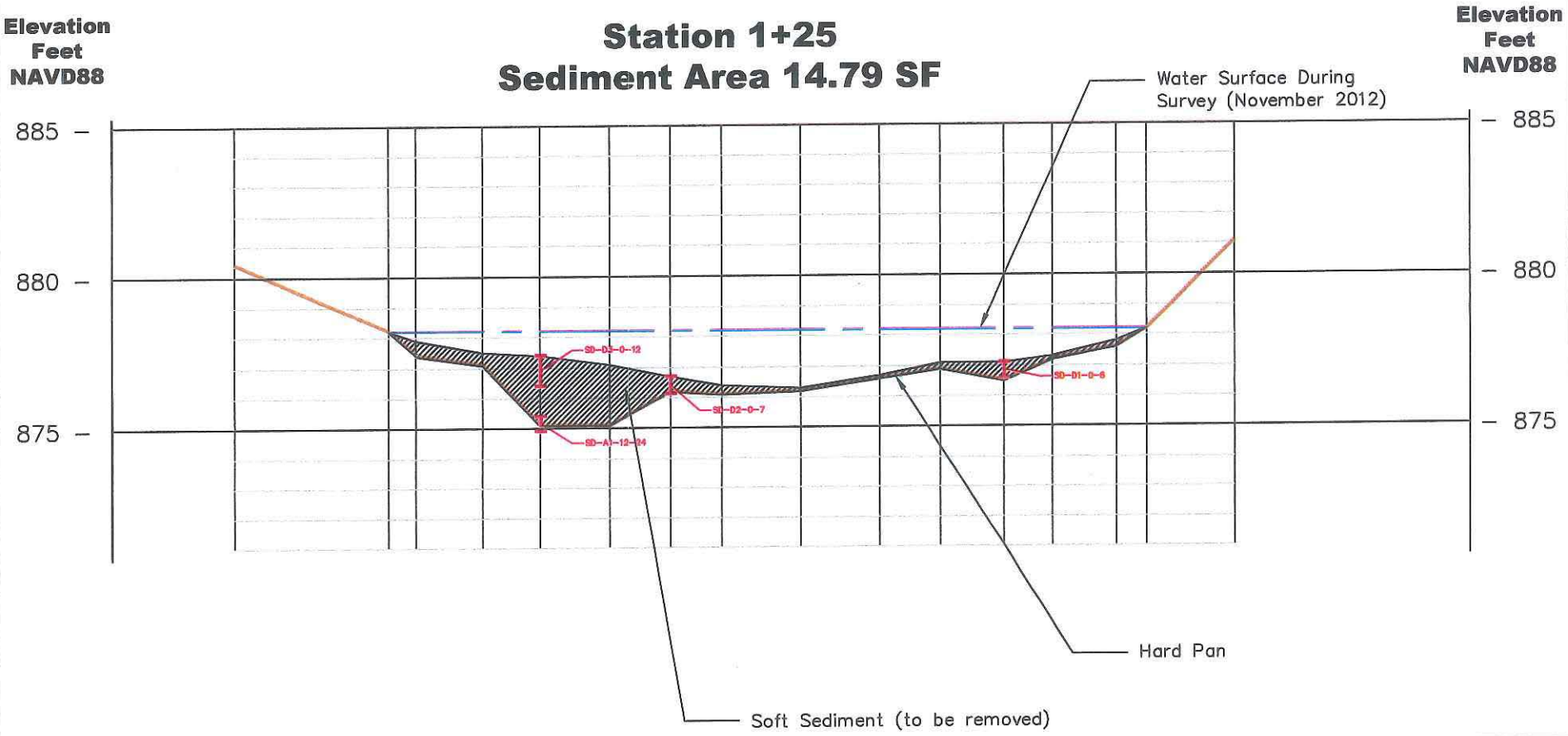
SEDIMENT REMEDIAL DESIGN PLAN
FORMER STANLEY TOOLS FACILITY
(MID 099 124 299), Fowlerville, MI - Livingston County

FIGURE 4-6	DATE Dec 2012	Cross-Section Station 1+00	CLIENT: JCI Plymouth, MI	CTI and Associates, Inc.

West Bank

East Bank

Station 1+25
Sediment Area 14.79 SF



0 5 10

SCALE IN FEET

SEDIMENT REMEDIAL DESIGN PLAN
FORMER STANLEY TOOLS FACILITY
(MID 099 124 299), Fowlerville, MI - Livingston County

FIGURE 4-7	DATE Dec 2012	Cross-Section Station 1+25	CLIENT: JCI Plymouth, MI	CTI and Associates, Inc.

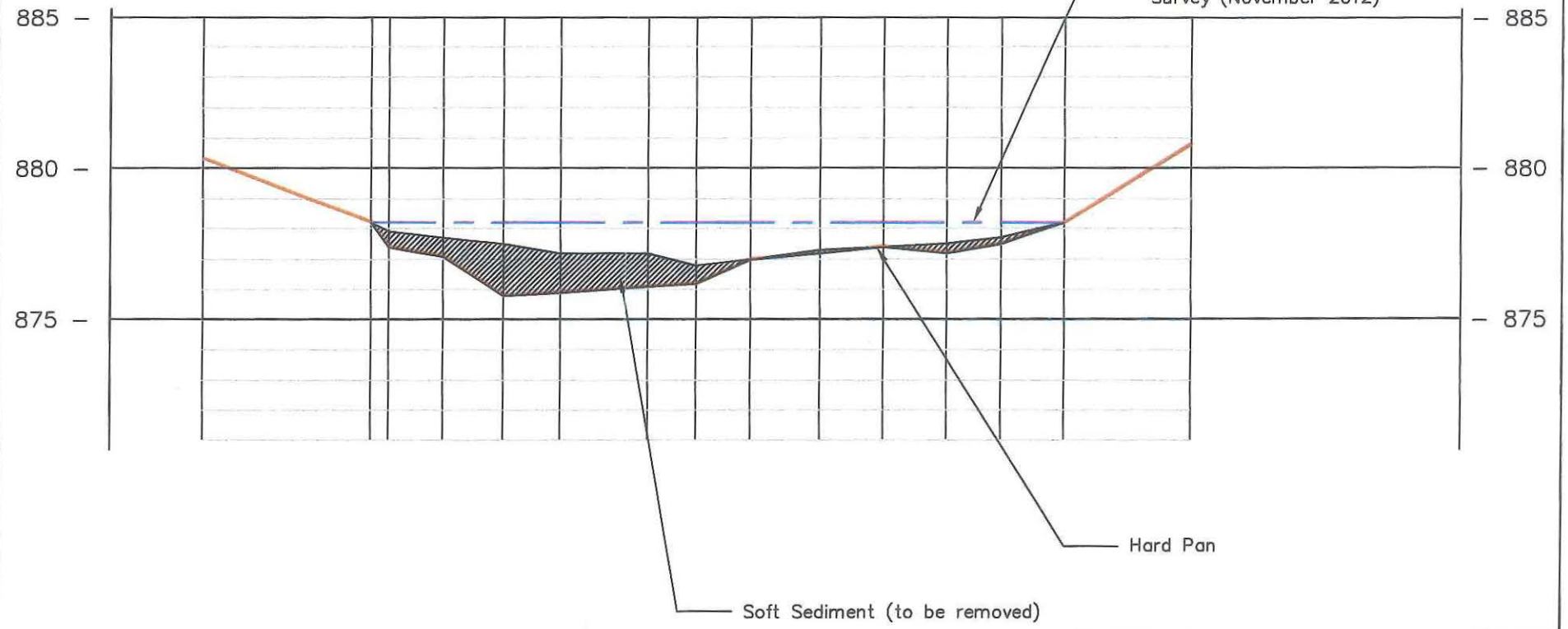
West Bank

East Bank

Elevation Feet NAVD88

Station 1+50
Sediment Area 12.86 SF

Elevation Feet NAVD88



0 5 10

SCALE IN FEET

SEDIMENT REMEDIAL DESIGN PLAN
FORMER STANLEY TOOLS FACILITY
(MID 099 124 299), Fowlerville, MI - Livingston County

FIGURE 4-8	DATE Dec 2012	Cross-Section Station 1+50	CLIENT: JCI Plymouth, MI	CTI and Associates, Inc.

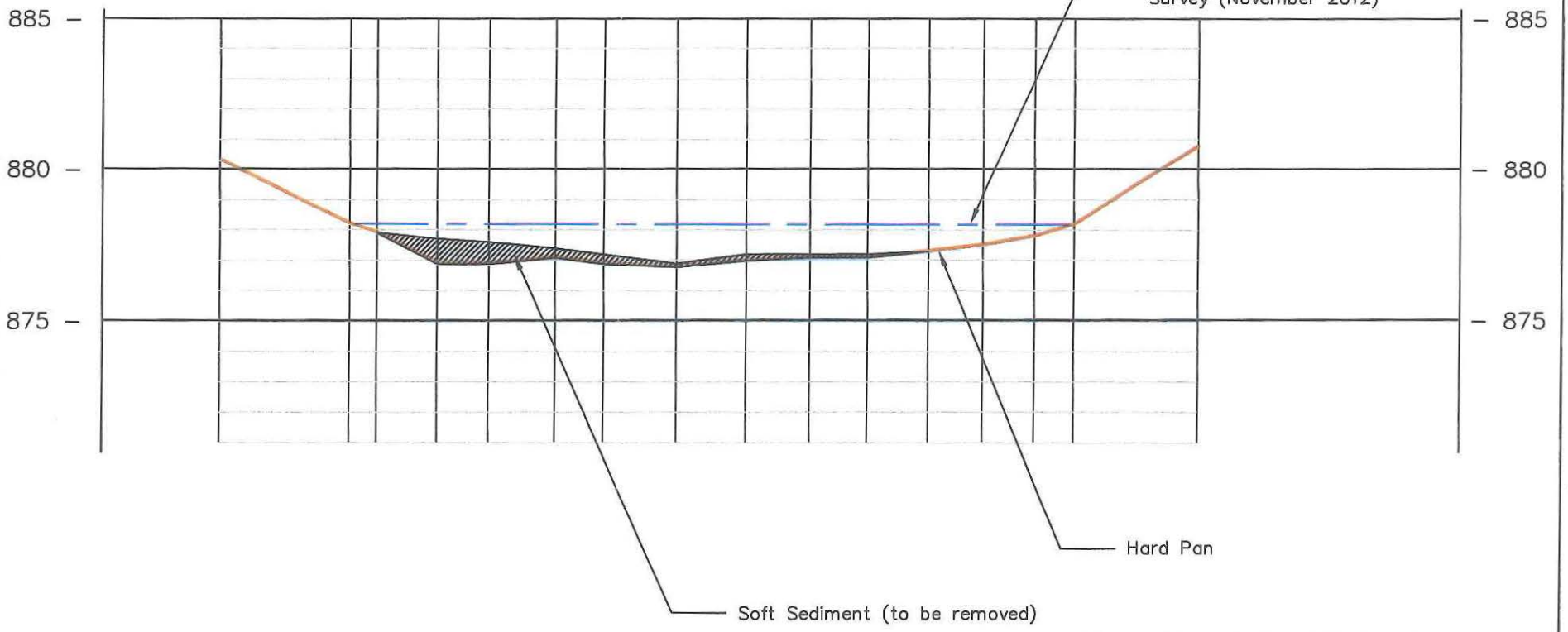
West Bank

East Bank

Elevation Feet NAVD88

Station 1+75
Sediment Area 5.09 SF

Elevation Feet NAVD88



0 5 10

SCALE IN FEET

SEDIMENT REMEDIAL DESIGN PLAN
FORMER STANLEY TOOLS FACILITY
(MID 099 124 299), Fowlerville, MI - Livingston County

FIGURE 4-9	DATE Dec 2012	Cross-Section Station 1+75	CLIENT: JCI Plymouth, MI	CTI and Associates, Inc.

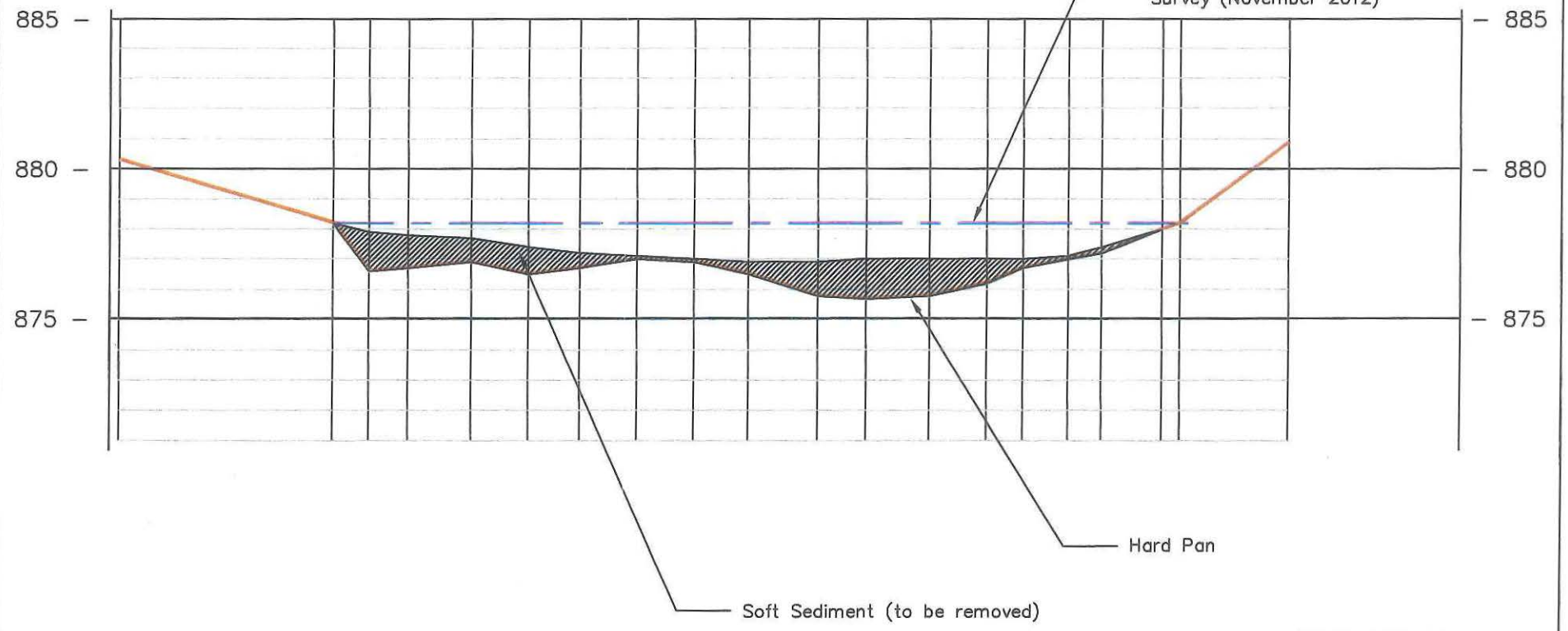
West Bank

East Bank

Elevation Feet NAVD88

Station 2+00
Sediment Area 17.85 SF

Elevation Feet NAVD88



0 5 10

SCALE IN FEET

SEDIMENT REMEDIAL DESIGN PLAN
FORMER STANLEY TOOLS FACILITY
(MID 099 124 299), Fowlerville, MI - Livingston County

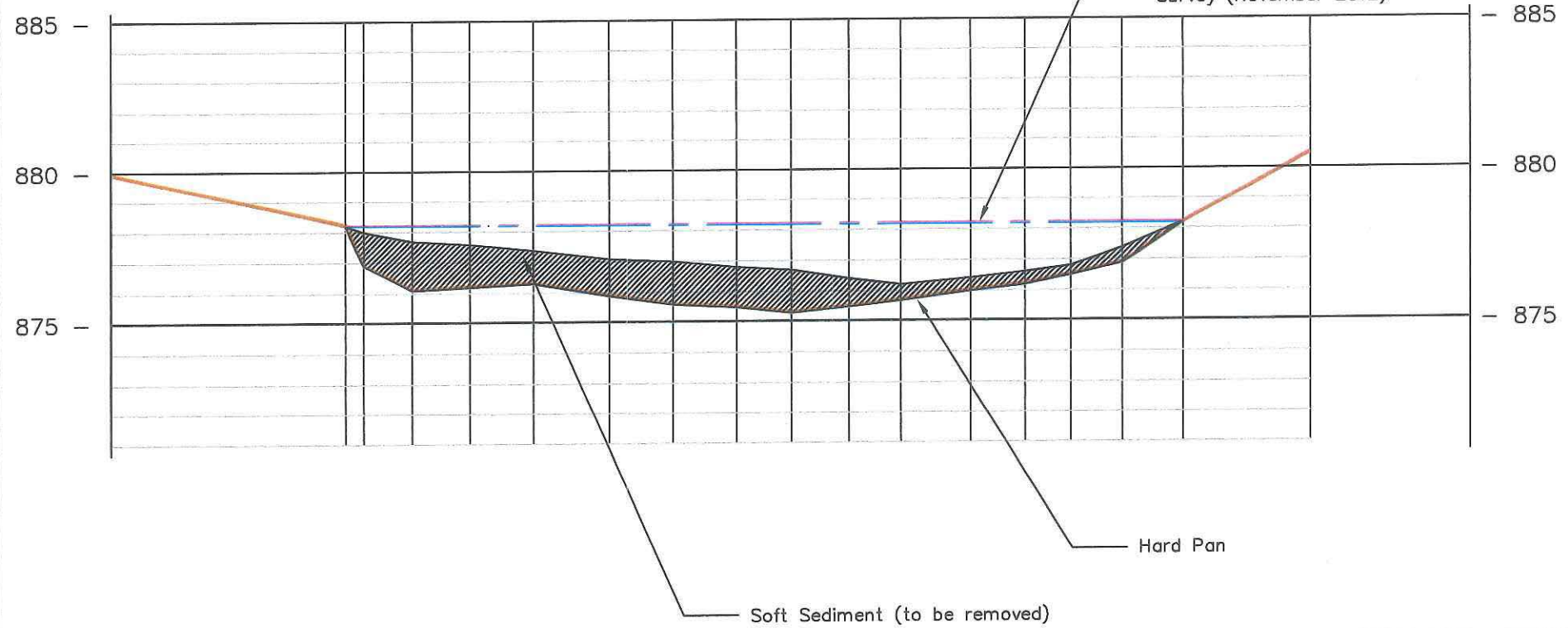
FIGURE 4-10	DATE Dec 2012	Cross-Section Station 2+00	CLIENT: JCI Plymouth, MI	CTI and Associates, Inc.

West Bank

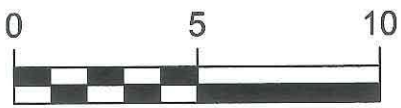
East Bank

Elevation Feet NAVD88

Station 2+25
Sediment Area 25.67 SF



Elevation Feet NAVD88



SEDIMENT REMEDIAL DESIGN PLAN
FORMER STANLEY TOOLS FACILITY
(MID 099 124 299), Fowlerville, MI - Livingston County

FIGURE 4-11	DATE Dec 2012	Cross-Section Station 2+25	CLIENT: JCI Plymouth, MI	CTI and Associates, Inc.

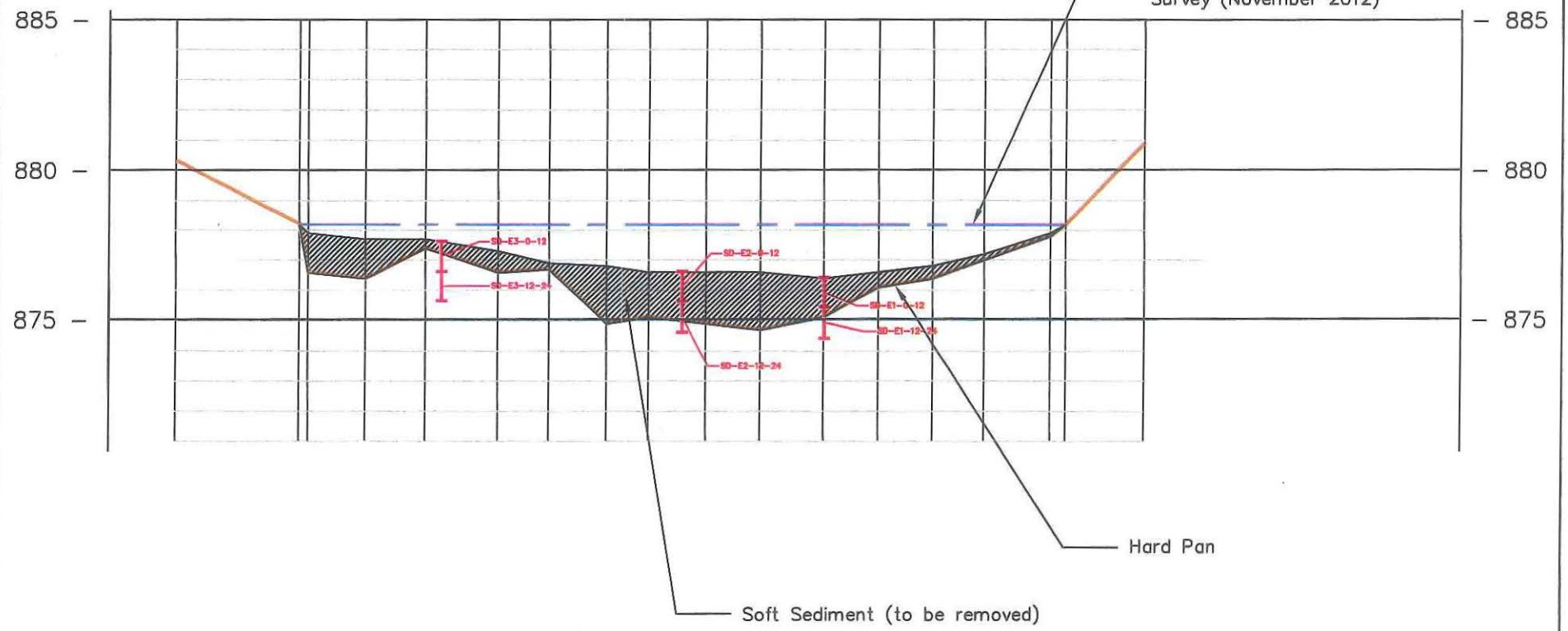
West Bank

East Bank

Elevation Feet NAVD88

Station 2+50
Sediment Area 23.54 SF

Elevation Feet NAVD88



0 5 10

SCALE IN FEET

SEDIMENT REMEDIAL DESIGN PLAN
FORMER STANLEY TOOLS FACILITY
(MID 099 124 299), Fowlerville, MI - Livingston County

FIGURE 4-12	DATE Dec 2012	Cross-Section Station 2+50	CLIENT: JCI Plymouth, MI	CTI and Associates, Inc.

West Bank

East Bank

Elevation Feet NAVD88

Station 2+75
Sediment Area 21.48 SF

Elevation Feet NAVD88

0 5 10

SCALE IN FEET

SEDIMENT REMEDIAL DESIGN PLAN
FORMER STANLEY TOOLS FACILITY
(MID 099 124 299), Fowlerville, MI - Livingston County

FIGURE 4-13	DATE Dec 2012	Cross-Section Station 2+75	CLIENT: JCI Plymouth, MI	CTI and Associates, Inc.

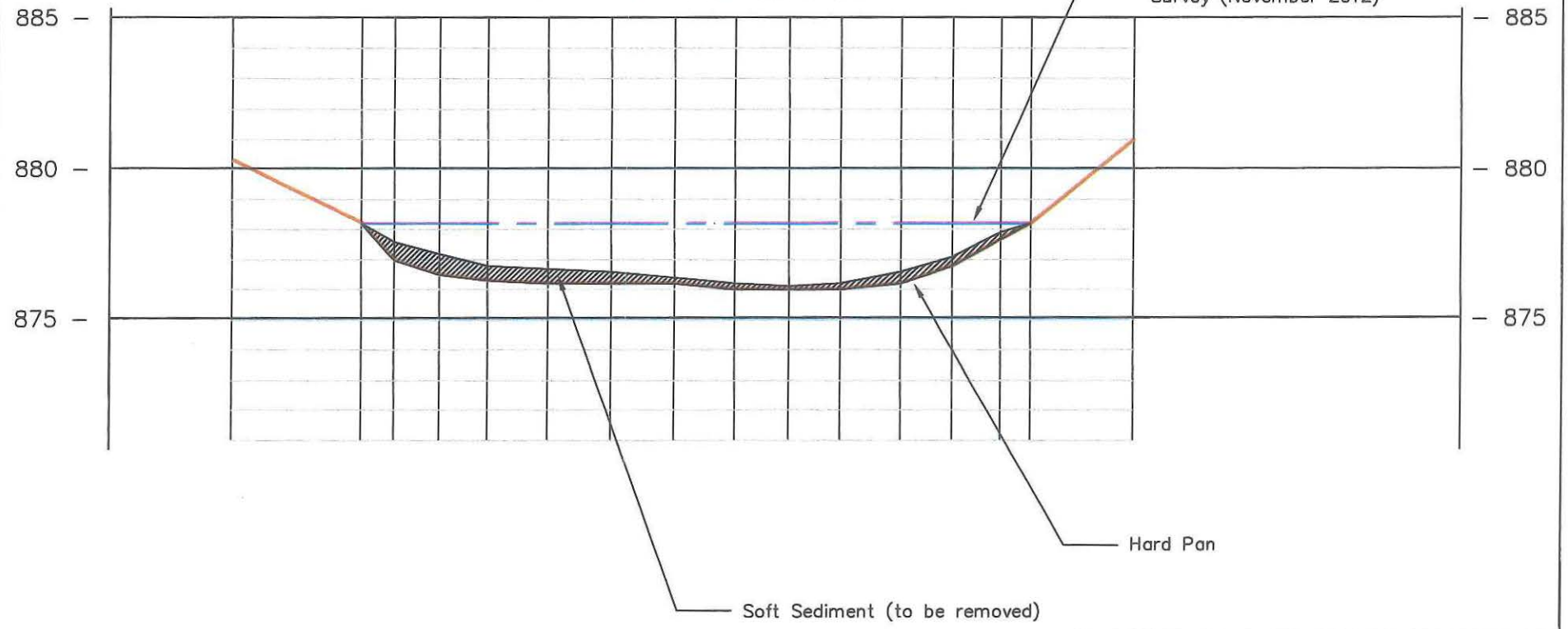
West Bank

East Bank

Elevation Feet NAVD88

Elevation Feet NAVD88

Station 3+00
Sediment Area 7.51SF



0 5 10

SCALE IN FEET

SEDIMENT REMEDIAL DESIGN PLAN
FORMER STANLEY TOOLS FACILITY
(MID 099 124 299), Fowlerville, MI - Livingston County

FIGURE 4-14	DATE Dec 2012	Cross-Section Station 3+00	CLIENT: JCI Plymouth, MI	CTI and Associates, Inc.

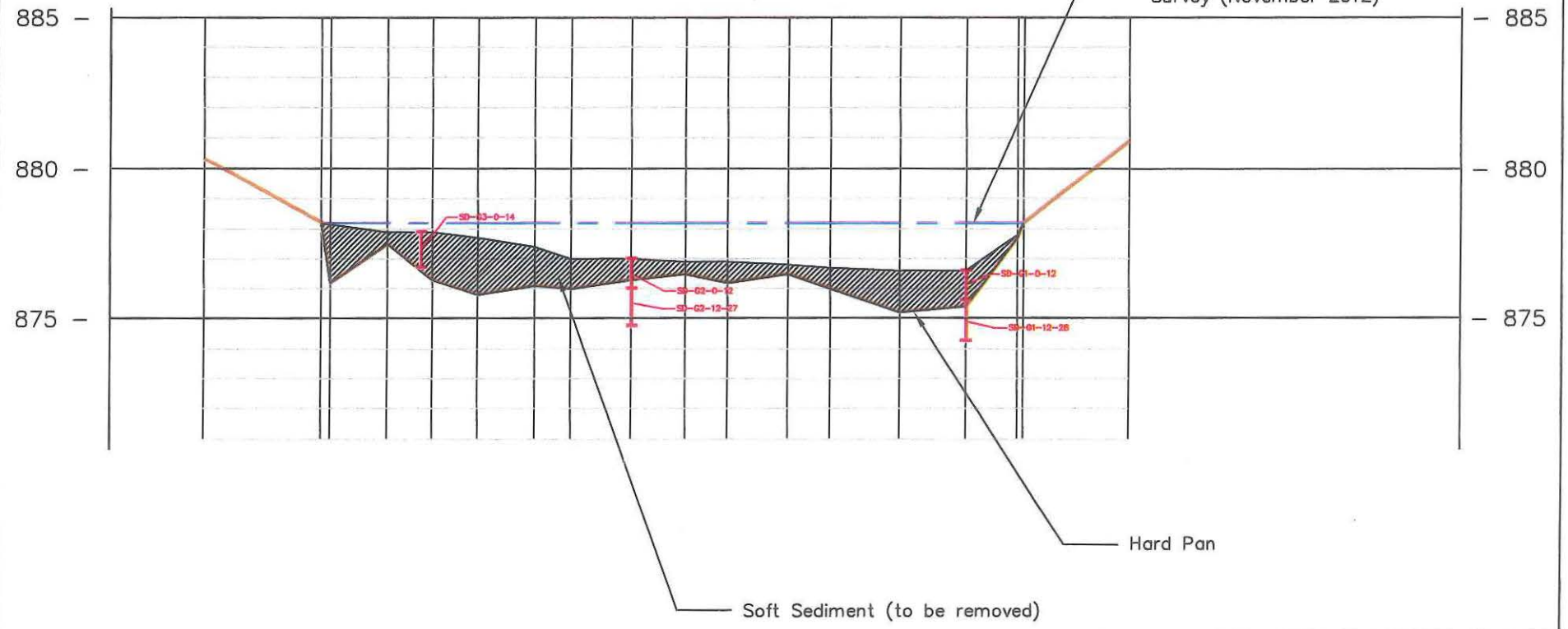
West Bank

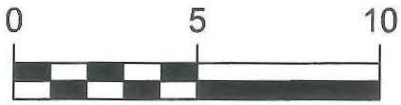
East Bank

Elevation Feet NAVD88

Elevation Feet NAVD88

Station 3+25
Sediment Area 22.63 SF





SEDIMENT REMEDIAL DESIGN PLAN
FORMER STANLEY TOOLS FACILITY
(MID 099 124 299), Fowlerville, MI - Livingston County

FIGURE 4-15	DATE Dec 2012	Cross-Section Station 3+25	CLIENT: JCI Plymouth, MI	CTI and Associates, Inc.

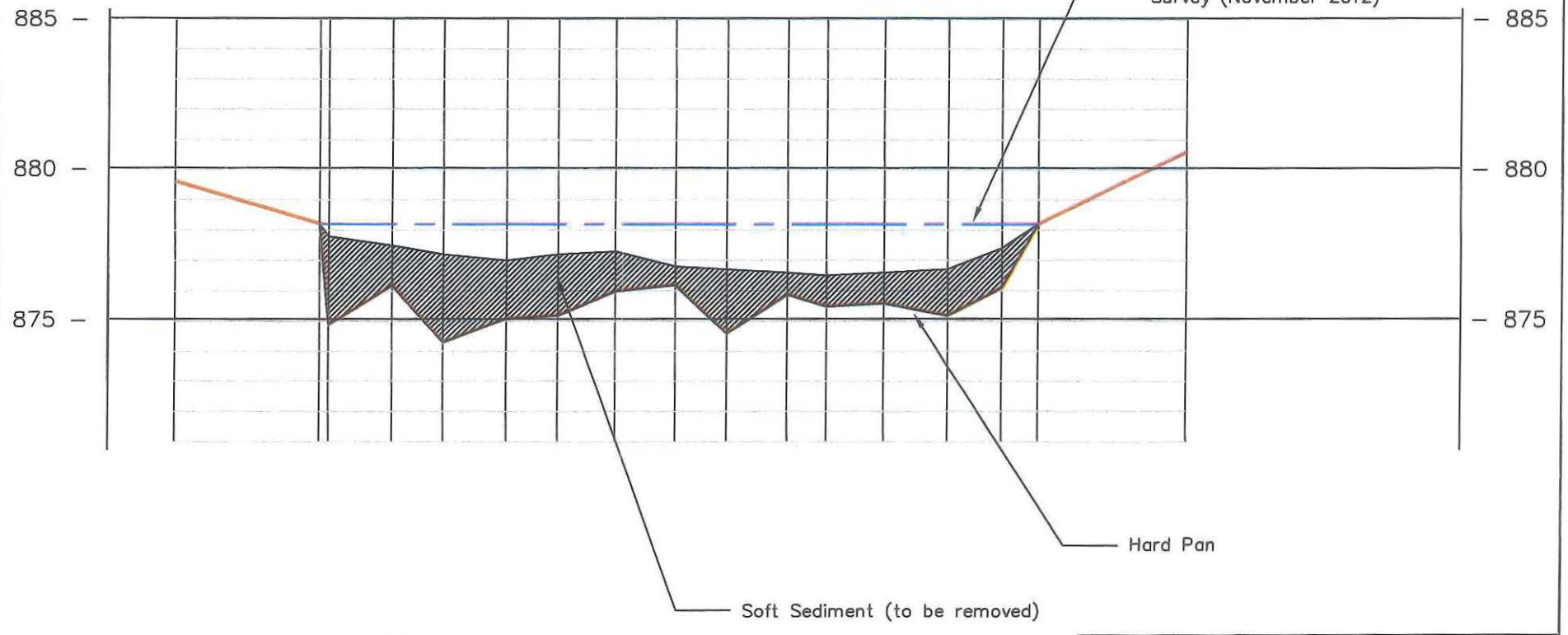
West Bank

East Bank

Elevation Feet NAVD88

Station 3+50
Sediment Area 35.83 SF

Elevation Feet NAVD88



0 5 10

SCALE IN FEET

SEDIMENT REMEDIAL DESIGN PLAN
FORMER STANLEY TOOLS FACILITY
(MID 099 124 299), Fowlerville, MI - Livingston County

FIGURE 4-16	DATE Dec 2012	Cross-Section Station 3+50	CLIENT: JCI Plymouth, MI	CTI and Associates, Inc.

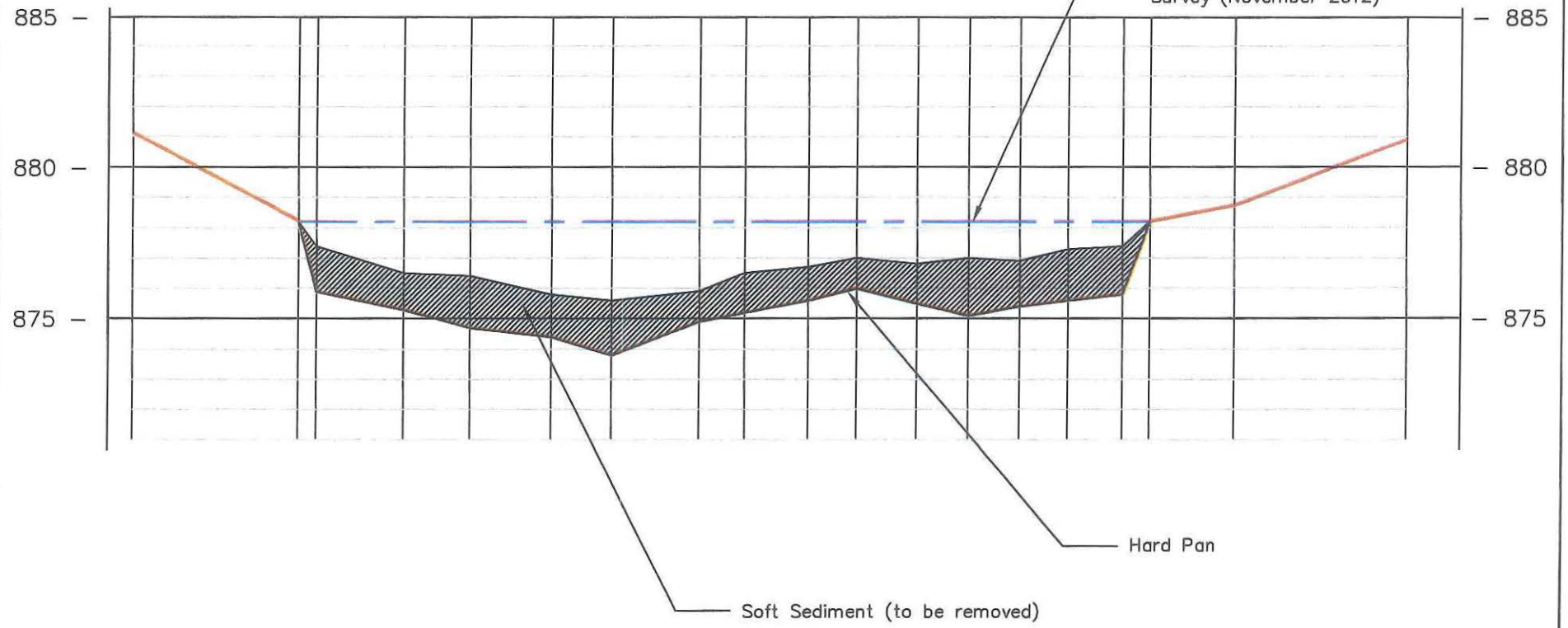
West Bank

East Bank

Elevation Feet NAVD88

Station 3+75
Sediment Area 39.09 SF

Elevation Feet NAVD88



0 5 10

SCALE IN FEET

SEDIMENT REMEDIAL DESIGN PLAN
FORMER STANLEY TOOLS FACILITY
(MID 099 124 299), Fowlerville, MI - Livingston County

FIGURE 4-17	DATE Dec 2012	Cross-Section Station 3+75	CLIENT: JCI Plymouth, MI	CTI and Associates, Inc.

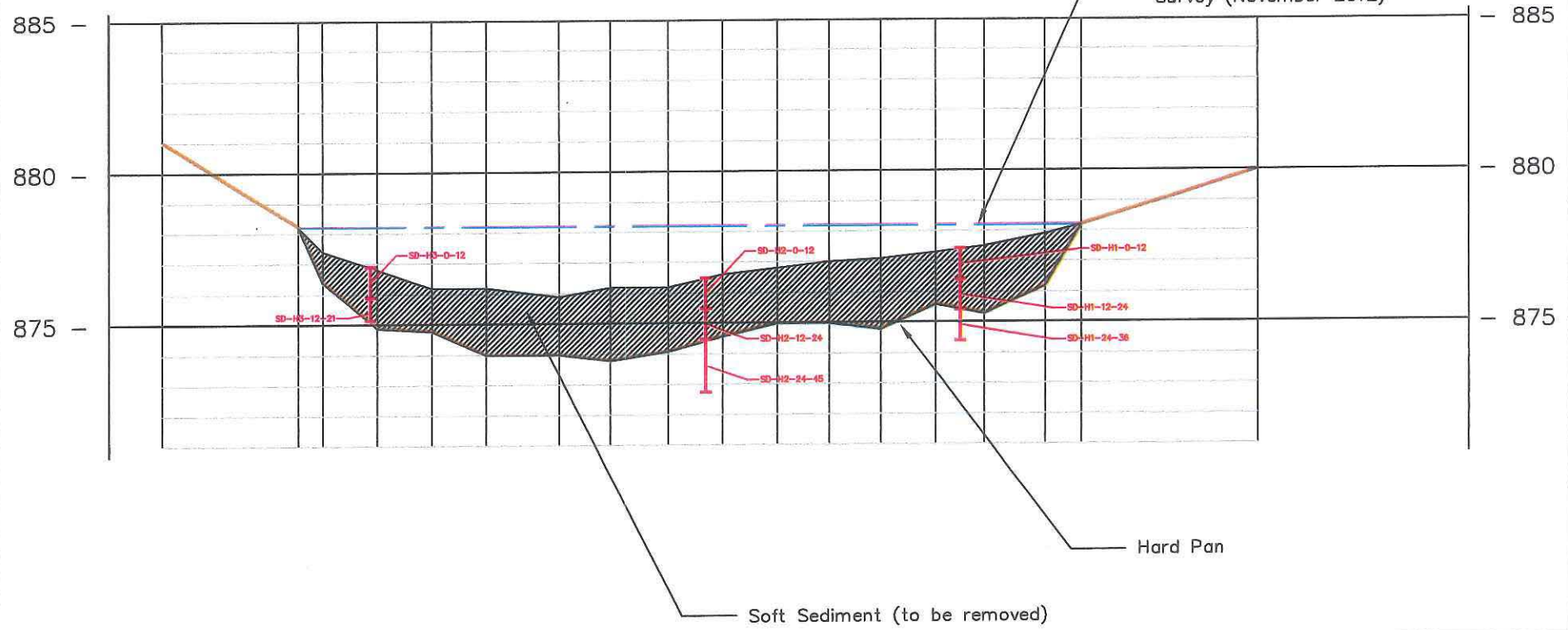
West Bank

East Bank

Elevation Feet NAVD88

Elevation Feet NAVD88

Station 4+00
Sediment Area 47.68 SF



0 5 10

SCALE IN FEET

SEDIMENT REMEDIAL DESIGN PLAN
FORMER STANLEY TOOLS FACILITY
(MID 099 124 299), Fowlerville, MI - Livingston County

FIGURE 4-18	DATE Dec 2012	Cross-Section Station 4+00	CLIENT: JCI Plymouth, MI	CTI and Associates, Inc.

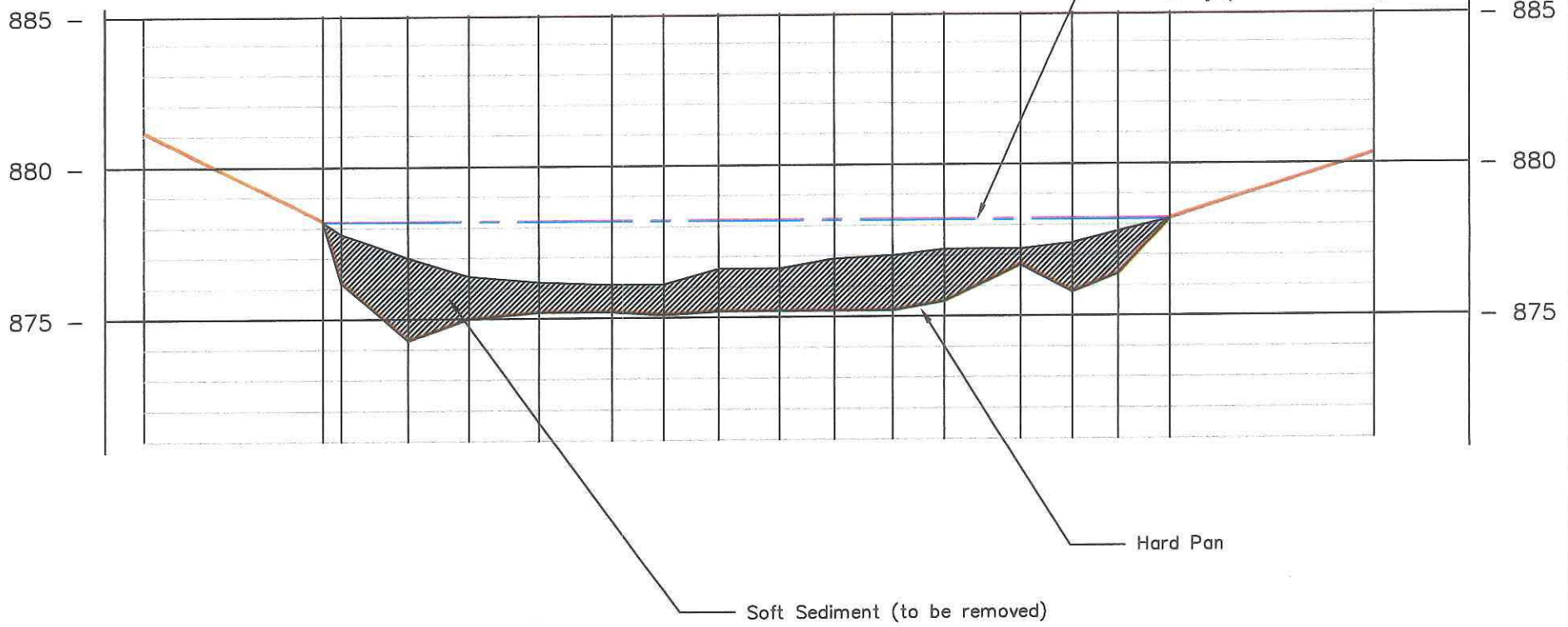
West Bank

East Bank

Elevation Feet NAVD88

Station 4+25
Sediment Area 37.99 SF

Elevation Feet NAVD88



0 5 10

SCALE IN FEET

SEDIMENT REMEDIAL DESIGN PLAN
FORMER STANLEY TOOLS FACILITY
(MID 099 124 299), Fowlerville, MI - Livingston County

FIGURE 4-19	DATE Dec 2012	Cross-Section Station 4+25	CLIENT: JCI Plymouth, MI	CTI and Associates, Inc.

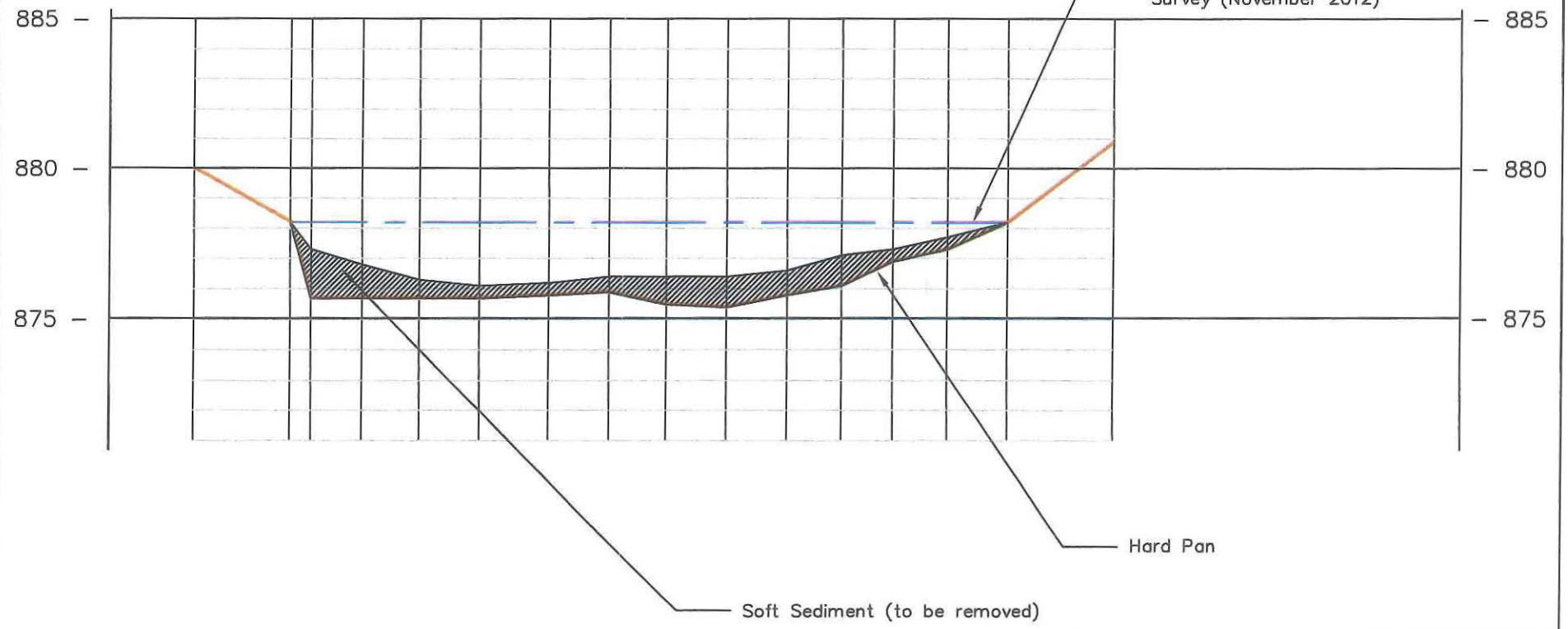
West Bank

East Bank

Elevation Feet NAVD88

Station 4+50
Sediment Area 16.25 SF

Elevation Feet NAVD88



0 5 10

SCALE IN FEET

SEDIMENT REMEDIAL DESIGN PLAN
FORMER STANLEY TOOLS FACILITY
(MID 099 124 299), Fowlerville, MI - Livingston County

FIGURE 4-20	DATE Dec 2012	Cross-Section Station 4+50	CLIENT: JCI Plymouth, MI	CTI and Associates, Inc.

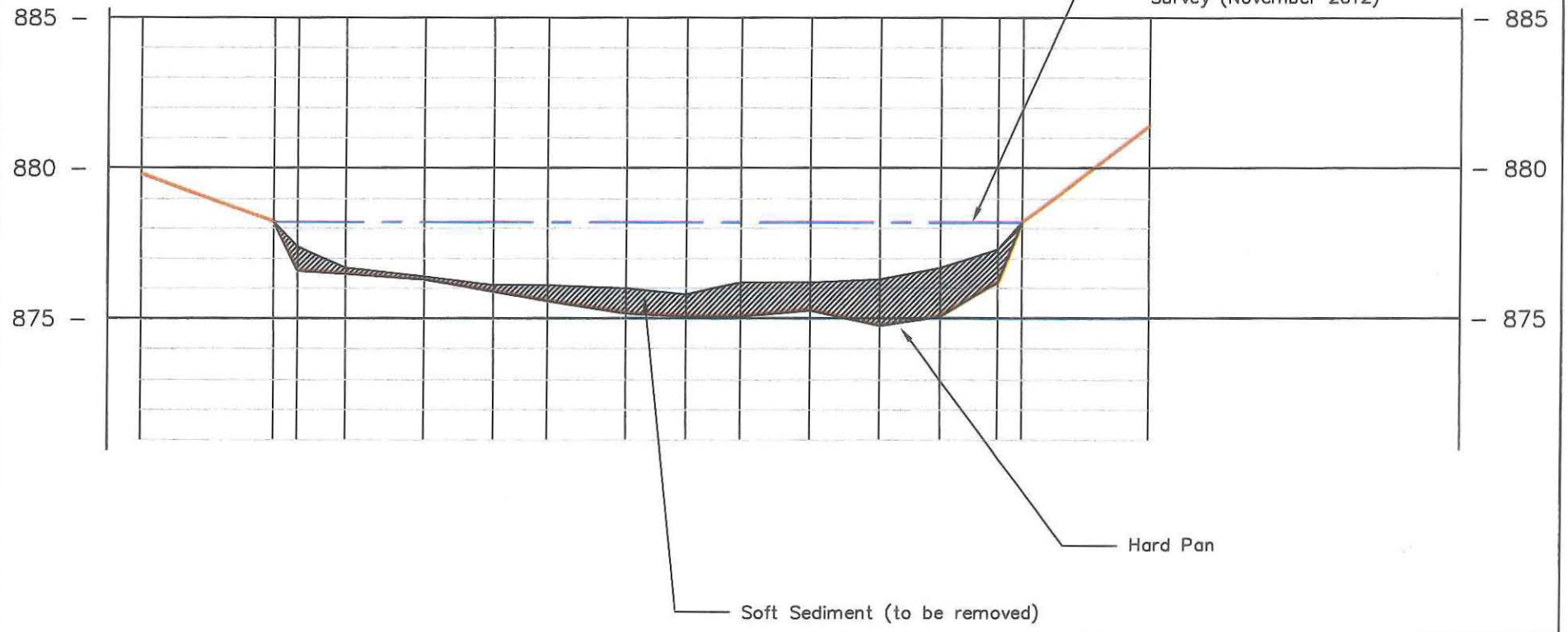
West Bank

East Bank

Elevation Feet NAVD88

Station 4+75
Sediment Area 18.46 SF

Elevation Feet NAVD88



0 5 10

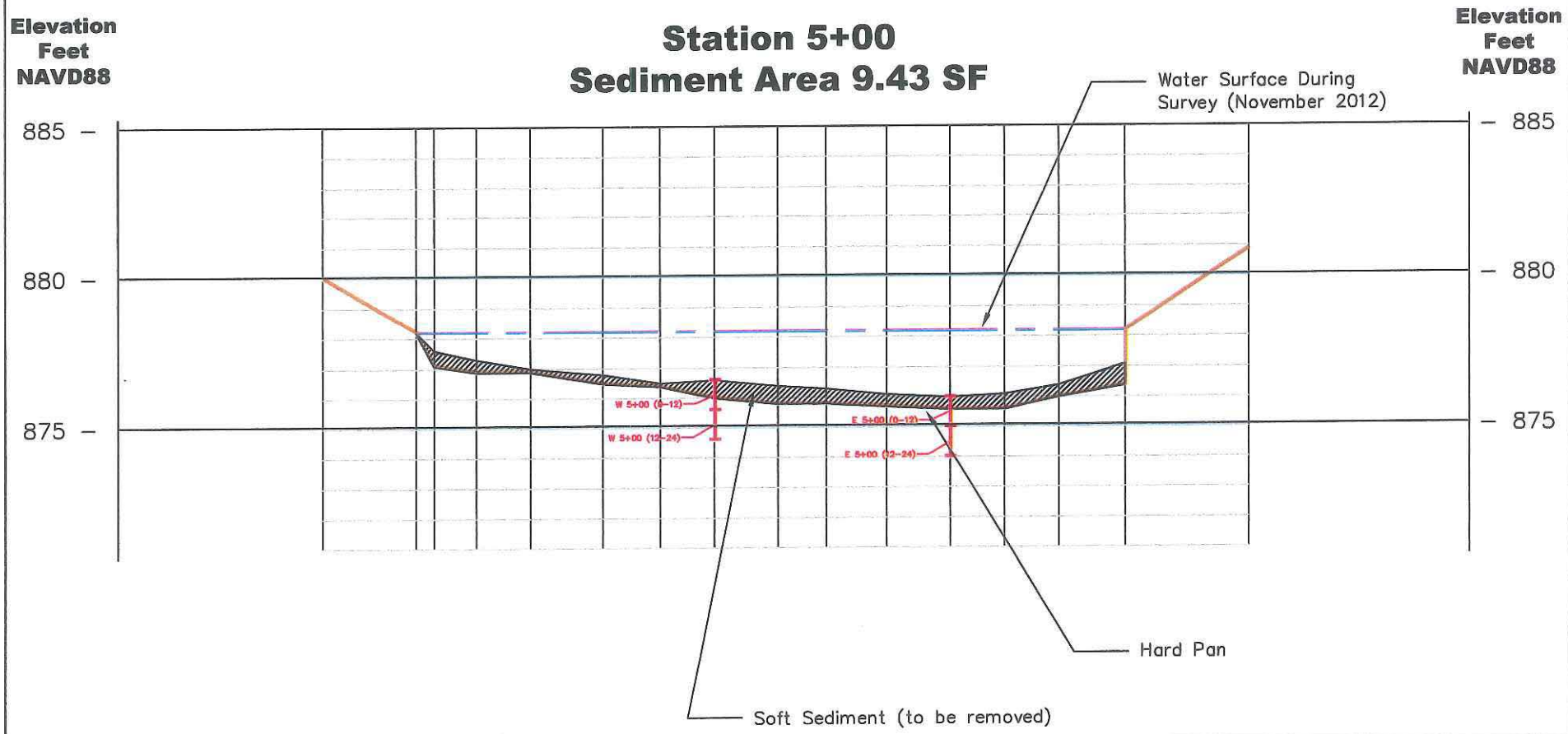
SCALE IN FEET

SEDIMENT REMEDIAL DESIGN PLAN
FORMER STANLEY TOOLS FACILITY
(MID 099 124 299), Fowlerville, MI - Livingston County

FIGURE 4-21	DATE Dec 2012	Cross-Section Station 4+75	CLIENT: JCI Plymouth, MI	CTI and Associates, Inc.

West Bank

East Bank



0 5 10

SCALE IN FEET

SEDIMENT REMEDIAL DESIGN PLAN
FORMER STANLEY TOOLS FACILITY
(MID 099 124 299), Fowlerville, MI - Livingston County

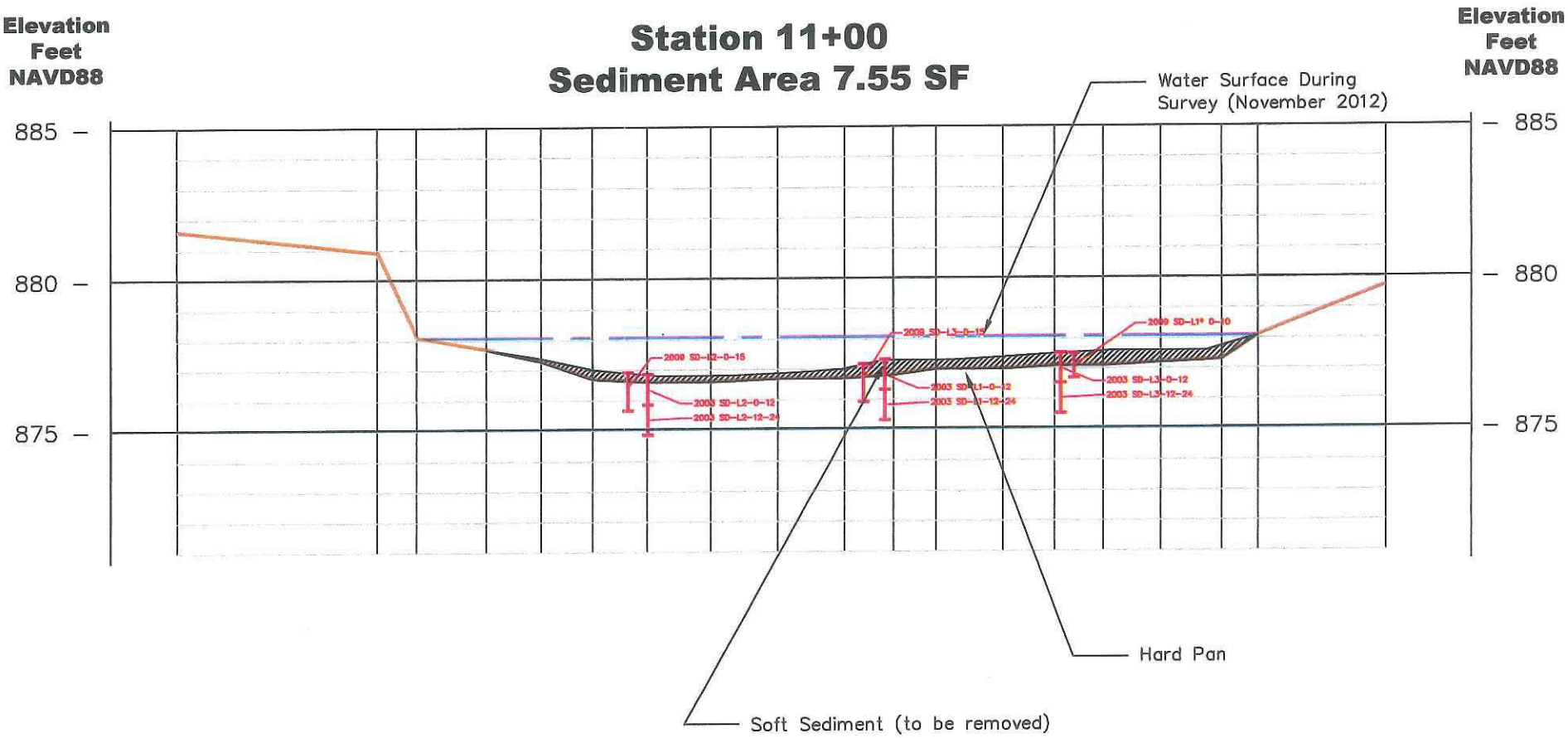
FIGURE 4-22	DATE Dec 2012	Cross-Section Station 5+00	CLIENT: JCI Plymouth, MI	CTI and Associates, Inc.

West Bank

East Bank

Elevation Feet NAVD88

Station 11+00
Sediment Area 7.55 SF



0 5 10

SCALE IN FEET

SEDIMENT REMEDIAL DESIGN PLAN
FORMER STANLEY TOOLS FACILITY
(MID 099 124 299), Fowlerville, MI - Livingston County

FIGURE 4-23	DATE Dec 2012	Cross-Section Station 11+00	CLIENT: JCI Plymouth, MI	CTI and Associates, Inc.

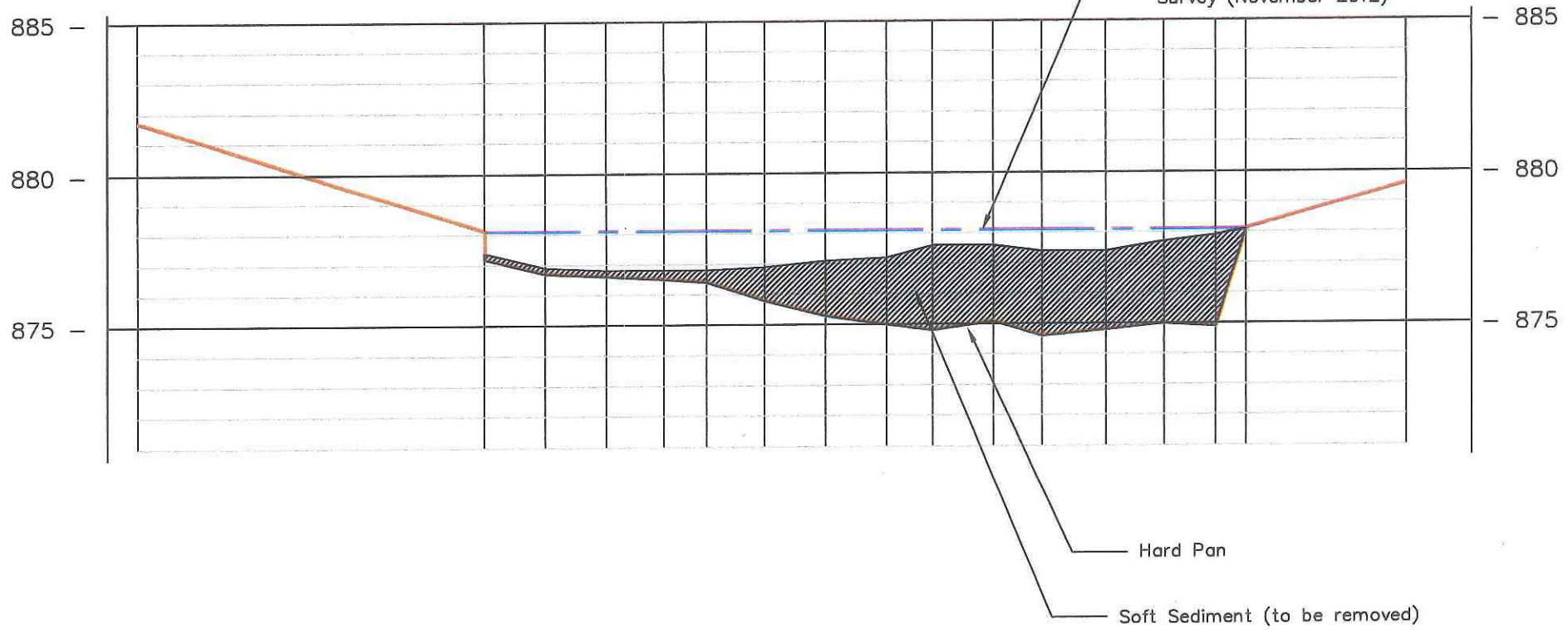
West Bank

East Bank

Elevation Feet NAVD88

Station 11+25
Sediment Area 40.43 SF

Elevation Feet NAVD88



0 5 10

SCALE IN FEET

SEDIMENT REMEDIAL DESIGN PLAN
FORMER STANLEY TOOLS FACILITY
(MID 099 124 299), Fowlerville, MI - Livingston County

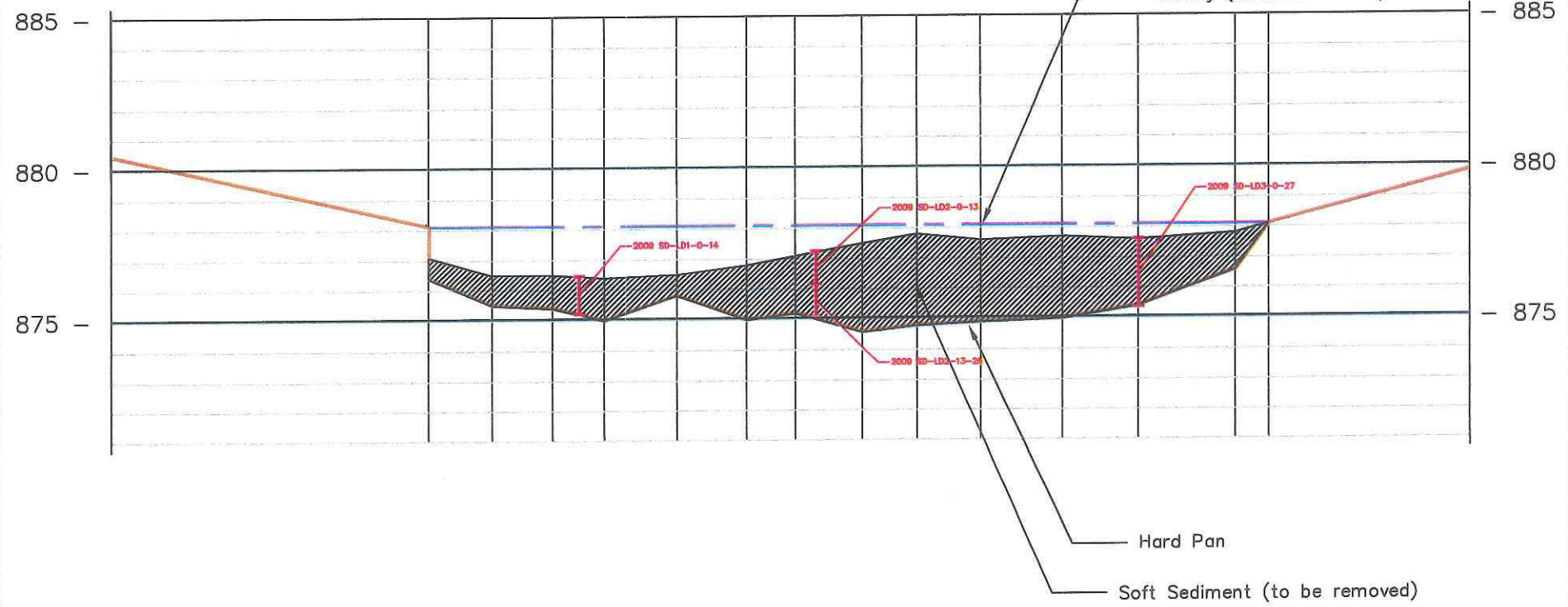
FIGURE 4-24	DATE Dec 2012	Cross-Section Station 11+25	CLIENT: JCI Plymouth, MI	CTI and Associates, Inc.

West Bank

East Bank

Elevation Feet NAVD88

Station 11+50
Sediment Area 50.46 SF



0 5 10

SCALE IN FEET

SEDIMENT REMEDIAL DESIGN PLAN
FORMER STANLEY TOOLS FACILITY
(MID 099 124 299), Fowlerville, MI - Livingston County

FIGURE 4-25	DATE Dec 2012	Cross-Section Station 11+50	CLIENT: JCI Plymouth, MI	CTI and Associates, Inc.

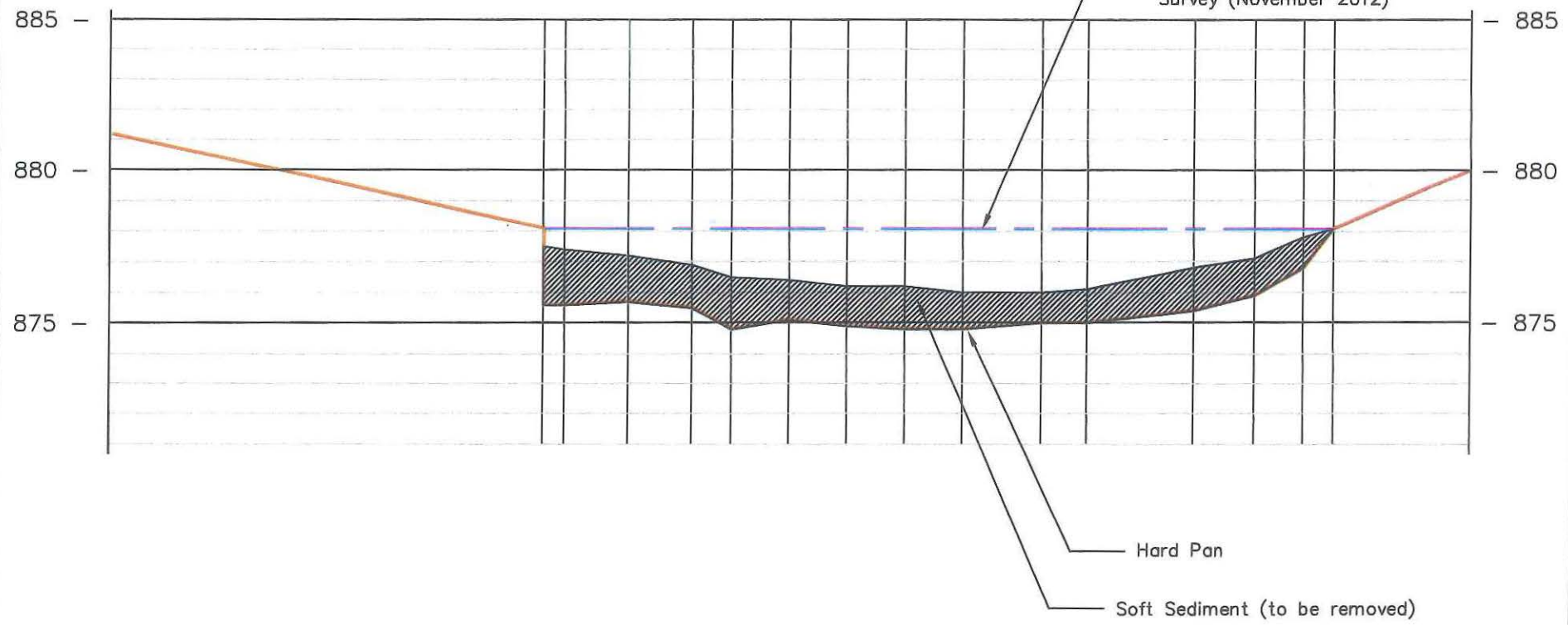
West Bank

East Bank

Elevation Feet NAVD88

Station 11+75
Sediment Area 38.85 SF

Elevation Feet NAVD88



0 5 10

SCALE IN FEET

SEDIMENT REMEDIAL DESIGN PLAN
FORMER STANLEY TOOLS FACILITY
(MID 099 124 299), Fowlerville, MI - Livingston County

FIGURE 4-26	DATE Dec 2012	Cross-Section Station 11+75	CLIENT: JCI Plymouth, MI	CTI and Associates, Inc.

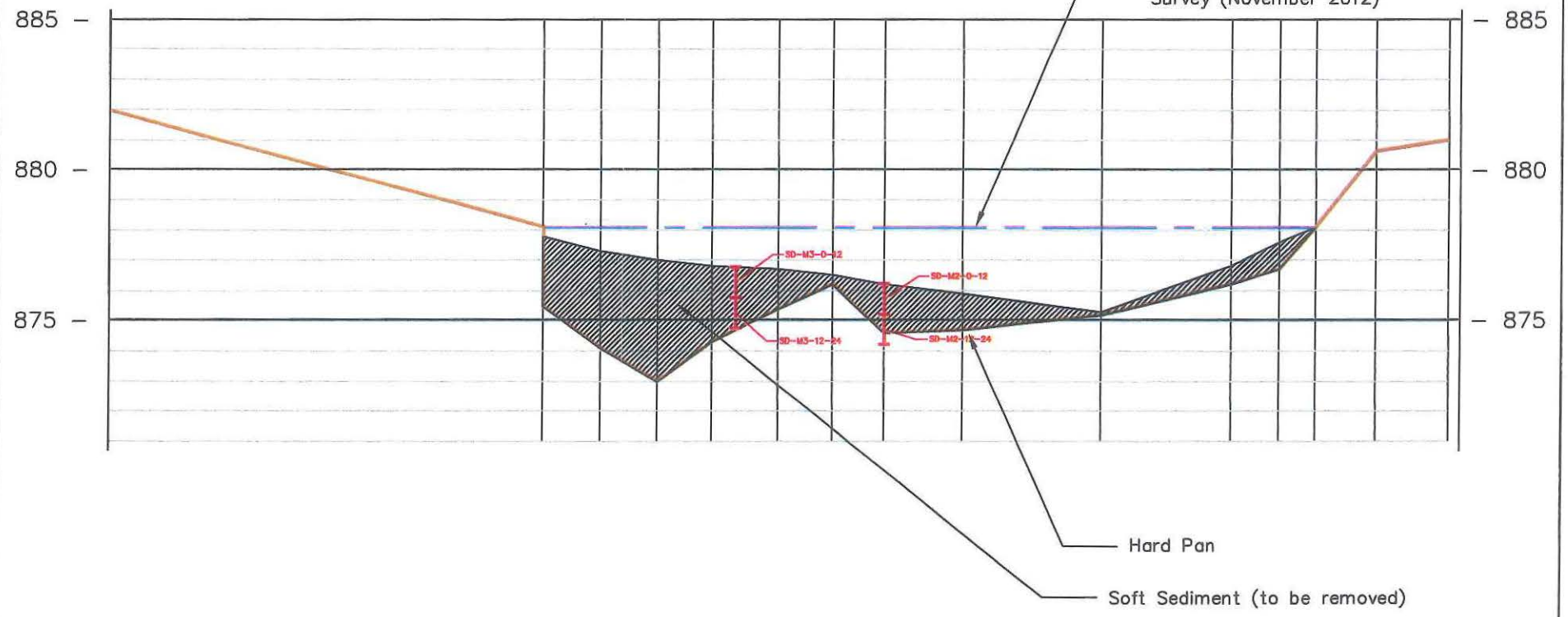
West Bank

East Bank

Elevation Feet NAVD88

Elevation Feet NAVD88

Station 12+00
Sediment Area 35.03 SF



0 5 10

SCALE IN FEET

SEDIMENT REMEDIAL DESIGN PLAN
FORMER STANLEY TOOLS FACILITY
(MID 099 124 299), Fowlerville, MI - Livingston County

FIGURE 4-27	DATE Dec 2012	Cross-Section Station 12+00	CLIENT: JCI Plymouth, MI	CTI and Associates, Inc.

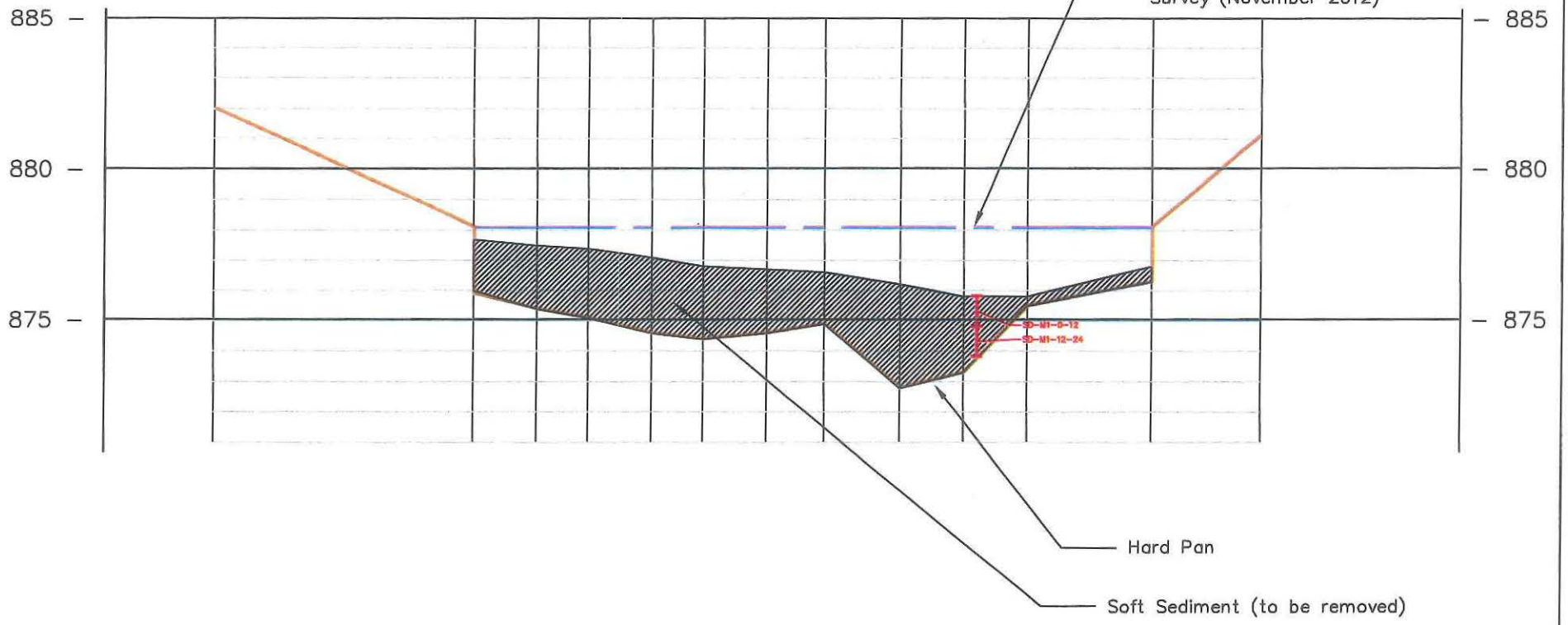
West Bank

East Bank

Elevation Feet NAVD88

Elevation Feet NAVD88

Station 12+25
Sediment Area 42.44 SF



0 5 10

SCALE IN FEET

SEDIMENT REMEDIAL DESIGN PLAN
FORMER STANLEY TOOLS FACILITY
(MID 099 124 299), Fowlerville, MI - Livingston County

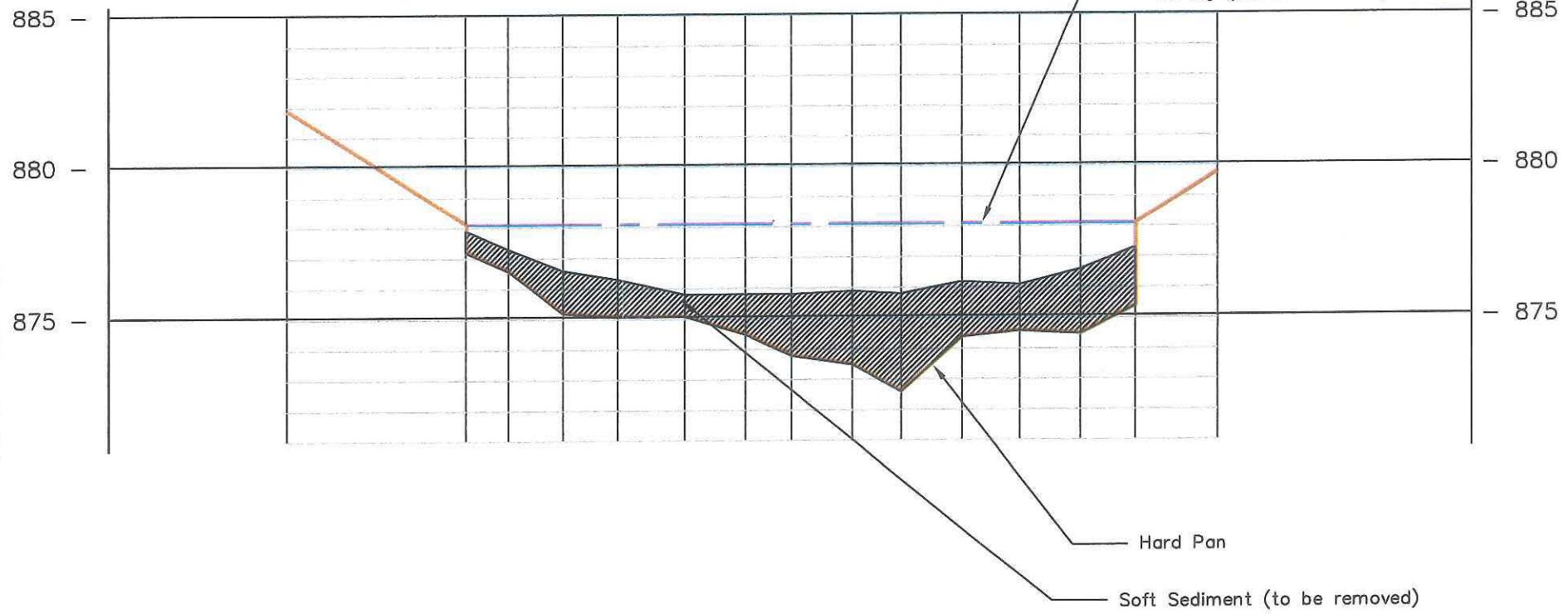
FIGURE 4-28	DATE Dec 2012	Cross-Section Station 12+25	CLIENT: JCI Plymouth, MI	CTI and Associates, Inc.

West Bank

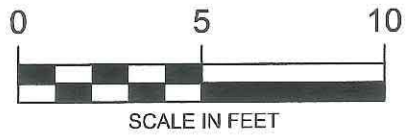
East Bank

Elevation Feet NAVD88

Station 12+50
Sediment Area 35.99 SF



Elevation Feet NAVD88



SEDIMENT REMEDIAL DESIGN PLAN
FORMER STANLEY TOOLS FACILITY
(MID 099 124 299), Fowlerville, MI - Livingston County

FIGURE 4-29	DATE Dec 2012	Cross-Section Station 12+50	CLIENT: JCI Plymouth, MI	CTI and Associates, Inc.

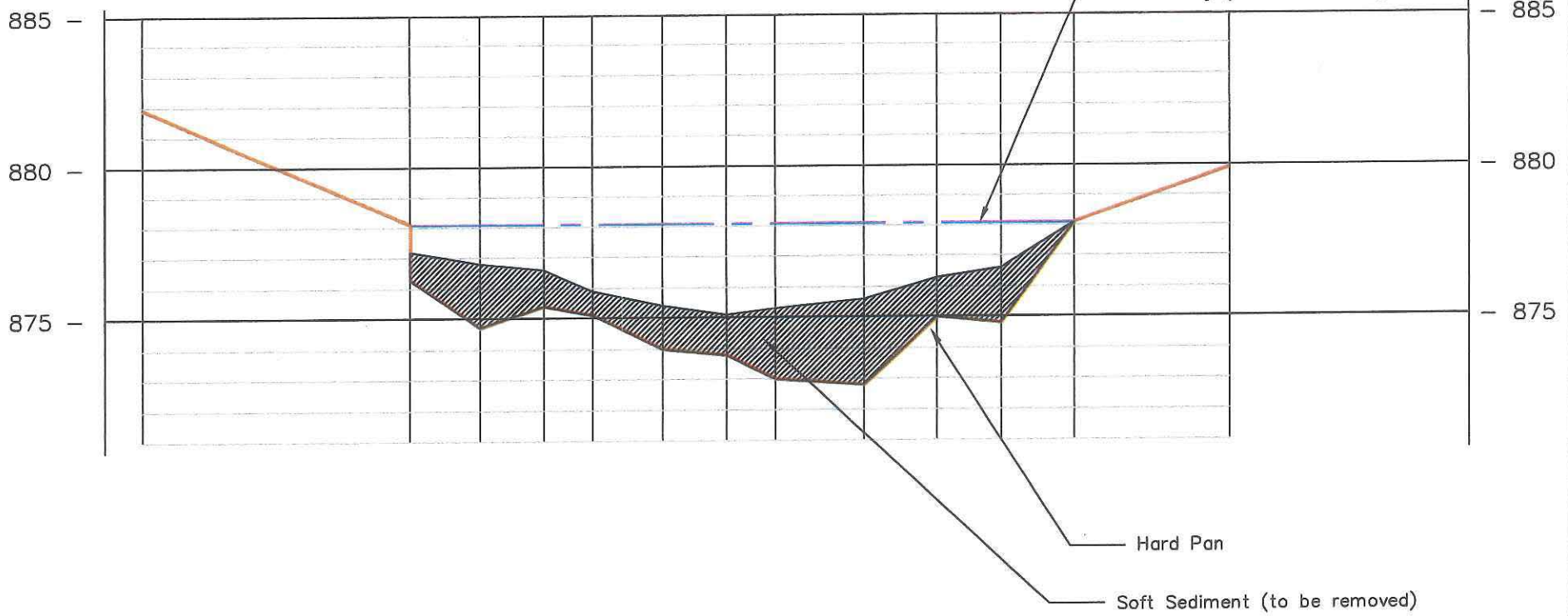
West Bank

East Bank

Elevation Feet NAVD88

Station 12+75
Sediment Area 34.49 SF

Elevation Feet NAVD88



0 5 10

SCALE IN FEET

SEDIMENT REMEDIAL DESIGN PLAN
FORMER STANLEY TOOLS FACILITY
(MID 099 124 299), Fowlerville, MI - Livingston County

FIGURE 4-30	DATE Dec 2012	Cross-Section Station 12+75	CLIENT: JCI Plymouth, MI	CTI and Associates, Inc.

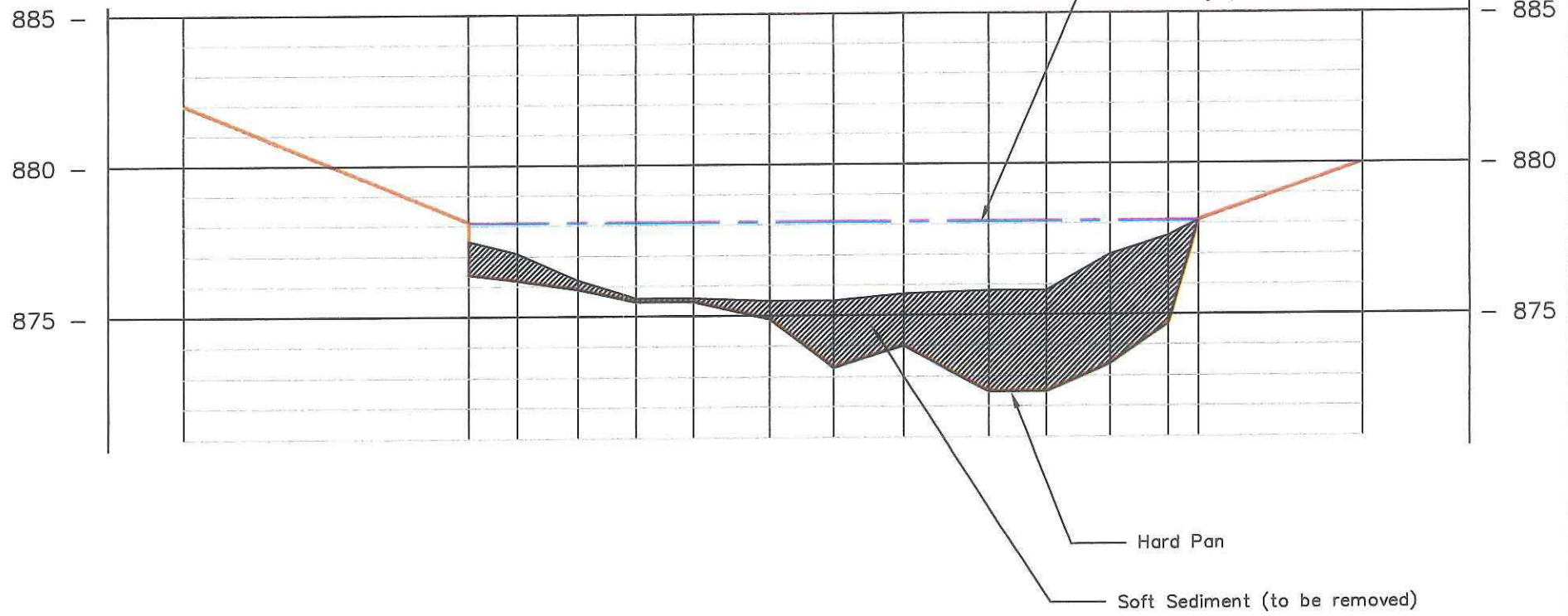
West Bank

East Bank

Elevation Feet NAVD88

Station 13+00
Sediment Area 39.81SF

Elevation Feet NAVD88



0 5 10

SCALE IN FEET

SEDIMENT REMEDIAL DESIGN PLAN
FORMER STANLEY TOOLS FACILITY
(MID 099 124 299), Fowlerville, MI - Livingston County

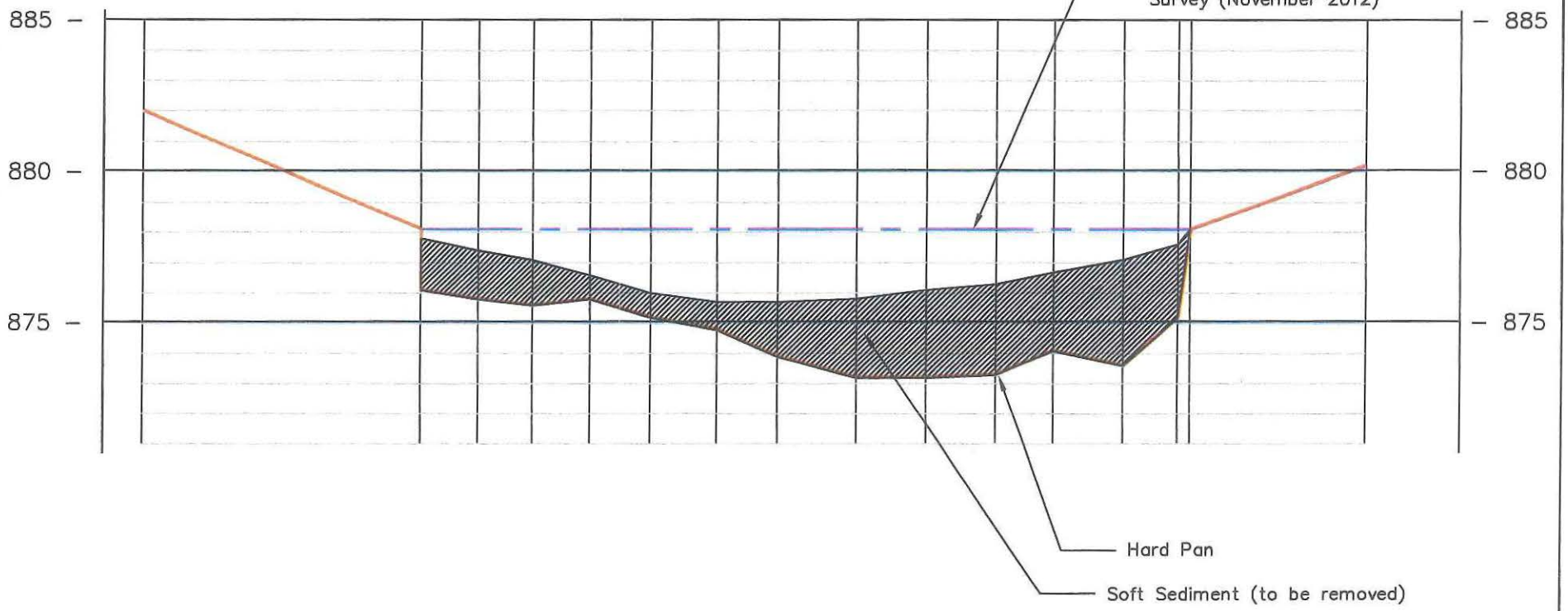
FIGURE 4-31	DATE Dec 2012	Cross-Section Station 13+00	CLIENT: JCI Plymouth, MI	CTI and Associates, Inc.

West Bank

East Bank

Elevation Feet NAVD88

Station 13+25
Sediment Area 51.24 SF



0 5 10

SCALE IN FEET

SEDIMENT REMEDIAL DESIGN PLAN
FORMER STANLEY TOOLS FACILITY
(MID 099 124 299), Fowlerville, MI - Livingston County

FIGURE 4-32	DATE Dec 2012	Cross-Section Station 13+25	CLIENT: JCI Plymouth, MI	CTI and Associates, Inc.

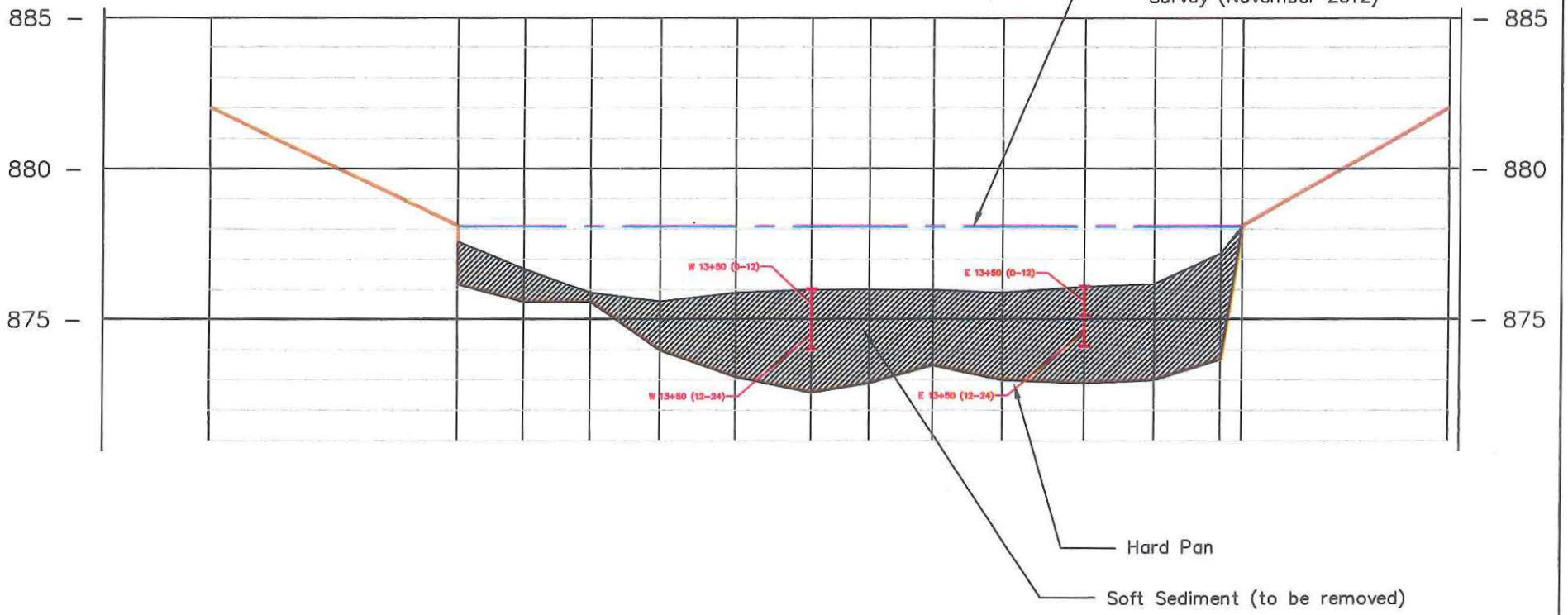
West Bank

East Bank

Elevation Feet NAVD88

Elevation Feet NAVD88

Station 13+50
Sediment Area 62.18 SF



0 5 10

SCALE IN FEET

SEDIMENT REMEDIAL DESIGN PLAN
FORMER STANLEY TOOLS FACILITY
(MID 099 124 299), Fowlerville, MI - Livingston County

FIGURE 4-33	DATE Dec 2012	Cross-Section Station 13+50	CLIENT: JCI Plymouth, MI	CTI and Associates, Inc.

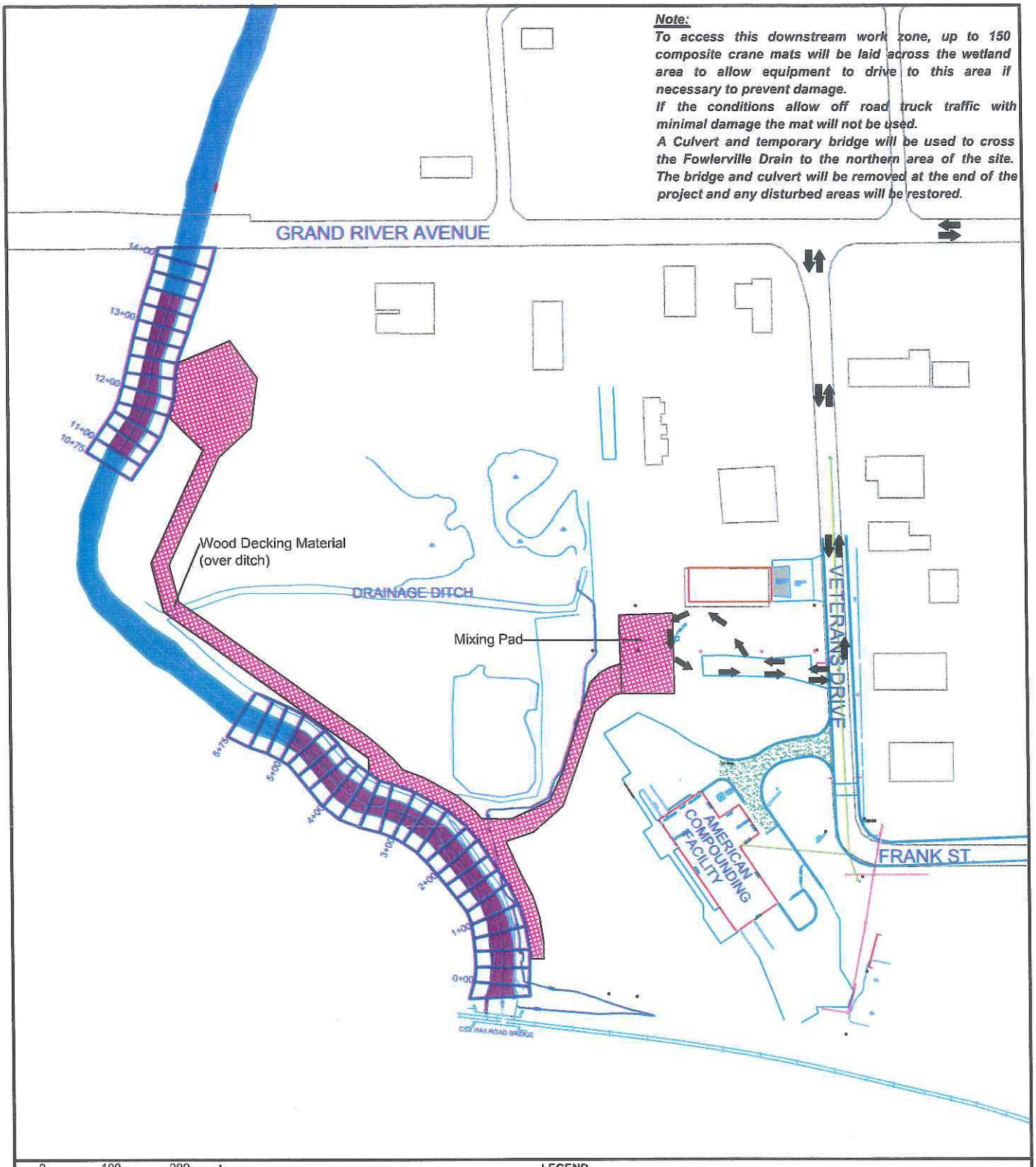


FIGURE NO. 5

PROJECT NO. -

DATE Dec 2012

Drawn By: J. Dickson
Checked By: R. Shebuski
Approved By: A. Lonergan

CLIENT: JCI
Plymouth, MI

SEDIMENT REMEDIAL DESIGN PLAN

FORMER STANLEY TOOLS FACILITY
(MID 099 124 299), Fowlerville, MI - Livingston County

Site Access Plan

CTI and Associates Inc.

APPENDIX A

APPENDIX A

SAMPLE LOGS / BOUNDARY SAMPLING

Sediment Sampling Field Worksheet

JCI Former Stanley Tool Works
Fowlerville, Michigan

Sample Location	Stream Width (ft)	Est. Sediment Thickness (in) to Hardpan	Sample Identification	Sample Date	Sample Time	Water Depth (in)	Sediment Characteristics
13+75	28'	46"	E 13+75 / 10-12"	11/1/2012	1000	14"	Black fine grain sands with organics / Soft
			E 13+75 / 12-24"	11/1/2012	1020	14"	Black fine grain sands with gravel underlyn by blackish-gray silty sand
13+75	28'	46"	W 13+75 / 10-12"	11/1/2012	1040	12"	Black fine grain sands with organics
			W 13+75 / 12-24"	11/1/2012	1100	12"	Black fine grain sands with gravel and grayish silty sand
13+50	26'	50+"	E 13+50 / 10-12"	11/1/2012	1120	23"	Black fine grain sands with organics / Soft
			E 13+50 / 12-24" *	11/1/2012	1140	23"	Black fine grain sands with gravel and grayish silty sand
13+50	26'	50+"	W 13+50 / 10-12"	11/1/2012	1150	25"	Black fine grain sands with organics
			W 13+50 / 12-24"	11/1/2012	1200	25"	Black fine grain sands with gravel and grayish silty sand

* Duplicate Sample collected at E 13+50 / 12-24" labeled DUP-1

Sediment Sampling Field Worksheet

JCI Former Stanley Tool Works
Fowlerville, Michigan

Sample Location	Stream Width (ft)	Est. Sediment Thickness (in) to Hardpan	Sample Identification	Sample Date	Sample Time	Water Depth (in)	Sediment Characteristics
5+25	22'	46"	E 5+25 / 10-12"	11/1/2012	1300	24"	Blackish brown fine grain sands with gravel
			E 5+25 / 12-24"	11/1/2012	1330	24"	Black fine grain sands with gravel underlyn by grayish silty sand
5+25	22'	46"	W 5+25 / 10-12"	11/1/2012	1400	18"	Black fine grain sands with organics and gravel
			W 5+25 / 12-24"	11/1/2012	1430	18"	Black fine grain sands with gravel underlyn by grayish silty sand
5+00	29'	50+"	E 5+00 / 10-12" *	11/1/2012	1500	26"	Black fine grain sands with organics / Soft
			E 5+00 / 12-24"	11/1/2012	1530	26"	Black and brown sands (fine, medium and coarse mixture) with gravel underlyn by grayish silty sand
5+00	29'	50+"	W 5+000 / 10-12"	11/1/2012	1600	14"	Black fine grain sands with organics
			W 5+00 / 12-24"	11/1/2012	1630	14"	Black to Brown fine and coarse grain sands with gravel and grayish silty sand

* Duplicate Sample collected at E 5+00 / 0-12" labeled DUP-2

Sediment Sampling Field Worksheet

JCI Former Stanley Tool Works
Fowlerville, Michigan

Sample Location	Stream Width (ft)	Est. Sediment Thickness (in) to Hardpan	Sample Identification	Sample Date	Sample Time	Water Depth (in)	Sediment Characteristics
0+00	28'	42"	E 0+00 / 10-12"	11/2/2012	0930	32"	Brown gravelly fine sand with orgainics / Strong petroleum odor
			E 0+00 / 12-24"	11/2/2012	0955	32"	Brown gravelly sand (fine and coarse grain mixture) / Slight petroleum odor
0+00	28'	42"	W 0+00 / 10-12"	11/2/2012	1025	36"	Black and Brown gravelly sand (fine and coarse grain mixture)
			W 0+00 / 12-24"	11/2/2012	1100	36"	Gray silty clay with gravel

APPENDIX B

APPENDIX B

ANALYTICAL RESULTS / BOUNDARY SAMPLING

TRIMATRIX LABORATORIES

November 20, 2012

CTI and Associates, Inc.
Attn: Mr. Andrew Lonergan
51331 W. Pontiac Trail
Wixom, MI 48393

Project: JCI - Fowlerville Sediment Remediation

Dear Mr. Andrew Lonergan,

Enclosed is a copy of the laboratory report for the following work order(s) received by TriMatrix Laboratories:

Work Order	Received	Description
1211063	11/02/2012	Laboratory Services

This report relates only to the sample(s) as received. Test results are in compliance with the requirements of the National Environmental Laboratory Accreditation Program (NELAP) and/or one of the following certification programs:

ACLASS DoD-ELAP/ISO17025 (#ADE-1542); Arkansas DEP (#11-054-0); Florida DEP (#E87622-24); Georgia EPD (#E87622-24); Illinois DEP (#002841); Kansas DPH (#E-10302); Kentucky DEP (#0021); Louisiana DEP (#03068); Michigan DPH (#0034); Minnesota DPH (#367345); New York ELAP (#46503); North Carolina DNRE (#659); Texas CEQ (#T104704495-12-2); Virginia DCLS (#1622); Wisconsin DNR (#999472650); USDA Soil Import Permit (#P330-09-00163).

Any qualification or narration of results, including sample acceptance requirements and test exceptions to the above referenced programs, is presented in the Statement of Data Qualifications section of this report. Estimates of analytical uncertainties and certification documents for the test results contained within this report are available upon request.

If you have any questions or require further information, please do not hesitate to contact me.

Sincerely,

Gary L. Wood
Project Chemist

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**E 0+00 (0-12)**	Sampled:	11/02/12 09:30
Lab Sample ID:	**1211063-01**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: SMS9
Dilution Factor:	1	Analyzed:	11/09/12 By: MSZ
QC Batch:	1213588	Analytical Batch:	2K12020

*Polychlorinated Biphenyls (PCBs) by EPA Method 8082A

CAS Number	Analyte	Analytical Result	RL	MDL
12674-11-2	PCB-1016	460U	460	2.4
11104-28-2	PCB-1221	460U	460	2.9
11141-16-5	PCB-1232	460U	460	2.9
53469-21-9	PCB-1242	460U	460	9.7
12672-29-6	PCB-1248	**330J**	460	3.5
11097-69-1	PCB-1254	460U	460	4.8
11096-82-5	PCB-1260	**43J**	460	3.9

Surrogates:	*% Recovery*	*Control Limits*
Decachlorobiphenyl	*91*	*45-135*
Tetrachloro-m-xylene	*70*	*56-123*

*See Statement of Data Qualifications

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**E 0+00 (0-12)**	Sampled:	11/02/12 09:30
Lab Sample ID:	**1211063-01**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: DLV
Dilution Factor:	1	Analyzed:	11/08/12 By: DLV
QC Batch:	1213661	Analytical Batch:	2K08014

Volatile Organic Compounds by EPA Method 8260B

CAS Number	Analyte	Analytical Result	RL	MDL
67-64-1	Acetone	1000U	1000	76
107-02-8	Acrolein	350U	350	55
71-43-2	Benzene	70U	70	9.9
108-86-1	Bromobenzene	70U	70	10
74-97-5	Bromochloromethane	70U	70	21
75-27-4	Bromodichloromethane	70U	70	9.4
75-25-2	Bromoform	70U	70	18
*74-83-9	Bromomethane	70U	70	30
104-51-8	n-Butylbenzene	70U	70	13
135-98-8	sec-Butylbenzene	70U	70	14
98-06-6	tert-Butylbenzene	70U	70	14
75-15-0	Carbon Disulfide	350U	350	16
56-23-5	Carbon Tetrachloride	70U	70	24
108-90-7	Chlorobenzene	**24J**	70	12
75-00-3	Chloroethane	70U	70	25
67-66-3	Chloroform	70U	70	12
74-87-3	Chloromethane	70U	70	27
95-49-8	2-Chlorotoluene	70U	70	15
106-43-4	4-Chlorotoluene	70U	70	12
96-12-8	1,2-Dibromo-3-chloropropane	350U	350	36
124-48-1	Dibromochloromethane	70U	70	11
106-93-4	1,2-Dibromoethane	70U	70	23
74-95-3	Dibromomethane	70U	70	18
95-50-1	1,2-Dichlorobenzene	70U	70	17
541-73-1	1,3-Dichlorobenzene	70U	70	17
106-46-7	1,4-Dichlorobenzene	70U	70	17
75-71-8	Dichlorodifluoromethane	70U	70	15
75-34-3	1,1-Dichloroethane	70U	70	15
107-06-2	1,2-Dichloroethane	70U	70	15

Continued on next page

*See Statement of Data Qualifications

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**E 0+00 (0-12)**	Sampled:	11/02/12 09:30
Lab Sample ID:	**1211063-01**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: DLV
Dilution Factor:	1	Analyzed:	11/08/12 By: DLV
QC Batch:	1213661	Analytical Batch:	2K08014

Volatile Organic Compounds by EPA Method 8260B (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
75-35-4	1,1-Dichloroethene	70U	70	15
156-59-2	cis-1,2-Dichloroethene	**24J**	70	16
156-60-5	trans-1,2-Dichloroethene	70U	70	16
540-59-0	1,2-Dichloroethene (Total)	140U	140	32
78-87-5	1,2-Dichloropropane	70U	70	19
142-28-9	1,3-Dichloropropane	70U	70	17
594-20-7	2,2-Dichloropropane	70U	70	33
563-58-6	1,1-Dichloropropene	70U	70	17
10061-01-5	cis-1,3-Dichloropropene	70U	70	13
10061-02-6	trans-1,3-Dichloropropene	70U	70	13
100-41-4	Ethylbenzene	70U	70	14
87-68-3	Hexachlorobutadiene	70U	70	10
591-78-6	2-Hexanone	3500U	3500	34
98-82-8	Isopropylbenzene	70U	70	15
99-87-6	4-Isopropyltoluene	70U	70	12
1634-04-4	Methyl tert-Butyl Ether	70U	70	13
75-09-2	Methylene Chloride	350U	350	38
78-93-3	2-Butanone (MEK)	3500U	3500	89
108-10-1	4-Methyl-2-pentanone (MIBK)	3500U	3500	28
91-20-3	Naphthalene	**160J**	350	20
103-65-1	n-Propylbenzene	70U	70	14
100-42-5	Styrene	70U	70	14
630-20-6	1,1,1,2-Tetrachloroethane	70U	70	9.9
79-34-5	1,1,2,2-Tetrachloroethane	70U	70	18
127-18-4	Tetrachloroethene	70U	70	19
108-88-3	Toluene	70U	70	15
87-61-6	1,2,3-Trichlorobenzene	70U	70	14
120-82-1	1,2,4-Trichlorobenzene	70U	70	9.8
71-55-6	1,1,1-Trichloroethane	70U	70	9.7
79-00-5	1,1,2-Trichloroethane	70U	70	22
79-01-6	Trichloroethene	**43J**	70	15

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**E 0+00 (0-12)**	Sampled:	11/02/12 09:30
Lab Sample ID:	**1211063-01**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: DLV
Dilution Factor:	1	Analyzed:	11/08/12 By: DLV
QC Batch:	1213661	Analytical Batch:	2K08014

Volatile Organic Compounds by EPA Method 8260B (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
*75-69-4	Trichlorofluoromethane	70U	70	19
96-18-4	1,2,3-Trichloropropane	70U	70	20
95-63-6	1,2,4-Trimethylbenzene	70U	70	13
108-67-8	1,3,5-Trimethylbenzene	70U	70	12
75-01-4	Vinyl Chloride	70U	70	12
179601-23-1	Xylene, Meta + Para	140U	140	20
95-47-6	Xylene, Ortho	70U	70	8.4
1330-20-7	Xylene (Total)	210U	210	28

Surrogates:	*% Recovery*	*Control Limits*
Dibromofluoromethane	*100*	*75-123*
1,2-Dichloroethane-d4	*96*	*83-116*
Toluene-d8	*98*	*85-113*
4-Bromofluorobenzene	*99*	*81-117*

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**E 0+00 (0-12)**	Sampled:	11/02/12 09:30
Lab Sample ID:	**1211063-01**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: ALK
Dilution Factor:	5	Analyzed:	11/09/12 By: JLB
QC Batch:	1213584	Analytical Batch:	2K13048

Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	58J	120	5.5
*208-96-8	Acenaphthylene	140	120	5.8
120-12-7	Anthracene	35J	120	6.0
*92-87-5	Benzidine	4700U	4700	4700
56-55-3	Benzo(a)anthracene	86J	120	10
50-32-8	Benzo(a)pyrene	86J	120	6.0
*205-99-2	Benzo(b)fluoranthene	130	120	12
*207-08-9	Benzo(k)fluoranthene	33J	120	16
191-24-2	Benzo(g,h,i)perylene	61J	230	5.8
65-85-0	Benzoic Acid	2300U	2300	230
100-51-6	Benzyl Alcohol	120U	120	9.2
101-55-3	4-Bromophenyl Phenyl Ether	120U	120	6.6
85-68-7	Butyl Benzyl Phthalate	230U	230	12
86-74-8	Carbazole	1200U	1200	62
59-50-7	4-Chloro-3-methylphenol	120U	120	26
*106-47-8	4-Chloroaniline	470U	470	62
111-91-1	Bis(2-chloroethoxy)methane	120U	120	7.8
111-44-4	Bis(2-chloroethyl) Ether	120U	120	5.5
108-60-1	Bis(2-chloroisopropyl) Ether	120U	120	19
91-58-7	2-Chloronaphthalene	120U	120	18
95-57-8	2-Chlorophenol	120U	120	5.5
7005-72-3	4-Chlorophenyl Phenyl Ether	120U	120	5.1
218-01-9	Chrysene	100J	120	6.0
53-70-3	Dibenz(a,h)anthracene	12J	230	8.9
132-64-9	Dibenzofuran	61J	120	5.8
84-74-2	Di-n-butyl Phthalate	470U	470	99
106-46-7	1,4-Dichlorobenzene	54J	120	5.9
95-50-1	1,2-Dichlorobenzene	68J	120	10
541-73-1	1,3-Dichlorobenzene	21J	120	8.9

Continued on next page

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**E 0+00 (0-12)**	Sampled:	11/02/12 09:30
Lab Sample ID:	**1211063-01**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: ALK
Dilution Factor:	5	Analyzed:	11/09/12 By: JLB
QC Batch:	1213584	Analytical Batch:	2K13048

Semivolatile Organic Compounds by EPA Method 8270C (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
91-94-1	3,3'-Dichlorobenzidine	5800U	5800	230
120-83-2	2,4-Dichlorophenol	230U	230	11
84-66-2	Diethyl Phthalate	**211**	120	17
105-67-9	2,4-Dimethylphenol	1200U	1200	210
131-11-3	Dimethyl Phthalate	120U	120	13
534-52-1	4,6-Dinitro-2-methylphenol	1200U	1200	38
51-28-5	2,4-Dinitrophenol	1200U	1200	270
606-20-2	2,6-Dinitrotoluene	120U	120	11
121-14-2	2,4-Dinitrotoluene	230U	230	35
117-84-0	Di-n-octyl Phthalate	120U	120	7.8
117-81-7	Bis(2-ethylhexyl) Phthalate	**2700**	230	29
206-44-0	Fluoranthene	**230**	120	3.9
86-73-7	Fluorene	**160J**	230	4.2
118-74-1	Hexachlorobenzene	120U	120	7.0
87-68-3	Hexachlorobutadiene	120U	120	5.1
77-47-4	Hexachlorocyclopentadiene	120U	120	19
67-72-1	Hexachloroethane	120U	120	9.3
*193-39-5	Indeno(1,2,3-cd)pyrene	**49J**	230	22
78-59-1	Isophorone	120U	120	7.3
91-57-6	2-Methylnaphthalene	**240**	120	9.4
106-44-5	4-Methylphenol	120U	120	14
108-39-4	3+4-Methylphenol	120U	120	14
95-48-7	2-Methylphenol	120U	120	23
91-20-3	Naphthalene	**44J**	120	3.6
100-01-6	4-Nitroaniline	230U	230	110
88-74-4	2-Nitroaniline	120U	120	41
99-09-2	3-Nitroaniline	230U	230	110
98-95-3	Nitrobenzene	120U	120	10
88-75-5	2-Nitrophenol	120U	120	11
100-02-7	4-Nitrophenol	4700U	4700	190
86-30-6	N-Nitroso-diphenylamine	120U	120	7.3

Continued on next page

*See Statement of Data Qualifications

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client: CTI and Associates, Inc.
Project: JCI - Fowlerville Sediment Remediation
Client Sample ID: E 0+00 (0-12)
Lab Sample ID: 1211063-01
Matrix: Sediment
Unit: ug/kg dry
Dilution Factor: 5
QC Batch: 1213584
Work Order: 1211063
Description: Laboratory Services
Sampled: 11/02/12 09:30
Sampled By: Mr. Brent Kelley
Received: 11/02/12 19:21
Prepared: 11/7/2012 By: ALK
Analyzed: 11/09/12 By: JLB
Analytical Batch: 2K13048

Semivolatile Organic Compounds by EPA Method 8270C (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
621-64-7	N-Nitroso-di-n-propylamine	120U	120	15
87-86-5	Pentachlorophenol	1200U	1200	100
85-01-8	Phenanthrene	**220**	120	5.1
108-95-2	Phenol	1200U	1200	9.2
129-00-0	Pyrene	**250**	120	8.5
110-86-1	Pyridine	230U	230	58
120-82-1	1,2,4-Trichlorobenzene	120U	120	3.9
95-95-4	2,4,5-Trichlorophenol	120U	120	27
88-06-2	2,4,6-Trichlorophenol	120U	120	12

Surrogates:	*% Recovery*	*Control Limits*
2-Fluorophenol	*91*	*33-113*
Phenol-d6	*93*	*30-115*
Nitrobenzene-d5	*112*	*33-131*
2-Fluorobiphenyl	*78*	*46-122*
2,4,6-Tribromophenol	*75*	*12-124*
o-Terphenyl	*81*	*20-135*

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**E 0+00 (0-12)**	Sampled:	11/02/12 09:30
Lab Sample ID:	**1211063-01**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Percent Solids:	71		

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result		RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
***Aluminum**	**2000**		92	13	mg/kg dry wt.	10	USEPA-6010C	11/08/12 11:50	KLV	1213605
Arsenic	**4.1**		0.091	0.015	mg/kg dry wt.	1	USEPA-6020A	11/08/12 10:24	DSC	1213607
***Barium**	**33**		0.46	0.056	mg/kg dry wt.	5	USEPA-6020A	11/08/12 14:01	DSC	1213607
Cadmium	**0.15**		0.046	0.0030	mg/kg dry wt.	1	USEPA-6020A	11/08/12 10:24	DSC	1213607
***Chromium**	**340**		9.1	1.3	mg/kg dry wt.	100	USEPA-6020A	11/08/12 13:50	DSC	1213607
***Copper**	**290**		9.1	2.3	mg/kg dry wt.	100	USEPA-6020A	11/08/12 13:50	DSC	1213607
***Lead**	**17**		0.46	0.030	mg/kg dry wt.	5	USEPA-6020A	11/08/12 14:01	DSC	1213607
Mercury	**0.035**	J	0.050	0.0061	mg/kg dry wt.	1	USEPA-7471A	11/08/12 10:46	CKD	1213637
***Nickel**	**240**		9.1	1.5	mg/kg dry wt.	100	USEPA-6020A	11/08/12 13:50	DSC	1213607
Selenium	**0.31**		0.091	0.030	mg/kg dry wt.	1	USEPA-6020A	11/08/12 10:24	DSC	1213607
Silver	**0.034**	J	0.046	0.0036	mg/kg dry wt.	1	USEPA-6020A	11/08/12 10:24	DSC	1213607
***Zinc**	**1700**		460	130	mg/kg dry wt.	500	USEPA-6020A	11/08/12 13:40	DSC	1213607

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**E 0+00 (0-12)**	Sampled:	11/02/12 09:30
Lab Sample ID:	**1211063-01**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result		RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Chromium, Hexavalent	2.8	U	2.8	0.38	mg/kg dry	1	USEPA-7196A	11/11/12 10:04	HLB	1213417
Cyanide, Available	**0.13**		0.056	0.033	mg/kg dry	1	USEPA OIA-1677	11/13/12 13:05	LMA	1214000
Cyanide, Total	**6.0**		0.70	0.16	mg/kg dry	5	USEPA-9014	11/09/12 17:05	LMA	1213768
Fractional Organic Carbon	**0.0128**		0.0010	0.0010	g C/g Soil	1	ASTM D 2974-87	11/03/12 16:17	HLB	1213805
Percent Solids	**71**		0.1	0.1	%	1	USEPA-3550C	11/03/12 16:17	HLB	1213578
Carbon, Total Organic	**0.86**		0.10	0.017	%	1	Walkley-Black	11/15/12 13:00	HLB	1214240

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**E 0+00 (12-24)**	Sampled:	11/02/12 09:55
Lab Sample ID:	**1211063-02**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: SMS9
Dilution Factor:	1	Analyzed:	11/09/12 By: MSZ
QC Batch:	1213588	Analytical Batch:	2K12020

*Polychlorinated Biphenyls (PCBs) by EPA Method 8082A

CAS Number	Analyte	Analytical Result	RL	MDL
12674-11-2	PCB-1016	430U	430	2.2
11104-28-2	PCB-1221	430U	430	2.8
11141-16-5	PCB-1232	430U	430	2.8
53469-21-9	PCB-1242	430U	430	9.0
12672-29-6	PCB-1248	**193**	430	3.3
11097-69-1	PCB-1254	430U	430	4.5
11096-82-5	PCB-1260	430U	430	3.7

Surrogates:	*% Recovery*	*Control Limits*
Decachlorobiphenyl	*89*	*45-135*
Tetrachloro-m-xylene	*80*	*56-123*

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**E 0+00 (12-24)**	Sampled:	11/02/12 09:55
Lab Sample ID:	**1211063-02**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: DLV
Dilution Factor:	1	Analyzed:	11/08/12 By: DLV
QC Batch:	1213661	Analytical Batch:	2K08014

Volatile Organic Compounds by EPA Method 8260B

CAS Number	Analyte	Analytical Result	RL	MDL
67-64-1	Acetone	920U	920	66
107-02-8	Acrolein	310U	310	48
71-43-2	Benzene	61U	61	8.7
108-86-1	Bromobenzene	61U	61	8.9
74-97-5	Bromochloromethane	61U	61	18
75-27-4	Bromodichloromethane	61U	61	8.2
75-25-2	Bromoform	61U	61	16
*74-83-9	Bromomethane	61U	61	26
104-51-8	n-Butylbenzene	**17J**	61	12
135-98-8	sec-Butylbenzene	61U	61	13
98-06-6	tert-Butylbenzene	61U	61	12
75-15-0	Carbon Disulfide	310U	310	14
56-23-5	Carbon Tetrachloride	61U	61	21
108-90-7	Chlorobenzene	**21J**	61	10
75-00-3	Chloroethane	61U	61	22
67-66-3	Chloroform	61U	61	10
74-87-3	Chloromethane	61U	61	24
95-49-8	2-Chlorotoluene	61U	61	13
106-43-4	4-Chlorotoluene	61U	61	11
96-12-8	1,2-Dibromo-3-chloropropane	310U	310	31
124-48-1	Dibromochloromethane	61U	61	9.3
106-93-4	1,2-Dibromoethane	61U	61	20
74-95-3	Dibromomethane	61U	61	16
95-50-1	1,2-Dichlorobenzene	**34J**	61	14
541-73-1	1,3-Dichlorobenzene	61U	61	15
106-46-7	1,4-Dichlorobenzene	**20J**	61	15
75-71-8	Dichlorodifluoromethane	61U	61	13
75-34-3	1,1-Dichloroethane	**66**	61	13
107-06-2	1,2-Dichloroethane	61U	61	13

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**E 0+00 (12-24)**	Sampled:	11/02/12 09:55
Lab Sample ID:	**1211063-02**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: DLV
Dilution Factor:	1	Analyzed:	11/08/12 By: DLV
QC Batch:	1213661	Analytical Batch:	2K08014

Volatile Organic Compounds by EPA Method 8260B (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
75-35-4	1,1-Dichloroethene	61U	61	13
156-59-2	cis-1,2-Dichloroethene	**2900**	61	14
156-60-5	trans-1,2-Dichloroethene	**200**	61	14
540-59-0	1,2-Dichloroethene (Total)	**3100**	120	28
78-87-5	1,2-Dichloropropane	61U	61	17
142-28-9	1,3-Dichloropropane	61U	61	15
594-20-7	2,2-Dichloropropane	61U	61	29
563-58-6	1,1-Dichloropropene	61U	61	15
10061-01-5	cis-1,3-Dichloropropene	61U	61	12
10061-02-6	trans-1,3-Dichloropropene	61U	61	12
100-41-4	Ethylbenzene	61U	61	13
87-68-3	Hexachlorobutadiene	61U	61	8.8
591-78-6	2-Hexanone	3100U	3100	30
98-82-8	Isopropylbenzene	61U	61	13
99-87-6	4-Isopropyltoluene	61U	61	11
1634-04-4	Methyl tert-Butyl Ether	61U	61	12
75-09-2	Methylene Chloride	310U	310	33
78-93-3	2-Butanone (MEK)	3100U	3100	78
108-10-1	4-Methyl-2-pentanone (MIBK)	3100U	3100	24
91-20-3	Naphthalene	**160J**	310	17
103-65-1	n-Propylbenzene	61U	61	12
100-42-5	Styrene	61U	61	13
630-20-6	1,1,1,2-Tetrachloroethane	61U	61	8.7
79-34-5	1,1,2,2-Tetrachloroethane	61U	61	16
127-18-4	Tetrachloroethene	61U	61	17
108-88-3	Toluene	61U	61	13
87-61-6	1,2,3-Trichlorobenzene	61U	61	12
120-82-1	1,2,4-Trichlorobenzene	61U	61	8.6
71-55-6	1,1,1-Trichloroethane	61U	61	8.4
79-00-5	1,1,2-Trichloroethane	61U	61	19
79-01-6	Trichloroethene	61U	61	13

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**E 0+00 (12-24)**	Sampled:	11/02/12 09:55
Lab Sample ID:	**1211063-02**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: DLV
Dilution Factor:	1	Analyzed:	11/08/12 By: DLV
QC Batch:	1213661	Analytical Batch:	2K08014

Volatile Organic Compounds by EPA Method 8260B (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
*75-69-4	Trichlorofluoromethane	61U	61	16
96-18-4	1,2,3-Trichloropropane	61U	61	17
95-63-6	1,2,4-Trimethylbenzene	61U	61	11
108-67-8	1,3,5-Trimethylbenzene	61U	61	10
75-01-4	Vinyl Chloride	**280**	61	10
179601-23-1	Xylene, Meta + Para	120U	120	17
95-47-6	Xylene, Ortho	61U	61	7.3
1330-20-7	Xylene (Total)	180U	180	25

Surrogates:	*% Recovery*	*Control Limits*
Dibromofluoromethane	*101*	*75-123*
1,2-Dichloroethane-d4	*97*	*83-116*
Toluene-d8	*98*	*85-113*
4-Bromofluorobenzene	*100*	*81-117*

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**E 0+00 (12-24)**	Sampled:	11/02/12 09:55
Lab Sample ID:	**1211063-02**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: ALK
Dilution Factor:	5	Analyzed:	11/09/12 By: JLB
QC Batch:	1213584	Analytical Batch:	2K13048

*Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	110U	110	5.2
208-96-8	Acenaphthylene	110U	110	5.4
120-12-7	Anthracene	110U	110	5.6
*92-87-5	Benzidine	4400U	4400	4400
56-55-3	Benzo(a)anthracene	**11J**	110	9.4
50-32-8	Benzo(a)pyrene	**11J**	110	5.6
*205-99-2	Benzo(b)fluoranthene	110U	110	11
*207-08-9	Benzo(k)fluoranthene	110U	110	15
191-24-2	Benzo(g,h,i)perylene	**6.7J**	220	5.4
65-85-0	Benzoic Acid	2200U	2200	210
100-51-6	Benzyl Alcohol	110U	110	8.6
101-55-3	4-Bromophenyl Phenyl Ether	110U	110	6.2
85-68-7	Butyl Benzyl Phthalate	220U	220	11
86-74-8	Carbazole	1100U	1100	58
59-50-7	4-Chloro-3-methylphenol	110U	110	25
*106-47-8	4-Chloroaniline	440U	440	58
111-91-1	Bis(2-chloroethoxy)methane	110U	110	7.3
111-44-4	Bis(2-chloroethyl) Ether	110U	110	5.2
108-60-1	Bis(2-chloroisopropyl) Ether	110U	110	18
91-58-7	2-Chloronaphthalene	110U	110	17
95-57-8	2-Chlorophenol	110U	110	5.2
7005-72-3	4-Chlorophenyl Phenyl Ether	110U	110	4.7
218-01-9	Chrysene	**9.0J**	110	5.6
53-70-3	Dibenz(a,h)anthracene	220U	220	8.3
132-64-9	Dibenzofuran	110U	110	5.4
84-74-2	Di-n-butyl Phthalate	440U	440	92
106-46-7	1,4-Dichlorobenzene	110U	110	5.6
95-50-1	1,2-Dichlorobenzene	110U	110	9.4
541-73-1	1,3-Dichlorobenzene	110U	110	8.3

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**E 0+00 (12-24)**	Sampled:	11/02/12 09:55
Lab Sample ID:	**1211063-02**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: ALK
Dilution Factor:	5	Analyzed:	11/09/12 By: JLB
QC Batch:	1213584	Analytical Batch:	2K13048

*Semivolatile Organic Compounds by EPA Method 8270C (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
91-94-1	3,3'-Dichlorobenzidine	5500U	5500	210
120-83-2	2,4-Dichlorophenol	220U	220	10
84-66-2	Diethyl Phthalate	110U	110	16
105-67-9	2,4-Dimethylphenol	1100U	1100	200
131-11-3	Dimethyl Phthalate	110U	110	12
534-52-1	4,6-Dinitro-2-methylphenol	1100U	1100	36
51-28-5	2,4-Dinitrophenol	1100U	1100	250
606-20-2	2,6-Dinitrotoluene	110U	110	10
121-14-2	2,4-Dinitrotoluene	220U	220	33
117-84-0	Di-n-octyl Phthalate	110U	110	7.3
117-81-7	Bis(2-ethylhexyl) Phthalate	**90J**	220	27
206-44-0	Fluoranthene	**16J**	110	3.7
86-73-7	Fluorene	**9.0J**	220	4.0
118-74-1	Hexachlorobenzene	110U	110	6.5
87-68-3	Hexachlorobutadiene	110U	110	4.7
77-47-4	Hexachlorocyclopentadiene	110U	110	18
67-72-1	Hexachloroethane	110U	110	8.7
193-39-5	Indeno(1,2,3-cd)pyrene	220U	220	20
78-59-1	Isophorone	110U	110	6.9
91-57-6	2-Methylnaphthalene	**16J**	110	8.8
106-44-5	4-Methylphenol	110U	110	13
108-39-4	3+4-Methylphenol	110U	110	13
95-48-7	2-Methylphenol	110U	110	22
*91-20-3	Naphthalene	**6.7J**	110	3.3
100-01-6	4-Nitroaniline	220U	220	100
88-74-4	2-Nitroaniline	110U	110	39
99-09-2	3-Nitroaniline	220U	220	110
98-95-3	Nitrobenzene	110U	110	9.6
88-75-5	2-Nitrophenol	110U	110	10
100-02-7	4-Nitrophenol	4400U	4400	170
86-30-6	N-Nitroso-diphenylamine	110U	110	6.9

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**E 0+00 (12-24)**	Sampled:	11/02/12 09:55
Lab Sample ID:	**1211063-02**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: ALK
Dilution Factor:	5	Analyzed:	11/09/12 By: JLB
QC Batch:	1213584	Analytical Batch:	2K13048

*Semivolatile Organic Compounds by EPA Method 8270C (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
621-64-7	N-Nitroso-di-n-propylamine	110U	110	14
87-86-5	Pentachlorophenol	1100U	1100	98
85-01-8	Phenanthrene	13J	110	4.7
108-95-2	Phenol	1100U	1100	8.6
129-00-0	Pyrene	18J	110	7.9
110-86-1	Pyridine	220U	220	54
120-82-1	1,2,4-Trichlorobenzene	110U	110	3.7
95-95-4	2,4,5-Trichlorophenol	110U	110	26
88-06-2	2,4,6-Trichlorophenol	110U	110	11

Surrogates:	*% Recovery*	*Control Limits*
2-Fluorophenol	*85*	*33-113*
Phenol-d6	*84*	*30-115*
Nitrobenzene-d5	*82*	*33-131*
2-Fluorobiphenyl	*81*	*46-122*
2,4,6-Tribromophenol	*67*	*12-124*
o-Terphenyl	*80*	*20-155*

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**E 0+00 (12-24)**	Sampled:	11/02/12 09:55
Lab Sample ID:	**1211063-02**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Percent Solids:	76		

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result		RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Aluminum	**2400**		10	1.4	mg/kg dry wt.	1	USEPA-6010C	11/08/12 08:42	KLV	1213605
Arsenic	**6.7**		0.092	0.015	mg/kg dry wt.	1	USEPA-6020A	11/08/12 10:42	DSC	1213607
Barium	**33**		0.46	0.056	mg/kg dry wt.	5	USEPA-6020A	11/08/12 14:29	DSC	1213607
Cadmium	**0.096**		0.046	0.0030	mg/kg dry wt.	1	USEPA-6020A	11/08/12 10:42	DSC	1213607
Chromium	**19**		0.46	0.064	mg/kg dry wt.	5	USEPA-6020A	11/08/12 14:29	DSC	1213607
Copper	**21**		0.46	0.12	mg/kg dry wt.	5	USEPA-6020A	11/08/12 14:29	DSC	1213607
Lead	**4.5**		0.092	0.0060	mg/kg dry wt.	1	USEPA-6020A	11/08/12 10:42	DSC	1213607
Mercury	**0.023**	J	0.046	0.0056	mg/kg dry wt.	1	USEPA-7471A	11/08/12 11:01	CKD	1213637
Nickel	**19**		0.46	0.074	mg/kg dry wt.	5	USEPA-6020A	11/08/12 14:29	DSC	1213607
Selenium	**0.26**		0.092	0.030	mg/kg dry wt.	1	USEPA-6020A	11/08/12 10:42	DSC	1213607
Silver	**0.031**	J	0.046	0.0036	mg/kg dry wt.	1	USEPA-6020A	11/08/12 10:42	DSC	1213607
Zinc	**120**		23	6.4	mg/kg dry wt.	25	USEPA-6020A	11/08/12 14:26	DSC	1213607

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**E 0+00 (12-24)**	Sampled:	11/02/12 09:55
Lab Sample ID:	**1211063-02**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result		RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Chromium, Hexavalent	2.5	U	2.5	0.33	mg/kg dry	1	USEPA-7196A	11/11/12 10:06	HLB	1213417
Cyanide, Available	**0.22**		0.052	0.031	mg/kg dry	1	USEPA OIA-1677	11/13/12 12:47	LMA	1214000
Cyanide, Total	**0.45**		0.13	0.029	mg/kg dry	1	USEPA-9014	11/09/12 16:34	LMA	1213768
Fractional Organic Carbon	**0.0194**		0.0010	0.0010	g C/g Soil	1	ASTM D 2974-87	11/03/12 16:17	HLB	1213805
Percent Solids	**76**		0.1	0.1	%	1	USEPA-3550C	11/03/12 16:17	HLB	1213578
Carbon, Total Organic	**1.8**		0.10	0.017	%	1	Walkley-Black	11/15/12 13:00	HLB	1214240

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**W 0+00 (0-12)**	Sampled:	11/02/12 10:25
Lab Sample ID:	**1211063-03**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: SMS9
Dilution Factor:	1	Analyzed:	11/09/12 By: MSZ
QC Batch:	1213588	Analytical Batch:	2K12020

*Polychlorinated Biphenyls (PCBs) by EPA Method 8082A

CAS Number	Analyte	Analytical Result	RL	MDL
12674-11-2	PCB-1016	470U	470	2.4
11104-28-2	PCB-1221	470U	470	3.0
11141-16-5	PCB-1232	470U	470	3.0
53469-21-9	PCB-1242	470U	470	9.8
12672-29-6	PCB-1248	**8.6J**	470	3.6
11097-69-1	PCB-1254	470U	470	4.8
11096-82-5	PCB-1260	470U	470	4.0

Surrogates:	*% Recovery*	*Control Limits*
Decachlorobiphenyl	*93*	*45-135*
Tetrachloro-m-xylene	*87*	*56-123*

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**W 0+00 (0-12)**	Sampled:	11/02/12 10:25
Lab Sample ID:	**1211063-03**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: DLV
Dilution Factor:	1	Analyzed:	11/08/12 By: DLV
QC Batch:	1213661	Analytical Batch:	2K08014

Volatile Organic Compounds by EPA Method 8260B

CAS Number	Analyte	Analytical Result	RL	MDL
67-64-1	Acetone	970U	970	70
107-02-8	Acrolein	320U	320	51
71-43-2	Benzene	65U	65	9.2
108-86-1	Bromobenzene	65U	65	9.5
74-97-5	Bromochloromethane	65U	65	19
75-27-4	Bromodichloromethane	65U	65	8.7
75-25-2	Bromoform	65U	65	17
*74-83-9	Bromomethane	65U	65	28
104-51-8	n-Butylbenzene	65U	65	12
135-98-8	sec-Butylbenzene	65U	65	13
98-06-6	tert-Butylbenzene	65U	65	13
75-15-0	Carbon Disulfide	**21J**	320	15
56-23-5	Carbon Tetrachloride	65U	65	22
108-90-7	Chlorobenzene	65U	65	11
75-00-3	Chloroethane	65U	65	23
67-66-3	Chloroform	65U	65	11
74-87-3	Chloromethane	65U	65	25
95-49-8	2-Chlorotoluene	65U	65	14
106-43-4	4-Chlorotoluene	65U	65	11
96-12-8	1,2-Dibromo-3-chloropropane	320U	320	33
124-48-1	Dibromochloromethane	65U	65	9.9
106-93-4	1,2-Dibromoethane	65U	65	21
74-95-3	Dibromomethane	65U	65	17
95-50-1	1,2-Dichlorobenzene	65U	65	15
541-73-1	1,3-Dichlorobenzene	65U	65	15
106-46-7	1,4-Dichlorobenzene	65U	65	16
75-71-8	Dichlorodifluoromethane	65U	65	14
75-34-3	1,1-Dichloroethane	65U	65	14
107-06-2	1,2-Dichloroethane	65U	65	14

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client: CTI and Associates, Inc.
Project: JCI - Fowlerville Sediment Remediation
Client Sample ID: W 0+00 (0-12)
Lab Sample ID: 1211063-03
Matrix: Sediment
Unit: ug/kg dry
Dilution Factor: 1
QC Batch: 1213661
Work Order: 1211063
Description: Laboratory Services
Sampled: 11/02/12 10:25
Sampled By: Mr. Brent Kelley
Received: 11/02/12 19:21
Prepared: 11/7/2012 By: DLV
Analyzed: 11/08/12 By: DLV
Analytical Batch: 2K08014

Volatile Organic Compounds by EPA Method 8260B (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
75-35-4	1,1-Dichloroethene	65U	65	14
156-59-2	cis-1,2-Dichloroethene	**53J**	65	15
156-60-5	trans-1,2-Dichloroethene	65U	65	15
540-59-0	1,2-Dichloroethene (Total)	**53J**	130	30
78-87-5	1,2-Dichloropropane	65U	65	18
142-28-9	1,3-Dichloropropane	65U	65	16
594-20-7	2,2-Dichloropropane	65U	65	31
563-58-6	1,1-Dichloropropene	65U	65	15
10061-01-5	cis-1,3-Dichloropropene	65U	65	12
10061-02-6	trans-1,3-Dichloropropene	65U	65	12
100-41-4	Ethylbenzene	65U	65	13
87-68-3	Hexachlorobutadiene	65U	65	9.3
591-78-6	2-Hexanone	3200U	3200	32
98-82-8	Isopropylbenzene	65U	65	14
99-87-6	4-Isopropyltoluene	65U	65	11
1634-04-4	Methyl tert-Butyl Ether	65U	65	12
75-09-2	Methylene Chloride	320U	320	35
78-93-3	2-Butanone (MEK)	3200U	3200	82
108-10-1	4-Methyl-2-pentanone (MIBK)	3200U	3200	26
91-20-3	Naphthalene	**150J**	320	18
103-65-1	n-Propylbenzene	65U	65	13
100-42-5	Styrene	65U	65	13
630-20-6	1,1,1,2-Tetrachloroethane	65U	65	9.2
79-34-5	1,1,2,2-Tetrachloroethane	65U	65	16
127-18-4	Tetrachloroethene	65U	65	18
108-88-3	Toluene	**32J**	65	14
87-61-6	1,2,3-Trichlorobenzene	65U	65	13
120-82-1	1,2,4-Trichlorobenzene	65U	65	9.1
71-55-6	1,1,1-Trichloroethane	65U	65	8.9
79-00-5	1,1,2-Trichloroethane	65U	65	21
79-01-6	Trichloroethene	**160**	65	14

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**W 0+00 (0-12)**	Sampled:	11/02/12 10:25
Lab Sample ID:	**1211063-03**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: DLV
Dilution Factor:	1	Analyzed:	11/08/12 By: DLV
QC Batch:	1213661	Analytical Batch:	2K08014

Volatile Organic Compounds by EPA Method 8260B (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
*75-69-4	Trichlorofluoromethane	65U	65	17
96-18-4	1,2,3-Trichloropropane	65U	65	18
95-63-6	1,2,4-Trimethylbenzene	65U	65	12
108-67-8	1,3,5-Trimethylbenzene	65U	65	11
75-01-4	Vinyl Chloride	65U	65	11
179601-23-1	Xylene, Meta + Para	**19J**	130	18
95-47-6	Xylene, Ortho	**25J**	65	7.8
1330-20-7	Xylene (Total)	**44J**	190	26

Surrogates:	*% Recovery*	*Control Limits*
Dibromofluoromethane	*100*	*75-123*
1,2-Dichloroethane-d4	*96*	*83-116*
Toluene-d8	*97*	*85-113*
4-Bromofluorobenzene	*98*	*81-117*

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**W 0+00 (0-12)**	Sampled:	11/02/12 10:25
Lab Sample ID:	**1211063-03**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: ALK
Dilution Factor:	5	Analyzed:	11/09/12 By: JLB
QC Batch:	1213584	Analytical Batch:	2K13048

*Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	**52J**	120	5.6
208-96-8	Acenaphthylene	120U	120	5.9
120-12-7	Anthracene	**14J**	120	6.1
*92-87-5	Benzidine	4800U	4800	4800
56-55-3	Benzo(a)anthracene	**100J**	120	10
50-32-8	Benzo(a)pyrene	**87J**	120	6.1
*205-99-2	Benzo(b)fluoranthene	**160**	120	12
*207-08-9	Benzo(k)fluoranthene	**47J**	120	16
191-24-2	Benzo(g,h,i)perylene	**52J**	240	5.9
65-85-0	Benzoic Acid	2400U	2400	230
100-51-6	Benzyl Alcohol	120U	120	9.3
101-55-3	4-Bromophenyl Phenyl Ether	120U	120	6.7
85-68-7	Butyl Benzyl Phthalate	240U	240	12
86-74-8	Carbazole	1200U	1200	64
59-50-7	4-Chloro-3-methylphenol	120U	120	27
*106-47-8	4-Chloroaniline	480U	480	63
111-91-1	Bis(2-chloroethoxy)methane	120U	120	8.0
111-44-4	Bis(2-chloroethyl) Ether	120U	120	5.6
108-60-1	Bis(2-chloroisopropyl) Ether	120U	120	19
91-58-7	2-Chloronaphthalene	120U	120	19
95-57-8	2-Chlorophenol	120U	120	5.6
7005-72-3	4-Chlorophenyl Phenyl Ether	120U	120	5.2
218-01-9	Chrysene	**99J**	120	6.1
53-70-3	Dibenz(a,h)anthracene	**12J**	240	9.1
132-64-9	Dibenzofuran	120U	120	5.9
84-74-2	Di-n-butyl Phthalate	480U	480	100
106-46-7	1,4-Dichlorobenzene	120U	120	6.1
95-50-1	1,2-Dichlorobenzene	120U	120	10
541-73-1	1,3-Dichlorobenzene	120U	120	9.1

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**W 0+00 (0-12)**	Sampled:	11/02/12 10:25
Lab Sample ID:	**1211063-03**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: ALK
Dilution Factor:	5	Analyzed:	11/09/12 By: JLB
QC Batch:	1213584	Analytical Batch:	2K13048

*Semivolatile Organic Compounds by EPA Method 8270C (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
91-94-1	3,3'-Dichlorobenzidine	5900U	5900	230
120-83-2	2,4-Dichlorophenol	240U	240	11
84-66-2	Diethyl Phthalate	120U	120	17
105-67-9	2,4-Dimethylphenol	1200U	1200	210
131-11-3	Dimethyl Phthalate	120U	120	13
534-52-1	4,6-Dinitro-2-methylphenol	1200U	1200	39
51-28-5	2,4-Dinitrophenol	1200U	1200	270
606-20-2	2,6-Dinitrotoluene	120U	120	11
121-14-2	2,4-Dinitrotoluene	240U	240	35
117-84-0	Di-n-octyl Phthalate	120U	120	8.0
117-81-7	Bis(2-ethylhexyl) Phthalate	240U	240	29
206-44-0	Fluoranthene	**170**	120	4.0
86-73-7	Fluorene	**9.4J**	240	4.3
118-74-1	Hexachlorobenzene	120U	120	7.1
87-68-3	Hexachlorobutadiene	120U	120	5.2
77-47-4	Hexachlorocyclopentadiene	120U	120	19
67-72-1	Hexachloroethane	120U	120	9.5
193-39-5	Indeno(1,2,3-cd)pyrene	**40J**	240	22
78-59-1	Isophorone	120U	120	7.5
91-57-6	2-Methylnaphthalene	120U	120	9.6
106-44-5	4-Methylphenol	120U	120	14
108-39-4	3+4-Methylphenol	120U	120	14
95-48-7	2-Methylphenol	120U	120	24
91-20-3	Naphthalene	**7.0J**	120	3.6
100-01-6	4-Nitroaniline	240U	240	110
88-74-4	2-Nitroaniline	120U	120	42
99-09-2	3-Nitroaniline	240U	240	120
98-95-3	Nitrobenzene	120U	120	10
88-75-5	2-Nitrophenol	120U	120	11
100-02-7	4-Nitrophenol	4800U	4800	190
86-30-6	N-Nitroso-diphenylamine	120U	120	7.5

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**W 0+00 (0-12)**	Sampled:	11/02/12 10:25
Lab Sample ID:	**1211063-03**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: ALK
Dilution Factor:	5	Analyzed:	11/09/12 By: JLB
QC Batch:	1213584	Analytical Batch:	2K13048

*Semivolatile Organic Compounds by EPA Method 8270C (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
621-64-7	N-Nitroso-di-n-propylamine	120U	120	15
87-86-5	Pentachlorophenol	1200U	1200	110
85-01-8	Phenanthrene	**45J**	120	5.2
108-95-2	Phenol	1200U	1200	9.3
129-00-0	Pyrene	**220**	120	8.6
110-86-1	Pyridine	240U	240	59
120-82-1	1,2,4-Trichlorobenzene	120U	120	4.0
95-95-4	2,4,5-Trichlorophenol	120U	120	28
88-06-2	2,4,6-Trichlorophenol	120U	120	12

Surrogates:	*% Recovery*	*Control Limits*
2-Fluorophenol	*80*	*33-113*
Phenol-d6	*80*	*30-115*
Nitrobenzene-d5	*76*	*33-131*
2-Fluorobiphenyl	*78*	*46-122*
2,4,6-Tribromophenol	*69*	*12-124*
o-Terphenyl	*75*	*20-155*

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**W 0+00 (0-12)**	Sampled:	11/02/12 10:25
Lab Sample ID:	**1211063-03**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Percent Solids:	70		

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result		RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Aluminum	**3200**		9.4	1.3	mg/kg dry wt.	1	USEPA-6010C	11/08/12 08:48	KLV	1213605
Arsenic	**8.4**		0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	11/08/12 10:46	DSC	1213607
Barium	**39**		0.50	0.061	mg/kg dry wt.	5	USEPA-6020A	11/08/12 14:36	DSC	1213607
Cadmium	**0.15**		0.050	0.0033	mg/kg dry wt.	1	USEPA-6020A	11/08/12 10:46	DSC	1213607
Chromium	**22**		0.50	0.070	mg/kg dry wt.	5	USEPA-6020A	11/08/12 14:36	DSC	1213607
Copper	**20**		0.50	0.13	mg/kg dry wt.	5	USEPA-6020A	11/08/12 14:36	DSC	1213607
Lead	**990**		25	1.6	mg/kg dry wt.	250	USEPA-6020A	11/08/12 17:46	DSC	1213607
Mercury	**0.030**	J	0.050	0.0061	mg/kg dry wt.	1	USEPA-7471A	11/08/12 11:06	CKD	1213637
Nickel	**16**		0.50	0.080	mg/kg dry wt.	5	USEPA-6020A	11/08/12 14:36	DSC	1213607
Selenium	**0.30**		0.10	0.033	mg/kg dry wt.	1	USEPA-6020A	11/08/12 10:46	DSC	1213607
Silver	**0.081**		0.050	0.0039	mg/kg dry wt.	1	USEPA-6020A	11/08/12 10:46	DSC	1213607
Zinc	**67**		10	2.8	mg/kg dry wt.	10	USEPA-6020A	11/08/12 14:33	DSC	1213607

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client: CTI and Associates, Inc.
Project: JCI - Fowlerville Sediment Remediation
Client Sample ID: W 0+00 (0-12)
Lab Sample ID: 1211063-03
Matrix: Sediment
Work Order: 1211063
Description: Laboratory Services
Sampled: 11/02/12 10:25
Sampled By: Mr. Brent Kelley
Received: 11/02/12 19:21

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result		RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Chromium, Hexavalent	**0.57**	J	2.6	0.35	mg/kg dry	1	USEPA-7196A	11/11/12 10:07	HLB	1213417
***Cyanide, Available**	**0.41**		0.057	0.034	mg/kg dry	1	USEPA OIA-1677	11/13/12 12:49	LMA	1214000
Cyanide, Total	**0.17**		0.14	0.032	mg/kg dry	1	USEPA-9014	11/09/12 16:34	LMA	1213768
Fractional Organic Carbon	**0.0145**		0.0010	0.0010	g C/g Soil	1	ASTM D 2974-87	11/03/12 16:17	HLB	1213805
Percent Solids	**70**		0.1	0.1	%	1	USEPA-3550C	11/03/12 16:17	HLB	1213578
Carbon, Total Organic	**1.8**		0.10	0.017	%	1	Walkley-Black	11/15/12 13:00	HLB	1214240

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**W 0+00 (12-24)**	Sampled:	11/02/12 11:00
Lab Sample ID:	**1211063-04**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: SMS9
Dilution Factor:	1	Analyzed:	11/09/12 By: MSZ
QC Batch:	1213588	Analytical Batch:	2K12020

*Polychlorinated Biphenyls (PCBs) by EPA Method 8082A

CAS Number	Analyte	Analytical Result	RL	MDL
12674-11-2	PCB-1016	370U	370	1.9
11104-28-2	PCB-1221	370U	370	2.4
11141-16-5	PCB-1232	370U	370	2.4
53469-21-9	PCB-1242	370U	370	7.8
12672-29-6	PCB-1248	370U	370	2.8
11097-69-1	PCB-1254	370U	370	3.8
11096-82-5	PCB-1260	370U	370	3.2

Surrogates:	*% Recovery*	*Control Limits*
Decachlorobiphenyl	*92*	*45-135*
Tetrachloro-m-xylene	*86*	*56-123*

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**W 0+00 (12-24)**	Sampled:	11/02/12 11:00
Lab Sample ID:	**1211063-04**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: DLV
Dilution Factor:	1	Analyzed:	11/08/12 By: DLV
QC Batch:	1213661	Analytical Batch:	2K08014

Volatile Organic Compounds by EPA Method 8260B

CAS Number	Analyte	Analytical Result	RL	MDL
67-64-1	Acetone	850U	850	61
107-02-8	Acrolein	280U	280	45
71-43-2	Benzene	57U	57	8.0
108-86-1	Bromobenzene	57U	57	8.3
74-97-5	Bromochloromethane	57U	57	17
75-27-4	Bromodichloromethane	57U	57	7.6
75-25-2	Bromoform	57U	57	15
*74-83-9	Bromomethane	57U	57	24
104-51-8	n-Butylbenzene	57U	57	11
135-98-8	sec-Butylbenzene	57U	57	12
98-06-6	tert-Butylbenzene	57U	57	11
75-15-0	Carbon Disulfide	280U	280	13
56-23-5	Carbon Tetrachloride	57U	57	19
108-90-7	Chlorobenzene	57U	57	9.5
75-00-3	Chloroethane	57U	57	20
67-66-3	Chloroform	57U	57	9.5
74-87-3	Chloromethane	57U	57	22
95-49-8	2-Chlorotoluene	57U	57	12
106-43-4	4-Chlorotoluene	57U	57	10
96-12-8	1,2-Dibromo-3-chloropropane	280U	280	29
124-48-1	Dibromochloromethane	57U	57	8.6
106-93-4	1,2-Dibromoethane	57U	57	18
74-95-3	Dibromomethane	57U	57	14
95-50-1	1,2-Dichlorobenzene	57U	57	13
541-73-1	1,3-Dichlorobenzene	57U	57	13
106-46-7	1,4-Dichlorobenzene	57U	57	14
75-71-8	Dichlorodifluoromethane	57U	57	12
75-34-3	1,1-Dichloroethane	57U	57	12
107-06-2	1,2-Dichloroethane	57U	57	12

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**W 0+00 (12-24)**	Sampled:	11/02/12 11:00
Lab Sample ID:	**1211063-04**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: DLV
Dilution Factor:	1	Analyzed:	11/08/12 By: DLV
QC Batch:	1213661	Analytical Batch:	2K08014

Volatile Organic Compounds by EPA Method 8260B (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
75-35-4	1,1-Dichloroethene	57U	57	12
156-59-2	cis-1,2-Dichloroethene	57U	57	13
156-60-5	trans-1,2-Dichloroethene	57U	57	13
540-59-0	1,2-Dichloroethene (Total)	110U	110	26
78-87-5	1,2-Dichloropropane	57U	57	16
142-28-9	1,3-Dichloropropane	57U	57	14
594-20-7	2,2-Dichloropropane	57U	57	27
563-58-6	1,1-Dichloropropene	57U	57	13
10061-01-5	cis-1,3-Dichloropropene	57U	57	11
10061-02-6	trans-1,3-Dichloropropene	57U	57	11
100-41-4	Ethylbenzene	57U	57	12
87-68-3	Hexachlorobutadiene	57U	57	8.1
591-78-6	2-Hexanone	2800U	2800	28
98-82-8	Isopropylbenzene	57U	57	12
99-87-6	4-Isopropyltoluene	57U	57	10
1634-04-4	Methyl tert-Butyl Ether	57U	57	11
75-09-2	Methylene Chloride	280U	280	30
78-93-3	2-Butanone (MEK)	2800U	2800	72
108-10-1	4-Methyl-2-pentanone (MIBK)	2800U	2800	22
91-20-3	Naphthalene	280U	280	16
103-65-1	n-Propylbenzene	57U	57	11
100-42-5	Styrene	57U	57	12
630-20-6	1,1,1,2-Tetrachloroethane	57U	57	8.0
79-34-5	1,1,2,2-Tetrachloroethane	57U	57	14
127-18-4	Tetrachloroethene	57U	57	16
108-88-3	Toluene	57U	57	12
87-61-6	1,2,3-Trichlorobenzene	57U	57	11
120-82-1	1,2,4-Trichlorobenzene	57U	57	7.9
71-55-6	1,1,1-Trichloroethane	57U	57	7.8
79-00-5	1,1,2-Trichloroethane	57U	57	18
79-01-6	Trichloroethene	57U	57	12

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client: CTI and Associates, Inc.
Project: JCI - Fowlerville Sediment Remediation
Client Sample ID: W 0+00 (12-24)
Lab Sample ID: 1211063-04
Matrix: Sediment
Unit: ug/kg dry
Dilution Factor: 1
QC Batch: 1213661
Work Order: 1211063
Description: Laboratory Services
Sampled: 11/02/12 11:00
Sampled By: Mr. Brent Kelley
Received: 11/02/12 19:21
Prepared: 11/7/2012 By: DLV
Analyzed: 11/08/12 By: DLV
Analytical Batch: 2K08014

Volatile Organic Compounds by EPA Method 8260B (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
*75-69-4	Trichlorofluoromethane	57U	57	15
96-18-4	1,2,3-Trichloropropane	57U	57	16
95-63-6	1,2,4-Trimethylbenzene	57U	57	10
108-67-8	1,3,5-Trimethylbenzene	57U	57	9.5
75-01-4	Vinyl Chloride	31J	57	9.5
179601-23-1	Xylene, Meta + Para	110U	110	16
95-47-6	Xylene, Ortho	57U	57	6.8
1330-20-7	Xylene (Total)	170U	170	23

Surrogates:	*% Recovery*	*Control Limits*
Dibromofluoromethane	*100*	*75-123*
1,2-Dichloroethane-d4	*96*	*83-116*
Toluene-d8	*98*	*85-113*
4-Bromofluorobenzene	*99*	*81-117*

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**W 0+00 (12-24)**	Sampled:	11/02/12 11:00
Lab Sample ID:	**1211063-04**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: ALK
Dilution Factor:	1	Analyzed:	11/09/12 By: JLB
QC Batch:	1213584	Analytical Batch:	2K13048

Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
*83-32-9	Acenaphthene	**3.3J**	19	0.90
208-96-8	Acenaphthylene	19U	19	0.93
120-12-7	Anthracene	19U	19	0.97
*92-87-5	Benzidine	750U	750	750
56-55-3	Benzo(a)anthracene	**4.1J**	19	1.6
50-32-8	Benzo(a)pyrene	**3.7J**	19	0.97
*205-99-2	Benzo(b)fluoranthene	**5.9J**	19	1.9
*207-08-9	Benzo(k)fluoranthene	19U	19	2.5
191-24-2	Benzo(g,h,i)perylene	**5.5J**	38	0.93
65-85-0	Benzoic Acid	380U	380	37
100-51-6	Benzyl Alcohol	**4.8J**	19	1.5
101-55-3	4-Bromophenyl Phenyl Ether	19U	19	1.1
85-68-7	Butyl Benzyl Phthalate	38U	38	1.9
86-74-8	Carbazole	190U	190	10
59-50-7	4-Chloro-3-methylphenol	19U	19	4.2
*106-47-8	4-Chloroaniline	75U	75	10
111-91-1	Bis(2-chloroethoxy)methane	19U	19	1.3
111-44-4	Bis(2-chloroethyl) Ether	19U	19	0.89
108-60-1	Bis(2-chloroisopropyl) Ether	19U	19	3.0
91-58-7	2-Chloronaphthalene	19U	19	3.0
95-57-8	2-Chlorophenol	19U	19	0.90
7005-72-3	4-Chlorophenyl Phenyl Ether	19U	19	0.82
218-01-9	Chrysene	**5.2J**	19	0.97
53-70-3	Dibenz(a,h)anthracene	**1.5J**	38	1.4
132-64-9	Dibenzofuran	19U	19	0.93
84-74-2	Di-n-butyl Phthalate	75U	75	16
106-46-7	1,4-Dichlorobenzene	19U	19	0.96
95-50-1	1,2-Dichlorobenzene	19U	19	1.6
541-73-1	1,3-Dichlorobenzene	19U	19	1.4

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**W 0+00 (12-24)**	Sampled:	11/02/12 11:00
Lab Sample ID:	**1211063-04**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: ALK
Dilution Factor:	1	Analyzed:	11/09/12 By: JLB
QC Batch:	1213584	Analytical Batch:	2K13048

Semivolatile Organic Compounds by EPA Method 8270C (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
91-94-1	3,3'-Dichlorobenzidine	940U	940	37
120-83-2	2,4-Dichlorophenol	38U	38	1.7
84-66-2	Diethyl Phthalate	19U	19	2.7
105-67-9	2,4-Dimethylphenol	190U	190	34
131-11-3	Dimethyl Phthalate	19U	19	2.1
534-52-1	4,6-Dinitro-2-methylphenol	190U	190	6.2
51-28-5	2,4-Dinitrophenol	190U	190	44
606-20-2	2,6-Dinitrotoluene	19U	19	1.8
121-14-2	2,4-Dinitrotoluene	38U	38	5.6
117-84-0	Di-n-octyl Phthalate	19U	19	1.3
*117-81-7	Bis(2-ethylhexyl) Phthalate	**5.9J**	38	4.6
206-44-0	Fluoranthene	**4.8J**	19	0.63
86-73-7	Fluorene	**1.1J**	38	0.68
118-74-1	Hexachlorobenzene	19U	19	1.1
87-68-3	Hexachlorobutadiene	19U	19	0.82
77-47-4	Hexachlorocyclopentadiene	19U	19	3.1
67-72-1	Hexachloroethane	19U	19	1.5
*193-39-5	Indeno(1,2,3-cd)pyrene	38U	38	3.5
78-59-1	Isophorone	19U	19	1.2
91-57-6	2-Methylnaphthalene	19U	19	1.5
106-44-5	4-Methylphenol	19U	19	2.3
108-39-4	3+4-Methylphenol	19U	19	2.3
95-48-7	2-Methylphenol	19U	19	3.8
91-20-3	Naphthalene	**1.1J**	19	0.58
100-01-6	4-Nitroaniline	38U	38	18
88-74-4	2-Nitroaniline	19U	19	6.7
99-09-2	3-Nitroaniline	38U	38	18
98-95-3	Nitrobenzene	19U	19	1.7
88-75-5	2-Nitrophenol	19U	19	1.7
100-02-7	4-Nitrophenol	750U	750	30
86-30-6	N-Nitroso-diphenylamine	19U	19	1.2

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**W 0+00 (12-24)**	Sampled:	11/02/12 11:00
Lab Sample ID:	**1211063-04**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: ALK
Dilution Factor:	1	Analyzed:	11/09/12 By: JLB
QC Batch:	1213584	Analytical Batch:	2K13048

Semivolatile Organic Compounds by EPA Method 8270C (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
621-64-7	N-Nitroso-di-n-propylamine	19U	19	2.5
87-86-5	Pentachlorophenol	190U	190	17
85-01-8	Phenanthrene	4.1J	19	0.82
108-95-2	Phenol	190U	190	1.5
129-00-0	Pyrene	8.1J	19	1.4
110-86-1	Pyridine	37U	37	9.3
120-82-1	1,2,4-Trichlorobenzene	19U	19	0.63
95-95-4	2,4,5-Trichlorophenol	19U	19	4.4
88-06-2	2,4,6-Trichlorophenol	19U	19	1.9

Surrogates:	*% Recovery*	*Control Limits*
2-Fluorophenol	*76*	*33-113*
Phenol-d6	*78*	*30-115*
Nitrobenzene-d5	*76*	*33-131*
2-Fluorobiphenyl	*72*	*46-122*
2,4,6-Tribromophenol	*64*	*12-124*
o-Terphenyl	*76*	*20-155*

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**W 0+00 (12-24)**	Sampled:	11/02/12 11:00
Lab Sample ID:	**1211063-04**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Percent Solids:	88		

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result		RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Aluminum	**6000**		9.4	1.3	mg/kg dry wt.	1	USEPA-6010C	11/08/12 08:55	KLV	1213605
Arsenic	**2.8**		0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	11/08/12 10:49	DSC	1213607
Barium	**30**		0.50	0.061	mg/kg dry wt.	5	USEPA-6020A	11/08/12 14:39	DSC	1213607
Cadmium	**0.043**	J	0.050	0.0033	mg/kg dry wt.	1	USEPA-6020A	11/08/12 10:49	DSC	1213607
Chromium	**10**		0.50	0.070	mg/kg dry wt.	5	USEPA-6020A	11/08/12 14:39	DSC	1213607
Copper	**9.1**		0.10	0.025	mg/kg dry wt.	1	USEPA-6020A	11/08/12 10:49	DSC	1213607
Lead	**4.1**		0.10	0.0066	mg/kg dry wt.	1	USEPA-6020A	11/08/12 10:49	DSC	1213607
Mercury	**0.0079**	J	0.046	0.0056	mg/kg dry wt.	1	USEPA-7471A	11/08/12 11:11	CKD	1213637
Nickel	**14**		0.50	0.080	mg/kg dry wt.	5	USEPA-6020A	11/08/12 14:39	DSC	1213607
Selenium	**0.19**		0.10	0.033	mg/kg dry wt.	1	USEPA-6020A	11/08/12 10:49	DSC	1213607
Silver	**0.073**		0.050	0.0039	mg/kg dry wt.	1	USEPA-6020A	11/08/12 10:49	DSC	1213607
Zinc	**22**		5.0	1.4	mg/kg dry wt.	5	USEPA-6020A	11/08/12 14:39	DSC	1213607

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**W 0+00 (12-24)**	Sampled:	11/02/12 11:00
Lab Sample ID:	**1211063-04**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result		RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Chromium, Hexavalent	2.3	U	2.3	0.31	mg/kg dry	1	USEPA-7196A	11/11/12 10:07	HLB	1213417
Cyanide, Total	0.11	U	0.11	0.025	mg/kg dry	1	USEPA-9014	11/09/12 16:34	LMA	1213768
Fractional Organic Carbon	**0.0042**		0.0010	0.0010	g C/g Soil	1	ASTM D 2974-87	11/03/12 16:17	HLB	1213805
Percent Solids	**88**		0.1	0.1	%	1	USEPA-3550C	11/03/12 16:17	HLB	1213578
Carbon, Total Organic	**0.36**		0.10	0.017	%	1	Walkley-Black	11/15/12 13:00	HLB	1214240

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**E 5+00 (0-12)**	Sampled:	11/01/12 15:00
Lab Sample ID:	**1211063-05**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: SMS9
Dilution Factor:	1	Analyzed:	11/09/12 By: MSZ
QC Batch:	1213588	Analytical Batch:	2K12020

*Polychlorinated Biphenyls (PCBs) by EPA Method 8082A

CAS Number	Analyte	Analytical Result	RL	MDL
12674-11-2	PCB-1016	420U	420	2.1
11104-28-2	PCB-1221	420U	420	2.6
11141-16-5	PCB-1232	420U	420	2.6
53469-21-9	PCB-1242	420U	420	8.7
12672-29-6	PCB-1248	420U	420	3.2
11097-69-1	PCB-1254	420U	420	4.3
11096-82-5	PCB-1260	420U	420	3.5

Surrogates:	*% Recovery*	*Control Limits*
Decachlorobiphenyl	*93*	*45-135*
Tetrachloro-m-xylene	*88*	*56-123*

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**E 5+00 (0-12)**	Sampled:	11/01/12 15:00
Lab Sample ID:	**1211063-05**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: DLV
Dilution Factor:	1	Analyzed:	11/08/12 By: DLV
QC Batch:	1213661	Analytical Batch:	2K08014

Volatile Organic Compounds by EPA Method 8260B

CAS Number	Analyte	Analytical Result	RL	MDL
67-64-1	Acetone	860U	860	62
107-02-8	Acrolein	290U	290	45
71-43-2	Benzene	57U	57	8.1
108-86-1	Bromobenzene	57U	57	8.4
74-97-5	Bromochloromethane	57U	57	17
75-27-4	Bromodichloromethane	57U	57	7.7
75-25-2	Bromoform	57U	57	15
*74-83-9	Bromomethane	57U	57	25
104-51-8	n-Butylbenzene	57U	57	11
135-98-8	sec-Butylbenzene	57U	57	12
98-06-6	tert-Butylbenzene	57U	57	12
75-15-0	Carbon Disulfide	17J	290	13
56-23-5	Carbon Tetrachloride	57U	57	19
108-90-7	Chlorobenzene	57U	57	9.6
75-00-3	Chloroethane	57U	57	20
67-66-3	Chloroform	57U	57	9.6
74-87-3	Chloromethane	57U	57	22
95-49-8	2-Chlorotoluene	57U	57	13
106-43-4	4-Chlorotoluene	57U	57	10
96-12-8	1,2-Dibromo-3-chloropropane	290U	290	29
124-48-1	Dibromochloromethane	57U	57	8.7
106-93-4	1,2-Dibromoethane	57U	57	19
74-95-3	Dibromomethane	57U	57	15
95-50-1	1,2-Dichlorobenzene	57U	57	14
541-73-1	1,3-Dichlorobenzene	57U	57	14
106-46-7	1,4-Dichlorobenzene	57U	57	14
75-71-8	Dichlorodifluoromethane	57U	57	12
75-34-3	1,1-Dichloroethane	57U	57	13
107-06-2	1,2-Dichloroethane	57U	57	12

Continued on next page

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client: CTI and Associates, Inc.
Project: JCI - Fowlerville Sediment Remediation
Client Sample ID: E 5+00 (0-12)
Lab Sample ID: 1211063-05
Matrix: Sediment
Unit: ug/kg dry
Dilution Factor: 1
QC Batch: 1213661

Work Order: 1211063
Description: Laboratory Services
Sampled: 11/01/12 15:00
Sampled By: Mr. Brent Kelley
Received: 11/02/12 19:21
Prepared: 11/7/2012 By: DLV
Analyzed: 11/08/12 By: DLV
Analytical Batch: 2K08014

Volatile Organic Compounds by EPA Method 8260B (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
75-35-4	1,1-Dichloroethene	57U	57	12
156-59-2	cis-1,2-Dichloroethene	57U	57	13
156-60-5	trans-1,2-Dichloroethene	57U	57	13
540-59-0	1,2-Dichloroethene (Total)	110U	110	26
78-87-5	1,2-Dichloropropane	57U	57	16
142-28-9	1,3-Dichloropropane	57U	57	14
594-20-7	2,2-Dichloropropane	57U	57	27
563-58-6	1,1-Dichloropropene	57U	57	14
10061-01-5	cis-1,3-Dichloropropene	57U	57	11
10061-02-6	trans-1,3-Dichloropropene	57U	57	11
100-41-4	Ethylbenzene	57U	57	12
87-68-3	Hexachlorobutadiene	57U	57	8.3
591-78-6	2-Hexanone	2900U	2900	28
98-82-8	Isopropylbenzene	57U	57	13
99-87-6	4-Isopropyltoluene	57U	57	10
1634-04-4	Methyl tert-Butyl Ether	57U	57	11
75-09-2	Methylene Chloride	290U	290	31
78-93-3	2-Butanone (MEK)	2900U	2900	73
108-10-1	4-Methyl-2-pentanone (MIBK)	2900U	2900	23
91-20-3	Naphthalene	290U	290	16
103-65-1	n-Propylbenzene	57U	57	11
100-42-5	Styrene	57U	57	12
630-20-6	1,1,1,2-Tetrachloroethane	57U	57	8.1
79-34-5	1,1,2,2-Tetrachloroethane	57U	57	15
127-18-4	Tetrachloroethene	57U	57	16
108-88-3	Toluene	57U	57	13
87-61-6	1,2,3-Trichlorobenzene	57U	57	11
120-82-1	1,2,4-Trichlorobenzene	57U	57	8.0
71-55-6	1,1,1-Trichloroethane	57U	57	7.9
79-00-5	1,1,2-Trichloroethane	57U	57	18
79-01-6	Trichloroethene	57U	57	12

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**E 5+00 (0-12)**	Sampled:	11/01/12 15:00
Lab Sample ID:	**1211063-05**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: DLV
Dilution Factor:	1	Analyzed:	11/08/12 By: DLV
QC Batch:	1213661	Analytical Batch:	2K08014

Volatile Organic Compounds by EPA Method 8260B (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
*75-69-4	Trichlorofluoromethane	57U	57	15
96-18-4	1,2,3-Trichloropropane	57U	57	16
95-63-6	1,2,4-Trimethylbenzene	57U	57	10
108-67-8	1,3,5-Trimethylbenzene	57U	57	9.6
75-01-4	Vinyl Chloride	57U	57	9.6
179601-23-1	Xylene, Meta + Para	110U	110	16
95-47-6	Xylene, Ortho	57U	57	6.9
1330-20-7	Xylene (Total)	170U	170	23

Surrogates:	*% Recovery*	*Control Limits*
Dibromofluoromethane	*100*	*75-123*
1,2-Dichloroethane-d4	*96*	*83-116*
Toluene-d8	*98*	*85-113*
4-Bromofluorobenzene	*98*	*81-117*

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**E 5+00 (0-12)**	Sampled:	11/01/12 15:00
Lab Sample ID:	**1211063-05**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: ALK
Dilution Factor:	1	Analyzed:	11/09/12 By: JLB
QC Batch:	1213584	Analytical Batch:	2K13048

Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	21U	21	1.0
208-96-8	Acenaphthylene	21U	21	1.0
120-12-7	Anthracene	21U	21	1.1
*92-87-5	Benzidine	840U	840	840
56-55-3	Benzo(a)anthracene	**4.3J**	21	1.8
50-32-8	Benzo(a)pyrene	**2.6J**	21	1.1
*205-99-2	Benzo(b)fluoranthene	**5.2J**	21	2.2
*207-08-9	Benzo(k)fluoranthene	21U	21	2.8
191-24-2	Benzo(g,h,i)perylene	**5.2J**	42	1.0
65-85-0	Benzoic Acid	420U	420	41
100-51-6	Benzyl Alcohol	**5.6J**	21	1.7
101-55-3	4-Bromophenyl Phenyl Ether	21U	21	1.2
85-68-7	Butyl Benzyl Phthalate	42U	42	2.1
86-74-8	Carbazole	210U	210	11
59-50-7	4-Chloro-3-methylphenol	21U	21	4.7
*106-47-8	4-Chloroaniline	84U	84	11
111-91-1	Bis(2-chloroethoxy)methane	21U	21	1.4
111-44-4	Bis(2-chloroethyl) Ether	21U	21	1.0
108-60-1	Bis(2-chloroisopropyl) Ether	21U	21	3.4
91-58-7	2-Chloronaphthalene	21U	21	3.3
95-57-8	2-Chlorophenol	21U	21	1.0
7005-72-3	4-Chlorophenyl Phenyl Ether	21U	21	0.91
218-01-9	Chrysene	**3.5J**	21	1.1
53-70-3	Dibenz(a,h)anthracene	42U	42	1.6
132-64-9	Dibenzofuran	21U	21	1.0
84-74-2	Di-n-butyl Phthalate	84U	84	18
106-46-7	1,4-Dichlorobenzene	21U	21	1.1
95-50-1	1,2-Dichlorobenzene	21U	21	1.8
541-73-1	1,3-Dichlorobenzene	21U	21	1.6

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**E 5+00 (0-12)**	Sampled:	11/01/12 15:00
Lab Sample ID:	**1211063-05**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: ALK
Dilution Factor:	1	Analyzed:	11/09/12 By: JLB
QC Batch:	1213584	Analytical Batch:	2K13048

Semivolatile Organic Compounds by EPA Method 8270C (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
91-94-1	3,3'-Dichlorobenzidine	1100U	1100	41
120-83-2	2,4-Dichlorophenol	42U	42	1.9
84-66-2	Diethyl Phthalate	21U	21	3.0
105-67-9	2,4-Dimethylphenol	210U	210	38
131-11-3	Dimethyl Phthalate	21U	21	2.3
534-52-1	4,6-Dinitro-2-methylphenol	210U	210	6.9
51-28-5	2,4-Dinitrophenol	210U	210	49
606-20-2	2,6-Dinitrotoluene	21U	21	2.0
121-14-2	2,4-Dinitrotoluene	42U	42	6.3
117-84-0	Di-n-octyl Phthalate	21U	21	1.4
117-81-7	Bis(2-ethylhexyl) Phthalate	**10J**	42	5.2
206-44-0	Fluoranthene	**4.8J**	21	0.71
86-73-7	Fluorene	42U	42	0.76
118-74-1	Hexachlorobenzene	21U	21	1.3
87-68-3	Hexachlorobutadiene	21U	21	0.91
77-47-4	Hexachlorocyclopentadiene	21U	21	3.4
67-72-1	Hexachloroethane	21U	21	1.7
193-39-5	Indeno(1,2,3-cd)pyrene	42U	42	3.9
78-59-1	Isophorone	21U	21	1.3
91-57-6	2-Methylnaphthalene	21U	21	1.7
106-44-5	4-Methylphenol	21U	21	2.5
108-39-4	3+4-Methylphenol	21U	21	2.5
95-48-7	2-Methylphenol	21U	21	4.2
91-20-3	Naphthalene	21U	21	0.64
100-01-6	4-Nitroaniline	42U	42	20
88-74-4	2-Nitroaniline	21U	21	7.4
99-09-2	3-Nitroaniline	42U	42	21
98-95-3	Nitrobenzene	21U	21	1.8
88-75-5	2-Nitrophenol	21U	21	1.9
100-02-7	4-Nitrophenol	840U	840	34
86-30-6	N-Nitroso-diphenylamine	21U	21	1.3

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**E 5+00 (0-12)**	Sampled:	11/01/12 15:00
Lab Sample ID:	**1211063-05**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: ALK
Dilution Factor:	1	Analyzed:	11/09/12 By: JLB
QC Batch:	1213584	Analytical Batch:	2K13048

Semivolatile Organic Compounds by EPA Method 8270C (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
621-64-7	N-Nitroso-di-n-propylamine	21U	21	2.7
87-86-5	Pentachlorophenol	210U	210	19
85-01-8	Phenanthrene	**3.9J**	21	0.91
108-95-2	Phenol	210U	210	1.7
129-00-0	Pyrene	**6.9J**	21	1.5
110-86-1	Pyridine	42U	42	10
120-82-1	1,2,4-Trichlorobenzene	21U	21	0.71
95-95-4	2,4,5-Trichlorophenol	21U	21	4.9
88-06-2	2,4,6-Trichlorophenol	21U	21	2.1

Surrogates:	*% Recovery*	*Control Limits*
2-Fluorophenol	*74*	*33-113*
Phenol-d6	*75*	*30-115*
Nitrobenzene-d5	*74*	*33-131*
2-Fluorobiphenyl	*72*	*46-122*
2,4,6-Tribromophenol	*66*	*12-124*
o-Terphenyl	*75*	*20-155*

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**E 5+00 (0-12)**	Sampled:	11/01/12 15:00
Lab Sample ID:	**1211063-05**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Percent Solids:	79		

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result		RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Aluminum	**2100**		10	1.4	mg/kg dry wt.	1	USEPA-6010C	11/08/12 09:09	KLV	1213605
Arsenic	**4.1**		0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:00	DSC	1213607
Barium	**20**		0.50	0.061	mg/kg dry wt.	5	USEPA-6020A	11/08/12 14:42	DSC	1213607
Cadmium	**0.079**		0.050	0.0033	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:00	DSC	1213607
Chromium	**7.1**		0.10	0.014	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:00	DSC	1213607
Copper	**5.0**		0.10	0.025	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:00	DSC	1213607
Lead	**3.5**		0.10	0.0066	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:00	DSC	1213607
Mercury	0.050	U	0.050	0.0061	mg/kg dry wt.	1	USEPA-7471A	11/08/12 11:15	CKD	1213637
Nickel	**5.6**		0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:00	DSC	1213607
Selenium	**0.20**		0.10	0.033	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:00	DSC	1213607
Silver	**0.025**	J	0.050	0.0039	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:00	DSC	1213607
Zinc	**20**		5.0	1.4	mg/kg dry wt.	5	USEPA-6020A	11/08/12 14:42	DSC	1213607

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client: CTI and Associates, Inc.
Project: JCI - Fowlerville Sediment Remediation
Client Sample ID: E 5+00 (0-12)
Lab Sample ID: 1211063-05
Matrix: Sediment
Work Order: 1211063
Description: Laboratory Services
Sampled: 11/01/12 15:00
Sampled By: Mr. Brent Kelley
Received: 11/02/12 19:21

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result		RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
*Chromium, Hexavalent	2.3	U	2.3	0.31	mg/kg dry	1	USEPA-7196A	11/11/12 10:08	HLB	1213417
Cyanide, Available	**0.17**		0.050	0.030	mg/kg dry	1	USEPA OIA-1677	11/13/12 13:06	LMA	1214000
Cyanide, Total	**0.17**		0.13	0.028	mg/kg dry	1	USEPA-9014	11/09/12 16:42	LMA	1213768
Fractional Organic Carbon	**0.0022**		0.0010	0.0010	g C/g Soil	1	ASTM D 2974-87	11/03/12 16:17	HLB	1213805
Percent Solids	**79**		0.1	0.1	%	1	USEPA-3550C	11/03/12 16:17	HLB	1213578
Carbon, Total Organic	**0.35**		0.10	0.017	%	1	Walkley-Black	11/15/12 13:00	HLB	1214240

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**E 5+00 (12-24)**	Sampled:	11/01/12 15:30
Lab Sample ID:	**1211063-06**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: SMS9
Dilution Factor:	1	Analyzed:	11/09/12 By: MSZ
QC Batch:	1213588	Analytical Batch:	2K12020

*Polychlorinated Biphenyls (PCBs) by EPA Method 8082A

CAS Number	Analyte	Analytical Result	RL	MDL
12674-11-2	PCB-1016	410U	410	2.1
11104-28-2	PCB-1221	410U	410	2.6
11141-16-5	PCB-1232	410U	410	2.6
53469-21-9	PCB-1242	410U	410	8.5
12672-29-6	PCB-1248	**3.8J**	410	3.1
11097-69-1	PCB-1254	410U	410	4.2
11096-82-5	PCB-1260	410U	410	3.4

Surrogates:	*% Recovery*	*Control Limits*
Decachlorobiphenyl	*93*	*45-135*
Tetrachloro-m-xylene	*83*	*56-123*

*See Statement of Data Qualifications

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**E 5+00 (12-24)**	Sampled:	11/01/12 15:30
Lab Sample ID:	**1211063-06**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: DLV
Dilution Factor:	1	Analyzed:	11/08/12 By: DLV
QC Batch:	1213661	Analytical Batch:	2K08014

Volatile Organic Compounds by EPA Method 8260B

CAS Number	Analyte	Analytical Result	RL	MDL
67-64-1	Acetone	850U	850	61
107-02-8	Acrolein	280U	280	44
71-43-2	Benzene	56U	56	8.0
108-86-1	Bromobenzene	56U	56	8.2
74-97-5	Bromochloromethane	56U	56	17
75-27-4	Bromodichloromethane	56U	56	7.6
75-25-2	Bromoform	56U	56	15
*74-83-9	Bromomethane	56U	56	24
104-51-8	n-Butylbenzene	56U	56	11
135-98-8	sec-Butylbenzene	56U	56	12
98-06-6	tert-Butylbenzene	56U	56	11
75-15-0	Carbon Disulfide	**32J**	280	13
56-23-5	Carbon Tetrachloride	56U	56	19
108-90-7	Chlorobenzene	56U	56	9.5
75-00-3	Chloroethane	56U	56	20
67-66-3	Chloroform	56U	56	9.5
74-87-3	Chloromethane	56U	56	22
95-49-8	2-Chlorotoluene	56U	56	12
106-43-4	4-Chlorotoluene	56U	56	9.9
96-12-8	1,2-Dibromo-3-chloropropane	280U	280	29
124-48-1	Dibromochlorormethane	56U	56	8.6
106-93-4	1,2-Dibromoethane	56U	56	18
74-95-3	Dibromomethane	56U	56	14
95-50-1	1,2-Dichlorobenzene	56U	56	13
541-73-1	1,3-Dichlorobenzene	56U	56	13
106-46-7	1,4-Dichlorobenzene	56U	56	14
75-71-8	Dichlorodifluoromethane	56U	56	12
75-34-3	1,1-Dichloroethane	56U	56	12
107-06-2	1,2-Dichloroethane	56U	56	12

Continued on next page

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**E 5+00 (12-24)**	Sampled:	11/01/12 15:30
Lab Sample ID:	**1211063-06**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: DLV
Dilution Factor:	1	Analyzed:	11/08/12 By: DLV
QC Batch:	1213661	Analytical Batch:	2K08014

Volatile Organic Compounds by EPA Method 8260B (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
75-35-4	1,1-Dichloroethene	56U	56	12
156-59-2	cis-1,2-Dichloroethene	56U	56	13
156-60-5	trans-1,2-Dichloroethene	56U	56	13
540-59-0	1,2-Dichloroethene (Total)	110U	110	26
78-87-5	1,2-Dichloropropane	56U	56	16
142-28-9	1,3-Dichloropropane	56U	56	14
594-20-7	2,2-Dichloropropane	56U	56	27
563-58-6	1,1-Dichloropropene	56U	56	13
10061-01-5	cis-1,3-Dichloropropene	56U	56	11
10061-02-6	trans-1,3-Dichloropropene	56U	56	11
100-41-4	Ethylbenzene	56U	56	12
87-68-3	Hexachlorobutadiene	56U	56	8.1
591-78-6	2-Hexanone	2800U	2800	28
98-82-8	Isopropylbenzene	56U	56	12
99-87-6	4-Isopropyltoluene	56U	56	9.9
1634-04-4	Methyl tert-Butyl Ether	56U	56	11
75-09-2	Methylene Chloride	280U	280	30
78-93-3	2-Butanone (MEK)	2800U	2800	71
108-10-1	4-Methyl-2-pentanone (MIBK)	2800U	2800	22
91-20-3	Naphthalene	280U	280	16
103-65-1	n-Propylbenzene	56U	56	11
100-42-5	Styrene	56U	56	12
630-20-6	1,1,1,2-Tetrachloroethane	56U	56	8.0
79-34-5	1,1,2,2-Tetrachloroethane	56U	56	14
127-18-4	Tetrachloroethene	56U	56	16
108-88-3	Toluene	56U	56	12
87-61-6	1,2,3-Trichlorobenzene	56U	56	11
120-82-1	1,2,4-Trichlorobenzene	56U	56	7.9
71-55-6	1,1,1-Trichloroethane	56U	56	7.8
79-00-5	1,1,2-Trichloroethane	56U	56	18
79-01-6	Trichloroethene	56U	56	12

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**E 5+00 (12-24)**	Sampled:	11/01/12 15:30
Lab Sample ID:	**1211063-06**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: DLV
Dilution Factor:	1	Analyzed:	11/08/12 By: DLV
QC Batch:	1213661	Analytical Batch:	2K08014

Volatile Organic Compounds by EPA Method 8260B (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
*75-69-4	Trichlorofluoromethane	56U	56	15
96-18-4	1,2,3-Trichloropropane	56U	56	16
95-63-6	1,2,4-Trimethylbenzene	56U	56	10
108-67-8	1,3,5-Trimethylbenzene	56U	56	9.5
75-01-4	Vinyl Chloride	56U	56	9.5
179601-23-1	Xylene, Meta + Para	110U	110	16
95-47-6	Xylene, Ortho	56U	56	6.8
1330-20-7	Xylene (Total)	170U	170	23

Surrogates:	*% Recovery*	*Control Limits*
Dibromofluoromethane	*100*	*75-123*
1,2-Dichloroethane-d4	*95*	*83-116*
Toluene-d8	*98*	*85-113*
4-Bromofluorobenzene	*98*	*81-117*

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**E 5+00 (12-24)**	Sampled:	11/01/12 15:30
Lab Sample ID:	**1211063-06**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: ALK
Dilution Factor:	1	Analyzed:	11/09/12 By: JLB
QC Batch:	1213584	Analytical Batch:	2K13048

*Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	21U	21	0.97
208-96-8	Acenaphthylene	21U	21	1.0
120-12-7	Anthracene	100U	100	5.3
*92-87-5	Benzidine	4100U	4100	4100
56-55-3	Benzo(a)anthracene	100U	100	8.8
50-32-8	Benzo(a)pyrene	100U	100	5.3
205-99-2	Benzo(b)fluoranthene	100U	100	11
207-08-9	Benzo(k)fluoranthene	100U	100	14
191-24-2	Benzo(g,h,i)perylene	**6.2J**	200	5.1
65-85-0	Benzoic Acid	2000U	2000	200
100-51-6	Benzyl Alcohol	100U	100	8.0
101-55-3	4-Bromophenyl Phenyl Ether	100U	100	5.8
85-68-7	Butyl Benzyl Phthalate	200U	200	10
86-74-8	Carbazole	1000U	1000	55
59-50-7	4-Chloro-3-methylphenol	100U	100	23
*106-47-8	4-Chloroaniline	410U	410	54
111-91-1	Bis(2-chloroethoxy)methane	100U	100	6.9
111-44-4	Bis(2-chloroethyl) Ether	100U	100	4.9
108-60-1	Bis(2-chloroisopropyl) Ether	100U	100	17
91-58-7	2-Chloronaphthalene	100U	100	16
95-57-8	2-Chlorophenol	100U	100	4.9
7005-72-3	4-Chlorophenyl Phenyl Ether	100U	100	4.4
*218-01-9	Chrysene	100U	100	5.3
53-70-3	Dibenz(a,h)anthracene	200U	200	7.8
132-64-9	Dibenzofuran	100U	100	5.1
84-74-2	Di-n-butyl Phthalate	410U	410	87
106-46-7	1,4-Dichlorobenzene	100U	100	5.2
95-50-1	1,2-Dichlorobenzene	100U	100	8.8
541-73-1	1,3-Dichlorobenzene	100U	100	7.8

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**E 5+00 (12-24)**	Sampled:	11/01/12 15:30
Lab Sample ID:	**1211063-06**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: ALK
Dilution Factor:	5	Analyzed:	11/09/12 By: JLB
QC Batch:	1213584	Analytical Batch:	2K13048

*Semivolatile Organic Compounds by EPA Method 8270C (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
91-94-1	3,3'-Dichlorobenzidine	5100U	5100	200
120-83-2	2,4-Dichlorophenol	200U	200	9.4
84-66-2	Diethyl Phthalate	100U	100	15
105-67-9	2,4-Dimethylphenol	1000U	1000	180
131-11-3	Dimethyl Phthalate	100U	100	11
534-52-1	4,6-Dinitro-2-methylphenol	1000U	1000	34
51-28-5	2,4-Dinitrophenol	1000U	1000	240
606-20-2	2,6-Dinitrotoluene	100U	100	9.6
121-14-2	2,4-Dinitrotoluene	200U	200	31
117-84-0	Di-n-octyl Phthalate	100U	100	6.9
117-81-7	Bis(2-ethylhexyl) Phthalate	200U	200	25
206-44-0	Fluoranthene	**6.2J**	100	3.4
86-73-7	Fluorene	200U	200	3.7
118-74-1	Hexachlorobenzene	100U	100	6.1
87-68-3	Hexachlorobutadiene	100U	100	4.4
77-47-4	Hexachlorocyclopentadiene	100U	100	17
67-72-1	Hexachloroethane	100U	100	8.2
193-39-5	Indeno(1,2,3-cd)pyrene	200U	200	19
78-59-1	Isophorone	100U	100	6.4
91-57-6	2-Methylnaphthalene	100U	100	8.3
106-44-5	4-Methylphenol	100U	100	12
108-39-4	3+4-Methylphenol	100U	100	12
95-48-7	2-Methylphenol	100U	100	21
91-20-3	Naphthalene	100U	100	3.1
100-01-6	4-Nitroaniline	200U	200	96
88-74-4	2-Nitroaniline	100U	100	36
99-09-2	3-Nitroaniline	200U	200	100
98-95-3	Nitrobenzene	100U	100	9.0
88-75-5	2-Nitrophenol	100U	100	9.4
100-02-7	4-Nitrophenol	4100U	4100	160
86-30-6	N-Nitroso-diphenylamine	100U	100	6.4

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**E 5+00 (12-24)**	Sampled:	11/01/12 15:30
Lab Sample ID:	**1211063-06**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: ALK
Dilution Factor:	5	Analyzed:	11/09/12 By: JLB
QC Batch:	1213584	Analytical Batch:	2K13048

*Semivolatile Organic Compounds by EPA Method 8270C (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
621-64-7	N-Nitroso-di-n-propylamine	100U	100	13
87-86-5	Pentachlorophenol	1000U	1000	92
85-01-8	Phenanthrene	100U	100	4.4
108-95-2	Phenol	1000U	1000	8.0
129-00-0	Pyrene	100U	100	7.4
110-86-1	Pyridine	200U	200	51
120-82-1	1,2,4-Trichlorobenzene	100U	100	3.4
95-95-4	2,4,5-Trichlorophenol	100U	100	24
88-06-2	2,4,6-Trichlorophenol	100U	100	10

Surrogates:	*% Recovery*	*Control Limits*
2-Fluorophenol	*81*	*33-113*
Phenol-d6	*82*	*30-115*
Nitrobenzene-d5	*76*	*33-131*
2-Fluorobiphenyl	*76*	*46-122*
2,4,6-Tribromophenol	*62*	*12-124*
o-Terphenyl	*80*	*20-155*

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**E 5+00 (12-24)**	Sampled:	11/01/12 15:30
Lab Sample ID:	**1211063-06**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Percent Solids:	81		

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Aluminum	**3400**	10	1.4	mg/kg dry wt.	1	USEPA-6010C	11/08/12 09:15	KLV	1213605
Arsenic	**3.6**	0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:03	DSC	1213607
Barium	**21**	0.50	0.061	mg/kg dry wt.	5	USEPA-6020A	11/08/12 14:45	DSC	1213607
Cadmium	**0.093**	0.050	0.0033	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:03	DSC	1213607
Chromium	**7.5**	0.10	0.014	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:03	DSC	1213607
Copper	**6.3**	0.10	0.025	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:03	DSC	1213607
Lead	**4.2**	0.10	0.0066	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:03	DSC	1213607
Mercury	0.050 U	0.050	0.0061	mg/kg dry wt.	1	USEPA-7471A	11/08/12 11:20	CKD	1213637
Nickel	**8.5**	0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:03	DSC	1213607
Selenium	**0.16**	0.10	0.033	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:03	DSC	1213607
Silver	**0.051**	0.050	0.0039	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:03	DSC	1213607
Zinc	**22**	5.0	1.4	mg/kg dry wt.	5	USEPA-6020A	11/08/12 14:45	DSC	1213607

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**E 5+00 (12-24)**	Sampled:	11/01/12 15:30
Lab Sample ID:	**1211063-06**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result		RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Chromium, Hexavalent	2.2	U	2.2	0.30	mg/kg dry	1	USEPA-7196A	11/11/12 10:14	HLB	1213417
Cyanide, Total	0.12	U	0.12	0.027	mg/kg dry	1	USEPA-9014	11/09/12 16:42	LMA	1213768
Fractional Organic Carbon	**0.0042**		0.0010	0.0010	g C/g Soil	1	ASTM D 2974-87	11/03/12 16:17	HLB	1213805
Percent Solids	**81**		0.1	0.1	%	1	USEPA-3550C	11/03/12 16:17	HLB	1213578
Carbon, Total Organic	**0.64**		0.10	0.017	%	1	Walkley-Black	11/15/12 13:00	HLB	1214240

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**W 5+00 (0-12)**	Sampled:	11/01/12 16:00
Lab Sample ID:	**1211063-07**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: SMS9
Dilution Factor:	1	Analyzed:	11/09/12 By: MSZ
QC Batch:	1213588	Analytical Batch:	2K12020

*Polychlorinated Biphenyls (PCBs) by EPA Method 8082A

CAS Number	Analyte	Analytical Result	RL	MDL
12674-11-2	PCB-1016	410U	410	2.1
11104-28-2	PCB-1221	410U	410	2.6
11141-16-5	PCB-1232	410U	410	2.6
53469-21-9	PCB-1242	410U	410	8.6
12672-29-6	PCB-1248	410U	410	3.1
11097-69-1	PCB-1254	410U	410	4.3
11096-82-5	PCB-1260	410U	410	3.5

Surrogates:	*% Recovery*	*Control Limits*
Decachlorobiphenyl	*93*	*45-135*
Tetrachloro-m-xylene	*85*	*56-123*

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**W 5+00 (0-12)**	Sampled:	11/01/12 16:00
Lab Sample ID:	**1211063-07**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: DLV
Dilution Factor:	1	Analyzed:	11/08/12 By: DLV
QC Batch:	1213661	Analytical Batch:	2K08014

Volatile Organic Compounds by EPA Method 8260B

CAS Number	Analyte	Analytical Result	RL	MDL
67-64-1	Acetone	940U	940	68
107-02-8	Acrolein	310U	310	49
71-43-2	Benzene	63U	63	8.9
108-86-1	Bromobenzene	63U	63	9.2
74-97-5	Bromochloromethane	63U	63	18
75-27-4	Bromodichloromethane	63U	63	8.4
75-25-2	Bromoform	63U	63	16
*74-83-9	Bromomethane	63U	63	27
104-51-8	n-Butylbenzene	63U	63	12
135-98-8	sec-Butylbenzene	63U	63	13
98-06-6	tert-Butylbenzene	63U	63	13
75-15-0	Carbon Disulfide	**30J**	310	14
56-23-5	Carbon Tetrachloride	63U	63	21
108-90-7	Chlorobenzene	63U	63	11
75-00-3	Chloroethane	63U	63	22
67-66-3	Chloroform	63U	63	11
74-87-3	Chloromethane	63U	63	24
95-49-8	2-Chlorotoluene	63U	63	14
106-43-4	4-Chlorotoluene	63U	63	11
96-12-8	1,2-Dibromo-3-chloropropane	310U	310	32
124-48-1	Dibromochloromethane	63U	63	9.5
106-93-4	1,2-Dibromoethane	63U	63	20
74-95-3	Dibromomethane	63U	63	16
95-50-1	1,2-Dichlorobenzene	63U	63	15
541-73-1	1,3-Dichlorobenzene	63U	63	15
106-46-7	1,4-Dichlorobenzene	63U	63	16
75-71-8	Dichlorodifluoromethane	63U	63	13
75-34-3	1,1-Dichloroethane	63U	63	14
107-06-2	1,2-Dichloroethane	63U	63	13

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**W 5+00 (0-12)**	Sampled:	11/01/12 16:00
Lab Sample ID:	**1211063-07**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: DLV
Dilution Factor:	1	Analyzed:	11/08/12 By: DLV
QC Batch:	1213661	Analytical Batch:	2K08014

Volatile Organic Compounds by EPA Method 8260B (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
75-35-4	1,1-Dichloroethene	63U	63	13
156-59-2	cis-1,2-Dichloroethene	63U	63	14
156-60-5	trans-1,2-Dichloroethene	63U	63	15
540-59-0	1,2-Dichloroethene (Total)	130U	130	29
78-87-5	1,2-Dichloropropane	63U	63	17
142-28-9	1,3-Dichloropropane	63U	63	15
594-20-7	2,2-Dichloropropane	63U	63	30
563-58-6	1,1-Dichloropropene	63U	63	15
10061-01-5	cis-1,3-Dichloropropene	63U	63	12
10061-02-6	trans-1,3-Dichloropropene	63U	63	12
100-41-4	Ethylbenzene	63U	63	13
87-68-3	Hexachlorobutadiene	63U	63	9.0
591-78-6	2-Hexanone	3100U	3100	31
98-82-8	Isopropylbenzene	63U	63	14
99-87-6	4-Isopropyltoluene	63U	63	11
1634-04-4	Methyl tert-Butyl Ether	63U	63	12
75-09-2	Methylene Chloride	**130J**	310	34
78-93-3	2-Butanone (MEK)	3100U	3100	79
108-10-1	4-Methyl-2-pentanone (MIBK)	3100U	3100	25
91-20-3	Naphthalene	310U	310	18
103-65-1	n-Propylbenzene	63U	63	12
100-42-5	Styrene	63U	63	13
630-20-6	1,1,1,2-Tetrachloroethane	63U	63	8.9
79-34-5	1,1,2,2-Tetrachloroethane	63U	63	16
127-18-4	Tetrachloroethene	63U	63	17
108-88-3	Toluene	63U	63	14
87-61-6	1,2,3-Trichlorobenzene	63U	63	12
120-82-1	1,2,4-Trichlorobenzene	63U	63	8.8
71-55-6	1,1,1-Trichloroethane	63U	63	8.6
79-00-5	1,1,2-Trichloroethane	63U	63	20
79-01-6	Trichloroethene	63U	63	13

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**W 5+00 (0-12)**	Sampled:	11/01/12 16:00
Lab Sample ID:	**1211063-07**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: DLV
Dilution Factor:	1	Analyzed:	11/08/12 By: DLV
QC Batch:	1213661	Analytical Batch:	2K08014

Volatile Organic Compounds by EPA Method 8260B (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
*75-69-4	Trichlorofluoromethane	**49J**	63	17
96-18-4	1,2,3-Trichloropropane	63U	63	18
95-63-6	1,2,4-Trimethylbenzene	63U	63	11
108-67-8	1,3,5-Trimethylbenzene	63U	63	11
75-01-4	Vinyl Chloride	63U	63	11
179601-23-1	Xylene, Meta + Para	130U	130	18
95-47-6	Xylene, Ortho	63U	63	7.5
1330-20-7	Xylene (Total)	190U	190	25

Surrogates:	*% Recovery*	*Control Limits*
Dibromofluoromethane	*100*	*75-123*
1,2-Dichloroethane-d4	*96*	*83-116*
Toluene-d8	*99*	*85-113*
4-Bromofluorobenzene	*98*	*81-117*

*See Statement of Data Qualifications

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**W 5+00 (0-12)**	Sampled:	11/01/12 16:00
Lab Sample ID:	**1211063-07**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: ALK
Dilution Factor:	1	Analyzed:	11/09/12 By: JLB
QC Batch:	1213584	Analytical Batch:	2K13048

Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	21U	21	0.99
208-96-8	Acenaphthylene	21U	21	1.0
120-12-7	Anthracene	21U	21	1.1
*92-87-5	Benzidine	840U	840	840
56-55-3	Benzo(a)anthracene	**2.5J**	21	1.8
50-32-8	Benzo(a)pyrene	**2.1J**	21	1.1
*205-99-2	Benzo(b)fluoranthene	**4.6J**	21	2.1
*207-08-9	Benzo(k)fluoranthene	21U	21	2.8
191-24-2	Benzo(g,h,i)perylene	**2.5J**	42	1.0
65-85-0	Benzoic Acid	420U	420	40
100-51-6	Benzyl Alcohol	21U	21	1.6
101-55-3	4-Bromophenyl Phenyl Ether	21U	21	1.2
85-68-7	Butyl Benzyl Phthalate	42U	42	2.1
86-74-8	Carbazole	210U	210	11
59-50-7	4-Chloro-3-methylphenol	21U	21	4.7
*106-47-8	4-Chloroaniline	84U	84	11
111-91-1	Bis(2-chloroethoxy)methane	21U	21	1.4
111-44-4	Bis(2-chloroethyl) Ether	21U	21	0.99
108-60-1	Bis(2-chloroisopropyl) Ether	21U	21	3.4
91-58-7	2-Chloronaphthalene	21U	21	3.3
95-57-8	2-Chlorophenol	21U	21	0.99
7005-72-3	4-Chlorophenyl Phenyl Ether	21U	21	0.91
218-01-9	Chrysene	**2.1J**	21	1.1
53-70-3	Dibenz(a,h)anthracene	42U	42	1.6
132-64-9	Dibenzofuran	21U	21	1.0
84-74-2	Di-n-butyl Phthalate	84U	84	18
106-46-7	1,4-Dichlorobenzene	21U	21	1.1
95-50-1	1,2-Dichlorobenzene	21U	21	1.8
541-73-1	1,3-Dichlorobenzene	21U	21	1.6

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**W 5+00 (0-12)**	Sampled:	11/01/12 16:00
Lab Sample ID:	**1211063-07**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: ALK
Dilution Factor:	1	Analyzed:	11/09/12 By: JLB
QC Batch:	1213584	Analytical Batch:	2K13048

Semivolatile Organic Compounds by EPA Method 8270C (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
91-94-1	3,3'-Dichlorobenzidine	1000U	1000	41
120-83-2	2,4-Dichlorophenol	42U	42	1.9
84-66-2	Diethyl Phthalate	21U	21	3.0
105-67-9	2,4-Dimethylphenol	210U	210	37
131-11-3	Dimethyl Phthalate	21U	21	2.3
534-52-1	4,6-Dinitro-2-methylphenol	210U	210	6.9
51-28-5	2,4-Dinitrophenol	210U	210	48
606-20-2	2,6-Dinitrotoluene	21U	21	2.0
121-14-2	2,4-Dinitrotoluene	42U	42	6.2
117-84-0	Di-n-octyl Phthalate	21U	21	1.4
117-81-7	Bis(2-ethylhexyl) Phthalate	42U	42	5.1
206-44-0	Fluoranthene	**4.2J**	21	0.70
86-73-7	Fluorene	42U	42	0.76
118-74-1	Hexachlorobenzene	21U	21	1.2
87-68-3	Hexachlorobutadiene	21U	21	0.91
77-47-4	Hexachlorocyclopentadiene	21U	21	3.4
67-72-1	Hexachloroethane	21U	21	1.7
193-39-5	Indeno(1,2,3-cd)pyrene	42U	42	3.9
78-59-1	Isophorone	21U	21	1.3
91-57-6	2-Methylnaphthalene	21U	21	1.7
106-44-5	4-Methylphenol	21U	21	2.5
108-39-4	3+4-Methylphenol	21U	21	2.5
95-48-7	2-Methylphenol	21U	21	4.2
91-20-3	Naphthalene	21U	21	0.64
100-01-6	4-Nitroaniline	42U	42	20
88-74-4	2-Nitroaniline	21U	21	7.4
99-09-2	3-Nitroaniline	42U	42	20
98-95-3	Nitrobenzene	21U	21	1.8
88-75-5	2-Nitrophenol	21U	21	1.9
100-02-7	4-Nitrophenol	840U	840	33
86-30-6	N-Nitroso-diphenylamine	21U	21	1.3

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client: CTI and Associates, Inc.
Project: JCI - Fowlerville Sediment Remediation
Client Sample ID: W 5+00 (0-12)
Lab Sample ID: 1211063-07
Matrix: Sediment
Unit: ug/kg dry
Dilution Factor: 1
QC Batch: 1213584
Work Order: 1211063
Description: Laboratory Services
Sampled: 11/01/12 16:00
Sampled By: Mr. Brent Kelley
Received: 11/02/12 19:21
Prepared: 11/7/2012 By: ALK
Analyzed: 11/09/12 By: JLB
Analytical Batch: 2K13048

Semivolatile Organic Compounds by EPA Method 8270C (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
621-64-7	N-Nitroso-di-n-propylamine	21U	21	2.7
87-86-5	Pentachlorophenol	210U	210	19
85-01-8	Phenanthrene	**2.1J**	21	0.91
108-95-2	Phenol	210U	210	1.6
129-00-0	Pyrene	**5.4J**	21	1.5
110-86-1	Pyridine	41U	41	10
120-82-1	1,2,4-Trichlorobenzene	21U	21	0.70
95-95-4	2,4,5-Trichlorophenol	21U	21	4.9
88-06-2	2,4,6-Trichlorophenol	21U	21	2.1

Surrogates:	*% Recovery*	*Control Limits*
2-Fluorophenol	*65*	*33-113*
Phenol-d6	*67*	*30-115*
Nitrobenzene-d5	*65*	*33-131*
2-Fluorobiphenyl	*62*	*46-122*
2,4,6-Tribromophenol	*56*	*12-124*
o-Terphenyl	*65*	*20-155*

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**W 5+00 (0-12)**	Sampled:	11/01/12 16:00
Lab Sample ID:	**1211063-07**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Percent Solids:	80		

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result		RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Aluminum	**2600**		10	1.4	mg/kg dry wt.	1	USEPA-6010C	11/08/12 09:21	KLV	1213605
Arsenic	**4.6**		0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:07	DSC	1213607
Barium	**14**		0.50	0.061	mg/kg dry wt.	5	USEPA-6020A	11/08/12 14:49	DSC	1213607
Cadmium	**0.084**		0.050	0.0033	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:07	DSC	1213607
Chromium	**5.1**		0.10	0.014	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:07	DSC	1213607
Copper	**3.7**		0.10	0.025	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:07	DSC	1213607
Lead	**2.2**		0.10	0.0066	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:07	DSC	1213607
Mercury	0.050	U	0.050	0.0061	mg/kg dry wt.	1	USEPA-7471A	11/08/12 11:35	CKD	1213637
Nickel	**5.7**		0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:07	DSC	1213607
Selenium	**0.22**		0.10	0.033	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:07	DSC	1213607
Silver	**0.033**	J	0.050	0.0039	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:07	DSC	1213607
Zinc	**14**		5.0	1.4	mg/kg dry wt.	5	USEPA-6020A	11/08/12 14:49	DSC	1213607

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**W 5+00 (0-12)**	Sampled:	11/01/12 16:00
Lab Sample ID:	**1211063-07**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result		RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Chromium, Hexavalent	2.5	U	2.5	0.34	mg/kg dry	1	USEPA-7196A	11/11/12 10:14	HLB	1213417
Cyanide, Total	0.13	U	0.13	0.028	mg/kg dry	1	USEPA-9014	11/09/12 16:42	LMA	1213768
Fractional Organic Carbon	**0.0039**		0.0010	0.0010	g C/g Soil	1	ASTM D 2974-87	11/03/12 16:17	HLB	1213805
Percent Solids	**80**		0.1	0.1	%	1	USEPA-3550C	11/03/12 16:17	HLB	1213578
Carbon, Total Organic	**1.0**		0.10	0.017	%	1	Walkley-Black	11/15/12 13:00	HLB	1214240

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**W 5+00 (12-24)**	Sampled:	11/01/12 16:30
Lab Sample ID:	**1211063-08**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: SMS9
Dilution Factor:	1	Analyzed:	11/09/12 By: MSZ
QC Batch:	1213588	Analytical Batch:	2K12020

*Polychlorinated Biphenyls (PCBs) by EPA Method 8082A

CAS Number	Analyte	Analytical Result	RL	MDL
12674-11-2	PCB-1016	460U	460	2.4
11104-28-2	PCB-1221	460U	460	2.9
11141-16-5	PCB-1232	460U	460	2.9
53469-21-9	PCB-1242	460U	460	9.6
12672-29-6	PCB-1248	460U	460	3.5
11097-69-1	PCB-1254	460U	460	4.7
11096-82-5	PCB-1260	460U	460	3.9

Surrogates:	*% Recovery*	*Control Limits*
Decachlorobiphenyl	*100*	*45-135*
Tetrachloro-m-xylene	*91*	*56-123*

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**W 5+00 (12-24)**	Sampled:	11/01/12 16:30
Lab Sample ID:	**1211063-08**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: DLV
Dilution Factor:	1	Analyzed:	11/08/12 By: DLV
QC Batch:	1213661	Analytical Batch:	2K08014

Volatile Organic Compounds by EPA Method 8260B

CAS Number	Analyte	Analytical Result	RL	MDL
67-64-1	Acetone	1000U	1000	76
107-02-8	Acrolein	350U	350	55
71-43-2	Benzene	70U	70	9.9
108-86-1	Bromobenzene	70U	70	10
74-97-5	Bromochloromethane	70U	70	20
75-27-4	Bromodichloromethane	70U	70	9.3
75-25-2	Bromoform	70U	70	18
*74-83-9	Bromomethane	70U	70	30
104-51-8	n-Butylbenzene	70U	70	13
135-98-8	sec-Butylbenzene	70U	70	14
98-06-6	tert-Butylbenzene	70U	70	14
75-15-0	Carbon Disulfide	22J	350	16
56-23-5	Carbon Tetrachloride	70U	70	24
108-90-7	Chlorobenzene	70U	70	12
75-00-3	Chloroethane	70U	70	25
67-66-3	Chloroform	70U	70	12
74-87-3	Chloromethane	70U	70	27
95-49-8	2-Chlorotoluene	70U	70	15
106-43-4	4-Chlorotoluene	70U	70	12
96-12-8	1,2-Dibromo-3-chloropropane	350U	350	36
124-48-1	Dibromochloromethane	70U	70	11
106-93-4	1,2-Dibromoethane	70U	70	23
74-95-3	Dibromomethane	70U	70	18
95-50-1	1,2-Dichlorobenzene	70U	70	16
541-73-1	1,3-Dichlorobenzene	70U	70	17
106-46-7	1,4-Dichlorobenzene	70U	70	17
75-71-8	Dichlorodifluoromethane	70U	70	15
75-34-3	1,1-Dichloroethane	70U	70	15
107-06-2	1,2-Dichloroethane	70U	70	15

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**W 5+00 (12-24)**	Sampled:	11/01/12 16:30
Lab Sample ID:	**1211063-08**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: DLV
Dilution Factor:	1	Analyzed:	11/08/12 By: DLV
QC Batch:	1213661	Analytical Batch:	2K08014

Volatile Organic Compounds by EPA Method 8260B (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
75-35-4	1,1-Dichloroethene	70U	70	15
156-59-2	cis-1,2-Dichloroethene	70U	70	16
156-60-5	trans-1,2-Dichloroethene	70U	70	16
540-59-0	1,2-Dichloroethene (Total)	140U	140	32
78-87-5	1,2-Dichloropropane	70U	70	19
142-28-9	1,3-Dichloropropane	70U	70	17
594-20-7	2,2-Dichloropropane	70U	70	33
563-58-6	1,1-Dichloropropene	70U	70	17
10061-01-5	cis-1,3-Dichloropropene	70U	70	13
10061-02-6	trans-1,3-Dichloropropene	70U	70	13
100-41-4	Ethylbenzene	70U	70	14
87-68-3	Hexachlorobutadiene	70U	70	10
591-78-6	2-Hexanone	3500U	3500	34
98-82-8	Isopropylbenzene	70U	70	15
99-87-6	4-Isopropyltoluene	70U	70	12
1634-04-4	Methyl tert-Butyl Ether	70U	70	13
75-09-2	Methylene Chloride	350U	350	37
78-93-3	2-Butanone (MEK)	3500U	3500	88
108-10-1	4-Methyl-2-pentanone (MIBK)	3500U	3500	28
91-20-3	Naphthalene	350U	350	20
103-65-1	n-Propylbenzene	70U	70	14
100-42-5	Styrene	70U	70	14
630-20-6	1,1,1,2-Tetrachloroethane	70U	70	9.9
79-34-5	1,1,2,2-Tetrachloroethane	70U	70	18
127-18-4	Tetrachloroethene	70U	70	19
108-88-3	Toluene	70U	70	15
87-61-6	1,2,3-Trichlorobenzene	70U	70	14
120-82-1	1,2,4-Trichlorobenzene	70U	70	9.7
71-55-6	1,1,1-Trichloroethane	70U	70	9.6
79-00-5	1,1,2-Trichloroethane	70U	70	22
79-01-6	Trichloroethene	70U	70	15

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client: CTI and Associates, Inc.
Project: JCI - Fowlerville Sediment Remediation
Client Sample ID: W 5+00 (12-24)
Lab Sample ID: 1211063-08
Matrix: Sediment
Unit: ug/kg dry
Dilution Factor: 1
QC Batch: 1213661

Work Order: 1211063
Description: Laboratory Services
Sampled: 11/01/12 16:30
Sampled By: Mr. Brent Kelley
Received: 11/02/12 19:21
Prepared: 11/7/2012 By: DLV
Analyzed: 11/08/12 By: DLV
Analytical Batch: 2K08014

Volatile Organic Compounds by EPA Method 8260B (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
*75-69-4	Trichlorofluoromethane	70U	70	19
96-18-4	1,2,3-Trichloropropane	70U	70	19
95-63-6	1,2,4-Trimethylbenzene	70U	70	13
108-67-8	1,3,5-Trimethylbenzene	70U	70	12
75-01-4	Vinyl Chloride	70U	70	12
179601-23-1	Xylene, Meta + Para	140U	140	20
95-47-6	Xylene, Ortho	70U	70	8.4
1330-20-7	Xylene (Total)	210U	210	28

Surrogates:	*% Recovery*	*Control Limits*
Dibromofluoromethane	*99*	*75-123*
1,2-Dichloroethane-d4	*95*	*83-116*
Toluene-d8	*98*	*85-113*
4-Bromofluorobenzene	*98*	*81-117*

*See Statement of Data Qualifications

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**W 5+00 (12-24)**	Sampled:	11/01/12 16:30
Lab Sample ID:	**1211063-08**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: ALK
Dilution Factor:	5	Analyzed:	11/09/12 By: JLB
QC Batch:	1213584	Analytical Batch:	2K13048

*Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	120U	120	5.5
208-96-8	Acenaphthylene	120U	120	5.7
120-12-7	Anthracene	120U	120	6.0
*92-87-5	Benzidine	4600U	4600	4600
56-55-3	Benzo(a)anthracene	**11J**	120	10
50-32-8	Benzo(a)pyrene	**9.1J**	120	6.0
*205-99-2	Benzo(b)fluoranthene	**14J**	120	12
*207-08-9	Benzo(k)fluoranthene	120U	120	15
191-24-2	Benzo(g,h,i)perylene	**6.8J**	230	5.7
65-85-0	Benzoic Acid	2300U	2300	220
100-51-6	Benzyl Alcohol	120U	120	9.1
101-55-3	4-Bromophenyl Phenyl Ether	120U	120	6.6
85-68-7	Butyl Benzyl Phthalate	230U	230	12
86-74-8	Carbazole	1200U	1200	62
59-50-7	4-Chloro-3-methylphenol	120U	120	26
*106-47-8	4-Chloroaniline	460U	460	62
111-91-1	Bis(2-chloroethoxy)methane	120U	120	7.8
111-44-4	Bis(2-chloroethyl) Ether	120U	120	5.5
108-60-1	Bis(2-chloroisopropyl) Ether	120U	120	19
91-58-7	2-Chloronaphthalene	120U	120	18
95-57-8	2-Chlorophenol	120U	120	5.5
7005-72-3	4-Chlorophenyl Phenyl Ether	120U	120	5.0
218-01-9	Chrysene	**9.1J**	120	6.0
53-70-3	Dibenz(a,h)anthracene	230U	230	8.8
132-64-9	Dibenzofuran	120U	120	5.7
84-74-2	Di-n-butyl Phthalate	460U	460	98
106-46-7	1,4-Dichlorobenzene	120U	120	5.9
95-50-1	1,2-Dichlorobenzene	120U	120	10
541-73-1	1,3-Dichlorobenzene	120U	120	8.8

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**W 5+00 (12-24)**	Sampled:	11/01/12 16:30
Lab Sample ID:	**1211063-08**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: ALK
Dilution Factor:	5	Analyzed:	11/09/12 By: JLB
QC Batch:	1213584	Analytical Batch:	2K13048

*Semivolatile Organic Compounds by EPA Method 8270C (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
91-94-1	3,3'-Dichlorobenzidine	5800U	5800	230
120-83-2	2,4-Dichlorophenol	230U	230	11
84-66-2	Diethyl Phthalate	120U	120	17
105-67-9	2,4-Dimethylphenol	1200U	1200	210
131-11-3	Dimethyl Phthalate	120U	120	13
534-52-1	4,6-Dinitro-2-methylphenol	1200U	1200	38
51-28-5	2,4-Dinitrophenol	1200U	1200	270
606-20-2	2,6-Dinitrotoluene	120U	120	11
121-14-2	2,4-Dinitrotoluene	230U	230	35
117-84-0	Di-n-octyl Phthalate	120U	120	7.8
117-81-7	Bis(2-ethylhexyl) Phthalate	230U	230	28
206-44-0	Fluoranthene	**14J**	120	3.9
86-73-7	Fluorene	230U	230	4.2
118-74-1	Hexachlorobenzene	120U	120	6.9
87-68-3	Hexachlorobutadiene	120U	120	5.0
77-47-4	Hexachlorocyclopentadiene	120U	120	19
67-72-1	Hexachloroethane	120U	120	9.3
193-39-5	Indeno(1,2,3-cd)pyrene	230U	230	21
78-59-1	Isophorone	120U	120	7.3
91-57-6	2-Methylnaphthalene	120U	120	9.4
106-44-5	4-Methylphenol	120U	120	14
108-39-4	3+4-Methylphenol	120U	120	14
95-48-7	2-Methylphenol	120U	120	23
91-20-3	Naphthalene	120U	120	3.6
100-01-6	4-Nitroaniline	230U	230	110
88-74-4	2-Nitroaniline	120U	120	41
99-09-2	3-Nitroaniline	230U	230	110
98-95-3	Nitrobenzene	120U	120	10
88-75-5	2-Nitrophenol	120U	120	11
100-02-7	4-Nitrophenol	4600U	4600	190
86-30-6	N-Nitroso-diphenylamine	120U	120	7.3

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**W 5+00 (12-24)**	Sampled:	11/01/12 16:30
Lab Sample ID:	**1211063-08**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: ALK
Dilution Factor:	5	Analyzed:	11/09/12 By: JLB
QC Batch:	1213584	Analytical Batch:	2K13048

*Semivolatile Organic Compounds by EPA Method 8270C (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
621-64-7	N-Nitroso-di-n-propylamine	120U	120	15
87-86-5	Pentachlorophenol	1200U	1200	100
85-01-8	Phenanthrene	6.8J	120	5.0
108-95-2	Phenol	1200U	1200	9.1
129-00-0	Pyrene	14J	120	8.4
110-86-1	Pyridine	230U	230	58
120-82-1	1,2,4-Trichlorobenzene	120U	120	3.9
95-95-4	2,4,5-Trichlorophenol	120U	120	27
88-06-2	2,4,6-Trichlorophenol	120U	120	12

Surrogates:	*% Recovery*	*Control Limits*
2-Fluorophenol	*77*	*33-113*
Phenol-d6	*78*	*30-115*
Nitrobenzene-d5	*72*	*33-131*
2-Fluorobiphenyl	*72*	*46-122*
2,4,6-Tribromophenol	*61*	*12-124*
o-Terphenyl	*73*	*20-135*

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**W 5+00 (12-24)**	Sampled:	11/01/12 16:30
Lab Sample ID:	**1211063-08**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Percent Solids:	72		

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Aluminum	**4000**	10	1.4	mg/kg dry wt.	1	USEPA-6010C	11/08/12 09:28	KLV	1213605
Arsenic	**12**	0.50	0.082	mg/kg dry wt.	5	USEPA-6020A	11/08/12 14:52	DSC	1213607
Barium	**31**	0.50	0.061	mg/kg dry wt.	5	USEPA-6020A	11/08/12 14:52	DSC	1213607
Cadmium	**0.15**	0.050	0.0033	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:11	DSC	1213607
Chromium	**8.2**	0.10	0.014	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:11	DSC	1213607
Copper	**6.4**	0.10	0.025	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:11	DSC	1213607
Lead	**4.6**	0.10	0.0066	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:11	DSC	1213607
Mercury	**0.015 J**	0.050	0.0061	mg/kg dry wt.	1	USEPA-7471A	11/08/12 11:40	CKD	1213637
Nickel	**8.9**	0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:11	DSC	1213607
Selenium	**0.27**	0.10	0.033	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:11	DSC	1213607
Silver	**0.051**	0.050	0.0039	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:11	DSC	1213607
Zinc	**23**	5.0	1.4	mg/kg dry wt.	5	USEPA-6020A	11/08/12 14:52	DSC	1213607

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ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**W 5+00 (12-24)**	Sampled:	11/01/12 16:30
Lab Sample ID:	**1211063-08**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result		RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
***Chromium, Hexavalent**	**1.7**	J	5.6	0.75	mg/kg dry	2	USEPA-7196A	11/11/12 10:18	HLB	1213417
Cyanide, Total	0.14	U	0.14	0.031	mg/kg dry	1	USEPA-9014	11/09/12 16:42	LMA	1213768
Fractional Organic Carbon	**0.0882**		0.0010	0.0010	g C/g Soil	1	ASTM D 2974-87	11/03/12 16:17	HLB	1213805
Percent Solids	**72**		0.1	0.1	%	1	USEPA-3550C	11/03/12 16:17	HLB	1213578
Carbon, Total Organic	**3.2**		0.10	0.017	%	1	Walkley-Black	11/15/12 13:00	HLB	1214240

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**E 13+50 (0-12)**	Sampled:	11/01/12 11:20
Lab Sample ID:	**1211063-13**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: SMS9
Dilution Factor:	1	Analyzed:	11/09/12 By: MSZ
QC Batch:	1213588	Analytical Batch:	2K12020

*Polychlorinated Biphenyls (PCBs) by EPA Method 8082A

CAS Number	Analyte	Analytical Result	RL	MDL
12674-11-2	PCB-1016	640U	640	3.3
11104-28-2	PCB-1221	640U	640	4.1
11141-16-5	PCB-1232	640U	640	4.1
53469-21-9	PCB-1242	640U	640	13
12672-29-6	PCB-1248	**210J**	640	4.8
11097-69-1	PCB-1254	640U	640	6.6
11096-82-5	PCB-1260	**253**	640	5.4

Surrogates:	*% Recovery*	*Control Limits*
Decachlorobiphenyl	*97*	*45-135*
Tetrachloro-m-xylene	*90*	*56-123*

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**E 13+50 (0-12)**	Sampled:	11/01/12 11:20
Lab Sample ID:	**1211063-13**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: DLV
Dilution Factor:	1	Analyzed:	11/08/12 By: DLV
QC Batch:	1213661	Analytical Batch:	2K08014

Volatile Organic Compounds by EPA Method 8260B

CAS Number	Analyte	Analytical Result	RL	MDL
67-64-1	Acetone	1500U	1500	100
107-02-8	Acrolein	480U	480	76
71-43-2	Benzene	97U	97	14
108-86-1	Bromobenzene	97U	97	14
74-97-5	Bromochloromethane	97U	97	28
75-27-4	Bromodichloromethane	97U	97	13
75-25-2	Bromoform	97U	97	25
*74-83-9	Bromomethane	97U	97	41
104-51-8	n-Butylbenzene	97U	97	18
135-98-8	sec-Butylbenzene	97U	97	20
98-06-6	tert-Butylbenzene	97U	97	20
75-15-0	Carbon Disulfide	32J	480	22
56-23-5	Carbon Tetrachloride	97U	97	33
108-90-7	Chlorobenzene	97U	97	16
75-00-3	Chloroethane	97U	97	34
67-66-3	Chloroform	97U	97	16
74-87-3	Chloromethane	97U	97	38
95-49-8	2-Chlorotoluene	97U	97	21
106-43-4	4-Chlorotoluene	97U	97	17
96-12-8	1,2-Dibromo-3-chloropropane	480U	480	50
124-48-1	Dibromochloromethane	97U	97	15
106-93-4	1,2-Dibromoethane	97U	97	31
74-95-3	Dibromomethane	97U	97	25
95-50-1	1,2-Dichlorobenzene	97U	97	23
541-73-1	1,3-Dichlorobenzene	97U	97	23
106-46-7	1,4-Dichlorobenzene	97U	97	24
75-71-8	Dichlorodifluoromethane	97U	97	21
75-34-3	1,1-Dichloroethane	97U	97	21
107-06-2	1,2-Dichloroethane	97U	97	20

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**E 13+50 (0-12)**	Sampled:	11/01/12 11:20
Lab Sample ID:	**1211063-13**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: DLV
Dilution Factor:	1	Analyzed:	11/08/12 By: DLV
QC Batch:	1213661	Analytical Batch:	2K08014

Volatile Organic Compounds by EPA Method 8260B (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
75-35-4	1,1-Dichloroethene	97U	97	20
156-59-2	cis-1,2-Dichloroethene	97U	97	22
156-60-5	trans-1,2-Dichloroethene	97U	97	22
540-59-0	1,2-Dichloroethene (Total)	190U	190	44
78-87-5	1,2-Dichloropropane	97U	97	27
142-28-9	1,3-Dichloropropane	97U	97	24
594-20-7	2,2-Dichloropropane	97U	97	46
563-58-6	1,1-Dichloropropene	97U	97	23
10061-01-5	cis-1,3-Dichloropropene	97U	97	18
10061-02-6	trans-1,3-Dichloropropene	97U	97	18
100-41-4	Ethylbenzene	97U	97	20
87-68-3	Hexachlorobutadiene	97U	97	14
591-78-6	2-Hexanone	4800U	4800	48
98-82-8	Isopropylbenzene	97U	97	21
99-87-6	4-Isopropyltoluene	97U	97	17
1634-04-4	Methyl tert-Butyl Ether	97U	97	18
75-09-2	Methylene Chloride	480U	480	52
78-93-3	2-Butanone (MEK)	4800U	4800	120
108-10-1	4-Methyl-2-pentanone (MIBK)	4800U	4800	38
91-20-3	Naphthalene	480U	480	27
103-65-1	n-Propylbenzene	97U	97	19
100-42-5	Styrene	97U	97	20
630-20-6	1,1,1,2-Tetrachloroethane	97U	97	14
79-34-5	1,1,2,2-Tetrachloroethane	97U	97	25
127-18-4	Tetrachloroethene	97U	97	27
108-88-3	Toluene	97U	97	21
87-61-6	1,2,3-Trichlorobenzene	97U	97	19
120-82-1	1,2,4-Trichlorobenzene	97U	97	14
71-55-6	1,1,1-Trichloroethane	97U	97	13
79-00-5	1,1,2-Trichloroethane	97U	97	31
79-01-6	Trichloroethene	97U	97	20

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**E 13+50 (0-12)**	Sampled:	11/01/12 11:20
Lab Sample ID:	**1211063-13**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: DLV
Dilution Factor:	1	Analyzed:	11/08/12 By: DLV
QC Batch:	1213661	Analytical Batch:	2K08014

Volatile Organic Compounds by EPA Method 8260B (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
*75-69-4	Trichlorofluoromethane	97U	97	26
96-18-4	1,2,3-Trichloropropane	97U	97	27
95-63-6	1,2,4-Trimethylbenzene	97U	97	17
108-67-8	1,3,5-Trimethylbenzene	97U	97	16
75-01-4	Vinyl Chloride	97U	97	16
179601-23-1	Xylene, Meta + Para	190U	190	27
95-47-6	Xylene, Ortho	97U	97	12
1330-20-7	Xylene (Total)	290U	290	39

Surrogates:	*% Recovery*	*Control Limits*
Dibromofluoromethane	*100*	*75-123*
1,2-Dichloroethane-d4	*95*	*83-116*
Toluene-d8	*98*	*85-113*
4-Bromofluorobenzene	*97*	*81-117*

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**E 13+50 (0-12)**	Sampled:	11/01/12 11:20
Lab Sample ID:	**1211063-13**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: ALK
Dilution Factor:	5	Analyzed:	11/09/12 By: JLB
QC Batch:	1213584	Analytical Batch:	2K13048

*Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	**9.4J**	160	7.7
208-96-8	Acenaphthylene	160U	160	8.0
120-12-7	Anthracene	**19J**	160	8.3
*92-87-5	Benzidine	6400U	6400	6400
56-55-3	Benzo(a)anthracene	**120J**	160	14
50-32-8	Benzo(a)pyrene	**120J**	160	8.3
*205-99-2	Benzo(b)fluoranthene	**170**	160	17
*207-08-9	Benzo(k)fluoranthene	**72J**	160	21
191-24-2	Benzo(g,h,i)perylene	**78J**	320	8.0
65-85-0	Benzoic Acid	3200U	3200	310
100-51-6	Benzyl Alcohol	160U	160	13
101-55-3	4-Bromophenyl Phenyl Ether	160U	160	9.1
85-68-7	Butyl Benzyl Phthalate	320U	320	16
86-74-8	Carbazole	1600U	1600	86
59-50-7	4-Chloro-3-methylphenol	160U	160	36
*106-47-8	4-Chloroaniline	640U	640	86
111-91-1	Bis(2-chloroethoxy)methane	160U	160	11
111-44-4	Bis(2-chloroethyl) Ether	160U	160	7.6
108-60-1	Bis(2-chloroisopropyl) Ether	160U	160	26
91-58-7	2-Chloronaphthalene	160U	160	25
95-57-8	2-Chlorophenol	160U	160	7.7
7005-72-3	4-Chlorophenyl Phenyl Ether	160U	160	7.0
218-01-9	Chrysene	**120J**	160	8.3
53-70-3	Dibenz(a,h)anthracene	**19J**	320	12
132-64-9	Dibenzofuran	160U	160	8.0
84-74-2	Di-n-butyl Phthalate	640U	640	140
106-46-7	1,4-Dichlorobenzene	160U	160	8.2
95-50-1	1,2-Dichlorobenzene	160U	160	14
541-73-1	1,3-Dichlorobenzene	160U	160	12

Continued on next page

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**E 13+50 (0-12)**	Sampled:	11/01/12 11:20
Lab Sample ID:	**1211063-13**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: ALK
Dilution Factor:	5	Analyzed:	11/09/12 By: JLB
QC Batch:	1213584	Analytical Batch:	2K13048

*Semivolatile Organic Compounds by EPA Method 8270C (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
91-94-1	3,3'-Dichlorobenzidine	8100U	8100	310
120-83-2	2,4-Dichlorophenol	320U	320	15
84-66-2	Diethyl Phthalate	160U	160	23
105-67-9	2,4-Dimethylphenol	1600U	1600	290
131-11-3	Dimethyl Phthalate	160U	160	18
534-52-1	4,6-Dinitro-2-methylphenol	1600U	1600	53
51-28-5	2,4-Dinitrophenol	1600U	1600	370
606-20-2	2,6-Dinitrotoluene	160U	160	15
121-14-2	2,4-Dinitrotoluene	320U	320	48
117-84-0	Di-n-octyl Phthalate	160U	160	11
117-81-7	Bis(2-ethylhexyl) Phthalate	**120J**	320	40
206-44-0	Fluoranthene	**220**	160	5.4
86-73-7	Fluorene	**9.4J**	320	5.8
118-74-1	Hexachlorobenzene	160U	160	9.6
87-68-3	Hexachlorobutadiene	160U	160	7.0
77-47-4	Hexachlorocyclopentadiene	160U	160	26
67-72-1	Hexachloroethane	160U	160	13
193-39-5	Indeno(1,2,3-cd)pyrene	**78J**	320	30
78-59-1	Isophorone	160U	160	10
91-57-6	2-Methylnaphthalene	160U	160	13
106-44-5	4-Methylphenol	160U	160	19
108-39-4	3+4-Methylphenol	160U	160	19
95-48-7	2-Methylphenol	160U	160	32
91-20-3	Naphthalene	160U	160	4.9
100-01-6	4-Nitroaniline	320U	320	150
88-74-4	2-Nitroaniline	160U	160	57
99-09-2	3-Nitroaniline	320U	320	160
98-95-3	Nitrobenzene	160U	160	14
88-75-5	2-Nitrophenol	160U	160	15
100-02-7	4-Nitrophenol	6400U	6400	260
86-30-6	N-Nitroso-diphenylamine	160U	160	10

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client: CTI and Associates, Inc.
Project: JCI - Fowlerville Sediment Remediation
Client Sample ID: E 13+50 (0-12)
Lab Sample ID: 1211063-13
Matrix: Sediment
Unit: ug/kg dry
Dilution Factor: 5
QC Batch: 1213584

Work Order: 1211063
Description: Laboratory Services
Sampled: 11/01/12 11:20
Sampled By: Mr. Brent Kelley
Received: 11/02/12 19:21
Prepared: 11/7/2012 By: ALK
Analyzed: 11/09/12 By: JLB
Analytical Batch: 2K13048

*Semivolatile Organic Compounds by EPA Method 8270C (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
621-64-7	N-Nitroso-di-n-propylamine	160U	160	21
87-86-5	Pentachlorophenol	1600U	1600	140
85-01-8	Phenanthrene	**82J**	160	7.0
108-95-2	Phenol	1600U	1600	13
129-00-0	Pyrene	**260**	160	12
110-86-1	Pyridine	320U	320	80
120-82-1	1,2,4-Trichlorobenzene	160U	160	5.4
95-95-4	2,4,5-Trichlorophenol	160U	160	38
88-06-2	2,4,6-Trichlorophenol	160U	160	16

Surrogates:	*% Recovery*	*Control Limits*
2-Fluorophenol	*85*	*33-113*
Phenol-d6	*85*	*30-115*
Nitrobenzene-d5	*82*	*33-131*
2-Fluorobiphenyl	*80*	*46-122*
2,4,6-Tribromophenol	*73*	*12-124*
o-Terphenyl	*81*	*20-155*

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**E 13+50 (0-12)**	Sampled:	11/01/12 11:20
Lab Sample ID:	**1211063-13**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Percent Solids:	52		

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result		RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Aluminum	**3700**		10	1.4	mg/kg dry wt.	1	USEPA-6010C	11/08/12 09:34	KLV	1213605
Arsenic	**7.6**		0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:14	DSC	1213607
Barium	**34**		0.50	0.061	mg/kg dry wt.	5	USEPA-6020A	11/08/12 15:05	DSC	1213607
Cadmium	**0.20**		0.050	0.0033	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:14	DSC	1213607
Chromium	**28**		0.50	0.070	mg/kg dry wt.	5	USEPA-6020A	11/08/12 15:05	DSC	1213607
Copper	**22**		0.50	0.13	mg/kg dry wt.	5	USEPA-6020A	11/08/12 15:05	DSC	1213607
Lead	**11**		0.50	0.033	mg/kg dry wt.	5	USEPA-6020A	11/08/12 15:05	DSC	1213607
Mercury	**0.055**		0.046	0.0056	mg/kg dry wt.	1	USEPA-7471A	11/08/12 11:45	CKD	1213637
Nickel	**14**		0.50	0.080	mg/kg dry wt.	5	USEPA-6020A	11/08/12 15:05	DSC	1213607
Selenium	**0.35**		0.10	0.033	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:14	DSC	1213607
Silver	**0.042**	J	0.050	0.0039	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:14	DSC	1213607
Zinc	**52**		10	2.8	mg/kg dry wt.	10	USEPA-6020A	11/08/12 15:02	DSC	1213607

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client: CTI and Associates, Inc.
Project: JCI - Fowlerville Sediment Remediation
Client Sample ID: E 13+50 (0-12)
Lab Sample ID: 1211063-13
Matrix: Sediment
Work Order: 1211063
Description: Laboratory Services
Sampled: 11/01/12 11:20
Sampled By: Mr. Brent Kelley
Received: 11/02/12 19:21

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result		RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Chromium, Hexavalent	**0.80**	J	3.6	0.48	mg/kg dry	1	USEPA-7196A	11/11/12 10:19	HLB	1213417
Cyanide, Available	**0.63**		0.077	0.046	mg/kg dry	1	USEPA OIA-1677	11/13/12 13:07	LMA	1214000
Cyanide, Total	**0.11**	J	0.19	0.043	mg/kg dry	1	USEPA-9014	11/09/12 16:42	LMA	1213768
Fractional Organic Carbon	**0.0331**		0.0010	0.0010	g C/g Soil	1	ASTM D 2974-87	11/03/12 16:17	HLB	1213805
Percent Solids	**52**		0.1	0.1	%	1	USEPA-3550C	11/03/12 16:17	HLB	1213578
Carbon, Total Organic	**2.8**		0.10	0.017	%	1	Walkley-Black	11/15/12 13:00	HLB	1214240

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**E 13+50 (12-24)**	Sampled:	11/01/12 11:40
Lab Sample ID:	**1211063-14**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: SMS9
Dilution Factor:	1	Analyzed:	11/09/12 By: MSZ
QC Batch:	1213588	Analytical Batch:	2K12020

*Polychlorinated Biphenyls (PCBs) by EPA Method 8082A

CAS Number	Analyte	Analytical Result	RL	MDL
12674-11-2	PCB-1016	480U	480	2.5
11104-28-2	PCB-1221	480U	480	3.1
11141-16-5	PCB-1232	480U	480	3.1
53469-21-9	PCB-1242	480U	480	10
12672-29-6	PCB-1248	**9.1J**	480	3.6
11097-69-1	PCB-1254	480U	480	4.9
11096-82-5	PCB-1260	480U	480	4.1

Surrogates:	*% Recovery*	*Control Limits*
Decachlorobiphenyl	*98*	*45-135*
Tetrachloro-m-xylene	*93*	*56-123*

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**E 13+50 (12-24)**	Sampled:	11/01/12 11:40
Lab Sample ID:	**1211063-14**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: DLV
Dilution Factor:	1	Analyzed:	11/08/12 By: DLV
QC Batch:	1213661	Analytical Batch:	2K08014

Volatile Organic Compounds by EPA Method 8260B

CAS Number	Analyte	Analytical Result	RL	MDL
67-64-1	Acetone	1100U	1100	79
107-02-8	Acrolein	360U	360	57
71-43-2	Benzene	73U	73	10
108-86-1	Bromobenzene	73U	73	11
74-97-5	Bromochloromethane	73U	73	21
75-27-4	Bromodichloromethane	73U	73	9.7
75-25-2	Bromoform	73U	73	19
*74-83-9	Bromomethane	73U	73	31
104-51-8	n-Butylbenzene	73U	73	14
135-98-8	sec-Butylbenzene	73U	73	15
98-06-6	tert-Butylbenzene	73U	73	15
75-15-0	Carbon Disulfide	**25J**	360	17
56-23-5	Carbon Tetrachloride	73U	73	25
108-90-7	Chlorobenzene	73U	73	12
75-00-3	Chloroethane	73U	73	26
67-66-3	Chloroform	73U	73	12
74-87-3	Chloromethane	73U	73	28
95-49-8	2-Chlorotoluene	73U	73	16
106-43-4	4-Chlorotoluene	73U	73	13
96-12-8	1,2-Dibromo-3-chloropropane	360U	360	37
124-48-1	Dibromochloromethane	73U	73	11
106-93-4	1,2-Dibromoethane	73U	73	24
74-95-3	Dibromomethane	73U	73	19
95-50-1	1,2-Dichlorobenzene	73U	73	17
541-73-1	1,3-Dichlorobenzene	73U	73	17
106-46-7	1,4-Dichlorobenzene	73U	73	18
75-71-8	Dichlorodifluoromethane	73U	73	16
75-34-3	1,1-Dichloroethane	73U	73	16
107-06-2	1,2-Dichloroethane	73U	73	15

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**E 13+50 (12-24)**	Sampled:	11/01/12 11:40
Lab Sample ID:	**1211063-14**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: DLV
Dilution Factor:	1	Analyzed:	11/08/12 By: DLV
QC Batch:	1213661	Analytical Batch:	2K08014

Volatile Organic Compounds by EPA Method 8260B (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
75-35-4	1,1-Dichloroethene	73U	73	15
156-59-2	cis-1,2-Dichloroethene	73U	73	16
156-60-5	trans-1,2-Dichloroethene	73U	73	17
540-59-0	1,2-Dichloroethene (Total)	150U	150	33
78-87-5	1,2-Dichloropropane	73U	73	20
142-28-9	1,3-Dichloropropane	73U	73	18
594-20-7	2,2-Dichloropropane	73U	73	35
563-58-6	1,1-Dichloropropene	73U	73	17
10061-01-5	cis-1,3-Dichloropropene	73U	73	14
10061-02-6	trans-1,3-Dichloropropene	73U	73	14
100-41-4	Ethylbenzene	73U	73	15
87-68-3	Hexachlorobutadiene	73U	73	10
591-78-6	2-Hexanone	3600U	3600	36
98-82-8	Isopropylbenzene	73U	73	16
99-87-6	4-Isopropyltoluene	73U	73	13
1634-04-4	Methyl tert-Butyl Ether	73U	73	14
75-09-2	Methylene Chloride	**44J**	360	39
78-93-3	2-Butanone (MEK)	3600U	3600	92
108-10-1	4-Methyl-2-pentanone (MIBK)	3600U	3600	29
91-20-3	Naphthalene	360U	360	20
103-65-1	n-Propylbenzene	73U	73	14
100-42-5	Styrene	73U	73	15
630-20-6	1,1,1,2-Tetrachloroethane	73U	73	10
79-34-5	1,1,2,2-Tetrachloroethane	73U	73	18
127-18-4	Tetrachloroethene	73U	73	20
108-88-3	Toluene	73U	73	16
87-61-6	1,2,3-Trichlorobenzene	73U	73	14
120-82-1	1,2,4-Trichlorobenzene	73U	73	10
71-55-6	1,1,1-Trichloroethane	73U	73	10
79-00-5	1,1,2-Trichloroethane	73U	73	23
79-01-6	Trichloroethene	73U	73	15

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**E 13+50 (12-24)**	Sampled:	11/01/12 11:40
Lab Sample ID:	**1211063-14**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: DLV
Dilution Factor:	1	Analyzed:	11/08/12 By: DLV
QC Batch:	1213661	Analytical Batch:	2K08014

Volatile Organic Compounds by EPA Method 8260B (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
*75-69-4	Trichlorofluoromethane	**25J**	73	19
96-18-4	1,2,3-Trichloropropane	73U	73	20
95-63-6	1,2,4-Trimethylbenzene	73U	73	13
108-67-8	1,3,5-Trimethylbenzene	73U	73	12
75-01-4	Vinyl Chloride	73U	73	12
179601-23-1	Xylene, Meta + Para	150U	150	20
95-47-6	Xylene, Ortho	73U	73	8.7
1330-20-7	Xylene (Total)	220U	220	29

Surrogates:	*% Recovery*	*Control Limits*
Dibromofluoromethane	*100*	*75-123*
1,2-Dichloroethane-d4	*97*	*83-116*
Toluene-d8	*98*	*85-113*
4-Bromofluorobenzene	*97*	*81-117*

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**E 13+50 (12-24)**	Sampled:	11/01/12 11:40
Lab Sample ID:	**1211063-14**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: ALK
Dilution Factor:	5	Analyzed:	11/09/12 By: JLB
QC Batch:	1213584	Analytical Batch:	2K13048

*Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	120U	120	5.8
208-96-8	Acenaphthylene	120U	120	6.0
120-12-7	Anthracene	120U	120	6.2
*92-87-5	Benzidine	4800U	4800	4800
56-55-3	Benzo(a)anthracene	120U	120	10
50-32-8	Benzo(a)pyrene	**7.5J**	120	6.2
*205-99-2	Benzo(b)fluoranthene	120U	120	12
*207-08-9	Benzo(k)fluoranthene	120U	120	16
191-24-2	Benzo(g,h,i)perylene	240U	240	6.0
65-85-0	Benzoic Acid	2400U	2400	230
100-51-6	Benzyl Alcohol	120U	120	9.5
101-55-3	4-Bromophenyl Phenyl Ether	120U	120	6.8
85-68-7	Butyl Benzyl Phthalate	240U	240	12
86-74-8	Carbazole	1200U	1200	65
59-50-7	4-Chloro-3-methylphenol	120U	120	27
*106-47-8	4-Chloroaniline	480U	480	64
111-91-1	Bis(2-chloroethoxy)methane	120U	120	8.1
111-44-4	Bis(2-chloroethyl) Ether	120U	120	5.7
108-60-1	Bis(2-chloroisopropyl) Ether	120U	120	20
91-58-7	2-Chloronaphthalene	120U	120	19
95-57-8	2-Chlorophenol	120U	120	5.8
7005-72-3	4-Chlorophenyl Phenyl Ether	120U	120	5.3
*218-01-9	Chrysene	120U	120	6.2
53-70-3	Dibenz(a,h)anthracene	240U	240	9.2
132-64-9	Dibenzofuran	120U	120	6.0
84-74-2	Di-n-butyl Phthalate	480U	480	100
106-46-7	1,4-Dichlorobenzene	120U	120	6.2
95-50-1	1,2-Dichlorobenzene	120U	120	10
541-73-1	1,3-Dichlorobenzene	120U	120	9.2

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**E 13+50 (12-24)**	Sampled:	11/01/12 11:40
Lab Sample ID:	**1211063-14**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: ALK
Dilution Factor:	5	Analyzed:	11/09/12 By: JLB
QC Batch:	1213584	Analytical Batch:	2K13048

*Semivolatile Organic Compounds by EPA Method 8270C (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
91-94-1	3,3´-Dichlorobenzidine	6000U	6000	240
120-83-2	2,4-Dichlorophenol	240U	240	11
84-66-2	Diethyl Phthalate	120U	120	17
105-67-9	2,4-Dimethylphenol	1200U	1200	220
131-11-3	Dimethyl Phthalate	120U	120	14
534-52-1	4,6-Dinitro-2-methylphenol	1200U	1200	40
51-28-5	2,4-Dinitrophenol	1200U	1200	280
606-20-2	2,6-Dinitrotoluene	120U	120	11
121-14-2	2,4-Dinitrotoluene	240U	240	36
117-84-0	Di-n-octyl Phthalate	120U	120	8.1
117-81-7	Bis(2-ethylhexyl) Phthalate	240U	240	30
206-44-0	Fluoranthene	**7.5J**	120	4.1
86-73-7	Fluorene	240U	240	4.4
118-74-1	Hexachlorobenzene	120U	120	7.2
87-68-3	Hexachlorobutadiene	120U	120	5.3
77-47-4	Hexachlorocyclopentadiene	120U	120	20
67-72-1	Hexachloroethane	120U	120	9.7
193-39-5	Indeno(1,2,3-cd)pyrene	240U	240	22
78-59-1	Isophorone	120U	120	7.6
91-57-6	2-Methylnaphthalene	120U	120	9.8
106-44-5	4-Methylphenol	120U	120	15
108-39-4	3+4-Methylphenol	120U	120	15
95-48-7	2-Methylphenol	120U	120	24
91-20-3	Naphthalene	120U	120	3.7
100-01-6	4-Nitroaniline	240U	240	110
88-74-4	2-Nitroaniline	120U	120	43
99-09-2	3-Nitroaniline	240U	240	120
98-95-3	Nitrobenzene	120U	120	11
88-75-5	2-Nitrophenol	120U	120	11
100-02-7	4-Nitrophenol	4800U	4800	190
86-30-6	N-Nitroso-diphenylamine	120U	120	7.6

Continued on next page

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**E 13+50 (12-24)**	Sampled:	11/01/12 11:40
Lab Sample ID:	**1211063-14**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: ALK
Dilution Factor:	5	Analyzed:	11/09/12 By: JLB
QC Batch:	1213584	Analytical Batch:	2K13048

*Semivolatile Organic Compounds by EPA Method 8270C (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
621-64-7	N-Nitroso-di-n-propylamine	120U	120	16
87-86-5	Pentachlorophenol	1200U	1200	110
85-01-8	Phenanthrene	120U	120	5.3
108-95-2	Phenol	1200U	1200	9.5
129-00-0	Pyrene	**10J**	120	8.8
110-86-1	Pyridine	240U	240	60
120-82-1	1,2,4-Trichlorobenzene	120U	120	4.1
95-95-4	2,4,5-Trichlorophenol	120U	120	28
88-06-2	2,4,6-Trichlorophenol	120U	120	12

Surrogates:	*% Recovery*	*Control Limits*
2-Fluorophenol	*87*	*33-113*
Phenol-d6	*87*	*30-115*
Nitrobenzene-d5	*84*	*33-131*
2-Fluorobiphenyl	*81*	*46-122*
2,4,6-Tribromophenol	*68*	*12-124*
o-Terphenyl	*81*	*20-155*

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**E 13+50 (12-24)**	Sampled:	11/01/12 11:40
Lab Sample ID:	**1211063-14**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Percent Solids:	69		

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result		RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Aluminum	**3800**		10	1.4	mg/kg dry wt.	1	USEPA-6010C	11/08/12 09:40	KLV	1213605
Arsenic	**16**		0.50	0.082	mg/kg dry wt.	5	USEPA-6020A	11/08/12 15:08	DSC	1213607
Barium	**27**		0.50	0.061	mg/kg dry wt.	5	USEPA-6020A	11/08/12 15:08	DSC	1213607
Cadmium	**0.14**		0.050	0.0033	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:18	DSC	1213607
Chromium	**6.0**		0.10	0.014	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:18	DSC	1213607
Copper	**4.6**		0.10	0.025	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:18	DSC	1213607
Lead	**4.2**		0.10	0.0066	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:18	DSC	1213607
Mercury	**0.024**	J	0.050	0.0061	mg/kg dry wt.	1	USEPA-7471A	11/08/12 11:50	CKD	1213637
Nickel	**5.7**		0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:18	DSC	1213607
Selenium	**0.34**		0.10	0.033	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:18	DSC	1213607
Silver	**0.039**	J	0.050	0.0039	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:18	DSC	1213607
Zinc	**24**		5.0	1.4	mg/kg dry wt.	5	USEPA-6020A	11/08/12 15:08	DSC	1213607

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**E 13+50 (12-24)**	Sampled:	11/01/12 11:40
Lab Sample ID:	**1211063-14**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result		RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Chromium, Hexavalent	2.9	U	2.9	0.39	mg/kg dry	1	USEPA-7196A	11/11/12 10:20	HLB	1213417
Cyanide, Total	0.15	U	0.15	0.032	mg/kg dry	1	USEPA-9014	11/09/12 16:42	LMA	1213768
Fractional Organic Carbon	**0.0194**		0.0010	0.0010	g C/g Soil	1	ASTM D 2974-87	11/03/12 16:17	HLB	1213805
Percent Solids	**69**		0.1	0.1	%	1	USEPA-3550C	11/03/12 16:17	HLB	1213578
Carbon, Total Organic	**1.5**		0.10	0.017	%	1	Walkley-Black	11/15/12 13:00	HLB	1214240

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**W 13+50 (0-12)**	Sampled:	11/01/12 11:50
Lab Sample ID:	**1211063-15**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: SMS9
Dilution Factor:	1	Analyzed:	11/09/12 By: MSZ
QC Batch:	1213588	Analytical Batch:	2K12020

*Polychlorinated Biphenyls (PCBs) by EPA Method 8082A

CAS Number	Analyte	Analytical Result	RL	MDL
12674-11-2	PCB-1016	650U	650	3.4
11104-28-2	PCB-1221	650U	650	4.2
11141-16-5	PCB-1232	650U	650	4.2
53469-21-9	PCB-1242	650U	650	14
12672-29-6	PCB-1248	**388**	650	5.0
11097-69-1	PCB-1254	650U	650	6.7
11096-82-5	PCB-1260	**8.2J**	650	5.6

Surrogates:	*% Recovery*	*Control Limits*
Decachlorobiphenyl	*95*	*45-135*
Tetrachloro-m-xylene	*90*	*56-123*

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**W 13+50 (0-12)**	Sampled:	11/01/12 11:50
Lab Sample ID:	**1211063-15**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: DLV
Dilution Factor:	1	Analyzed:	11/08/12 By: DLV
QC Batch:	1213661	Analytical Batch:	2K08014

Volatile Organic Compounds by EPA Method 8260B

CAS Number	Analyte	Analytical Result	RL	MDL
67-64-1	Acetone	1500U	1500	110
107-02-8	Acrolein	500U	500	78
71-43-2	Benzene	99U	99	14
108-86-1	Bromobenzene	99U	99	14
74-97-5	Bromochloromethane	99U	99	29
75-27-4	Bromodichloromethane	99U	99	13
75-25-2	Bromoform	99U	99	26
*74-83-9	Bromomethane	99U	99	42
104-51-8	n-Butylbenzene	99U	99	19
135-98-8	sec-Butylbenzene	99U	99	20
98-06-6	tert-Butylbenzene	99U	99	20
75-15-0	Carbon Disulfide	500U	500	23
56-23-5	Carbon Tetrachloride	99U	99	34
108-90-7	Chlorobenzene	99U	99	17
75-00-3	Chloroethane	99U	99	35
67-66-3	Chloroform	99U	99	17
74-87-3	Chloromethane	99U	99	39
95-49-8	2-Chlorotoluene	99U	99	22
106-43-4	4-Chlorotoluene	99U	99	17
96-12-8	1,2-Dibromo-3-chloropropane	500U	500	51
124-48-1	Dibromochloromethane	99U	99	15
106-93-4	1,2-Dibromoethane	99U	99	32
74-95-3	Dibromomethane	99U	99	25
95-50-1	1,2-Dichlorobenzene	99U	99	23
541-73-1	1,3-Dichlorobenzene	99U	99	24
106-46-7	1,4-Dichlorobenzene	99U	99	25
75-71-8	Dichlorodifluoromethane	99U	99	21
75-34-3	1,1-Dichloroethane	99U	99	22
107-06-2	1,2-Dichloroethane	99U	99	21

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client: CTI and Associates, Inc.
Project: JCI - Fowlerville Sediment Remediation
Client Sample ID: W 13+50 (0-12)
Lab Sample ID: 1211063-15
Matrix: Sediment
Unit: ug/kg dry
Dilution Factor: 1
QC Batch: 1213661
Work Order: 1211063
Description: Laboratory Services
Sampled: 11/01/12 11:50
Sampled By: Mr. Brent Kelley
Received: 11/02/12 19:21
Prepared: 11/7/2012 By: DLV
Analyzed: 11/08/12 By: DLV
Analytical Batch: 2K08014

Volatile Organic Compounds by EPA Method 8260B (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
75-35-4	1,1-Dichloroethene	99U	99	21
156-59-2	cis-1,2-Dichloroethene	99U	99	22
156-60-5	trans-1,2-Dichloroethene	99U	99	23
540-59-0	1,2-Dichloroethene (Total)	200U	200	45
78-87-5	1,2-Dichloropropane	99U	99	27
142-28-9	1,3-Dichloropropane	99U	99	24
594-20-7	2,2-Dichloropropane	99U	99	47
563-58-6	1,1-Dichloropropene	99U	99	24
10061-01-5	cis-1,3-Dichloropropene	99U	99	19
10061-02-6	trans-1,3-Dichloropropene	99U	99	19
100-41-4	Ethylbenzene	99U	99	20
87-68-3	Hexachlorobutadiene	99U	99	14
591-78-6	2-Hexanone	5000U	5000	49
98-82-8	Isopropylbenzene	99U	99	22
99-87-6	4-Isopropyltoluene	99U	99	17
1634-04-4	Methyl tert-Butyl Ether	99U	99	19
75-09-2	Methylene Chloride	500U	500	53
78-93-3	2-Butanone (MEK)	5000U	5000	130
108-10-1	4-Methyl-2-pentanone (MIBK)	5000U	5000	39
91-20-3	Naphthalene	500U	500	28
103-65-1	n-Propylbenzene	99U	99	20
100-42-5	Styrene	99U	99	20
630-20-6	1,1,1,2-Tetrachloroethane	99U	99	14
79-34-5	1,1,2,2-Tetrachloroethane	99U	99	25
127-18-4	Tetrachloroethene	99U	99	27
108-88-3	Toluene	99U	99	22
87-61-6	1,2,3-Trichlorobenzene	99U	99	19
120-82-1	1,2,4-Trichlorobenzene	99U	99	14
71-55-6	1,1,1-Trichloroethane	99U	99	14
79-00-5	1,1,2-Trichloroethane	99U	99	32
79-01-6	Trichloroethene	99U	99	21

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**W 13+50 (0-12)**	Sampled:	11/01/12 11:50
Lab Sample ID:	**1211063-15**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: DLV
Dilution Factor:	1	Analyzed:	11/08/12 By: DLV
QC Batch:	1213661	Analytical Batch:	2K08014

Volatile Organic Compounds by EPA Method 8260B (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
*75-69-4	Trichlorofluoromethane	99U	99	26
96-18-4	1,2,3-Trichloropropane	99U	99	28
95-63-6	1,2,4-Trimethylbenzene	99U	99	18
108-67-8	1,3,5-Trimethylbenzene	99U	99	17
75-01-4	Vinyl Chloride	99U	99	17
179601-23-1	Xylene, Meta + Para	200U	200	28
95-47-6	Xylene, Ortho	99U	99	12
1330-20-7	Xylene (Total)	300U	300	40

Surrogates:	*% Recovery*	*Control Limits*
Dibromofluoromethane	*100*	*75-123*
1,2-Dichloroethane-d4	*96*	*83-116*
Toluene-d8	*98*	*85-113*
4-Bromofluorobenzene	*98*	*81-117*

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**W 13+50 (0-12)**	Sampled:	11/01/12 11:50
Lab Sample ID:	**1211063-15**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: ALK
Dilution Factor:	5	Analyzed:	11/09/12 By: JLB
QC Batch:	1213584	Analytical Batch:	2K13048

***Semivolatile Organic Compounds by EPA Method 8270C**

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	16J	170	7.9
208-96-8	Acenaphthylene	170U	170	8.2
120-12-7	Anthracene	48J	170	8.5
*92-87-5	Benzidine	6600U	6600	6600
56-55-3	Benzo(a)anthracene	240	170	14
50-32-8	Benzo(a)pyrene	250	170	8.5
*205-99-2	Benzo(b)fluoranthene	420	170	17
*207-08-9	Benzo(k)fluoranthene	120J	170	22
191-24-2	Benzo(g,h,i)perylene	160J	330	8.2
65-85-0	Benzoic Acid	3300U	3300	320
100-51-6	Benzyl Alcohol	170U	170	13
101-55-3	4-Bromophenyl Phenyl Ether	170U	170	9.4
85-68-7	Butyl Benzyl Phthalate	330U	330	17
86-74-8	Carbazole	1700U	1700	88
59-50-7	4-Chloro-3-methylphenol	170U	170	37
*106-47-8	4-Chloroaniline	660U	660	88
111-91-1	Bis(2-chloroethoxy)methane	170U	170	11
111-44-4	Bis(2-chloroethyl) Ether	170U	170	7.8
108-60-1	Bis(2-chloroisopropyl) Ether	170U	170	27
91-58-7	2-Chloronaphthalene	170U	170	26
95-57-8	2-Chlorophenol	170U	170	7.9
7005-72-3	4-Chlorophenyl Phenyl Ether	170U	170	7.2
218-01-9	Chrysene	260	170	8.5
53-70-3	Dibenz(a,h)anthracene	330U	330	13
132-64-9	Dibenzofuran	170U	170	8.2
84-74-2	Di-n-butyl Phthalate	660U	660	140
106-46-7	1,4-Dichlorobenzene	170U	170	8.4
95-50-1	1,2-Dichlorobenzene	170U	170	14
541-73-1	1,3-Dichlorobenzene	170U	170	13

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**W 13+50 (0-12)**	Sampled:	11/01/12 11:50
Lab Sample ID:	**1211063-15**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: ALK
Dilution Factor:	5	Analyzed:	11/09/12 By: JLB
QC Batch:	1213584	Analytical Batch:	2K13048

*Semivolatile Organic Compounds by EPA Method 8270C (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
91-94-1	3,3´-Dichlorobenzidine	8300U	8300	320
120-83-2	2,4-Dichlorophenol	330U	330	15
84-66-2	Diethyl Phthalate	170U	170	24
105-67-9	2,4-Dimethylphenol	1700U	1700	300
131-11-3	Dimethyl Phthalate	170U	170	18
534-52-1	4,6-Dinitro-2-methylphenol	1700U	1700	54
51-28-5	2,4-Dinitrophenol	1700U	1700	380
606-20-2	2,6-Dinitrotoluene	170U	170	16
121-14-2	2,4-Dinitrotoluene	330U	330	49
117-84-0	Di-n-octyl Phthalate	170U	170	11
117-81-7	Bis(2-ethylhexyl) Phthalate	**51J**	330	41
206-44-0	Fluoranthene	**540**	170	5.6
86-73-7	Fluorene	**22J**	330	6.0
118-74-1	Hexachlorobenzene	170U	170	9.9
87-68-3	Hexachlorobutadiene	170U	170	7.2
77-47-4	Hexachlorocyclopentadiene	170U	170	27
67-72-1	Hexachloroethane	170U	170	13
193-39-5	Indeno(1,2,3-cd)pyrene	**140J**	330	31
78-59-1	Isophorone	170U	170	10
91-57-6	2-Methylnaphthalene	170U	170	13
106-44-5	4-Methylphenol	170U	170	20
108-39-4	3+4-Methylphenol	170U	170	20
95-48-7	2-Methylphenol	170U	170	33
91-20-3	Naphthalene	170U	170	5.1
100-01-6	4-Nitroaniline	330U	330	160
88-74-4	2-Nitroaniline	170U	170	58
99-09-2	3-Nitroaniline	330U	330	160
98-95-3	Nitrobenzene	170U	170	14
88-75-5	2-Nitrophenol	170U	170	15
100-02-7	4-Nitrophenol	6600U	6600	260
86-30-6	N-Nitroso-diphenylamine	170U	170	10

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client: CTI and Associates, Inc.
Project: JCI - Fowlerville Sediment Remediation
Client Sample ID: W 13+50 (0-12)
Lab Sample ID: 1211063-15
Matrix: Sediment
Unit: ug/kg dry
Dilution Factor: 5
QC Batch: 1213584

Work Order: 1211063
Description: Laboratory Services
Sampled: 11/01/12 11:50
Sampled By: Mr. Brent Kelley
Received: 11/02/12 19:21
Prepared: 11/7/2012 By: ALK
Analyzed: 11/09/12 By: JLB
Analytical Batch: 2K13048

*Semivolatile Organic Compounds by EPA Method 8270C (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
621-64-7	N-Nitroso-di-n-propylamine	170U	170	22
87-86-5	Pentachlorophenol	1700U	1700	150
85-01-8	Phenanthrene	**240**	170	7.2
108-95-2	Phenol	1700U	1700	13
129-00-0	Pyrene	**560**	170	12
110-86-1	Pyridine	330U	330	82
120-82-1	1,2,4-Trichlorobenzene	170U	170	5.5
95-95-4	2,4,5-Trichlorophenol	170U	170	39
88-06-2	2,4,6-Trichlorophenol	170U	170	17

Surrogates:	*% Recovery*	*Control Limits*
2-Fluorophenol	*87*	*33-113*
Phenol-d6	*86*	*30-115*
Nitrobenzene-d5	*82*	*33-131*
2-Fluorobiphenyl	*81*	*46-122*
2,4,6-Tribromophenol	*73*	*12-124*
o-Terphenyl	*80*	*20-155*

*See Statement of Data Qualifications

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**W 13+50 (0-12)**	Sampled:	11/01/12 11:50
Lab Sample ID:	**1211063-15**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Percent Solids:	50		

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result		RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Aluminum	**3800**		9.4	1.3	mg/kg dry wt.	1	USEPA-6010C	11/08/12 09:47	KLV	1213605
Arsenic	**9.6**		0.50	0.082	mg/kg dry wt.	5	USEPA-6020A	11/08/12 15:15	DSC	1213607
Barium	**50**		1.0	0.12	mg/kg dry wt.	10	USEPA-6020A	11/08/12 15:11	DSC	1213607
Cadmium	**0.29**		0.050	0.0033	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:21	DSC	1213607
Chromium	**15**		0.50	0.070	mg/kg dry wt.	5	USEPA-6020A	11/08/12 15:15	DSC	1213607
Copper	**18**		0.50	0.13	mg/kg dry wt.	5	USEPA-6020A	11/08/12 15:15	DSC	1213607
Lead	**7.9**		0.10	0.0066	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:21	DSC	1213607
Mercury	**0.042**	J	0.047	0.0057	mg/kg dry wt.	1	USEPA-7471A	11/08/12 11:55	CKD	1213637
Nickel	**9.2**		0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:21	DSC	1213607
Selenium	**0.54**		0.10	0.033	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:21	DSC	1213607
Silver	**0.047**	J	0.050	0.0039	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:21	DSC	1213607
Zinc	**59**		10	2.8	mg/kg dry wt.	10	USEPA-6020A	11/08/12 15:11	DSC	1213607

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client: CTI and Associates, Inc.
Project: JCI - Fowlerville Sediment Remediation
Client Sample ID: W 13+50 (0-12)
Lab Sample ID: 1211063-15
Matrix: Sediment
Work Order: 1211063
Description: Laboratory Services
Sampled: 11/01/12 11:50
Sampled By: Mr. Brent Kelley
Received: 11/02/12 19:21

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result		RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Chromium, Hexavalent	**1.3**	J	4.0	0.54	mg/kg dry	1	USEPA-7196A	11/11/12 10:20	HLB	1213417
Cyanide, Available	**1.3**		0.079	0.047	mg/kg dry	1	USEPA OIA-1677	11/13/12 13:08	LMA	1214000
Cyanide, Total	**2.7**		0.20	0.044	mg/kg dry	1	USEPA-9014	11/09/12 16:42	LMA	1213768
Fractional Organic Carbon	**0.0537**		0.0010	0.0010	g C/g Soil	1	ASTM D 2974-87	11/03/12 16:17	HLB	1213805
Percent Solids	**50**		0.1	0.1	%	1	USEPA-3550C	11/03/12 16:17	HLB	1213578
Carbon, Total Organic	**3.7**		0.10	0.017	%	1	Walkley-Black	11/15/12 13:00	HLB	1214240

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**W 13+50 (12-24)**	Sampled:	11/01/12 12:00
Lab Sample ID:	**1211063-16**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: SMS9
Dilution Factor:	1	Analyzed:	11/09/12 By: MSZ
QC Batch:	1213588	Analytical Batch:	2K12020

*Polychlorinated Biphenyls (PCBs) by EPA Method 8082A

CAS Number	Analyte	Analytical Result	RL	MDL
12674-11-2	PCB-1016	390U	390	2.0
11104-28-2	PCB-1221	390U	390	2.5
11141-16-5	PCB-1232	390U	390	2.5
53469-21-9	PCB-1242	390U	390	8.1
*12672-29-6	PCB-1248	**3.5J**	390	2.9
11097-69-1	PCB-1254	390U	390	4.0
11096-82-5	PCB-1260	390U	390	3.3

Surrogates:	*% Recovery*	*Control Limits*
Decachlorobiphenyl	*94*	*45-135*
Tetrachloro-m-xylene	*88*	*56-123*

*See Statement of Data Qualifications

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**W 13+50 (12-24)**	Sampled:	11/01/12 12:00
Lab Sample ID:	**1211063-16**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: DLV
Dilution Factor:	1	Analyzed:	11/08/12 By: DLV
QC Batch:	1213661	Analytical Batch:	2K08014

Volatile Organic Compounds by EPA Method 8260B

CAS Number	Analyte	Analytical Result	RL	MDL
67-64-1	Acetone	880U	880	64
107-02-8	Acrolein	290U	290	46
71-43-2	Benzene	59U	59	8.4
108-86-1	Bromobenzene	59U	59	8.6
74-97-5	Bromochloromethane	59U	59	17
75-27-4	Bromodichloromethane	59U	59	7.9
75-25-2	Bromoform	59U	59	15
*74-83-9	Bromomethane	59U	59	25
104-51-8	n-Butylbenzene	59U	59	11
135-98-8	sec-Butylbenzene	59U	59	12
98-06-6	tert-Butylbenzene	59U	59	12
75-15-0	Carbon Disulfide	**40J**	290	14
56-23-5	Carbon Tetrachloride	59U	59	20
108-90-7	Chlorobenzene	59U	59	9.9
75-00-3	Chloroethane	59U	59	21
67-66-3	Chloroform	59U	59	9.9
74-87-3	Chloromethane	59U	59	23
95-49-8	2-Chlorotoluene	59U	59	13
106-43-4	4-Chlorotoluene	59U	59	10
96-12-8	1,2-Dibromo-3-chloropropane	290U	290	30
124-48-1	Dibromochloromethane	59U	59	8.9
106-93-4	1,2-Dibromoethane	59U	59	19
74-95-3	Dibromomethane	59U	59	15
95-50-1	1,2-Dichlorobenzene	59U	59	14
541-73-1	1,3-Dichlorobenzene	59U	59	14
106-46-7	1,4-Dichlorobenzene	59U	59	15
75-71-8	Dichlorodifluoromethane	59U	59	13
75-34-3	1,1-Dichloroethane	59U	59	13
107-06-2	1,2-Dichloroethane	59U	59	12

Continued on next page

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**W 13+50 (12-24)**	Sampled:	11/01/12 12:00
Lab Sample ID:	**1211063-16**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: DLV
Dilution Factor:	1	Analyzed:	11/08/12 By: DLV
QC Batch:	1213661	Analytical Batch:	2K08014

Volatile Organic Compounds by EPA Method 8260B (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
75-35-4	1,1-Dichloroethene	59U	59	12
156-59-2	cis-1,2-Dichloroethene	59U	59	13
156-60-5	trans-1,2-Dichloroethene	59U	59	14
540-59-0	1,2-Dichloroethene (Total)	120U	120	27
78-87-5	1,2-Dichloropropane	59U	59	16
142-28-9	1,3-Dichloropropane	59U	59	14
594-20-7	2,2-Dichloropropane	59U	59	28
563-58-6	1,1-Dichloropropene	59U	59	14
10061-01-5	cis-1,3-Dichloropropene	59U	59	11
10061-02-6	trans-1,3-Dichloropropene	59U	59	11
100-41-4	Ethylbenzene	59U	59	12
87-68-3	Hexachlorobutadiene	59U	59	8.5
591-78-6	2-Hexanone	2900U	2900	29
98-82-8	Isopropylbenzene	59U	59	13
99-87-6	4-Isopropyltoluene	59U	59	10
1634-04-4	Methyl tert-Butyl Ether	59U	59	11
75-09-2	Methylene Chloride	290U	290	32
78-93-3	2-Butanone (MEK)	2900U	2900	75
108-10-1	4-Methyl-2-pentanone (MIBK)	2900U	2900	23
91-20-3	Naphthalene	290U	290	17
103-65-1	n-Propylbenzene	59U	59	12
100-42-5	Styrene	59U	59	12
630-20-6	1,1,1,2-Tetrachloroethane	59U	59	8.4
79-34-5	1,1,2,2-Tetrachloroethane	59U	59	15
127-18-4	Tetrachloroethene	59U	59	16
108-88-3	Toluene	59U	59	13
87-61-6	1,2,3-Trichlorobenzene	59U	59	12
120-82-1	1,2,4-Trichlorobenzene	59U	59	8.2
71-55-6	1,1,1-Trichloroethane	59U	59	8.1
79-00-5	1,1,2-Trichloroethane	59U	59	19
79-01-6	Trichloroethene	59U	59	12

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client: CTI and Associates, Inc.
Project: JCI - Fowlerville Sediment Remediation
Client Sample ID: W 13+50 (12-24)
Lab Sample ID: 1211063-16
Matrix: Sediment
Unit: ug/kg dry
Dilution Factor: 1
QC Batch: 1213661

Work Order: 1211063
Description: Laboratory Services
Sampled: 11/01/12 12:00
Sampled By: Mr. Brent Kelley
Received: 11/02/12 19:21
Prepared: 11/7/2012 By: DLV
Analyzed: 11/08/12 By: DLV
Analytical Batch: 2K08014

Volatile Organic Compounds by EPA Method 8260B (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
*75-69-4	Trichlorofluoromethane	17J	59	16
96-18-4	1,2,3-Trichloropropane	59U	59	16
95-63-6	1,2,4-Trimethylbenzene	59U	59	11
108-67-8	1,3,5-Trimethylbenzene	59U	59	9.9
75-01-4	Vinyl Chloride	59U	59	9.9
179601-23-1	Xylene, Meta + Para	120U	120	17
95-47-6	Xylene, Ortho	59U	59	7.1
1330-20-7	Xylene (Total)	180U	180	24

Surrogates:	*% Recovery*	*Control Limits*
Dibromofluoromethane	*100*	*75-123*
1,2-Dichloroethane-d4	*96*	*83-116*
Toluene-d8	*98*	*85-113*
4-Bromofluorobenzene	*97*	*81-117*

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**W 13+50 (12-24)**	Sampled:	11/01/12 12:00
Lab Sample ID:	**1211063-16**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: ALK
Dilution Factor:	5	Analyzed:	11/09/12 By: JLB
QC Batch:	1213584	Analytical Batch:	2K13048

*Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	98U	98	4.7
208-96-8	Acenaphthylene	98U	98	4.8
120-12-7	Anthracene	98U	98	5.0
*92-87-5	Benzidine	3900U	3900	3900
56-55-3	Benzo(a)anthracene	98U	98	8.5
50-32-8	Benzo(a)pyrene	**7.8J**	98	5.0
205-99-2	Benzo(b)fluoranthene	**14J**	98	10
207-08-9	Benzo(k)fluoranthene	98U	98	13
191-24-2	Benzo(g,h,i)perylene	**7.8J**	200	4.8
65-85-0	Benzoic Acid	2000U	2000	190
100-51-6	Benzyl Alcohol	98U	98	7.7
101-55-3	4-Bromophenyl Phenyl Ether	98U	98	5.5
85-68-7	Butyl Benzyl Phthalate	200U	200	9.9
86-74-8	Carbazole	980U	980	52
59-50-7	4-Chloro-3-methylphenol	98U	98	22
*106-47-8	4-Chloroaniline	390U	390	52
111-91-1	Bis(2-chloroethoxy)methane	98U	98	6.6
111-44-4	Bis(2-chloroethyl) Ether	98U	98	4.7
108-60-1	Bis(2-chloroisopropyl) Ether	98U	98	16
91-58-7	2-Chloronaphthalene	98U	98	15
95-57-8	2-Chlorophenol	98U	98	4.7
7005-72-3	4-Chlorophenyl Phenyl Ether	98U	98	4.3
218-01-9	Chrysene	**5.8J**	98	5.0
53-70-3	Dibenz(a,h)anthracene	200U	200	7.5
132-64-9	Dibenzofuran	98U	98	4.8
84-74-2	Di-n-butyl Phthalate	390U	390	83
106-46-7	1,4-Dichlorobenzene	98U	98	5.0
95-50-1	1,2-Dichlorobenzene	98U	98	8.5
541-73-1	1,3-Dichlorobenzene	98U	98	7.5

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client: CTI and Associates, Inc.
Project: JCI - Fowlerville Sediment Remediation
Client Sample ID: W 13+50 (12-24)
Lab Sample ID: 1211063-16
Matrix: Sediment
Unit: ug/kg dry
Dilution Factor: 5
QC Batch: 1213584

Work Order: 1211063
Description: Laboratory Services
Sampled: 11/01/12 12:00
Sampled By: Mr. Brent Kelley
Received: 11/02/12 19:21
Prepared: 11/7/2012 By: ALK
Analyzed: 11/09/12 By: JLB
Analytical Batch: 2K13048

*Semivolatile Organic Compounds by EPA Method 8270C (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
91-94-1	3,3'-Dichlorobenzidine	4900U	4900	190
120-83-2	2,4-Dichlorophenol	200U	200	9.0
84-66-2	Diethyl Phthalate	98U	98	14
105-67-9	2,4-Dimethylphenol	980U	980	180
131-11-3	Dimethyl Phthalate	98U	98	11
534-52-1	4,6-Dinitro-2-methylphenol	980U	980	32
51-28-5	2,4-Dinitrophenol	980U	980	230
606-20-2	2,6-Dinitrotoluene	98U	98	9.2
121-14-2	2,4-Dinitrotoluene	200U	200	29
117-84-0	Di-n-octyl Phthalate	98U	98	6.6
117-81-7	Bis(2-ethylhexyl) Phthalate	200U	200	24
206-44-0	Fluoranthene	**16J**	98	3.3
86-73-7	Fluorene	200U	200	3.6
118-74-1	Hexachlorobenzene	98U	98	5.9
87-68-3	Hexachlorobutadiene	98U	98	4.3
77-47-4	Hexachlorocyclopentadiene	98U	98	16
67-72-1	Hexachloroethane	98U	98	7.8
193-39-5	Indeno(1,2,3-cd)pyrene	200U	200	18
78-59-1	Isophorone	98U	98	6.2
91-57-6	2-Methylnaphthalene	98U	98	7.9
106-44-5	4-Methylphenol	98U	98	12
108-39-4	3+4-Methylphenol	98U	98	12
95-48-7	2-Methylphenol	98U	98	20
91-20-3	Naphthalene	98U	98	3.0
100-01-6	4-Nitroaniline	200U	200	92
88-74-4	2-Nitroaniline	98U	98	35
99-09-2	3-Nitroaniline	200U	200	96
98-95-3	Nitrobenzene	98U	98	8.6
88-75-5	2-Nitrophenol	98U	98	9.0
100-02-7	4-Nitrophenol	3900U	3900	160
86-30-6	N-Nitroso-diphenylamine	98U	98	6.2

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**W 13+50 (12-24)**	Sampled:	11/01/12 12:00
Lab Sample ID:	**1211063-16**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: ALK
Dilution Factor:	5	Analyzed:	11/09/12 By: JLB
QC Batch:	1213584	Analytical Batch:	2K13048

*Semivolatile Organic Compounds by EPA Method 8270C (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
621-64-7	N-Nitroso-di-n-propylamine	98U	98	13
87-86-5	Pentachlorophenol	980U	980	88
85-01-8	Phenanthrene	5.8J	98	4.3
108-95-2	Phenol	980U	980	7.7
129-00-0	Pyrene	14J	98	7.1
110-86-1	Pyridine	190U	190	49
120-82-1	1,2,4-Trichlorobenzene	98U	98	3.3
95-95-4	2,4,5-Trichlorophenol	98U	98	23
88-06-2	2,4,6-Trichlorophenol	98U	98	10

Surrogates:	*% Recovery*	*Control Limits*
2-Fluorophenol	*96*	*33-113*
Phenol-d6	*97*	*30-115*
Nitrobenzene-d5	*90*	*33-131*
2-Fluorobiphenyl	*89*	*46-122*
2,4,6-Tribromophenol	*75*	*12-124*
o-Terphenyl	*94*	*20-155*

*See Statement of Data Qualifications

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**W 13+50 (12-24)**	Sampled:	11/01/12 12:00
Lab Sample ID:	**1211063-16**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Percent Solids:	85		

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Aluminum	**6400**	9.4	1.3	mg/kg dry wt.	1	USEPA-6010C	11/08/12 09:53	KLV	1213605
Arsenic	**5.4**	0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:25	DSC	1213607
Barium	**37**	0.50	0.061	mg/kg dry wt.	5	USEPA-6020A	11/08/12 15:18	DSC	1213607
Cadmium	**0.20**	0.050	0.0033	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:25	DSC	1213607
Chromium	**17**	0.50	0.070	mg/kg dry wt.	5	USEPA-6020A	11/08/12 15:18	DSC	1213607
Copper	**15**	0.50	0.13	mg/kg dry wt.	5	USEPA-6020A	11/08/12 15:18	DSC	1213607
Lead	**7.1**	0.10	0.0066	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:25	DSC	1213607
Mercury	**0.015** J	0.050	0.0061	mg/kg dry wt.	1	USEPA-7471A	11/08/12 12:00	CKD	1213637
Nickel	**16**	0.50	0.080	mg/kg dry wt.	5	USEPA-6020A	11/08/12 15:18	DSC	1213607
Selenium	**0.44**	0.10	0.033	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:25	DSC	1213607
Silver	**0.088**	0.050	0.0039	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:25	DSC	1213607
Zinc	**45**	5.0	1.4	mg/kg dry wt.	5	USEPA-6020A	11/08/12 15:18	DSC	1213607

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**W 13+50 (12-24)**	Sampled:	11/01/12 12:00
Lab Sample ID:	**1211063-16**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result		RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Chromium, Hexavalent	2.2	U	2.2	0.29	mg/kg dry	1	USEPA-7196A	11/11/12 10:21	HLB	1213417
Cyanide, Available	**0.28**		0.047	0.028	mg/kg dry	1	USEPA OIA-1677	11/13/12 13:09	LMA	1214000
Cyanide, Total	**0.030**	J	0.12	0.026	mg/kg dry	1	USEPA-9014	11/09/12 16:42	LMA	1213768
Fractional Organic Carbon	**0.0050**		0.0010	0.0010	g C/g Soil	1	ASTM D 2974-87	11/03/12 16:17	HLB	1213805
Percent Solids	**85**		0.1	0.1	%	1	USEPA-3550C	11/03/12 16:17	HLB	1213578
Carbon, Total Organic	**1.0**		0.10	0.017	%	1	Walkley-Black	11/15/12 13:00	HLB	1214240

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**DUP 01**	Sampled:	11/01/12 00:00
Lab Sample ID:	**1211063-21**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: SMS9
Dilution Factor:	1	Analyzed:	11/09/12 By: MSZ
QC Batch:	1213588	Analytical Batch:	2K12020

*Polychlorinated Biphenyls (PCBs) by EPA Method 8082A

CAS Number	Analyte	Analytical Result	RL	MDL
12674-11-2	PCB-1016	460U	460	2.4
11104-28-2	PCB-1221	460U	460	2.9
11141-16-5	PCB-1232	460U	460	2.9
53469-21-9	PCB-1242	460U	460	9.6
12672-29-6	PCB-1248	**100J**	460	3.5
11097-69-1	PCB-1254	460U	460	4.7
11096-82-5	PCB-1260	**133J**	460	3.9

Surrogates:	*% Recovery*	*Control Limits*
Decachlorobiphenyl	*96*	*45-135*
Tetrachloro-m-xylene	*90*	*56-123*

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**DUP 01**	Sampled:	11/01/12 00:00
Lab Sample ID:	**1211063-21**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/8/2012 By: DLV
Dilution Factor:	1	Analyzed:	11/08/12 By: DLV
QC Batch:	1213727	Analytical Batch:	2K09004

Volatile Organic Compounds by EPA Method 8260B

CAS Number	Analyte	Analytical Result	RL	MDL
67-64-1	Acetone	970U	970	70
*107-02-8	Acrolein	320U	320	51
71-43-2	Benzene	65U	65	9.2
108-86-1	Bromobenzene	65U	65	9.4
74-97-5	Bromochloromethane	65U	65	19
75-27-4	Bromodichloromethane	65U	65	8.7
75-25-2	Bromoform	65U	65	17
*74-83-9	Bromomethane	65U	65	28
104-51-8	n-Butylbenzene	65U	65	12
135-98-8	sec-Butylbenzene	65U	65	13
98-06-6	tert-Butylbenzene	65U	65	13
75-15-0	Carbon Disulfide	27J	320	15
56-23-5	Carbon Tetrachloride	65U	65	22
108-90-7	Chlorobenzene	65U	65	11
75-00-3	Chloroethane	65U	65	23
67-66-3	Chloroform	65U	65	11
74-87-3	Chloromethane	65U	65	25
95-49-8	2-Chlorotoluene	65U	65	14
106-43-4	4-Chlorotoluene	65U	65	11
96-12-8	1,2-Dibromo-3-chloropropane	320U	320	33
124-48-1	Dibromochloromethane	65U	65	9.8
106-93-4	1,2-Dibromoethane	65U	65	21
74-95-3	Dibromomethane	65U	65	17
95-50-1	1,2-Dichlorobenzene	65U	65	15
541-73-1	1,3-Dichlorobenzene	65U	65	15
106-46-7	1,4-Dichlorobenzene	65U	65	16
75-71-8	Dichlorodifluoromethane	65U	65	14
75-34-3	1,1-Dichloroethane	65U	65	14
107-06-2	1,2-Dichloroethane	65U	65	14

Continued on next page

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**DUP 01**	Sampled:	11/01/12 00:00
Lab Sample ID:	**1211063-21**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/8/2012 By: DLV
Dilution Factor:	1	Analyzed:	11/08/12 By: DLV
QC Batch:	1213727	Analytical Batch:	2K09004

Volatile Organic Compounds by EPA Method 8260B (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
75-35-4	1,1-Dichloroethene	65U	65	14
156-59-2	cis-1,2-Dichloroethene	65U	65	15
156-60-5	trans-1,2-Dichloroethene	65U	65	15
540-59-0	1,2-Dichloroethene (Total)	130U	130	30
78-87-5	1,2-Dichloropropane	65U	65	18
142-28-9	1,3-Dichloropropane	65U	65	16
594-20-7	2,2-Dichloropropane	65U	65	31
563-58-6	1,1-Dichloropropene	65U	65	15
10061-01-5	cis-1,3-Dichloropropene	65U	65	12
10061-02-6	trans-1,3-Dichloropropene	65U	65	12
100-41-4	Ethylbenzene	65U	65	13
87-68-3	Hexachlorobutadiene	65U	65	9.3
591-78-6	2-Hexanone	3200U	3200	32
98-82-8	Isopropylbenzene	65U	65	14
99-87-6	4-Isopropyltoluene	65U	65	11
1634-04-4	Methyl tert-Butyl Ether	65U	65	12
75-09-2	Methylene Chloride	320U	320	35
78-93-3	2-Butanone (MEK)	3200U	3200	82
108-10-1	4-Methyl-2-pentanone (MIBK)	3200U	3200	26
91-20-3	Naphthalene	320U	320	18
103-65-1	n-Propylbenzene	65U	65	13
100-42-5	Styrene	65U	65	13
630-20-6	1,1,1,2-Tetrachloroethane	65U	65	9.2
79-34-5	1,1,2,2-Tetrachloroethane	65U	65	16
127-18-4	Tetrachloroethene	65U	65	18
108-88-3	Toluene	65U	65	14
87-61-6	1,2,3-Trichlorobenzene	65U	65	13
120-82-1	1,2,4-Trichlorobenzene	65U	65	9.0
71-55-6	1,1,1-Trichloroethane	65U	65	8.9
79-00-5	1,1,2-Trichloroethane	65U	65	21
79-01-6	Trichloroethene	65U	65	14

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**DUP 01**	Sampled:	11/01/12 00:00
Lab Sample ID:	**1211063-21**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/8/2012 By: DLV
Dilution Factor:	1	Analyzed:	11/08/12 By: DLV
QC Batch:	1213727	Analytical Batch:	2K09004

Volatile Organic Compounds by EPA Method 8260B (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
*75-69-4	Trichlorofluoromethane	65U	65	17
96-18-4	1,2,3-Trichloropropane	65U	65	18
95-63-6	1,2,4-Trimethylbenzene	65U	65	12
108-67-8	1,3,5-Trimethylbenzene	65U	65	11
75-01-4	Vinyl Chloride	65U	65	11
179601-23-1	Xylene, Meta + Para	130U	130	18
95-47-6	Xylene, Ortho	65U	65	7.8
1330-20-7	Xylene (Total)	190U	190	26

Surrogates:	*% Recovery*	*Control Limits*
Dibromofluoromethane	*100*	*75-123*
1,2-Dichloroethane-d4	*98*	*83-116*
Toluene-d8	*98*	*85-113*
4-Bromofluorobenzene	*99*	*81-117*

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**DUP 01**	Sampled:	11/01/12 00:00
Lab Sample ID:	**1211063-21**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: ALK
Dilution Factor:	5	Analyzed:	11/09/12 By: JLB
QC Batch:	1213584	Analytical Batch:	2K13048

*Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	120U	120	5.5
208-96-8	Acenaphthylene	120U	120	5.8
120-12-7	Anthracene	120U	120	6.0
*92-87-5	Benzidine	4700U	4700	4700
56-55-3	Benzo(a)anthracene	**27J**	120	10
50-32-8	Benzo(a)pyrene	**20J**	120	6.0
*205-99-2	Benzo(b)fluoranthene	**29J**	120	12
*207-08-9	Benzo(k)fluoranthene	120U	120	15
191-24-2	Benzo(g,h,i)perylene	**14J**	230	5.8
65-85-0	Benzoic Acid	2300U	2300	230
100-51-6	Benzyl Alcohol	120U	120	9.1
101-55-3	4-Bromophenyl Phenyl Ether	120U	120	6.6
85-68-7	Butyl Benzyl Phthalate	230U	230	12
86-74-8	Carbazole	1200U	1200	62
59-50-7	4-Chloro-3-methylphenol	120U	120	26
*106-47-8	4-Chloroaniline	470U	470	62
111-91-1	Bis(2-chloroethoxy)methane	120U	120	7.8
111-44-4	Bis(2-chloroethyl) Ether	120U	120	5.5
108-60-1	Bis(2-chloroisopropyl) Ether	120U	120	19
91-58-7	2-Chloronaphthalene	120U	120	18
95-57-8	2-Chlorophenol	120U	120	5.5
7005-72-3	4-Chlorophenyl Phenyl Ether	120U	120	5.0
218-01-9	Chrysene	**20J**	120	6.0
53-70-3	Dibenz(a,h)anthracene	230U	230	8.9
132-64-9	Dibenzofuran	120U	120	5.7
84-74-2	Di-n-butyl Phthalate	470U	470	98
106-46-7	1,4-Dichlorobenzene	120U	120	5.9
95-50-1	1,2-Dichlorobenzene	120U	120	10
541-73-1	1,3-Dichlorobenzene	120U	120	8.9

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**DUP 01**	Sampled:	11/01/12 00:00
Lab Sample ID:	**1211063-21**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: ALK
Dilution Factor:	5	Analyzed:	11/09/12 By: JLB
QC Batch:	1213584	Analytical Batch:	2K13048

*Semivolatile Organic Compounds by EPA Method 8270C (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
91-94-1	3,3'-Dichlorobenzidine	5800U	5800	230
120-83-2	2,4-Dichlorophenol	230U	230	11
84-66-2	Diethyl Phthalate	120U	120	17
105-67-9	2,4-Dimethylphenol	1200U	1200	210
131-11-3	Dimethyl Phthalate	120U	120	13
534-52-1	4,6-Dinitro-2-methylphenol	1200U	1200	38
51-28-5	2,4-Dinitrophenol	1200U	1200	270
606-20-2	2,6-Dinitrotoluene	120U	120	11
121-14-2	2,4-Dinitrotoluene	230U	230	35
117-84-0	Di-n-octyl Phthalate	120U	120	7.8
117-81-7	Bis(2-ethylhexyl) Phthalate	230U	230	29
206-44-0	Fluoranthene	48J	120	3.9
86-73-7	Fluorene	230U	230	4.2
118-74-1	Hexachlorobenzene	120U	120	7.0
87-68-3	Hexachlorobutadiene	120U	120	5.0
77-47-4	Hexachlorocyclopentadiene	120U	120	19
67-72-1	Hexachloroethane	120U	120	9.3
193-39-5	Indeno(1,2,3-cd)pyrene	230U	230	21
78-59-1	Isophorone	120U	120	7.3
91-57-6	2-Methylnaphthalene	120U	120	9.4
106-44-5	4-Methylphenol	120U	120	14
108-39-4	3+4-Methylphenol	120U	120	14
95-48-7	2-Methylphenol	120U	120	23
91-20-3	Naphthalene	120U	120	3.6
100-01-6	4-Nitroaniline	230U	230	110
88-74-4	2-Nitroaniline	120U	120	41
99-09-2	3-Nitroaniline	230U	230	110
98-95-3	Nitrobenzene	120U	120	10
88-75-5	2-Nitrophenol	120U	120	11
100-02-7	4-Nitrophenol	4700U	4700	190
86-30-6	N-Nitroso-diphenylamine	120U	120	7.3

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client: CTI and Associates, Inc.
Project: JCI - Fowlerville Sediment Remediation
Client Sample ID: DUP 01
Lab Sample ID: 1211063-21
Matrix: Sediment
Unit: ug/kg dry
Dilution Factor: 5
QC Batch: 1213584

Work Order: 1211063
Description: Laboratory Services
Sampled: 11/01/12 00:00
Sampled By: Mr. Brent Kelley
Received: 11/02/12 19:21
Prepared: 11/7/2012 By: ALK
Analyzed: 11/09/12 By: JLB
Analytical Batch: 2K13048

*Semivolatile Organic Compounds by EPA Method 8270C (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
621-64-7	N-Nitroso-di-n-propylamine	120U	120	15
87-86-5	Pentachlorophenol	1200U	1200	100
85-01-8	Phenanthrene	27J	120	5.0
108-95-2	Phenol	1200U	1200	9.1
129-00-0	Pyrene	50J	120	8.4
110-86-1	Pyridine	230U	230	58
120-82-1	1,2,4-Trichlorobenzene	120U	120	3.9
95-95-4	2,4,5-Trichlorophenol	120U	120	27
88-06-2	2,4,6-Trichlorophenol	120U	120	12

Surrogates:	*% Recovery*	*Control Limits*
2-Fluorophenol	*88*	*33-113*
Phenol-d6	*90*	*30-115*
Nitrobenzene-d5	*82*	*33-131*
2-Fluorobiphenyl	*80*	*46-122*
2,4,6-Tribromophenol	*70*	*12-124*
o-Terphenyl	*81*	*20-155*

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**DUP 01**	Sampled:	11/01/12 00:00
Lab Sample ID:	**1211063-21**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Percent Solids:	72		

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result		RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Aluminum	**2400**		9.2	1.3	mg/kg dry wt.	1	USEPA-6010C	11/08/12 10:00	KLV	1213605
Arsenic	**6.5**		0.094	0.015	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:29	DSC	1213607
Barium	**19**		0.47	0.057	mg/kg dry wt.	5	USEPA-6020A	11/08/12 15:21	DSC	1213607
Cadmium	**0.15**		0.047	0.0031	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:29	DSC	1213607
Chromium	**27**		0.47	0.065	mg/kg dry wt.	5	USEPA-6020A	11/08/12 15:21	DSC	1213607
Copper	**20**		0.47	0.12	mg/kg dry wt.	5	USEPA-6020A	11/08/12 15:21	DSC	1213607
Lead	**6.1**		0.094	0.0062	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:29	DSC	1213607
Mercury	**0.064**		0.046	0.0056	mg/kg dry wt.	1	USEPA-7471A	11/08/12 12:05	CKD	1213637
Nickel	**13**		0.47	0.076	mg/kg dry wt.	5	USEPA-6020A	11/08/12 15:21	DSC	1213607
Selenium	**0.18**		0.094	0.031	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:29	DSC	1213607
Silver	**0.039**	J	0.047	0.0037	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:29	DSC	1213607
Zinc	**41**		4.7	1.3	mg/kg dry wt.	5	USEPA-6020A	11/08/12 15:21	DSC	1213607

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client: CTI and Associates, Inc.
Project: JCI - Fowlerville Sediment Remediation
Client Sample ID: DUP 01
Lab Sample ID: 1211063-21
Matrix: Sediment
Work Order: 1211063
Description: Laboratory Services
Sampled: 11/01/12 00:00
Sampled By: Mr. Brent Kelley
Received: 11/02/12 19:21

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result		RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Chromium, Hexavalent	2.8	U	2.8	0.38	mg/kg dry	1	USEPA-7196A	11/11/12 10:23	HLB	1213417
Cyanide, Total	0.14	U	0.14	0.031	mg/kg dry	1	USEPA-9014	11/09/12 16:42	LMA	1213768
Fractional Organic Carbon	**0.0150**		0.0010	0.0010	g C/g Soil	1	ASTM D 2974-87	11/03/12 16:17	HLB	1213805
Percent Solids	**72**		0.1	0.1	%	1	USEPA-3550C	11/03/12 16:17	HLB	1213578
Carbon, Total Organic	**1.9**		0.10	0.017	%	1	Walkley-Black	11/15/12 13:00	HLB	1214240

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**Trip Blank TM2640**	Sampled:	11/01/12 00:00
Lab Sample ID:	**1211063-22**	Sampled By:	TML
Matrix:	Methanol	Received:	11/02/12 19:21
Unit:	ug/kg wet	Prepared:	11/8/2012 By: DLV
Dilution Factor:	1	Analyzed:	11/08/12 By: DLV
QC Batch:	1213727	Analytical Batch:	2K09004

Volatile Organic Compounds by EPA Method 8260B

CAS Number	Analyte	Analytical Result	RL	MDL
67-64-1	Acetone	750U	750	54
*107-02-8	Acrolein	250U	250	39
71-43-2	Benzene	50U	50	7.1
108-86-1	Bromobenzene	50U	50	7.3
74-97-5	Bromochloromethane	50U	50	15
75-27-4	Bromodichloromethane	50U	50	6.7
75-25-2	Bromoform	50U	50	13
*74-83-9	Bromomethane	50U	50	21
104-51-8	n-Butylbenzene	50U	50	9.5
135-98-8	sec-Butylbenzene	50U	50	10
98-06-6	tert-Butylbenzene	50U	50	10
75-15-0	Carbon Disulfide	250U	250	12
56-23-5	Carbon Tetrachloride	50U	50	17
108-90-7	Chlorobenzene	50U	50	8.4
75-00-3	Chloroethane	50U	50	18
67-66-3	Chloroform	50U	50	8.4
74-87-3	Chloromethane	50U	50	20
95-49-8	2-Chlorotoluene	50U	50	11
106-43-4	4-Chlorotoluene	50U	50	8.8
96-12-8	1,2-Dibromo-3-chloropropane	250U	250	26
124-48-1	Dibromochloromethane	50U	50	7.6
106-93-4	1,2-Dibromoethane	50U	50	16
74-95-3	Dibromomethane	50U	50	13
95-50-1	1,2-Dichlorobenzene	50U	50	12
541-73-1	1,3-Dichlorobenzene	50U	50	12
106-46-7	1,4-Dichlorobenzene	50U	50	12
75-71-8	Dichlorodifluoromethane	50U	50	11
75-34-3	1,1-Dichloroethane	50U	50	11
107-06-2	1,2-Dichloroethane	50U	50	11
75-35-4	1,1-Dichloroethene	50U	50	10
156-59-2	cis-1,2-Dichloroethene	50U	50	11

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client: CTI and Associates, Inc.
Project: JCI - Fowlerville Sediment Remediation
Client Sample ID: Trip Blank TM2640
Lab Sample ID: 1211063-22
Matrix: Methanol
Unit: ug/kg wet
Dilution Factor: 1
QC Batch: 1213727
Work Order: 1211063
Description: Laboratory Services
Sampled: 11/01/12 00:00
Sampled By: TML
Received: 11/02/12 19:21
Prepared: 11/8/2012 By: DLV
Analyzed: 11/08/12 By: DLV
Analytical Batch: 2K09004

Volatile Organic Compounds by EPA Method 8260B (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
156-60-5	trans-1,2-Dichloroethene	50U	50	12
540-59-0	1,2-Dichloroethene (Total)	100U	100	23
78-87-5	1,2-Dichloropropane	50U	50	14
142-28-9	1,3-Dichloropropane	50U	50	12
594-20-7	2,2-Dichloropropane	50U	50	24
563-58-6	1,1-Dichloropropene	50U	50	12
10061-01-5	cis-1,3-Dichloropropene	50U	50	9.5
10061-02-6	trans-1,3-Dichloropropene	50U	50	9.4
100-41-4	Ethylbenzene	50U	50	10
87-68-3	Hexachlorobutadiene	50U	50	7.2
591-78-6	2-Hexanone	2500U	2500	25
98-82-8	Isopropylbenzene	50U	50	11
99-87-6	4-Isopropyltoluene	50U	50	8.8
1634-04-4	Methyl tert-Butyl Ether	50U	50	9.5
75-09-2	Methylene Chloride	250U	250	27
78-93-3	2-Butanone (MEK)	2500U	2500	63
108-10-1	4-Methyl-2-pentanone (MIBK)	2500U	2500	20
91-20-3	Naphthalene	250U	250	14
103-65-1	n-Propylbenzene	50U	50	9.9
100-42-5	Styrene	50U	50	10
630-20-6	1,1,1,2-Tetrachloroethane	50U	50	7.1
79-34-5	1,1,2,2-Tetrachloroethane	50U	50	13
127-18-4	Tetrachloroethene	50U	50	14
108-88-3	Toluene	50U	50	11
87-61-6	1,2,3-Trichlorobenzene	50U	50	9.8
120-82-1	1,2,4-Trichlorobenzene	50U	50	7.0
71-55-6	1,1,1-Trichloroethane	50U	50	6.9
79-00-5	1,1,2-Trichloroethane	50U	50	16
79-01-6	Trichloroethene	50U	50	11
*75-69-4	Trichlorofluoromethane	50U	50	13
96-18-4	1,2,3-Trichloropropane	50U	50	14

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**Trip Blank TM2640**	Sampled:	11/01/12 00:00
Lab Sample ID:	**1211063-22**	Sampled By:	TML
Matrix:	Methanol	Received:	11/02/12 19:21
Unit:	ug/kg wet	Prepared:	11/8/2012 By: DLV
Dilution Factor:	1	Analyzed:	11/08/12 By: DLV
QC Batch:	1213727	Analytical Batch:	2K09004

Volatile Organic Compounds by EPA Method 8260B (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
95-63-6	1,2,4-Trimethylbenzene	50U	50	9.0
108-67-8	1,3,5-Trimethylbenzene	50U	50	8.4
75-01-4	Vinyl Chloride	50U	50	8.4
179601-23-1	Xylene, Meta + Para	100U	100	14
95-47-6	Xylene, Ortho	50U	50	6.0
1330-20-7	Xylene (Total)	150U	150	20

Surrogates:	% Recovery	Control Limits
Dibromofluoromethane	*100*	*75-123*
1,2-Dichloroethane-d4	*97*	*83-116*
Toluene-d8	*98*	*85-113*
4-Bromofluorobenzene	*98*	*81-117*

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**DUP 02**	Sampled:	11/01/12 00:00
Lab Sample ID:	**1211063-23**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: SMS9
Dilution Factor:	1	Analyzed:	11/09/12 By: MSZ
QC Batch:	1213588	Analytical Batch:	2K12020

*Polychlorinated Biphenyls (PCBs) by EPA Method 8082A

CAS Number	Analyte	Analytical Result	RL	MDL
12674-11-2	PCB-1016	430U	430	2.2
11104-28-2	PCB-1221	430U	430	2.7
11141-16-5	PCB-1232	430U	430	2.7
53469-21-9	PCB-1242	430U	430	9.0
12672-29-6	PCB-1248	430U	430	3.3
11097-69-1	PCB-1254	430U	430	4.4
11096-82-5	PCB-1260	430U	430	3.7

Surrogates:	% Recovery	Control Limits
Decachlorobiphenyl	*93*	*45-135*
Tetrachloro-m-xylene	*88*	*56-123*

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**DUP 02**	Sampled:	11/01/12 00:00
Lab Sample ID:	**1211063-23**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/8/2012 By: DLV
Dilution Factor:	1	Analyzed:	11/08/12 By: DLV
QC Batch:	1213727	Analytical Batch:	2K09004

Volatile Organic Compounds by EPA Method 8260B

CAS Number	Analyte	Analytical Result	RL	MDL
67-64-1	Acetone	980U	980	71
*107-02-8	Acrolein	330U	330	51
71-43-2	Benzene	65U	65	9.3
108-86-1	Bromobenzene	65U	65	9.5
74-97-5	Bromochloromethane	65U	65	19
75-27-4	Bromodichloromethane	65U	65	8.7
75-25-2	Bromoform	65U	65	17
*74-83-9	Bromomethane	65U	65	28
104-51-8	n-Butylbenzene	65U	65	12
135-98-8	sec-Butylbenzene	65U	65	13
98-06-6	tert-Butylbenzene	65U	65	13
75-15-0	Carbon Disulfide	**25J**	330	15
56-23-5	Carbon Tetrachloride	65U	65	22
108-90-7	Chlorobenzene	65U	65	11
75-00-3	Chloroethane	65U	65	23
67-66-3	Chloroform	65U	65	11
74-87-3	Chloromethane	65U	65	25
95-49-8	2-Chlorotoluene	65U	65	14
106-43-4	4-Chlorotoluene	65U	65	11
96-12-8	1,2-Dibromo-3-chloropropane	330U	330	34
124-48-1	Dibromochloromethane	65U	65	9.9
106-93-4	1,2-Dibromoethane	65U	65	21
74-95-3	Dibromomethane	65U	65	17
95-50-1	1,2-Dichlorobenzene	65U	65	15
541-73-1	1,3-Dichlorobenzene	65U	65	16
106-46-7	1,4-Dichlorobenzene	65U	65	16
75-71-8	Dichlorodifluoromethane	65U	65	14
75-34-3	1,1-Dichloroethane	65U	65	14
107-06-2	1,2-Dichloroethane	65U	65	14

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**DUP 02**	Sampled:	11/01/12 00:00
Lab Sample ID:	**1211063-23**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/8/2012 By: DLV
Dilution Factor:	1	Analyzed:	11/08/12 By: DLV
QC Batch:	1213727	Analytical Batch:	2K09004

Volatile Organic Compounds by EPA Method 8260B (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
75-35-4	1,1-Dichloroethene	65U	65	14
156-59-2	cis-1,2-Dichloroethene	65U	65	15
156-60-5	trans-1,2-Dichloroethene	65U	65	15
540-59-0	1,2-Dichloroethene (Total)	130U	130	30
78-87-5	1,2-Dichloropropane	65U	65	18
142-28-9	1,3-Dichloropropane	65U	65	16
594-20-7	2,2-Dichloropropane	65U	65	31
563-58-6	1,1-Dichloropropene	65U	65	16
10061-01-5	cis-1,3-Dichloropropene	65U	65	12
10061-02-6	trans-1,3-Dichloropropene	65U	65	12
100-41-4	Ethylbenzene	65U	65	13
87-68-3	Hexachlorobutadiene	65U	65	9.4
591-78-6	2-Hexanone	3300U	3300	32
98-82-8	Isopropylbenzene	65U	65	14
99-87-6	4-Isopropyltoluene	65U	65	11
1634-04-4	Methyl tert-Butyl Ether	65U	65	12
75-09-2	Methylene Chloride	330U	330	35
78-93-3	2-Butanone (MEK)	3300U	3300	83
108-10-1	4-Methyl-2-pentanone (MIBK)	3300U	3300	26
91-20-3	Naphthalene	330U	330	18
103-65-1	n-Propylbenzene	65U	65	13
100-42-5	Styrene	65U	65	13
630-20-6	1,1,1,2-Tetrachloroethane	65U	65	9.3
79-34-5	1,1,2,2-Tetrachloroethane	65U	65	17
127-18-4	Tetrachloroethene	65U	65	18
108-88-3	Toluene	65U	65	14
87-61-6	1,2,3-Trichlorobenzene	65U	65	13
120-82-1	1,2,4-Trichlorobenzene	65U	65	9.1
71-55-6	1,1,1-Trichloroethane	65U	65	9.0
79-00-5	1,1,2-Trichloroethane	65U	65	21
79-01-6	Trichloroethene	65U	65	14

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**DUP 02**	Sampled:	11/01/12 00:00
Lab Sample ID:	**1211063-23**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/8/2012 By: DLV
Dilution Factor:	1	Analyzed:	11/08/12 By: DLV
QC Batch:	1213727	Analytical Batch:	2K09004

Volatile Organic Compounds by EPA Method 8260B (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
*75-69-4	Trichlorofluoromethane	21J	65	17
96-18-4	1,2,3-Trichloropropane	65U	65	18
95-63-6	1,2,4-Trimethylbenzene	65U	65	12
108-67-8	1,3,5-Trimethylbenzene	65U	65	11
75-01-4	Vinyl Chloride	65U	65	11
179601-23-1	Xylene, Meta + Para	130U	130	18
95-47-6	Xylene, Ortho	65U	65	7.8
1330-20-7	Xylene (Total)	200U	200	26

Surrogates:	*% Recovery*	*Control Limits*
Dibromofluoromethane	*100*	*75-123*
1,2-Dichloroethane-d4	*99*	*83-116*
Toluene-d8	*98*	*85-113*
4-Bromofluorobenzene	*97*	*81-117*

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**DUP 02**	Sampled:	11/01/12 00:00
Lab Sample ID:	**1211063-23**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: ALK
Dilution Factor:	5	Analyzed:	11/09/12 By: JLB
QC Batch:	1213584	Analytical Batch:	2K13048

*Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	110U	110	5.2
208-96-8	Acenaphthylene	110U	110	5.4
120-12-7	Anthracene	110U	110	5.6
*92-87-5	Benzidine	4400U	4400	4400
56-55-3	Benzo(a)anthracene	24J	110	9.4
50-32-8	Benzo(a)pyrene	15J	110	5.6
*205-99-2	Benzo(b)fluoranthene	19J	110	11
*207-08-9	Benzo(k)fluoranthene	110U	110	14
191-24-2	Benzo(g,h,i)perylene	11J	220	5.4
65-85-0	Benzoic Acid	2200U	2200	210
100-51-6	Benzyl Alcohol	110U	110	8.6
101-55-3	4-Bromophenyl Phenyl Ether	110U	110	6.2
85-68-7	Butyl Benzyl Phthalate	220U	220	11
86-74-8	Carbazole	1100U	1100	58
59-50-7	4-Chloro-3-methylphenol	110U	110	24
*106-47-8	4-Chloroaniline	440U	440	58
111-91-1	Bis(2-chloroethoxy)methane	110U	110	7.3
111-44-4	Bis(2-chloroethyl) Ether	110U	110	5.2
108-60-1	Bis(2-chloroisopropyl) Ether	110U	110	18
91-58-7	2-Chloronaphthalene	110U	110	17
95-57-8	2-Chlorophenol	110U	110	5.2
7005-72-3	4-Chlorophenyl Phenyl Ether	110U	110	4.7
218-01-9	Chrysene	17J	110	5.6
53-70-3	Dibenz(a,h)anthracene	220U	220	8.3
132-64-9	Dibenzofuran	110U	110	5.4
84-74-2	Di-n-butyl Phthalate	440U	440	92
106-46-7	1,4-Dichlorobenzene	110U	110	5.5
95-50-1	1,2-Dichlorobenzene	110U	110	9.4
541-73-1	1,3-Dichlorobenzene	110U	110	8.3

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**DUP 02**	Sampled:	11/01/12 00:00
Lab Sample ID:	**1211063-23**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: ALK
Dilution Factor:	5	Analyzed:	11/09/12 By: JLB
QC Batch:	1213584	Analytical Batch:	2K13048

*Semivolatile Organic Compounds by EPA Method 8270C (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
91-94-1	3,3'-Dichlorobenzidine	5400U	5400	210
120-83-2	2,4-Dichlorophenol	220U	220	10
84-66-2	Diethyl Phthalate	110U	110	16
105-67-9	2,4-Dimethylphenol	1100U	1100	190
131-11-3	Dimethyl Phthalate	110U	110	12
534-52-1	4,6-Dinitro-2-methylphenol	1100U	1100	36
51-28-5	2,4-Dinitrophenol	1100U	1100	250
606-20-2	2,6-Dinitrotoluene	110U	110	10
121-14-2	2,4-Dinitrotoluene	220U	220	32
117-84-0	Di-n-octyl Phthalate	110U	110	7.3
117-81-7	Bis(2-ethylhexyl) Phthalate	220U	220	27
206-44-0	Fluoranthene	43J	110	3.7
86-73-7	Fluorene	220U	220	3.9
118-74-1	Hexachlorobenzene	110U	110	6.5
87-68-3	Hexachlorobutadiene	110U	110	4.7
77-47-4	Hexachlorocyclopentadiene	110U	110	18
67-72-1	Hexachloroethane	110U	110	8.7
*193-39-5	Indeno(1,2,3-cd)pyrene	220U	220	20
78-59-1	Isophorone	110U	110	6.9
91-57-6	2-Methylnaphthalene	110U	110	8.8
106-44-5	4-Methylphenol	110U	110	13
108-39-4	3+4-Methylphenol	110U	110	13
95-48-7	2-Methylphenol	110U	110	22
91-20-3	Naphthalene	110U	110	3.3
100-01-6	4-Nitroaniline	220U	220	100
88-74-4	2-Nitroaniline	110U	110	38
99-09-2	3-Nitroaniline	220U	220	110
98-95-3	Nitrobenzene	110U	110	9.5
88-75-5	2-Nitrophenol	110U	110	10
100-02-7	4-Nitrophenol	4400U	4400	170
86-30-6	N-Nitroso-diphenylamine	110U	110	6.9

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**DUP 02**	Sampled:	11/01/12 00:00
Lab Sample ID:	**1211063-23**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Unit:	ug/kg dry	Prepared:	11/7/2012 By: ALK
Dilution Factor:	5	Analyzed:	11/09/12 By: JLB
QC Batch:	1213584	Analytical Batch:	2K13048

*Semivolatile Organic Compounds by EPA Method 8270C (Continued)

CAS Number	Analyte	Analytical Result	RL	MDL
621-64-7	N-Nitroso-di-n-propylamine	110U	110	14
87-86-5	Pentachlorophenol	1100U	1100	97
85-01-8	Phenanthrene	15J	110	4.7
108-95-2	Phenol	1100U	1100	8.6
129-00-0	Pyrene	37J	110	7.9
110-86-1	Pyridine	220U	220	54
120-82-1	1,2,4-Trichlorobenzene	110U	110	3.6
95-95-4	2,4,5-Trichlorophenol	110U	110	26
88-06-2	2,4,6-Trichlorophenol	110U	110	11

Surrogates:	*% Recovery*	*Control Limits*
2-Fluorophenol	*84*	*33-113*
Phenol-d6	*86*	*30-115*
Nitrobenzene-d5	*84*	*33-131*
2-Fluorobiphenyl	*82*	*46-122*
2,4,6-Tribromophenol	*71*	*12-124*
o-Terphenyl	*85*	*20-155*

*See Statement of Data Qualifications

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**DUP 02**	Sampled:	11/01/12 00:00
Lab Sample ID:	**1211063-23**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21
Percent Solids:	77		

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result		RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Aluminum	**2000**		10	1.4	mg/kg dry wt.	1	USEPA-6010C	11/08/12 10:06	KLV	1213605
Arsenic	**3.3**		0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:32	DSC	1213607
Barium	**13**		0.50	0.061	mg/kg dry wt.	5	USEPA-6020A	11/08/12 15:24	DSC	1213607
Cadmium	**0.055**		0.050	0.0033	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:32	DSC	1213607
Chromium	**5.9**		0.10	0.014	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:32	DSC	1213607
Copper	**4.1**		0.10	0.025	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:32	DSC	1213607
Lead	**2.5**		0.10	0.0066	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:32	DSC	1213607
Mercury	**0.0066**	J	0.050	0.0061	mg/kg dry wt.	1	USEPA-7471A	11/08/12 12:10	CKD	1213637
Nickel	**5.1**		0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:32	DSC	1213607
Selenium	**0.084**	J	0.10	0.033	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:32	DSC	1213607
Silver	**0.027**	J	0.050	0.0039	mg/kg dry wt.	1	USEPA-6020A	11/08/12 11:32	DSC	1213607
Zinc	**15**		5.0	1.4	mg/kg dry wt.	5	USEPA-6020A	11/08/12 15:24	DSC	1213607

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TRIMATRIX LABORATORIES

ANALYTICAL REPORT

Client:	**CTI and Associates, Inc.**	Work Order:	**1211063**
Project:	JCI - Fowlerville Sediment Remediation	Description:	Laboratory Services
Client Sample ID:	**DUP 02**	Sampled:	11/01/12 00:00
Lab Sample ID:	**1211063-23**	Sampled By:	Mr. Brent Kelley
Matrix:	Sediment	Received:	11/02/12 19:21

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result		RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Chromium, Hexavalent	2.4	U	2.4	0.33	mg/kg dry	1	USEPA-7196A	11/11/12 10:24	HLB	1213417
Cyanide, Available	**0.26**		0.052	0.031	mg/kg dry	1	USEPA OIA-1677	11/13/12 13:11	LMA	1214000
Cyanide, Total	**0.035**	J	0.13	0.029	mg/kg dry	1	USEPA-9014	11/09/12 16:45	LMA	1213768
Fractional Organic Carbon	**0.0074**		0.0010	0.0010	g C/g Soil	1	ASTM D 2974-87	11/03/12 16:17	HLB	1213805
Percent Solids	**77**		0.1	0.1	%	1	USEPA-3550C	11/03/12 16:17	HLB	1213578
Carbon, Total Organic	**0.48**		0.10	0.017	%	1	Walkley-Black	11/15/12 13:00	HLB	1214240

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Polychlorinated Biphenyls (PCBs) by EPA Method 8082A

Analyte	Sample Conc.	Spike Qty.	Result	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL
QC Batch: 1213588 3550C Sonication Extraction/USEPA-8082A									
Method Blank					Analyzed:		11/09/2012	By: MSZ	
Unit: ug/kg wet					Analytical Batch:		2K12020		
PCB-1016			330 U					330	1.7
PCB-1221			330 U					330	2.1
PCB-1232			330 U					330	2.1
PCB-1242			330 U					330	6.9
PCB-1248			330 U					330	2.5
PCB-1254			330 U					330	3.4
PCB-1260			330 U					330	2.8
Surrogates:									
Decachlorobiphenyl				*100*	*45-135*				
Tetrachloro-m-xylene				*92*	*56-123*				
Laboratory Control Sample					Analyzed:		11/09/2012	By: MSZ	
Unit: ug/kg wet					Analytical Batch:		2K12020		
PCB-1248	173		**170 J**	98	55-139	--	30	330	2.5
Surrogates:									
Decachlorobiphenyl				*105*	*45-135*				
Tetrachloro-m-xylene				*96*	*56-123*				
Laboratory Control Sample Duplicate					Analyzed:		11/09/2012	By: MSZ	
Unit: ug/kg wet					Analytical Batch:		2K12020		
PCB-1248	172		**161 J**	93	55-139	6	30	330	2.5
Surrogates:									
Decachlorobiphenyl				*96*	*45-135*				
Tetrachloro-m-xylene				*93*	*56-123*				

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TRIMATRIX LABORATORIES

QUALITY CONTROL REPORT

Volatile Organic Compounds by EPA Method 8260B

Analyte	Sample Conc.	Spike Qty.	Result	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL
QC Batch: 1213661 5035A High Concentration (MeOH) - MS/USEPA-8260B									
Method Blank					Analyzed:		11/07/2012	By: DLV	
Unit: ug/kg wet					Analytical Batch:		2K08014		
Acetone			750 U					750	54
Acrolein			250 U					250	39
Benzene			50 U					50	7.1
Bromobenzene			50 U					50	7.3
Bromochloromethane			50 U					50	15
Bromodichloromethane			50 U					50	6.7
Bromoform			50 U					50	13
Bromomethane			50 U					50	21
n-Butylbenzene			50 U			--		50	9.5
sec-Butylbenzene			50 U			--		50	10
tert-Butylbenzene			50 U					50	10
Carbon Disulfide			250 U			--		250	12
Carbon Tetrachloride			50 U					50	17
Chlorobenzene			50 U					50	8.4
Chloroethane			50 U					50	18
Chloroform			50 U					50	8.4
Chloromethane			50 U					50	20
2-Chlorotoluene			50 U					50	11
4-Chlorotoluene			50 U					50	8.8
1,2-Dibromo-3-chloropropane			250 U					250	26
Dibromochloromethane			50 U					50	7.6
1,2-Dibromoethane			50 U					50	16
Dibromomethane			50 U					50	13
1,2-Dichlorobenzene			50 U					50	12
1,3-Dichlorobenzene			50 U					50	12
1,4-Dichlorobenzene			50 U					50	12
Dichlorodifluoromethane			50 U					50	11
1,1-Dichloroethane			50 U					50	11
1,2-Dichloroethane			50 U					50	11
1,1-Dichloroethene			50 U					50	10
cis-1,2-Dichloroethene			50 U					50	11
trans-1,2-Dichloroethene			50 U					50	12
1,2-Dichloroethene (Total)			100 U					100	23
1,2-Dichloropropane			50 U					50	14
1,3-Dichloropropane			50 U					50	12
2,2-Dichloropropane			50 U					50	24

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Volatile Organic Compounds by EPA Method 8260B (Continued)

Analyte	Sample Conc.	Spike Qty.	Result	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL
QC Batch: 1213661 (Continued) 5035A High Concentration (MeOH) - MS/USEPA-8260B									
Method Blank (Continued)					Analyzed:	11/07/2012	By: DLV		
Unit: ug/kg wet					Analytical Batch:	2K08014			
1,1-Dichloropropene			50 U					50	12
cis-1,3-Dichloropropene			50 U					50	9.5
trans-1,3-Dichloropropene			50 U					50	9.4
Ethylbenzene			50 U					50	10
Hexachlorobutadiene			**46 J**			--		50	7.2
2-Hexanone			2500 U					2500	25
Isopropylbenzene			50 U					50	11
4-Isopropyltoluene			50 U			--		50	8.8
Methyl tert-Butyl Ether			50 U					50	9.5
Methylene Chloride			250 U					250	27
2-Butanone (MEK)			2500 U			--		2500	63
4-Methyl-2-pentanone (MIBK)			2500 U					2500	20
Naphthalene			250 U					250	14
n-Propylbenzene			50 U					50	9.9
Styrene			50 U					50	10
1,1,1,2-Tetrachloroethane			50 U					50	7.1
1,1,2,2-Tetrachloroethane			50 U					50	13
Tetrachloroethene			50 U					50	14
Toluene			50 U					50	11
1,2,3-Trichlorobenzene			**16 J**			--		50	9.8
1,2,4-Trichlorobenzene			**12 J**			--		50	7.0
1,1,1-Trichloroethane			50 U					50	6.9
1,1,2-Trichloroethane			50 U					50	16
Trichloroethene			50 U					50	11
Trichlorofluoromethane			50 U					50	13
1,2,3-Trichloropropane			50 U					50	14
1,2,4-Trimethylbenzene			50 U			--		50	9.0
1,3,5-Trimethylbenzene			50 U					50	8.4
Vinyl Chloride			50 U					50	8.4
Xylene, Meta + Para			100 U					100	14
Xylene, Ortho			50 U					50	6.0
Xylene (Total)			150 U					150	20
Method Blank					Analyzed:	11/07/2012	By: DLV		
Unit: ug/L					Analytical Batch:	2K08014			
Surrogates:									
Dibromofluoromethane				*101*	*75-123*				

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TRIMATRIX LABORATORIES

QUALITY CONTROL REPORT

Volatile Organic Compounds by EPA Method 8260B (Continued)

Analyte	Sample Conc.	Spike Qty.	Result	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL
QC Batch: 1213661 (Continued) 5035A High Concentration (MeOH) - MS/USEPA-8260B									
Method Blank (Continued)					Analyzed:	11/07/2012	By: DLV		
Unit: ug/L					Analytical Batch:	2K08014			
Surrogates (Continued):									
1,2-Dichloroethane-d4				*98*	*83-116*				
Toluene-d8				*98*	*85-113*				
4-Bromofluorobenzene				*98*	*81-117*				
Laboratory Control Sample					Analyzed:	11/07/2012	By: DLV		
Unit: ug/kg wet					Analytical Batch:	2K08014			
Acetone	2000		**1820**	91	64-130	--	20	750	54
Acrolein	2000		**1710**	85	50-126	--	20	250	39
Benzene	2000		**1990**	99	85-118	--	20	50	7.1
Bromobenzene	2000		**1950**	97	89-116	--	20	50	7.3
Bromochloromethane	2000		**1910**	95	81-121	--	20	50	15
Bromodichloromethane	2000		**1930**	96	80-123	--	20	50	6.7
Bromoform	2000		**1990**	100	58-128	--	20	50	13
Bromomethane	2000		**2410**	121	57-139	--	20	50	21
n-Butylbenzene	2000		**2100**	105	75-125	--	20	50	9.5
sec-Butylbenzene	2000		**2120**	106	84-121	--	20	50	10
tert-Butylbenzene	2000		**2130**	106	86-121	--	20	50	10
Carbon Disulfide	2000		**2210**	111	65-138	--	20	250	12
Carbon Tetrachloride	2000		**2000**	100	76-125	--	20	50	17
Chlorobenzene	2000		**1970**	98	86-114	--	20	50	8.4
Chloroethane	2000		**2180**	109	76-123	--	20	50	18
Chloroform	2000		**1950**	98	86-118	--	20	50	8.4
Chloromethane	2000		**2120**	106	73-123	--	20	50	20
2-Chlorotoluene	2000		**2000**	100	88-119	--	20	50	11
4-Chlorotoluene	2000		**2010**	101	84-119	--	20	50	8.8
1,2-Dibromo-3-chloropropane	2000		**1940**	97	51-132	--	20	250	26
Dibromochloromethane	2000		**1960**	98	72-119	--	20	50	7.6
1,2-Dibromoethane	2000		**1980**	99	81-118	--	20	50	16
Dibromomethane	2000		**1910**	95	83-117	--	20	50	13
1,2-Dichlorobenzene	2000		**2030**	102	82-124	--	20	50	12
1,3-Dichlorobenzene	2000		**2040**	102	85-119	--	20	50	12
1,4-Dichlorobenzene	2000		**1930**	96	85-119	--	20	50	12
Dichlorodifluoromethane	2000		**2200**	110	68-135	--	20	50	11
1,1-Dichloroethane	2000		**1950**	97	81-121	--	20	50	11
1,2-Dichloroethane	2000		**1920**	96	82-119	--	20	50	11

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Volatile Organic Compounds by EPA Method 8260B (Continued)

Analyte	Sample Conc.	Spike Qty.	Result	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL
QC Batch: 1213661 (Continued) 5035A High Concentration (MeOH) - MS/USEPA-8260B									
Laboratory Control Sample (Continued)					Analyzed:		11/07/2012	By: DLV	
Unit: ug/kg wet					Analytical Batch:		2K08014		
1,1-Dichloroethene		2000	**2000**	100	80-121	--	20	50	10
cis-1,2-Dichloroethene		2000	**1980**	99	85-118	--	20	50	11
trans-1,2-Dichloroethene		2000	**2050**	103	85-117	--	20	50	12
1,2-Dichloroethene (Total)		4000	**4040**	101	86-116	--	20	100	23
1,2-Dichloropropane		2000	**1950**	97	80-122	--	20	50	14
1,3-Dichloropropane		2000	**1960**	98	84-114	--	20	50	12
2,2-Dichloropropane		2000	**1630**	82	56-132	--	20	50	24
1,1-Dichloropropene		2000	**2000**	100	86-119	--	20	50	12
cis-1,3-Dichloropropene		2000	**1980**	99	79-121	--	20	50	9.5
trans-1,3-Dichloropropene		2000	**1950**	98	73-125	--	20	50	9.4
Ethylbenzene		2000	**2050**	102	84-116	--	20	50	10
Hexachlorobutadiene		2000	**2100**	105	60-135	--	20	50	7.2
2-Hexanone		2000	**2090 J**	104	63-131	--	20	2500	25
Isopropylbenzene		2000	**2090**	105	82-125	--	20	50	11
4-Isopropyltoluene		2000	**2050**	102	82-122	--	20	50	8.8
Methyl tert-Butyl Ether		2000	**1840**	92	81-119	--	20	50	9.5
Methylene Chloride		2000	**1970**	98	78-123	--	20	250	27
2-Butanone (MEK)		2000	**1910 J**	95	68-130	--	20	2500	63
4-Methyl-2-pentanone (MIBK)		2000	**2050 J**	103	68-133	--	20	2500	20
Naphthalene		2000	**1840**	92	53-133	--	20	250	14
n-Propylbenzene		2000	**2080**	104	85-121	--	20	50	9.9
Styrene		2000	**2130**	106	79-115	--	20	50	10
1,1,1,2-Tetrachloroethane		2000	**1980**	99	83-116	--	20	50	7.1
1,1,2,2-Tetrachloroethane		2000	**1880**	94	75-125	--	20	50	13
Tetrachloroethene		2000	**2000**	100	85-116	--	20	50	14
Toluene		2000	**2000**	100	86-120	--	20	50	11
1,2,3-Trichlorobenzene		2000	**2010**	100	66-129	--	20	50	9.8
1,2,4-Trichlorobenzene		2000	**2040**	102	66-133	--	20	50	7.0
1,1,1-Trichloroethane		2000	**1980**	99	84-121	--	20	50	6.9
1,1,2-Trichloroethane		2000	**1930**	96	85-120	--	20	50	16
Trichloroethene		2000	**2000**	100	83-125	--	20	50	11
Trichlorofluoromethane		2000	**3770**	189	82-123	--	20	50	13
1,2,3-Trichloropropane		2000	**1910**	96	73-125	--	20	50	14
1,2,4-Trimethylbenzene		2000	**2100**	105	85-118	--	20	50	9.0
1,3,5-Trimethylbenzene		2000	**2080**	104	85-119	--	20	50	8.4
Vinyl Chloride		2000	**2040**	102	77-124	--	20	50	8.4

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TRIMATRIX LABORATORIES

QUALITY CONTROL REPORT

Volatile Organic Compounds by EPA Method 8260B (Continued)

Analyte	Sample Conc.	Spike Qty.	Result	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL
QC Batch: 1213661 (Continued) 5035A High Concentration (MeOH) - MS/USEPA-8260B									
Laboratory Control Sample (Continued)					Analyzed:		11/07/2012	By: DLV	
Unit: ug/kg wet					Analytical Batch:		2K08014		
Xylene, Meta + Para		4000	**4080**	102	84-118	--	20	100	14
Xylene, Ortho		2000	**2140**	107	85-115	--	20	50	6.0
Xylene (Total)		6000	**6220**	104	84-117	--	20	150	20
Laboratory Control Sample					Analyzed:		11/07/2012	By: DLV	
Unit: ug/L					Analytical Batch:		2K08014		
Surrogates:									
Dibromofluoromethane			*100*		*75-123*				
1,2-Dichloroethane-d4			*96*		*83-116*				
Toluene-d8			*100*		*85-113*				
4-Bromofluorobenzene			*99*		*81-117*				
QC Batch: 1213727 5035A High Concentration (MeOH) - MS/USEPA-8260B									
Method Blank					Analyzed:		11/08/2012	By: DLV	
Unit: ug/kg wet					Analytical Batch:		2K09004		
Acetone			750 U					750	54
Acrolein			250 U					250	39
Benzene			50 U					50	7.1
Bromobenzene			50 U					50	7.3
Bromochloromethane			50 U					50	15
Bromodichloromethane			50 U					50	6.7
Bromoform			50 U					50	13
Bromomethane			50 U					50	21
n-Butylbenzene			50 U			--		50	9.5
sec-Butylbenzene			50 U			--		50	10
tert-Butylbenzene			50 U					50	10
Carbon Disulfide			250 U			--		250	12
Carbon Tetrachloride			50 U					50	17
Chlorobenzene			50 U					50	8.4
Chloroethane			50 U					50	18
Chloroform			50 U					50	8.4
Chloromethane			50 U					50	20
2-Chlorotoluene			50 U					50	11
4-Chlorotoluene			50 U					50	8.8
1,2-Dibromo-3-chloropropane			250 U					250	26
Dibromochloromethane			50 U					50	7.6

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Volatile Organic Compounds by EPA Method 8260B (Continued)

Analyte	Sample Conc.	Spike Qty.	Result	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL
QC Batch: 1213727 (Continued) 5035A High Concentration (MeOH) - MS/USEPA-8260B									
Method Blank (Continued)					Analyzed:	11/08/2012	By: DLV		
Unit: ug/kg wet					Analytical Batch:	2K09004			
1,2-Dibromoethane			50 U					50	16
Dibromomethane			50 U					50	13
1,2-Dichlorobenzene			50 U					50	12
1,3-Dichlorobenzene			50 U			--		50	12
1,4-Dichlorobenzene			50 U			--		50	12
Dichlorodifluoromethane			50 U					50	11
1,1-Dichloroethane			50 U					50	11
1,2-Dichloroethane			50 U					50	11
1,1-Dichloroethene			50 U					50	10
cis-1,2-Dichloroethene			50 U					50	11
trans-1,2-Dichloroethene			50 U					50	12
1,2-Dichloroethene (Total)			100 U					100	23
1,2-Dichloropropane			50 U					50	14
1,3-Dichloropropane			50 U					50	12
2,2-Dichloropropane			50 U					50	24
1,1-Dichloropropene			50 U					50	12
cis-1,3-Dichloropropene			50 U					50	9.5
trans-1,3-Dichloropropene			50 U					50	9.4
Ethylbenzene			50 U					50	10
Hexachlorobutadiene			**52**			--		50	7.2
2-Hexanone			2500 U					2500	25
Isopropylbenzene			50 U					50	11
4-Isopropyltoluene			50 U			--		50	8.8
Methyl tert-Butyl Ether			50 U					50	9.5
Methylene Chloride			250 U					250	27
2-Butanone (MEK)			2500 U					2500	63
4-Methyl-2-pentanone (MIBK)			2500 U					2500	20
Naphthalene			250 U					250	14
n-Propylbenzene			50 U					50	9.9
Styrene			50 U					50	10
1,1,1,2-Tetrachloroethane			50 U					50	7.1
1,1,2,2-Tetrachloroethane			50 U					50	13
Tetrachloroethene			50 U					50	14
Toluene			50 U					50	11
1,2,3-Trichlorobenzene			**18 J**			--		50	9.8
1,2,4-Trichlorobenzene			**13 J**			--		50	7.0

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QUALITY CONTROL REPORT

Volatile Organic Compounds by EPA Method 8260B (Continued)

Analyte	Sample Conc.	Spike Qty.	Result	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL
QC Batch: 1213727 (Continued) 5035A High Concentration (MeOH) - MS/USEPA-8260B									
Method Blank (Continued)					Analyzed:	11/08/2012	By: DLV		
Unit: ug/kg wet					Analytical Batch:	2K09004			
1,1,1-Trichloroethane			50 U					50	6.9
1,1,2-Trichloroethane			50 U					50	16
Trichloroethene			50 U					50	11
Trichlorofluoromethane			50 U					50	13
1,2,3-Trichloropropane			50 U					50	14
1,2,4-Trimethylbenzene			50 U			--		50	9.0
1,3,5-Trimethylbenzene			50 U					50	8.4
Vinyl Chloride			50 U					50	8.4
Xylene, Meta + Para			100 U					100	14
Xylene, Ortho			50 U					50	6.0
Xylene (Total)			150 U					150	20
Method Blank					Analyzed:	11/08/2012	By: DLV		
Unit: ug/L					Analytical Batch:	2K09004			
Surrogates:									
Dibromofluoromethane				*100*	*75-123*				
1,2-Dichloroethane-d4				*98*	*83-116*				
Toluene-d8				*98*	*85-113*				
4-Bromofluorobenzene				*98*	*81-117*				
Laboratory Control Sample					Analyzed:	11/08/2012	By: DLV		
Unit: ug/kg wet					Analytical Batch:	2K09004			
Acetone	2000		**1520**	76	64-130	--	20	750	54
Acrolein	2000		**762**	**38**	50-126	--	20	250	39
Benzene	2000		**2000**	100	85-118	--	20	50	7.1
Bromobenzene	2000		**2010**	100	89-116	--	20	50	7.3
Bromochloromethane	2000		**1910**	95	81-121	--	20	50	15
Bromodichloromethane	2000		**1940**	97	80-123	--	20	50	6.7
Bromoform	2000		**1940**	97	58-128	--	20	50	13
Bromomethane	2000		**2360**	118	57-139	--	20	50	21
n-Butylbenzene	2000		**2190**	109	75-125	--	20	50	9.5
sec-Butylbenzene	2000		**2140**	107	84-121	--	20	50	10
tert-Butylbenzene	2000		**2140**	107	86-121	--	20	50	10
Carbon Disulfide	2000		**2260**	113	65-138	--	20	250	12
Carbon Tetrachloride	2000		**1970**	99	76-125	--	20	50	17
Chlorobenzene	2000		**2000**	100	86-114	--	20	50	8.4
Chloroethane	2000		**2430**	122	76-123	--	20	50	18

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Volatile Organic Compounds by EPA Method 8260B (Continued)

Analyte	Sample Conc.	Spike Qty.	Result	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL
QC Batch: 1213727 (Continued) 5035A High Concentration (MeOH) - MS/USEPA-8260B									
Laboratory Control Sample (Continued)					Analyzed:		11/08/2012	By: DLV	
Unit: ug/kg wet					Analytical Batch:		2K09004		
Chloroform		2000	**1930**	97	86-118	--	20	50	8.4
Chloromethane		2000	**1950**	98	73-123	--	20	50	20
2-Chlorotoluene		2000	**2060**	103	88-119	--	20	50	11
4-Chlorotoluene		2000	**2070**	104	84-119	--	20	50	8.8
1,2-Dibromo-3-chloropropane		2000	**1760**	88	51-132	--	20	250	26
Dibromochloromethane		2000	**1960**	98	72-119	--	20	50	7.6
1,2-Dibromoethane		2000	**1970**	98	81-118	--	20	50	16
Dibromomethane		2000	**1880**	94	83-117	--	20	50	13
1,2-Dichlorobenzene		2000	**2020**	101	82-124	--	20	50	12
1,3-Dichlorobenzene		2000	**2060**	103	85-119	--	20	50	12
1,4-Dichlorobenzene		2000	**1960**	98	85-119	--	20	50	12
Dichlorodifluoromethane		2000	**1690**	84	68-135	--	20	50	11
1,1-Dichloroethane		2000	**1940**	97	81-121	--	20	50	11
1,2-Dichloroethane		2000	**1890**	95	82-119	--	20	50	11
1,1-Dichloroethene		2000	**1920**	96	80-121	--	20	50	10
cis-1,2-Dichloroethene		2000	**1980**	99	85-118	--	20	50	11
trans-1,2-Dichloroethene		2000	**1940**	97	85-117	--	20	50	12
1,2-Dichloroethene (Total)		4000	**3910**	98	86-116	--	20	100	23
1,2-Dichloropropane		2000	**1980**	99	80-122	--	20	50	14
1,3-Dichloropropane		2000	**1940**	97	84-114	--	20	50	12
2,2-Dichloropropane		2000	**1900**	95	56-132	--	20	50	24
1,1-Dichloropropene		2000	**1990**	100	86-119	--	20	50	12
cis-1,3-Dichloropropene		2000	**2080**	104	79-121	--	20	50	9.5
trans-1,3-Dichloropropene		2000	**2010**	101	73-125	--	20	50	9.4
Ethylbenzene		2000	**2080**	104	84-116	--	20	50	10
*Hexachlorobutadiene		2000	**2110** B	105	60-135	--	20	50	7.2
2-Hexanone		2000	**1890** J	94	63-131	--	20	2500	25
Isopropylbenzene		2000	**2140**	107	82-125	--	20	50	11
4-Isopropyltoluene		2000	**2090**	104	82-122	--	20	50	8.8
Methyl tert-Butyl Ether		2000	**1830**	92	81-119	--	20	50	9.5
Methylene Chloride		2000	**1940**	97	78-123	--	20	250	27
2-Butanone (MEK)		2000	**1610** J	81	68-130	--	20	2500	63
4-Methyl-2-pentanone (MIBK)		2000	**1890** J	94	68-133	--	20	2500	20
Naphthalene		2000	**1630**	82	53-133	--	20	250	14
n-Propylbenzene		2000	**2120**	106	85-121	--	20	50	9.9
Styrene		2000	**2150**	107	79-115	--	20	50	10

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TRIMATRIX LABORATORIES

QUALITY CONTROL REPORT

Volatile Organic Compounds by EPA Method 8260B (Continued)

Analyte	Sample Conc.	Spike Qty.	Result	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL
QC Batch: 1213727 (Continued) 5035A High Concentration (MeOH) - MS/USEPA-8260B									
Laboratory Control Sample (Continued)					Analyzed:		11/08/2012	By: DLV	
Unit: ug/kg wet					Analytical Batch:		2K09004		
1,1,1,2-Tetrachloroethane		2000	**2010**	101	83-116	--	20	50	7.1
1,1,2,2-Tetrachloroethane		2000	**1830**	92	75-125	--	20	50	13
Tetrachloroethene		2000	**2010**	101	85-116	--	20	50	14
Toluene		2000	**2020**	101	86-120	--	20	50	11
1,2,3-Trichlorobenzene		2000	**1800**	90	66-129	--	20	50	9.8
1,2,4-Trichlorobenzene		2000	**1960**	98	66-133	--	20	50	7.0
1,1,1-Trichloroethane		2000	**1980**	99	84-121	--	20	50	6.9
1,1,2-Trichloroethane		2000	**1930**	96	85-120	--	20	50	16
Trichloroethene		2000	**2000**	100	83-125	--	20	50	11
Trichlorofluoromethane		2000	**3520**	176	82-123	--	20	50	13
1,2,3-Trichloropropane		2000	**1800**	90	73-125	--	20	50	14
1,2,4-Trimethylbenzene		2000	**2150**	108	85-118	--	20	50	9.0
1,3,5-Trimethylbenzene		2000	**2110**	106	85-119	--	20	50	8.4
Vinyl Chloride		2000	**1900**	95	77-124	--	20	50	8.4
Xylene, Meta + Para		4000	**4170**	104	84-118	--	20	100	14
Xylene, Ortho		2000	**2150**	108	85-115	--	20	50	6.0
Xylene (Total)		6000	**6320**	105	84-117	--	20	150	20
Laboratory Control Sample					Analyzed:		11/08/2012	By: DLV	
Unit: ug/L					Analytical Batch:		2K09004		
Surrogates:									
Dibromofluoromethane			*98*		*75-123*				
1,2-Dichloroethane-d4			*95*		*83-116*				
Toluene-d8			*100*		*85-113*				
4-Bromofluorobenzene			*99*		*81-117*				

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TRIMATRIX LABORATORIES

QUALITY CONTROL REPORT

Semivolatile Organic Compounds by EPA Method 8270C

QC Batch: 1213584 3550C Sonication Extraction/USEPA-8270C

Method Blank — Analyzed: 11/09/2012 By: JLB
Unit: ug/kg wet — Analytical Batch: 2K13048

Analyte	Sample Conc.	Spike Qty.	Result	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL
Acenaphthene			17 U					17	
Acenaphthylene			17 U					17	
Anthracene			17 U					17	
Benzidine			670 U					670	
Benzo(a)anthracene			17 U			--		17	
Benzo(a)pyrene			17 U					17	
Benzo(b)fluoranthene			17 U					17	
Benzo(k)fluoranthene			17 U					17	
Benzo(g,h,i)perylene			33 U					33	
Benzoic Acid			330 U					330	
Benzyl Alcohol			17 U					17	
4-Bromophenyl Phenyl Ether			17 U					17	
Butyl Benzyl Phthalate			33 U			--		33	
Carbazole			170 U			--		170	
4-Chloro-3-methylphenol			17 U					17	
4-Chloroaniline			67 U					67	
Bis(2-chloroethoxy)methane			17 U					17	
Bis(2-chloroethyl) Ether			17 U					17	
Bis(2-chloroisopropyl) Ether			17 U					17	
2-Chloronaphthalene			17 U					17	
2-Chlorophenol			17 U			--		17	
4-Chlorophenyl Phenyl Ether			17 U			--		17	
Chrysene			17 U			--		17	
Dibenz(a,h)anthracene			33 U					33	
Dibenzofuran			17 U					17	
Di-n-butyl Phthalate			67 U			--		67	
1,4-Dichlorobenzene			17 U			--		17	
1,2-Dichlorobenzene			17 U			--		17	
1,3-Dichlorobenzene			17 U			--		17	
3,3'-Dichlorobenzidine			830 U			--		830	
2,4-Dichlorophenol			33 U					33	
Diethyl Phthalate			17 U			--		17	
2,4-Dimethylphenol			170 U			--		170	
Dimethyl Phthalate			17 U					17	
4,6-Dinitro-2-methylphenol			170 U					170	
2,4-Dinitrophenol			170 U					170	

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TRIMATRIX LABORATORIES

QUALITY CONTROL REPORT

Semivolatile Organic Compounds by EPA Method 8270C (Continued)

QC Batch: 1213584 (Continued) 3550C Sonication Extraction/USEPA-8270C

Method Blank (Continued) — Analyzed: 11/09/2012 By: JLB
Unit: ug/kg wet — Analytical Batch: 2K13048

Analyte	Sample Conc.	Spike Qty.	Result	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL
2,6-Dinitrotoluene			17 U			--		17	
2,4-Dinitrotoluene			33 U					33	
Di-n-octyl Phthalate			17 U					17	
Bis(2-ethylhexyl) Phthalate			33 U			--		33	
Fluoranthene			17 U					17	
Fluorene			33 U					33	
Hexachlorobenzene			17 U					17	
Hexachlorobutadiene			17 U					17	
Hexachlorocyclopentadiene			17 U					17	
Hexachloroethane			17 U					17	
Indeno(1,2,3-cd)pyrene			33 U					33	
Isophorone			17 U			--		17	
2-Methylnaphthalene			17 U					17	
4-Methylphenol			17 U					17	
3+4-Methylphenol			17 U					17	
2-Methylphenol			17 U					17	
Naphthalene			17 U					17	
4-Nitroaniline			33 U					33	
2-Nitroaniline			17 U					17	
3-Nitroaniline			33 U					33	
Nitrobenzene			17 U					17	
2-Nitrophenol			17 U					17	
4-Nitrophenol			670 U			--		670	
N-Nitroso-diphenylamine			17 U					17	
N-Nitroso-di-n-propylamine			17 U					17	
Pentachlorophenol			170 U					170	
Phenanthrene			17 U			--		17	
Phenol			170 U			--		170	
Pyrene			17 U					17	
Pyridine			33 U			--		33	
1,2,4-Trichlorobenzene			17 U					17	
2,4,5-Trichlorophenol			17 U					17	
2,4,6-Trichlorophenol			17 U					17	
Surrogates:									
2-Fluorophenol				*69*	*33-113*				
Phenol-d6				*71*	*30-115*				

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Semivolatile Organic Compounds by EPA Method 8270C (Continued)

Analyte	Sample Conc.	Spike Qty.	Result	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL
QC Batch: 1213584 (Continued) 3550C Sonication Extraction/USEPA-8270C									
Method Blank (Continued)					Analyzed:	11/09/2012	By: JLB		
Unit: ug/kg wet					Analytical Batch:	2K13048			
Surrogates (Continued):									
Nitrobenzene-d5				*69*	*33-131*				
2-Fluorobiphenyl				*69*	*46-122*				
2,4,6-Tribromophenol				*52*	*12-124*				
o-Terphenyl				*75*	*20-155*				
Laboratory Control Sample					Analyzed:	11/09/2012	By: JLB		
Unit: ug/kg wet					Analytical Batch:	2K13048			
Acenaphthene	328		**266**	81	55-113	--	20	17	
Acenaphthylene	328		**265**	81	56-138	--	20	17	
Anthracene	328		**274**	84	63-134	--	20	17	
Benzidine	656		670 U	0	10-74	--	20	670	
Benzo(a)anthracene	328		**267**	81	53-142	--	20	17	
Benzo(a)pyrene	328		**271**	83	54-136	--	20	17	
Benzo(b)fluoranthene	328		**276**	84	49-146	--	20	17	
Benzo(k)fluoranthene	328		**261**	80	56-136	--	20	17	
Benzo(g,h,i)perylene	328		**256**	78	47-141	--	20	33	
Benzoic Acid	328		**200** J	61	18-128	--	20	330	
Benzyl Alcohol	328		**267**	81	45-130	--	20	17	
4-Bromophenyl Phenyl Ether	328		**261**	79	61-124	--	20	17	
Butyl Benzyl Phthalate	328		**288**	88	51-145	--	20	33	
Carbazole	328		**270**	82	76-126	--	20	170	
4-Chloro-3-methylphenol	328		**247**	75	57-124	--	20	17	
*4-Chloroaniline	328		**30.2** J	9	7-75	--	20	67	
Bis(2-chloroethoxy)methane	328		**244**	74	57-121	--	20	17	
Bis(2-chloroethyl) Ether	328		**276**	84	54-112	--	20	17	
Bis(2-chloroisopropyl) Ether	328		**258**	79	62-116	--	20	17	
2-Chloronaphthalene	328		**271**	83	67-111	--	20	17	
2-Chlorophenol	328		**267**	81	62-118	--	20	17	
4-Chlorophenyl Phenyl Ether	328		**255**	78	62-114	--	20	17	
Chrysene	328		**264**	80	66-137	--	20	17	
Dibenz(a,h)anthracene	328		**257**	78	52-142	--	20	33	
Dibenzofuran	328		**264**	81	65-119	--	20	17	
Di-n-butyl Phthalate	328		**286**	87	65-140	--	20	67	
1,4-Dichlorobenzene	328		**242**	74	61-111	--	20	17	
1,2-Dichlorobenzene	328		**255**	78	63-115	--	20	17	

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QUALITY CONTROL REPORT

Semivolatile Organic Compounds by EPA Method 8270C (Continued)

Analyte	Sample Conc.	Spike Qty.	Result	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL
QC Batch: 1213584 (Continued) 3550C Sonication Extraction/USEPA-8270C									
Laboratory Control Sample (Continued)					Analyzed:	11/09/2012	By: JLB		
Unit: ug/kg wet					Analytical Batch:	2K13048			
1,3-Dichlorobenzene	328		**253**	77	54-113	--	20	17	
3,3'-Dichlorobenzidine	656		**205** J	31	10-107	--	20	830	
2,4-Dichlorophenol	328		**253**	77	50-128	--	20	33	
Diethyl Phthalate	328		**268**	82	59-128	--	20	17	
2,4-Dimethylphenol	328		**226**	69	40-122	--	20	170	
Dimethyl Phthalate	328		**260**	79	66-122	--	20	17	
4,6-Dinitro-2-methylphenol	328		**246**	75	26-136	--	20	170	
2,4-Dinitrophenol	328		**210**	64	25-105	--	20	170	
2,6-Dinitrotoluene	328		**273**	83	61-119	--	20	17	
2,4-Dinitrotoluene	328		**289**	88	51-128	--	20	33	
Di-n-octyl Phthalate	328		**263**	80	63-132	--	20	17	
Bis(2-ethylhexyl) Phthalate	328		**280**	85	50-140	--	20	33	
Fluoranthene	328		**273**	83	66-140	--	20	17	
Fluorene	328		**262**	80	60-131	--	20	33	
Hexachlorobenzene	328		**250**	76	34-141	--	20	17	
Hexachlorobutadiene	328		**239**	73	56-128	--	20	17	
Hexachlorocyclopentadiene	328		**242**	74	34-124	--	20	17	
Hexachloroethane	328		**265**	81	60-111	--	20	17	
Indeno(1,2,3-cd)pyrene	328		**257**	78	53-135	--	20	33	
Isophorone	328		**250**	76	55-127	--	20	17	
2-Methylnaphthalene	328		**258**	79	56-124	--	20	17	
4-Methylphenol	328		**262**	80	58-132	--	20	17	
3+4-Methylphenol	328		**262**	80	47-158	--	20	17	
2-Methylphenol	328		**260**	79	58-113	--	20	17	
Naphthalene	328		**262**	80	52-128	--	20	17	
4-Nitroaniline	328		**202**	61	26-125	--	20	33	
2-Nitroaniline	328		**270**	82	63-122	--	20	17	
3-Nitroaniline	328		**96.4**	29	19-86	--	20	33	
Nitrobenzene	328		**267**	81	56-109	--	20	17	
2-Nitrophenol	328		**283**	86	55-115	--	20	17	
4-Nitrophenol	328		**351** J	107	36-131	--	20	670	
N-Nitroso-diphenylamine	328		**269**	82	33-109	--	20	17	
N-Nitroso-di-n-propylamine	328		**265**	81	48-127	--	20	17	
Pentachlorophenol	328		**216**	66	19-117	--	20	170	
Phenanthrene	328		**279**	85	58-134	--	20	17	
Phenol	328		**260**	79	53-120	--	20	170	

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TRIMATRIX LABORATORIES

QUALITY CONTROL REPORT

Semivolatile Organic Compounds by EPA Method 8270C (Continued)

Analyte	Sample Conc.	Spike Qty.	Result	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL
QC Batch: 1213584 (Continued) 3550C Sonication Extraction/USEPA-8270C									
Laboratory Control Sample (Continued)					Analyzed:	11/09/2012	By: JLB		
Unit: ug/kg wet					Analytical Batch:	2K13048			
Pyrene		328	**272**	83	60-132	--	20	17	
Pyridine		328	**229**	70	50-150	--	20	33	
1,2,4-Trichlorobenzene		328	**244**	74	51-110	--	20	17	
2,4,5-Trichlorophenol		328	**238**	73	61-126	--	20	17	
2,4,6-Trichlorophenol		328	**233**	71	45-128	--	20	17	
Surrogates:									
2-Fluorophenol				*77*	*33-113*				
Phenol-d6				*78*	*30-115*				
Nitrobenzene-d5				*75*	*33-131*				
2-Fluorobiphenyl				*73*	*46-122*				
2,4,6-Tribromophenol				*71*	*12-124*				
o-Terphenyl				*80*	*20-155*				
Laboratory Control Sample Duplicate					Analyzed:	11/09/2012	By: JLB		
Unit: ug/kg wet					Analytical Batch:	2K13048			
Acenaphthene		332	**255**	77	55-113	4	20	17	
Acenaphthylene		332	**253**	76	56-138	5	20	17	
Anthracene		332	**257**	78	63-134	6	20	17	
Benzidine		664	670 U	**0**	10-74	--	20	670	
Benzo(a)anthracene		332	**256**	77	53-142	4	20	17	
Benzo(a)pyrene		332	**264**	80	54-136	3	20	17	
Benzo(b)fluoranthene		332	**268**	81	49-146	3	20	17	
Benzo(k)fluoranthene		332	**251**	76	56-136	4	20	17	
Benzo(g,h,i)perylene		332	**248**	75	47-141	3	20	33	
Benzoic Acid		332	**180 J**	54	18-128	10	20	330	
Benzyl Alcohol		332	**252**	76	45-130	6	20	17	
4-Bromophenyl Phenyl Ether		332	**243**	73	61-124	7	20	17	
Butyl Benzyl Phthalate		332	**277**	83	51-145	4	20	33	
Carbazole		332	**262**	79	76-126	3	20	170	
4-Chloro-3-methylphenol		332	**235**	71	57-124	5	20	17	
*4-Chloroaniline		332	**41.9 J**	13	7-75	**32**	20	67	
Bis(2-chloroethoxy)methane		332	**231**	70	57-121	6	20	17	
Bis(2-chloroethyl) Ether		332	**257**	78	54-112	7	20	17	
Bis(2-chloroisopropyl) Ether		332	**241**	72	62-116	7	20	17	
2-Chloronaphthalene		332	**257**	77	67-111	5	20	17	
2-Chlorophenol		332	**248**	75	62-118	7	20	17	

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TRIMATRIX LABORATORIES

QUALITY CONTROL REPORT

Semivolatile Organic Compounds by EPA Method 8270C (Continued)

Analyte	Sample Conc.	Spike Qty.	Result	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL
QC Batch: 1213584 (Continued) 3550C Sonication Extraction/USEPA-8270C									
Laboratory Control Sample Duplicate (Continued)					Analyzed:	11/09/2012	By: JLB		
Unit: ug/kg wet					Analytical Batch:	2K13048			
4-Chlorophenyl Phenyl Ether		332	**247**	74	62-114	3	20	17	
Chrysene		332	**252**	76	66-137	4	20	17	
Dibenz(a,h)anthracene		332	**247**	74	52-142	4	20	33	
Dibenzofuran		332	**251**	76	65-119	5	20	17	
Di-n-butyl Phthalate		332	**271**	82	65-140	5	20	67	
1,4-Dichlorobenzene		332	**229**	69	61-111	5	20	17	
1,2-Dichlorobenzene		332	**238**	72	63-115	7	20	17	
1,3-Dichlorobenzene		332	**235**	71	54-113	7	20	17	
3,3'-Dichlorobenzidine		664	**232 J**	35	10-107	12	20	830	
2,4-Dichlorophenol		332	**242**	73	50-128	5	20	33	
Diethyl Phthalate		332	**260**	78	59-128	3	20	17	
2,4-Dimethylphenol		332	**216**	65	40-122	5	20	170	
Dimethyl Phthalate		332	**249**	75	66-122	5	20	17	
4,6-Dinitro-2-methylphenol		332	**240**	72	26-136	3	20	170	
2,4-Dinitrophenol		332	**212**	64	25-105	1	20	170	
2,6-Dinitrotoluene		332	**263**	79	61-119	4	20	17	
2,4-Dinitrotoluene		332	**288**	87	51-128	0.3	20	33	
Di-n-octyl Phthalate		332	**249**	75	63-132	6	20	17	
Bis(2-ethylhexyl) Phthalate		332	**265**	80	50-140	5	20	33	
Fluoranthene		332	**259**	78	66-140	5	20	17	
Fluorene		332	**253**	76	60-131	4	20	33	
Hexachlorobenzene		332	**239**	72	34-141	5	20	17	
Hexachlorobutadiene		332	**228**	68	56-128	5	20	17	
Hexachlorocyclopentadiene		332	**235**	71	34-124	3	20	17	
Hexachloroethane		332	**249**	75	60-111	6	20	17	
Indeno(1,2,3-cd)pyrene		332	**247**	74	53-135	4	20	33	
Isophorone		332	**236**	71	55-127	6	20	17	
2-Methylnaphthalene		332	**246**	74	56-124	5	20	17	
4-Methylphenol		332	**244**	73	58-132	7	20	17	
3+4-Methylphenol		332	**244**	73	47-158	7	20	17	
2-Methylphenol		332	**240**	72	58-113	8	20	17	
Naphthalene		332	**250**	75	52-128	5	20	17	
4-Nitroaniline		332	**218**	66	26-125	8	20	33	
2-Nitroaniline		332	**261**	79	63-122	3	20	17	
3-Nitroaniline		332	**105**	32	19-86	9	20	33	
Nitrobenzene		332	**255**	77	56-109	4	20	17	

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Semivolatile Organic Compounds by EPA Method 8270C (Continued)

Analyte	Sample Conc.	Spike Qty.	Result	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL
QC Batch: 1213584 (Continued) 3550C Sonication Extraction/USEPA-8270C									
Laboratory Control Sample Duplicate (Continued)					Analyzed:		11/09/2012	By: JLB	
Unit: ug/kg wet					Analytical Batch:		2K13048		
2-Nitrophenol		332	**272**	82	55-115	4	20	17	
4-Nitrophenol		332	**313 J**	94	36-131	12	20	670	
N-Nitroso-diphenylamine		332	**253**	76	33-109	6	20	17	
N-Nitroso-di-n-propylamine		332	**248**	75	48-127	6	20	17	
Pentachlorophenol		332	**210**	63	19-117	3	20	170	
Phenanthrene		332	**260**	78	58-134	7	20	17	
Phenol		332	**244**	73	53-120	7	20	170	
Pyrene		332	**255**	77	60-132	6	20	17	
Pyridine		332	**218**	66	50-150	5	20	33	
1,2,4-Trichlorobenzene		332	**232**	70	51-110	5	20	17	
2,4,5-Trichlorophenol		332	**230**	69	61-126	4	20	17	
2,4,6-Trichlorophenol		332	**222**	67	45-128	5	20	17	
Surrogates:									
2-Fluorophenol				*72*	*33-113*				
Phenol-d6				*73*	*30-115*				
Nitrobenzene-d5				*73*	*33-131*				
2-Fluorobiphenyl				*71*	*46-122*				
2,4,6-Tribromophenol				*66*	*12-124*				
o-Terphenyl				*73*	*20-155*				

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TRIMATRIX LABORATORIES

QUALITY CONTROL REPORT

Total Metals by EPA 6000/7000 Series Methods

QC Type	Sample Conc.	Spike Qty	Result	Unit	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL
Analyte: Aluminum/USEPA-6010C										
QC Batch: 1213605 (3050B Digestion)							Analyzed: 11/08/2012		By: KLV	
Method Blank			10 U	mg/kg dry wt.					10	1.4
Laboratory Control Sample		125	**112**	mg/kg dry wt.	90	80-120			10	1.4
Analyte: Arsenic/USEPA-6020A										
QC Batch: 1213607 (3050B Digestion)							Analyzed: 11/08/2012		By: DSC	
Method Blank			0.10 U	mg/kg dry wt.					0.10	0.016
Laboratory Control Sample		4.00	**4.04**	mg/kg dry wt.	101	80-120			0.10	0.016
1211063-01 [E 0+00 (0-12)]										
Matrix Spike	4.07	3.88	**7.97**	mg/kg dry wt.	100	75-125			0.10	0.016
Matrix Spike Duplicate	4.07	3.83	**7.96**	mg/kg dry wt.	101	75-125	0.1	20	0.10	0.016
Analyte: Barium/USEPA-6020A										
QC Batch: 1213607 (3050B Digestion)							Analyzed: 11/08/2012		By: DSC	
Method Blank			0.10 U	mg/kg dry wt.					0.10	0.012
Laboratory Control Sample		4.00	**4.02**	mg/kg dry wt.	100	80-120			0.10	0.012
Analyte: Cadmium/USEPA-6020A										
QC Batch: 1213607 (3050B Digestion)							Analyzed: 11/08/2012		By: DSC	
Method Blank			0.050 U	mg/kg dry wt.					0.050	0.0033
Laboratory Control Sample		4.00	**4.05**	mg/kg dry wt.	101	80-120			0.050	0.0033
1211063-01 [E 0+00 (0-12)]										
Matrix Spike	0.148	3.88	**4.95**	mg/kg dry wt.	124	75-125			0.050	0.0033
Matrix Spike Duplicate	0.148	3.83	**4.32**	mg/kg dry wt.	109	75-125	14	20	0.050	0.0033
Analyte: Chromium/USEPA-6020A										
QC Batch: 1213607 (3050B Digestion)							Analyzed: 11/08/2012		By: DSC	
Method Blank			**0.015 J**	mg/kg dry wt.					0.10	0.014
Laboratory Control Sample		4.00	**4.19**	mg/kg dry wt.	105	80-120			0.10	0.014
Analyte: Copper/USEPA-6020A										
QC Batch: 1213607 (3050B Digestion)							Analyzed: 11/08/2012		By: DSC	
Method Blank			0.10 U	mg/kg dry wt.					0.10	0.025

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QUALITY CONTROL REPORT

Total Metals by EPA 6000/7000 Series Methods (Continued)

QC Type	Sample Conc.	Spike Qty.	Result	Unit	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL
Analyte: Copper/USEPA-6020A (Continued)										
QC Batch: 1213607 (Continued) (3050B Digestion)							Analyzed: 11/08/2012		By: DSC	
Laboratory Control Sample		4.00	**4.13**	mg/kg dry wt.	103	80-120			0.10	0.025
Analyte: Lead/USEPA-6020A										
QC Batch: 1213607 (3050B Digestion)							Analyzed: 11/08/2012		By: DSC	
Method Blank			**0.053 J**	mg/kg dry wt.					0.10	0.0066
Laboratory Control Sample		4.00	**4.24**	mg/kg dry wt.	106	80-120			0.10	0.0066
Analyte: Mercury/USEPA-7471A										
QC Batch: 1213637 (7471A Mercury Digestion)							Analyzed: 11/08/2012		By: CKD	
Method Blank			0.050 U	mg/kg dry wt.					0.050	0.0061
Laboratory Control Sample		0.333	**0.343**	mg/kg dry wt.	103	80-120			0.050	0.0061
1211063-01 [E 0+00 (0-12)]										
Matrix Spike	0.0351	0.323	**0.394**	mg/kg dry wt.	111	80-120			0.050	0.0061
Matrix Spike Duplicate	0.0351	0.314	**0.388**	mg/kg dry wt.	112	80-120	2	20	0.047	0.0058
Analyte: Nickel/USEPA-6020A										
QC Batch: 1213607 (3050B Digestion)							Analyzed: 11/08/2012		By: DSC	
Method Blank			0.10 U	mg/kg dry wt.					0.10	0.016
Laboratory Control Sample		4.00	**4.02**	mg/kg dry wt.	100	80-120			0.10	0.016
Analyte: Selenium/USEPA-6020A										
QC Batch: 1213607 (3050B Digestion)							Analyzed: 11/08/2012		By: DSC	
Method Blank			0.10 U	mg/kg dry wt.					0.10	0.033
Laboratory Control Sample		4.00	**4.05**	mg/kg dry wt.	101	80-120			0.10	0.033
1211063-01 [E 0+00 (0-12)]										
Matrix Spike	0.305	3.88	**3.97**	mg/kg dry wt.	94	75-125			0.10	0.033
Matrix Spike Duplicate	0.305	3.83	**3.94**	mg/kg dry wt.	95	75-125	0.6	20	0.10	0.033
Analyte: Silver/USEPA-6020A										
QC Batch: 1213607 (3050B Digestion)							Analyzed: 11/08/2012		By: DSC	
Method Blank			0.050 U	mg/kg dry wt.					0.050	0.0039

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TRIMATRIX LABORATORIES

QUALITY CONTROL REPORT

Total Metals by EPA 6000/7000 Series Methods (Continued)

QC Type	Sample Conc.	Spike Qty.	Result	Unit	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL
Analyte: Silver/USEPA-6020A (Continued)										
QC Batch: 1213607 (Continued) (3050B Digestion)							Analyzed: 11/08/2012		By: DSC	
Laboratory Control Sample		4.00	**4.01**	mg/kg dry wt.	100	80-120			0.050	0.0039
1211063-01 [E 0+00 (0-12)]										
Matrix Spike	0.0339	3.88	**3.93**	mg/kg dry wt.	100	75-125			0.050	0.0039
Matrix Spike Duplicate	0.0339	3.83	**3.85**	mg/kg dry wt.	99	75-125	2	20	0.050	0.0039
Analyte: Zinc/USEPA-6020A										
QC Batch: 1213607 (3050B Digestion)							Analyzed: 11/08/2012		By: DSC	
Method Blank			1.0 U	mg/kg dry wt.					1.0	0.28
Laboratory Control Sample		4.00	**4.48**	mg/kg dry wt.	112	80-120			1.0	0.28

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TRIMATRIX LABORATORIES

QUALITY CONTROL REPORT

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

QC Type	Sample Conc.	Spike Qty.	Result	Unit	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL
Analyte: Carbon, Total Organic/Walkley-Black										
QC Batch: 1214240 (Method Specific Preparation)						Analyzed: 11/15/2012		By: HLB		
Method Blank			0.10 U	%					0.10	0.017
Laboratory Control Sample		1.00	**0.977**	%	98	85-115			0.10	0.017
1211063-03 [W 0+00 (0-12)]										
Duplicate	1.80		**1.81**	%			0.6	20	0.10	0.017
1211063-08 [W 5+00 (12-24)]										
Duplicate	3.24		**3.05**	%			6	20	0.10	0.017
Analyte: Chromium, Hexavalent/USEPA-7196A										
QC Batch: 1213417 (3060A Alkaline Digestion)						Analyzed: 11/11/2012		By: HLB		
Method Blank			2.0 U	mg/kg wet					2.0	0.27
Laboratory Control Sample		40.0	**31.7**	mg/kg wet	79	72-117		20	2.0	0.27
Laboratory Control Sample		1910	**1800**	mg/kg wet	94	72-117		20	200	27
1211063-05 [E 5+00 (0-12)]										
Matrix Spike	<RL	48.2	**12.4**	mg/kg dry	**26**	46-126		20	2.5	0.34
Matrix Spike	<RL	1990	**1490**	mg/kg dry	75	46-126		20	250	34
Duplicate	<RLU		2.5 U	mg/kg dry				20	2.5	0.34
Analyte: Cyanide, Available/USEPA OIA-1677										
QC Batch: 1214000 (Method Specific Preparation)						Analyzed: 11/13/2012		By: LMA		
Method Blank			0.040 U	mg/kg wet					0.040	0.024
Laboratory Control Sample		0.787	**0.679**	mg/kg wet	86	82-132		20	0.040	0.024
Laboratory Control Sample Duplicate			**0.726**	mg/kg wet			7	20	0.040	0.024
1211063-03 [W 0+00 (0-12)]										
Matrix Spike	0.409	1.12	**0.572**	mg/kg dry	**15**	82-130		11	0.057	0.034
Matrix Spike Duplicate	0.409	1.13	**0.501**	mg/kg dry	8	82-130	**13**	11	0.057	0.034
Analyte: Cyanide, Total/USEPA-9014										
QC Batch: 1213768 (9010C Cyanide Distillation)						Analyzed: 11/09/2012		By: LMA		
Method Blank			0.10 U	mg/kg wet					0.10	0.022
Laboratory Control Sample		1.00	**1.01**	mg/kg wet	101	81-112		20	0.10	0.022
Laboratory Control Sample		0.500	**0.505**	mg/kg wet	101	81-112		20	0.10	0.022

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QUALITY CONTROL REPORT

Physical/Chemical Parameters by EPA/APHA/ASTM Methods (Continued)

QC Type	Sample Conc.	Spike Qty.	Result	Unit	Spike % Rec.	Control Limits	RPD	RPD Limits	RL	MDL
Analyte: Cyanide, Total/USEPA-9014 (Continued)										
QC Batch: 1213768 (Continued) (9010C Cyanide Distillation)						Analyzed: 11/09/2012		By: LMA		
1211063-01 [E 0+00 (0-12)]										
Matrix Spike	6.03	1.40	**7.52**	mg/kg dry	107	61-130		30	0.70	0.16
Matrix Spike Duplicate	6.03	1.40	**7.83**	mg/kg dry	129	61-130	4	30	0.70	0.16
Analyte: Fractional Organic Carbon/ASTM D 2974-87										
QC Batch: 1213805 (Method Specific Preparation)						Analyzed: 11/03/2012		By: HLB		
1211063-08 [W 5+00 (12-24)]										
Duplicate	0.0882		**0.0883**	g C/g Soil			0.05	20	0.0010	0.0010
1211063-16 [W 13+50 (12-24)]										
Duplicate	0.0050		**0.0053**	g C/g Soil			5	20	0.0010	0.0010
Analyte: Percent Solids/USEPA-3550C										
QC Batch: 1213578 (Method Specific Preparation)						Analyzed: 11/03/2012		By: HLB		
Method Blank			0.1 U	%					0.1	0.1
1211063-08 [W 5+00 (12-24)]										
Duplicate	72		**75**	%			4	5	0.1	0.1
1211063-16 [W 13+50 (12-24)]										
Duplicate	85		**85**	%			0.4	5	0.1	0.1

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TRIMATRIX LABORATORIES

STATEMENT OF DATA QUALIFICATIONS

Polychlorinated Biphenyls (PCBs) by EPA Method 8082A

Qualification: The quality control batch(s), associated with the following samples and analyses, do not contain an MS/MSD or MS/DUP because client specific matrix QC was not requested. An LCS and LCSD were analyzed as the measure of batch precision and accuracy.

Analysis: USEPA-8082A

Sample:		
	1211063-01	E 0+00 (0-12)
	1211063-02	E 0+00 (12-24)
	1211063-03	W 0+00 (0-12)
	1211063-04	W 0+00 (12-24)
	1211063-05	E 5+00 (0-12)
	1211063-06	E 5+00 (12-24)
	1211063-07	W 5+00 (0-12)
	1211063-08	W 5+00 (12-24)
	1211063-13	E 13+50 (0-12)
	1211063-14	E 13+50 (12-24)
	1211063-15	W 13+50 (0-12)
	1211063-16	W 13+50 (12-24)
	1211063-21	DUP 01
	1211063-23	DUP 02

Qualification: The RPD between the detected values from the primary and confirmation analyses exceeded 40%. The lower concentration result has been reported. The higher concentration result was: 0.0061 mg/kg.

Analysis: USEPA-8082A

Sample/Analyte:			
	1211063-16	W 13+50 (12-24)	PCB-1248

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TRIMATRIX LABORATORIES

STATEMENT OF DATA QUALIFICATIONS

Volatile Organic Compounds by EPA Method 8260B

Qualification: The LCS recovery was less than the lower control limit but greater than or equal to 10%. A positive result for this analyte in the associated QC batch is considered estimated; a non-detect result for the same analyte is considered as approximate.

Analysis: USEPA-8260B

Sample/Analyte:			
	1211063-21	DUP 01	Acrolein
	1211063-22	Trip Blank TM2640	Acrolein
	1211063-23	DUP 02	Acrolein

Qualification: The LCS and/or LCSD recovery exceeded the upper control limit. A positive result for this analyte in any sample from the associated QC batch is considered estimated. Non-detectable results are not qualified.

Analysis: USEPA-8260B

Sample/Analyte:			
	1211063-01	E 0+00 (0-12)	Trichlorofluoromethane
	1211063-02	E 0+00 (12-24)	Trichlorofluoromethane
	1211063-03	W 0+00 (0-12)	Trichlorofluoromethane
	1211063-04	W 0+00 (12-24)	Trichlorofluoromethane
	1211063-05	E 5+00 (0-12)	Trichlorofluoromethane
	1211063-06	E 5+00 (12-24)	Trichlorofluoromethane
	1211063-07	W 5+00 (0-12)	Trichlorofluoromethane
	1211063-08	W 5+00 (12-24)	Trichlorofluoromethane
	1211063-13	E 13+50 (0-12)	Trichlorofluoromethane
	1211063-14	E 13+50 (12-24)	Trichlorofluoromethane
	1211063-15	W 13+50 (0-12)	Trichlorofluoromethane
	1211063-16	W 13+50 (12-24)	Trichlorofluoromethane
	1211063-21	DUP 01	Trichlorofluoromethane
	1211063-22	Trip Blank TM2640	Trichlorofluoromethane
	1211063-23	DUP 02	Trichlorofluoromethane

Qualification: The corresponding CCV for this analytical batch had a recovery exceeding the upper control limit of the method. A positive result for this analyte in any associated samples are considered estimated. Non-detectable results are not qualified.

Analysis: USEPA-8260B

Sample/Analyte:			
	1211063-01	E 0+00 (0-12)	Bromomethane
	1211063-01	E 0+00 (0-12)	Trichlorofluoromethane
	1211063-02	E 0+00 (12-24)	Bromomethane
	1211063-02	E 0+00 (12-24)	Trichlorofluoromethane
	1211063-03	W 0+00 (0-12)	Bromomethane
	1211063-03	W 0+00 (0-12)	Trichlorofluoromethane
	1211063-04	W 0+00 (12-24)	Bromomethane
	1211063-04	W 0+00 (12-24)	Trichlorofluoromethane
	1211063-05	E 5+00 (0-12)	Bromomethane
	1211063-05	E 5+00 (0-12)	Trichlorofluoromethane
	1211063-06	E 5+00 (12-24)	Bromomethane
	1211063-06	E 5+00 (12-24)	Trichlorofluoromethane
	1211063-07	W 5+00 (0-12)	Bromomethane
	1211063-07	W 5+00 (0-12)	Trichlorofluoromethane
	1211063-08	W 5+00 (12-24)	Bromomethane
	1211063-08	W 5+00 (12-24)	Trichlorofluoromethane
	1211063-13	E 13+50 (0-12)	Bromomethane

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Volatile Organic Compounds by EPA Method 8260B (Continued)

Qualification: The corresponding CCV for this analytical batch had a recovery exceeding the upper control limit of the method. A positive result for this analyte in any associated samples are considered estimated. Non-detectable results are not qualified.

Analysis: USEPA-8260B

1211063-13	E 13+50 (0-12)	Trichlorofluoromethane
1211063-14	E 13+50 (12-24)	Bromomethane
1211063-14	E 13+50 (12-24)	Trichlorofluoromethane
1211063-15	W 13+50 (0-12)	Bromomethane
1211063-15	W 13+50 (0-12)	Trichlorofluoromethane
1211063-16	W 13+50 (12-24)	Bromomethane
1211063-16	W 13+50 (12-24)	Trichlorofluoromethane
1211063-21	DUP 01	Bromomethane
1211063-21	DUP 01	Trichlorofluoromethane
1211063-22	Trip Blank TM2640	Bromomethane
1211063-22	Trip Blank TM2640	Trichlorofluoromethane
1211063-23	DUP 02	Bromomethane
1211063-23	DUP 02	Trichlorofluoromethane

Qualification: The corresponding CCV for this analytical batch had a recovery below the lower control limit of the method. Positive results for this analyte in any associated samples are considered estimated; non-detectable results are considered approximate.

Analysis: USEPA-8260B

Sample/Analyte:		
1211063-21	DUP 01	Acrolein
1211063-22	Trip Blank TM2640	Acrolein
1211063-23	DUP 02	Acrolein

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TRIMATRIX LABORATORIES

STATEMENT OF DATA QUALIFICATIONS

Semivolatile Organic Compounds by EPA Method 8270C

Qualification: The LCS/LCSD RPD exceeded the control limit. A positive result for this analyte in any sample from the associated QC batch is considered estimated. Non-detectable results are not qualified.

Analysis: USEPA-8270C

Sample/Analyte:		
1211063-01	E 0+00 (0-12)	4-Chloroaniline
1211063-02	E 0+00 (12-24)	4-Chloroaniline
1211063-03	W 0+00 (0-12)	4-Chloroaniline
1211063-04	W 0+00 (12-24)	4-Chloroaniline
1211063-05	E 5+00 (0-12)	4-Chloroaniline
1211063-06	E 5+00 (12-24)	4-Chloroaniline
1211063-07	W 5+00 (0-12)	4-Chloroaniline
1211063-08	W 5+00 (12-24)	4-Chloroaniline
1211063-13	E 13+50 (0-12)	4-Chloroaniline
1211063-14	E 13+50 (12-24)	4-Chloroaniline
1211063-15	W 13+50 (0-12)	4-Chloroaniline
1211063-16	W 13+50 (12-24)	4-Chloroaniline
1211063-21	DUP 01	4-Chloroaniline
1211063-23	DUP 02	4-Chloroaniline

Qualification: The LCS and/or LCSD recovery was less than 10%. All results for this analyte in all samples from the associated QC batch are considered unusable.

Analysis: USEPA-8270C

Sample/Analyte:		
1211063-01	E 0+00 (0-12)	Benzidine
1211063-02	E 0+00 (12-24)	Benzidine
1211063-03	W 0+00 (0-12)	Benzidine
1211063-04	W 0+00 (12-24)	Benzidine
1211063-05	E 5+00 (0-12)	Benzidine
1211063-06	E 5+00 (12-24)	Benzidine
1211063-07	W 5+00 (0-12)	Benzidine
1211063-08	W 5+00 (12-24)	Benzidine
1211063-13	E 13+50 (0-12)	Benzidine
1211063-14	E 13+50 (12-24)	Benzidine
1211063-15	W 13+50 (0-12)	Benzidine
1211063-16	W 13+50 (12-24)	Benzidine
1211063-21	DUP 01	Benzidine
1211063-23	DUP 02	Benzidine

Qualification: Manual integration was required on the analytes listed below. All manual integrations were performed and reviewed in accordance with TriMatrix laboratory policy.

Analysis: USEPA-8270C

Sample/Analyte:		
1211063-01	E 0+00 (0-12)	Acenaphthylene
1211063-01	E 0+00 (0-12)	Benzo(b)fluoranthene
1211063-01	E 0+00 (0-12)	Benzo(k)fluoranthene
1211063-01	E 0+00 (0-12)	Indeno(1,2,3-cd)pyrene

Continued on next page

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STATEMENT OF DATA QUALIFICATIONS

Semivolatile Organic Compounds by EPA Method 8270C (Continued)

Qualification: Manual integration was required on the analytes listed below. All manual integrations were performed and reviewed in accordance with TriMatrix laboratory policy.

Analysis: USEPA-8270C

Sample/Analyte:		
1211063-02	E 0+00 (12-24)	Benzo(b)fluoranthene
1211063-02	E 0+00 (12-24)	Benzo(k)fluoranthene
1211063-02	E 0+00 (12-24)	Naphthalene
1211063-03	W 0+00 (0-12)	Benzo(b)fluoranthene
1211063-03	W 0+00 (0-12)	Benzo(k)fluoranthene
1211063-03	W 0+00 (0-12)	Chrysene-d12
1211063-04	W 0+00 (12-24)	Acenaphthene
1211063-04	W 0+00 (12-24)	Benzo(b)fluoranthene
1211063-04	W 0+00 (12-24)	Benzo(k)fluoranthene
1211063-04	W 0+00 (12-24)	Bis(2-ethylhexyl) Phthalate
1211063-04	W 0+00 (12-24)	Indeno(1,2,3-cd)pyrene
1211063-05	E 5+00 (0-12)	Benzo(b)fluoranthene
1211063-05	E 5+00 (0-12)	Benzo(k)fluoranthene
1211063-06	E 5+00 (12-24)	Chrysene
1211063-07	W 5+00 (0-12)	Benzo(b)fluoranthene
1211063-07	W 5+00 (0-12)	Benzo(k)fluoranthene
1211063-07	W 5+00 (0-12)	Chrysene-d12
1211063-08	W 5+00 (12-24)	Benzo(b)fluoranthene
1211063-08	W 5+00 (12-24)	Benzo(k)fluoranthene
1211063-13	E 13+50 (0-12)	Benzo(b)fluoranthene
1211063-13	E 13+50 (0-12)	Benzo(k)fluoranthene
1211063-14	E 13+50 (12-24)	Benzo(b)fluoranthene
1211063-14	E 13+50 (12-24)	Benzo(k)fluoranthene
1211063-14	E 13+50 (12-24)	Chrysene
1211063-15	W 13+50 (0-12)	Benzo(b)fluoranthene
1211063-15	W 13+50 (0-12)	Benzo(k)fluoranthene
1211063-16	W 13+50 (12-24)	Chrysene-d12
1211063-21	DUP 01	Benzo(b)fluoranthene
1211063-21	DUP 01	Benzo(k)fluoranthene
1211063-23	DUP 02	Benzo(b)fluoranthene
1211063-23	DUP 02	Benzo(k)fluoranthene
1211063-23	DUP 02	Indeno(1,2,3-cd)pyrene
1213584-BLK1		Chrysene-d12
1213584-BS1		4-Chloroaniline
1213584-BSD1		4-Chloroaniline

Qualification: The RL for this analysis has been elevated due to sample matrix interference.

Analysis: USEPA-8270C

Sample:	
1211063-02	E 0+00 (12-24)
1211063-03	W 0+00 (0-12)
1211063-06	E 5+00 (12-24)
1211063-08	W 5+00 (12-24)
1211063-13	E 13+50 (0-12)
1211063-14	E 13+50 (12-24)
1211063-15	W 13+50 (0-12)
1211063-16	W 13+50 (12-24)

Continued on next page

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STATEMENT OF DATA QUALIFICATIONS

Semivolatile Organic Compounds by EPA Method 8270C (Continued)

Qualification: The RL for this analysis has been elevated due to sample matrix interference.

Analysis: USEPA-8270C

Sample:	
1211063-21	DUP 01
1211063-23	DUP 02

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STATEMENT OF DATA QUALIFICATIONS

Total Metals by EPA 6000/7000 Series Methods

Qualification: The post-digestion spike recovery for this sample was outside the control limit. Sample matrix interference is suspected and the reported result must be considered as estimated.

Analysis: USEPA-6020A

Sample/Analyte:		
1211063-01	E 0+00 (0-12)	Barium

Qualification: Matrix QC results are not available due to sample dilution.

Analysis: USEPA-6020A

Sample/Analyte:		
1211063-01	E 0+00 (0-12)	Chromium
1211063-01	E 0+00 (0-12)	Copper
1211063-01	E 0+00 (0-12)	Nickel
1211063-01	E 0+00 (0-12)	Zinc

Qualification: The MS and/or MSD recovery was outside the control limit. The non-spiked sample concentration for the same analyte was greater than or equal to 4 times the spiked amount; matrix QC results are not available.

Analysis: USEPA-6010C

Sample/Analyte:		
1211063-01	E 0+00 (0-12)	Aluminum

Analysis: USEPA-6020A

Sample/Analyte:		
1211063-01	E 0+00 (0-12)	Barium
1211063-01	E 0+00 (0-12)	Lead

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STATEMENT OF DATA QUALIFICATIONS

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Qualification: The post-digestion spike recovery for this sample was outside the control limit. Sample matrix interference is suspected and the reported result must be considered as estimated.

Analysis: USEPA-7196A

Sample/Analyte:		
1211063-05	E 5+00 (0-12)	Chromium, Hexavalent

Qualification: The MS and/or MSD recovery was outside the control limit. The non-spiked sample result is considered estimated.

Analysis: USEPA OIA-1677

Sample/Analyte:		
1211063-03	W 0+00 (0-12)	Cyanide, Available

Analysis: USEPA-7196A

Sample/Analyte:		
1211063-05	E 5+00 (0-12)	Chromium, Hexavalent

Qualification: The RL for this analysis has been elevated due to sample matrix interference.

Analysis: USEPA-7196A

Sample/Analyte:		
1211063-08	W 5+00 (12-24)	Chromium, Hexavalent

Qualification: The following reported test methods and analyte(s) are exceptions to our NELAP Fields of Accreditation, or for which accreditation is not required, applicable, or available.

Analysis: ASTM D 2974-87

Analyte(s): Fractional Organic Carbon

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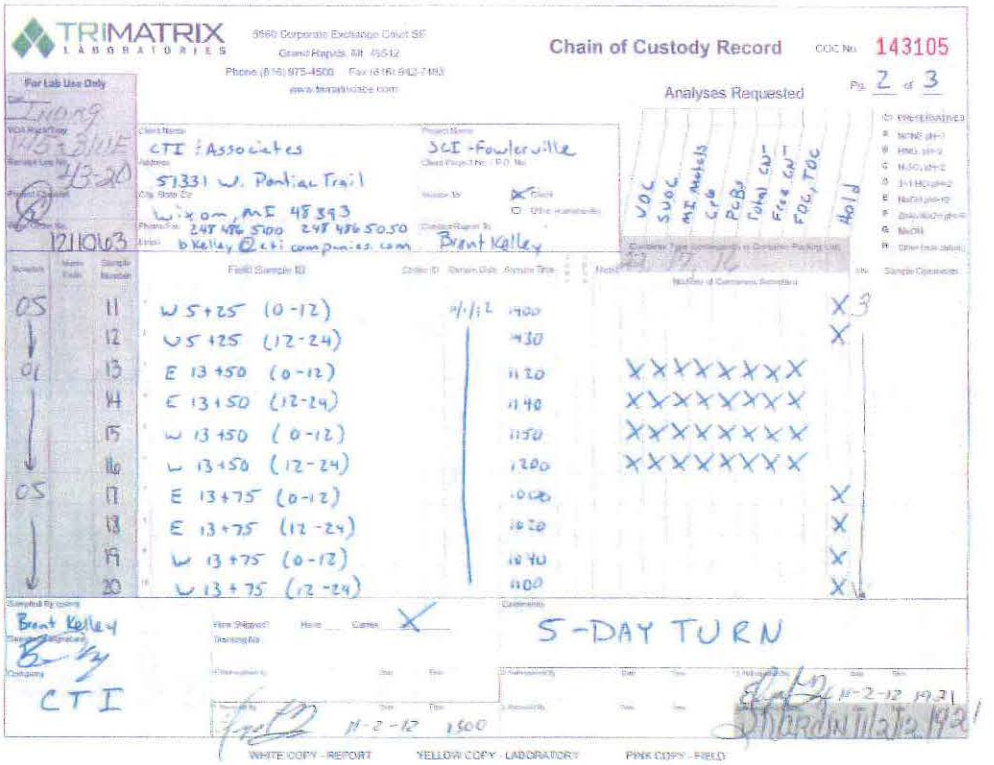

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Chain of Custody Record COC No. 143105

Pg 2 of 3

For Lab Use Only
Due: INORG
TAT Mon/Day: 1145-BASE
Receipt Log No.: 43-20
Project Charge#:
Work Order No.: 1211063

Client Name: CTI & Associates
Address: 51331 W. Pontiac Trail
City, State, Zip: Wixom, MI 48393
Phone/Fax: 248 486 5100 248 486 5050
Email: bkelley@ctiengineers.com
Project Name: SCI - Fowlerville
Client Project No. / P.O. No.:
Invoice To: Client / Other (comments)
Contact/Report To: Brent Kelley

Analyses Requested: VOC, SVOC, MI Metals, Cr6, PCBs, Total CN, Free CN, FOC, TOC, Hold

Container Type / Preservative / Container Packing List
Number of Containers Submitted: 3, 17, 16

Schedule	Work Order	Sample Number	Field Sample ID	Collect Date	Collect Time	Matrix	Sample Comments
05		11	W 5+25 (0-12)	11/1/12	1900		X 3
↓		12	W 5+25 (12-24)		1930		X
01		13	E 13+50 (0-12)		1120	XXXXXXXX	
↓		14	E 13+50 (12-24)		1140	XXXXXXXX	
↓		15	W 13+50 (0-12)		1150	XXXXXXXX	
↓		16	W 13+50 (12-24)		1200	XXXXXXXX	
05		17	E 13+75 (0-12)		1000		X
↓		18	E 13+75 (12-24)		1020		X
↓		19	W 13+75 (0-12)		1040		X
↓		20	W 13+75 (12-24)		1100		X

Sampled By (print): Brent Kelley
Signature: [signature]
Company: CTI

New Shipment / Hold / Cooler: X
Tracking No.:

Comments: 5-DAY TURN

Relinquished By: [signature] Date: 11-2-12 Time: 1500
Received By: [signature] Date: 11-2-12 Time: 1921

WHITE COPY - REPORT YELLOW COPY - LABORATORY PINK COPY - FIELD

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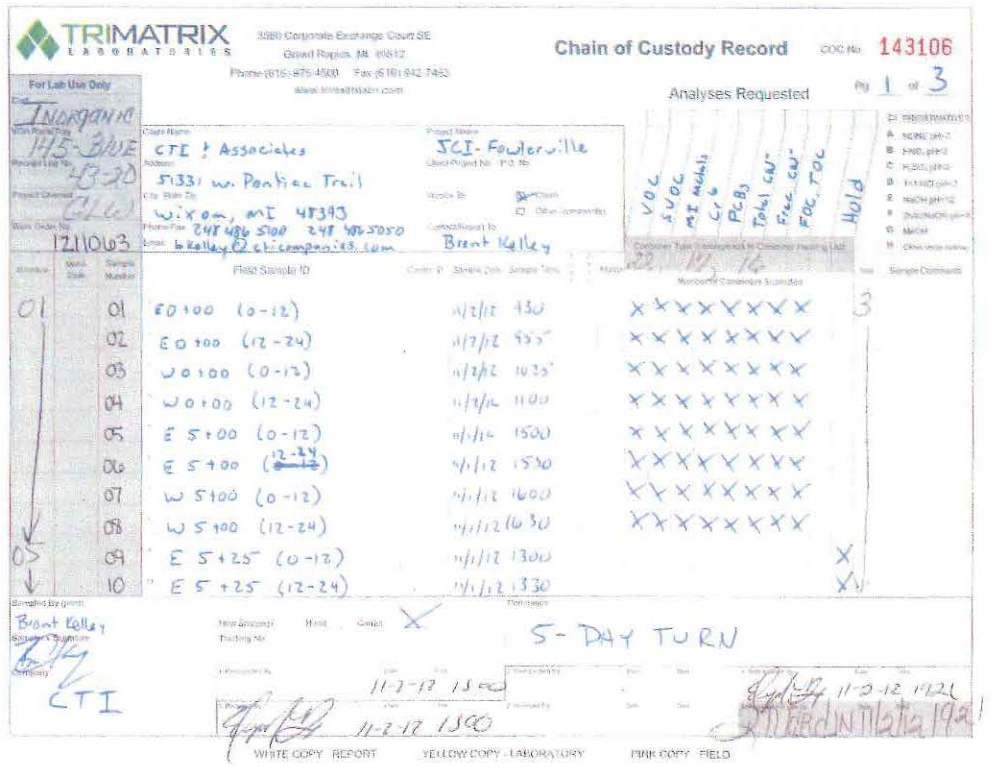

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Chain of Custody Record COC No. 143106

Pg 1 of 3

For Lab Use Only
Due: INORGANIC
TAT Mon/Day: 1145-BASE
Receipt Log No.: 43-20
Project Charge#: CTI
Work Order No.: 1211063

Client Name: CTI & Associates
Address: 51331 W. Pontiac Trail
City, State, Zip: Wixom, MI 48393
Phone/Fax: 248 486 5100 248 486 5050
Email: bkelley@ctiengineers.com
Project Name: SCI - Fowlerville
Client Project No. / P.O. No.:
Invoice To: Client / Other (comments)
Contact/Report To: Brent Kelley

Analyses Requested: VOC, SVOC, MI Metals, Cr6, PCBs, Total CN, Free CN, FOC, TOC, Hold

Container Type / Preservative / Container Packing List
Number of Containers Submitted: 22, 17, 16

Schedule	Work Order	Sample Number	Field Sample ID	Collect Date	Collect Time	Matrix	Sample Comments
01		01	E0+00 (0-12)	11/2/12	930	XXXXXXXX	3
		02	E0+00 (12-24)	11/2/12	935	XXXXXXXX	
		03	W0+00 (0-12)	11/2/12	1025	XXXXXXXX	
		04	W0+00 (12-24)	11/2/12	1100	XXXXXXXX	
		05	E 5+00 (0-12)	11/1/12	1500	XXXXXXXX	
		06	E 5+00 (12-24) (~~0-12~~)	11/1/12	1530	XXXXXXXX	
		07	W 5+00 (0-12)	11/1/12	1600	XXXXXXXX	
		08	W 5+00 (12-24)	11/1/12	1630	XXXXXXXX	
05		09	E 5+25 (0-12)	11/1/12	1300		X
↓		10	E 5+25 (12-24)	11/1/12	1330		X

Sampled By (print): Brent Kelley
Signature: [signature]
Company: CTI

New Shipment / Hold / Cooler: X
Tracking No.:

Comments: 5-DAY TURN

Relinquished By: [signature] Date: 11-2-12 Time: 1500
Received By: [signature] Date: 11-2-12 Time: 1590
Relinquished By: [signature] Date: 11-2-12 Time: 1924
Received By: [signature] Date: 11-2-12 Time: 1921

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TRIMATRIX LABORATORIES

Chain of Custody Record

COC No. 143107 — Pg 3 of 3

For Lab Use Only: 1210063

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Client Name: CTI & Associates
Address: 51331 W Pontiac Trail
City, State, Zip: Wixom, MI 48393
Phone: 248-486-5100 Fax: 248-486-5050
Email: bkelley@cti-company.com
Project Name: JCI-Fowlerville
Sampler: Brent Kelley

Analyses Requested: VOC, SVOC, MI Metals, Cr+6, PCBs, Total CN-, Free CN-, FOC, TOC, Hold

Lab No.	Client Sample ID	Date	Analyses
21	Dup 01	11/1/12	X X X X X X X X X
22	Trip Blank	11/1/12	X
23	Dup 02	11/1/12	X X X X X X X X X

5-DAY TURN

Relinquished By: CTI — 11-2-12 1:30
Received By: 11/2/12

WHITE COPY: REPORT YELLOW COPY: LABORATORY PINK COPY: FIELD

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TRIMATRIX LABORATORIES

SAMPLE RECEIVING / LOG-IN CHECKLIST

Client: CTI + Associates
Work Order #: 1210063
Project: 43-20
Recorded by (initials/date): 11/2/12
Cooler / Qty Received: 3
Thermometer Used: IR Gun (#202)

	Cooler 1	Cooler 2	Cooler 3	Cooler 4
Cooler # / Time	112440 2229	113087 2240	113111 2248	
Custody Seals	Present / Not Intact	Present / Not Intact	Present / Not Intact	
Temp Blank Recorded / Actual °C	0 / 5.7	0 / 1.4	0 / 3.7	
Readings	3.2, 4.2	4.8, 4.7	5.8, 5.3	
Average °C	3.8	4.8	5.8	

If any shaded areas checked, complete Sample Receiving Non-Conformance and/or Inventory Form

Paperwork Received: Chain of Custody record(s); Received for Lab Signed/Date/Time; Shipping document; Other

COC Information: TriMatrix COC
COC ID Numbers: 143106, 143105, 143107

Check Sample Preservation: Was thermal preservation required? Samples chemically preserved correctly? Received pre-preserved VOC soils? MeOH

Check COC for Accuracy: Analysis Requested; Sample ID matches COC; Sample Date and Time matches COC; Container type completed on COC; All container types indicated are received

Check for Short Hold-Time Prep/Analyses: Bacteriological; Air Bags; EnCores / Methanol Pre-Preserved; Formaldehyde/Aldehyde; Green-tagged containers; Yellow/White-tagged 1L ambers (SV Prep-Lab)

AFTER HOURS ONLY: COPIES OF COC TO LAB AREA(S) — NONE RECEIVED / RECEIVED, COCs TO LAB(S)

Sample Condition Summary: Broken containers/lids; Missing or incomplete labels; Illegible information on labels; Low volume received; Inappropriate or non-TriMatrix containers received; VOC vials / TOX containers have headspace; Extra sample locations / containers not listed on COC

Notes: 5 DAY TAT (MEOH)

Trip Blank received / Trip Blank not listed on COC

Cooler Received (Date/Time)	Paperwork Delivered (Date/Time)	≤1 Hour Goal Met?
11/2/12	11/2/12	Yes / No

Log-In Forms - Receiving Log-In Checklist — revision 3.4

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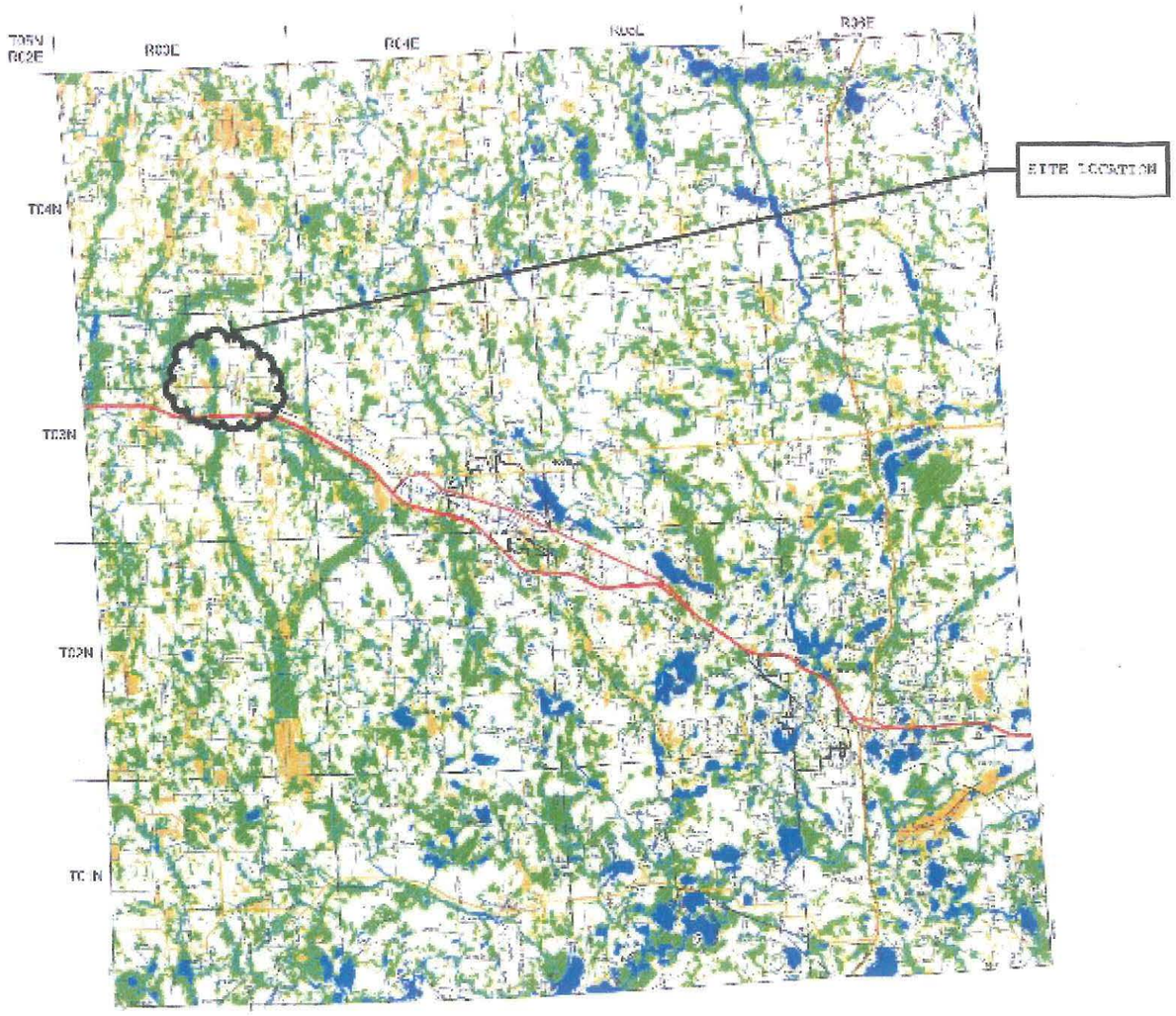
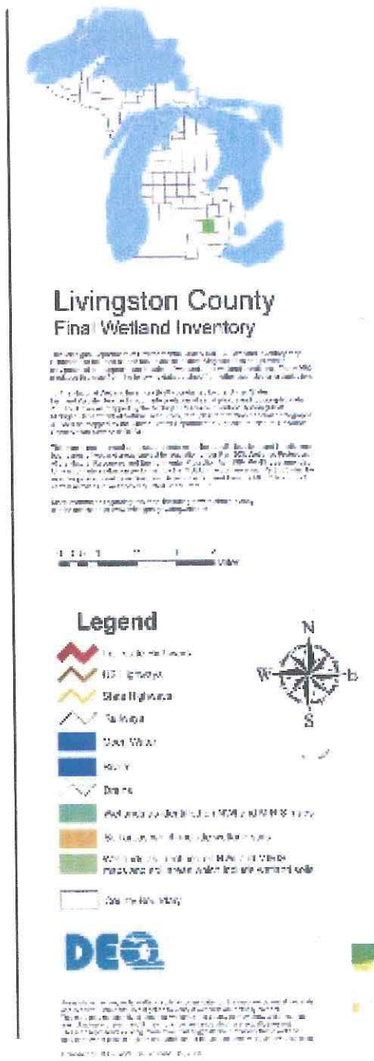
APPENDIX C

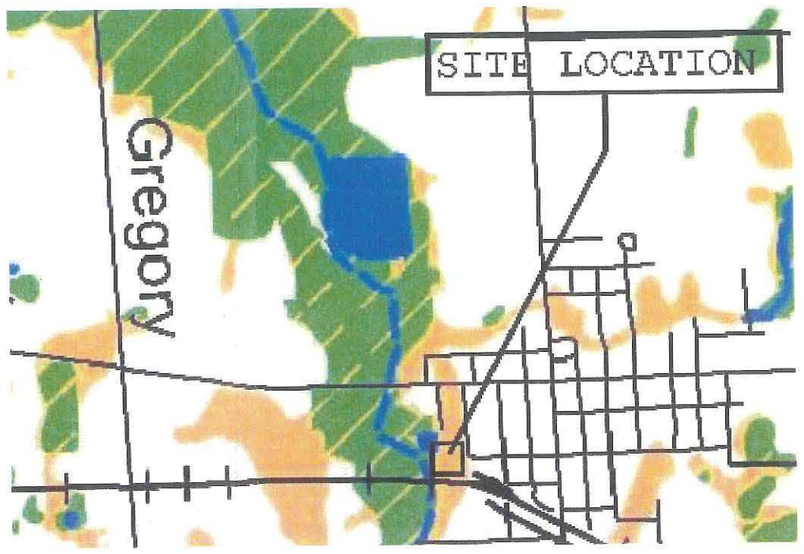
APPENDIX C

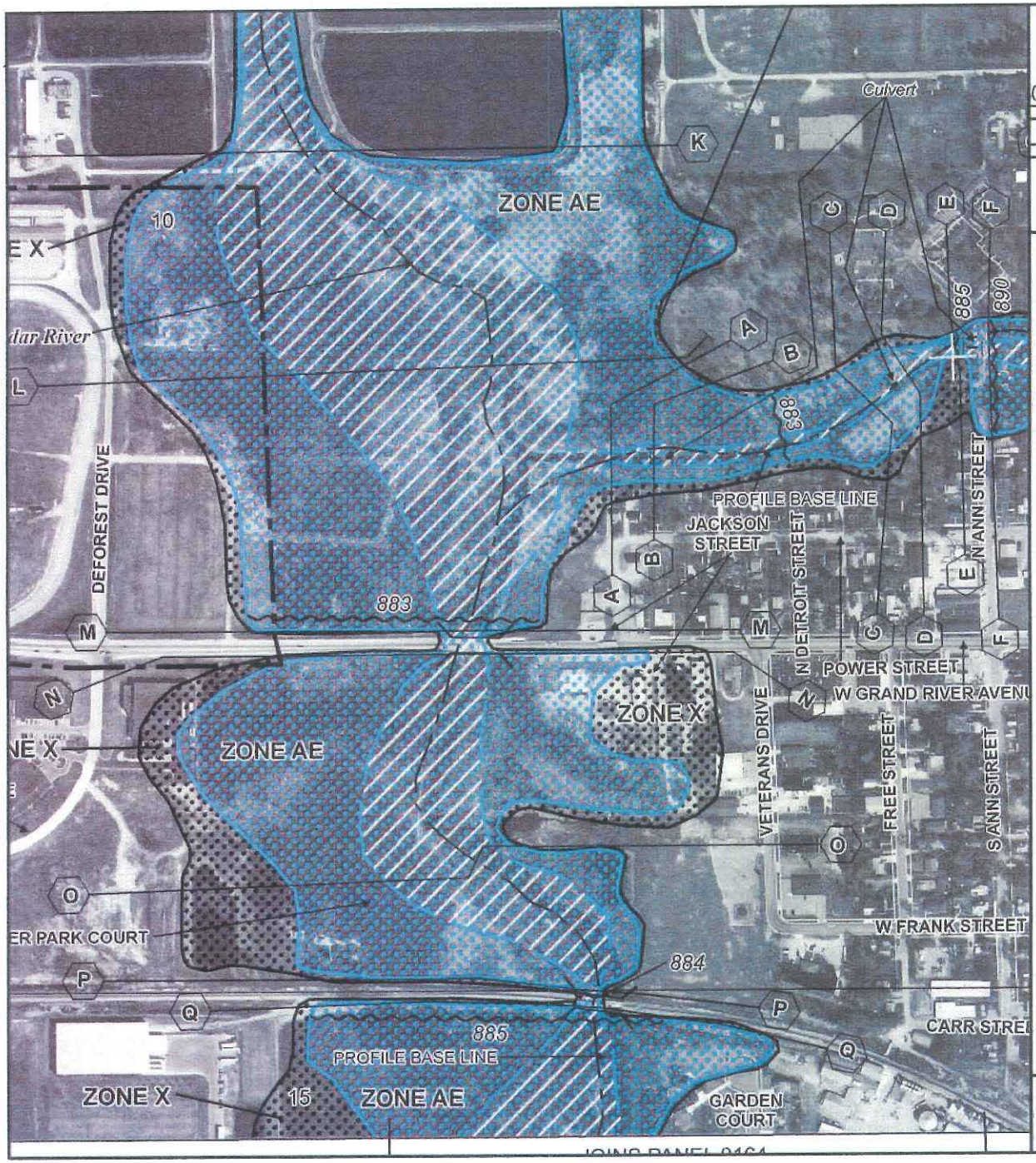
NATIONAL WETLAND INVENTORY

Livingston County Final Wetland Inventory









MAP SCALE 1" = 500'

0 0 500 1000 FEET

0 150 300 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0162D

FIRM

FLOOD INSURANCE RATE MAP

LIVINGSTON COUNTY, MICHIGAN

(ALL JURISDICTIONS)

PANEL 162 OF 495

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
CONWAY, TOWNSHIP OF	260641	0162	D
FOWLERVILLE, VILLAGE OF	260439	0162	D
HANDY, TOWNSHIP OF	260827	0162	D

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

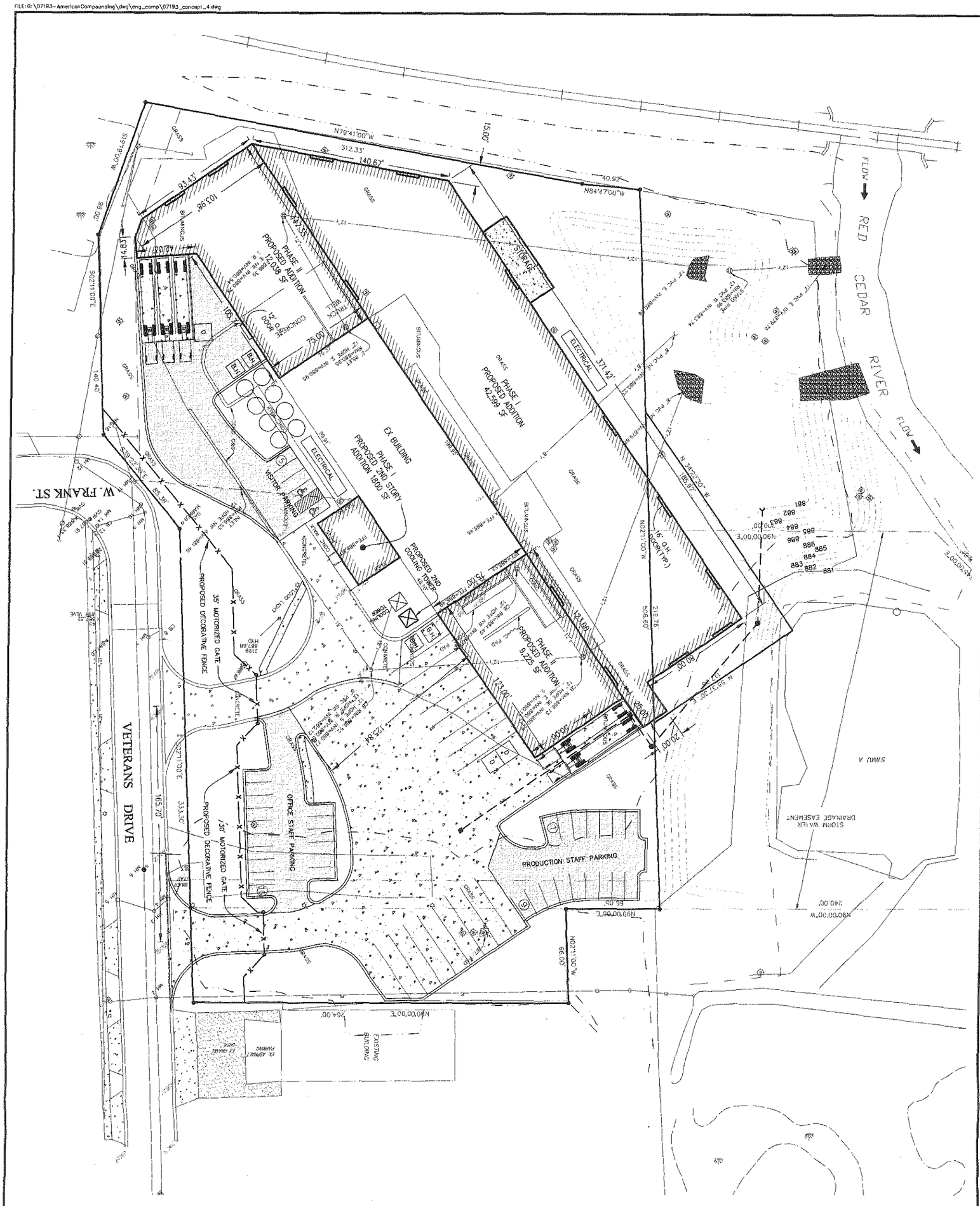
MAP NUMBER
26093C0162D

EFFECTIVE DATE
9/17/2008

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

FILE: G:\07193-AmericanCompounding\dwg\eng_comp\07193_concept_4.dwg



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1	Job. no. 07193 Scale: Vertical: Horizontal: 1"=50'	Drawn: TMH Checked: Approved: Date: 8-13-09	REVISIONS	DATE	**AMERICAN COMPOUNDING** VILLAGE OF FOWLERVILLE, LIVINGSTON COUNTY, MICHIGAN CONCEPT #4	Client AMERICAN COMPOUNDING 200 VETERANS DRIVE FOWLERVILLE, MI 48836 (517) 223-4300	LIVINGSTON ENGINEERING CIVIL ENGINEERING SURVEYING PLANNING 2094 PLESS DRIVE, BRIGHTON, MI 48114 http://www.livingstoneng.com PHONE: (810) 225-7100 FAX: (810) 225-7699

APPENDIX D

APPENDIX D

HABITAT ASSESSMENT

Removal of Contaminated Sediments and Habitat for the Endangered Indiana Bat at the Stanley Tools Site, Fowlerville, Michigan

A Report to
CTI and Associates, Inc.

By
Dr. Allen Kurta
Department of Biology
Eastern Michigan University
Ypsilanti, MI 48197

19 November 2012

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Introduction

Background

The Indiana bat is a small 6–10 gram, insectivorous bat that ranges across much of the eastern United States. This species hibernates in a limited number of mines and caves, primarily in the karst regions of Missouri, Kentucky, and Indiana (USFWS, 2007). Some hibernacula contain up to 100,000 Indiana bats, and at one time, more than 90% of the known population hibernated in just three caves and one mine. Known populations declined drastically during the 1960s because of disturbance while hibernating and because human alteration of some hibernation sites modified the cave microclimate (Richter et al., 1993). This lack of suitable hibernacula (critical habitat) and severe declines in size of wintering populations were the reasons that the Indiana bat was placed on the federal list of endangered species in 1967 (Humphrey, 1978; USFWS, 2007). Hibernating Indiana bats are now well protected, but the species continues to decline at an alarming rate (Clawson, 2002). Overall, hibernating populations have fallen by 56% since the species was listed, and the decline since 1980 alone has reached a staggering 80% in some areas. Furthermore, the introduction of white-nose syndrome into hibernating populations has led to further declines in the Northeast (Blehart et al., 2009; Frick et al., 2010; Turner et al., 2012), and this malady ultimately will impact the species throughout its range.

Biology of the Indiana Bat in Summer

During warm-weather months, male Indiana bats generally are solitary, roosting in trees or perhaps caves on occasion (Carter et al., 2001; Hall, 1962). Female Indiana bats, in contrast, gather in small maternity colonies, usually containing less than 100 adults, at sites where they give birth and raise their single young to maturity (Kurta, 2005). Indiana bats typically roost underneath the loose bark of dead trees, but sometimes, the bark of living trees, such as shagbark hickories, is used. Maternity colonies occasionally occupy narrow crevices within the trunk of a dead tree, but unlike many other species of bat, Indiana bats do not form maternity colonies in tree hollows (cavities) that were created by rot or woodpeckers. A colony of Indiana bats may use over 20 roost trees in a single season (Callahan et al., 1997; Carter, 2003; Kurta, 2005; Kurta et al., 1996, 2002). However, one or two trees (primary roosts) usually shelter most of the colony members at any one time, whereas other trees (alternate roosts) are used by a few animals for only a few days at a time. Although roost trees most often occur in clumps, with different trees only 1 to 100 meters apart, alternate roosts may be separated by a few miles.

Types of dead trees that are most frequently used as roosts are ashes, elms, hickories, maples, poplars (including cottonwood), and oaks (Kurta, 2005). Preferred trees are not obstructed by vines or small branches, are in early-to-mid stages of decay, and receive large amounts of sunlight, presumably creating a warm microclimate for this essentially southern species. Maternity colonies concentrate their roosting in large trees, particularly those that are greater than 9 inches (22 cm) in diameter (Gardner et al., 1991); the average diameter of trees

that are used is 18 inches (45 cm; Kurta, 2005). Roosts are typically located in forests with low-to-moderate subcanopy, and are often in or near riparian woodlands or other forested wetlands (Callahan et al., 1997; Gardner et al., 1991; Humphrey et al., 1977; Kurta et al., 1993a, 1993b, 1996, 2002; Rommé et al., 1995). Indiana bats often use the same tree in multiple years and are highly loyal to their home range, moving from tree to tree as once-suitable roosts lose bark, decay, and fall over (Kurta and Murray, 2002). Indiana bats migrate up to 356 miles (575 kilometers) to suitable hibernation sites for the winter (Kurta, 1980; Kurta and Murray, 2002; Winhold and Kurta, 2006).

Limited data from radio-tracking and light-tagging suggest that these insectivorous bats often forage in areas of open forest, above and below the canopy (Brack, 1985; Gardner et al., 1991), although they occasionally hunt in more open habitats (Gardner et al., 1991; Kurta and Whitaker, 1998; Murray, 1999; Sparks et al., 2005a, 2005b). Diet primarily consists of flies, caddisflies, moths, and beetles (Kurta and Whitaker, 1998; Murray and Kurta, 2002). Foraging areas are often 1.25 to 2.5 miles (2–4 km) from a roost tree and occasionally farther (Gardner et al., 1991; Murray and Kurta, 2004; Sparks et al., 2005). Indiana bats apparently prefer not to cross large, open expanses of land and travel considerable distances out of their way to follow wooded corridors, such as tree-lined fence rows, between roosts and other sites that are used for foraging, drinking, or roosting (Murray and Kurta, 2004; Winhold et al., 2005; Sparks et al., 2005b). Drinking water is most likely obtained on the wing, with the bat dipping its mouth into a pool of water as the animal flies (Taylor and Tuttle, 2007). Indiana bats rest (night roost) between foraging bouts for short periods, often in trees but also under bridges (Kiser et al., 2002; Murray and Kurta, 2004).

Proposed Action

CTI and Associates (CTI) is involved with cleaning up the old Stanley Tools site, located along the Middle Branch of the Red Cedar River, in Fowlerville, Livingston County, Michigan (Figs. 1–2). Discharge from the plant had contaminated the surrounding area with various metals. Although soil adjacent to the river already has undergone remediation, some sediments in the river are still contaminated and will be removed during summer 2013.

Previous Records of Indiana Bats near the Proposed Action

Livingston County is within the migratory range of Indiana bats hibernating in Kentucky and southern Indiana (Winhold and Kurta, 2006), and these bats should be expected in summer in areas of suitable habitat anywhere in the county. Summer records (Fig. 3) of the Indiana bat already exist for Livingston County, as well as the adjacent counties of Ingham, Jackson, and Washtenaw (Kurta, 1980, 2008; Kurta and Rice, 2002; Winhold, 2007). The closest records are two bats mistnetted over the Shiawassee River, near Cohoctah, about 16 miles northeast of Fowlerville, in 1978 and 1979. The third record for Livingston County is an individual that

originally was banded in Kentucky and then recovered at an unspecified location in Hartland Township, about 20 miles east of Fowlerville, in 1971. Although many of these records are old, Indiana bats are highly loyal to their home area and will return again and again over periods of decades.

Purpose of Study

Removal of the metal-laden sediments will require cutting some riparian trees to provide access for heavy machinery. Consequently, the purpose of this study was to evaluate whether the habitat was suitable for the Indiana bat and whether the proposed action might have an adverse effect on the Indiana bat.

Methods

I made a qualitative investigation of the riparian habitat, based on the literature and my experience with this bat in Michigan, on 11 November 2012. Factors that I considered in the overall evaluation included:

1) availability of open water (ponds, streams, etc.) at the site or nearby;
2) extent and openness of the forest;
3) availability of flight space to provide access to roosts and foraging habitat;
4) abundance of trees of species often used as maternity roosts;
5) approximate size (diameter) of trees;
6) abundance of trees suitable for roosting right now (i.e., dead with peeling bark, moderate-to-high sunlight, absence of vines and other obstructions, sufficient diameter, and/or early-to-mid stage of decay); and
7) degree of human-caused disturbance.

I also ranked each potential roost tree as low, medium, or high in its ability to provide shelter for a maternity colony of Indiana bats, based on factors listed in #6 above. Note that these estimates of quality for individual trees apply only to the time of the field survey, because the suitability of a tree for roosting changes over time and can either increase or decrease (Barclay and Kurta, 2007). The diameter of each tree at breast height was estimated visually to the nearest 2 inches (5 cm).

Results

Description of the Property

The Stanley Tools property (now occupied by American Compounding Specialties, LLC) is located in a disturbed area on the edge of the city of Fowlerville (Figs. 2 and 4). It is bounded on the east by residential neighborhoods, to the north by light-industrial operations and Grand River Avenue (M-43), to the west by the Red Cedar River, and to the south by tracks of the CSX Railroad. The Red Cedar River at this point is 20–25-feet wide, and typically less than 3-feet deep. Three small areas of open water occur in addition to the river, including two manmade ponds (Fig. 5) lined with emergent vegetation (cattails, rushes, etc.) and a drainage ditch. Although the ditch widens to form a small pond east of the river, the ditch is only 1–2-feet wide as it enters the Red Cedar River (Fig. 6).

Very few trees occurred south of the ditch (Figs. 4 and 7), but north of the ditch, trees were common adjacent to the river and along the upland/floodplain boundary (Fig. 4). Most trees on the property were cottonwood, silver maple, green ash, and a few black willow. The largest cottonwood near the river was 24 inches (60 cm) in diameter, and the largest maple was about 40 inches (100 cm) in diameter. Most trees, though, were much smaller, often less than 4-inches around. The plethora of young, thin stems resulted in a very dense forest (Fig. 8).

The contaminated sediments occur in two areas of the river (Fig. 9). The first extends northward from near the railroad tracks for about 500 feet, and the second includes about 200 feet of the river and is located just south of Grand River Avenue. South of the drainage ditch only one tree—a living ash—will be removed during remediation. North of the ditch, 77 trees will be cut to create a "haul road" and for access to the river. However, 60 (78%) of these trees have diameters of 4 inches (10 cm) or less, and 6 (8%) are 4–8 inches in diameter (Fig. x). Although 11 (14%) trees that will be removed are greater than 8 inches in diameter, only one of these is dead and potentially usable as a roost by Indiana bats. That single tree is an ash of 9 inches (22 cm) in diameter and overall medium quality as a potential roost.

Conclusions and Recommendations

The river, the ditch, and the ponds would provide necessary drinking water for Indiana bats, if they are in the area. The river also provides a corridor along which the bats could commute to other wooded sites up and down the Red Cedar River. Foraging could occur over the stream, along the wooded western bank, and among the trees on the edge of the northern wetland. Nevertheless, foraging would not be possible within the riparian woods that will be cut, because the forest is too dense. Roosting habitat is generally poor, primarily because the trees are too small and the density of the stems would make it difficult for a bat to access safely any

tree that might be suitable. Overall, I rank the Stanley Tools property as low-quality habitat for Indiana bats.

Removal of trees to provide access for heavy machinery and creation of a haul road (Fig. 9) is not likely to have an adverse effect on Indiana bats. To avoid any possibility of accidental take, however, I recommend that tree removal be done during winter (1 November–31 March; Kurta and Rice, 2002), when the bats are safely in hibernation in Indiana and Kentucky.

References

Barclay, R.M.R., and A. Kurta. 2007. Ecology and behavior of bats roosting in tree cavities and under bark. Pp. 17–59 *in* Bats in forests: conservation and management (M.J. Lacki, J.P. Hayes, and A. Kurta, eds.). Johns Hopkins University Press, Baltimore, Maryland.

Blehert, D.S., et al. 2009. Bat white-nose syndrome: an emerging fungal pathogen? Science, 323:227.

Brack, V., Jr. 1983. The non-hibernating ecology of bats in Indiana with emphasis on the endangered Indiana bat, *Myotis sodalis*. Ph.D. dissertation, Purdue University, West Lafayette, Indiana.

Brack, V., Jr. 2003. Programmatic biological assessment of the Huron-Manistee National Forests Land and Resource Management Plan. Unpublished report, Huron-Manistee National Forests, Cadillac, Michigan.

Callahan, E. V., R. D. Drobney, and R. L. Clawson. 1997. Selection of summer roosting sites by Indiana bats (*Myotis sodalis*) in Missouri. Journal of Mammalogy, 78:818–825.

Carter, T.C. 2003. Summer habitat use of roost trees by the endangered Indiana bat (*Myotis sodalis*) in the Shawnee National Forest of southern Illinois. Ph.D. dissertation, Southern Illinois University, Carbondale, Illinois.

Carter, T., G. Feldhamer, and J. Kath. 2001. Notes on summer roosting of Indiana bats. Bat Research News, 42:197–198.

Clawson, R. L. 2002. Trends in population size and current status. Pages 2–8 *in* The Indiana bat: biology and management of an endangered species (A. Kurta and J. Kennedy, eds.). Bat Conservation International, Austin, Texas.

Farmer, A., B. Cade, and D. Stauffer. 1997. Evaluation of a habitat suitability index model. Pages 172–179 *in* The Indiana bat: biology and management of an endangered species (A. Kurta and J. Kennedy, eds.). Bat Conservation International, Austin, Texas.

Frick, W.F., et al. 2010. An emerging disease causes regional population collapse of a common North American bat species. Science, 329:679–682.

Gardner, J. E., and E. A. Cook. 2002. Seasonal and geographic distribution and quantification of potential summer habitat. Pages 9–20 *in* The Indiana bat: biology and management of an endangered species (A. Kurta and J. Kennedy, eds.). Bat Conservation International, Austin, Texas.

Gardner, J. E., J. D. Garner, and J. E. Hofmann. 1991. Summer roost selection and roosting behavior of *Myotis sodalis* (Indiana bat) in Illinois. Unpublished report, Illinois Natural History Survey, Champaign , Illinois.

Humphrey, S. R. 1978. Status, winter habitat, and management of the endangered Indiana bat, *Myotis sodalis*. Florida Scientist, 41:66–76.

Humphrey, S. R., A. R. Richter, and J. B. Cope. 1977. Summer habitat and ecology of the endangered Indiana bat, *Myotis sodalis*. Journal of Mammalogy, 58:334–346.

Kiser, J. D., J. R. MacGregor, H. D. Bryan, and A. Howard. 2002. Use of concrete bridges as nightroosts. Pp. 208-215 in The Indiana bat: biology and management of an endangered species (A. Kurta and J. Kennedy, eds.). Bat Conservation International, Austin, Texas.

Kurta, A. 1980. Status of the Indiana bat, *Myotis sodalis*, in Michigan. Michigan Academician, 13:31–36.

Kurta, A. 1995. Mammals of the Great Lakes Region. University of Michigan Press, Ann Arbor, 272 pp.

Kurta, A. 2005. Ecology and behavior of Indiana bats in summer. Pages 29–42 *in* The Indiana bat and coal mining: a technical interactive forum (K. C. Vories, ed.). U.S. Geological Survey, Office of Surface Mining, Alton, Illinois.

Kurta, A. 2008. Bats of Michigan. Indiana State University Center for North American Bat Research and Conservation, Terre Haute, Indiana, 72 pp.

Kurta, A., and H. Rice. 2002. Ecology and management of the Indiana bat in Michigan. Michigan Academician, 33:361–376.

Kurta, A., and S.W. Murray. 2002. Philopatry and migration of banded Indiana bats and effects of using radio transmitters. Journal of Mammalogy, 83:585–589.

Kurta, A., and J. O. Whitaker, Jr. 1998. Diet of the endangered Indiana bat (*Myotis sodalis*) on the northern edge of its range. American Midland Naturalist, 140:280–286.

Kurta, A., S. W. Murray, and D. Miller. 2002. Roost selection and movements across the summer landscape. Pages 118–129 *in* The Indiana bat: biology and management of an endangered species (A. Kurta and J. Kennedy, eds.). Bat Conservation International, Austin, Texas.

Kurta, A., K. J. Williams, and R. Mies. 1996. Ecological, behavioural, and thermal observations of a peripheral population of Indiana bats. Pages 102–117 *in* Bats and Forests (R. M. R. Barclay and R. M. Brigham, eds.). Research Branch, Ministry of Forests, Province of British Columbia, Victoria, B. C., 292 pp.

Kurta, A., D. King, J. A. Teramino. J. M. Stribley, and K. J. Williams. 1993a. Summer roosts of the endangered Indiana bat (*Myotis sodalis*) on the northern edge of its range. American Midland Naturalist, 129:132–138.

Kurta, A., J. Kath, E. L. Smith, R. Foster, M. W. Orick, and R. Ross. 1993b. A maternity roost of the endangered Indiana bat (*Myotis sodalis*) in a hollow, unshaded sycamore (*Platanus occidentalis*). American Midland Naturalist, 130:405–407.

Murray, S. W. 1999. Nocturnal activity of the endangered Indiana bat (*Myotis sodalis*). M.S. thesis. Eastern Michigan University, Ypsilanti.

Murray, S. W., and A. Kurta. 2002. Variation in diet. Pages 182–192 *in* The Indiana bat: biology and management of an endangered species (A. Kurta and J. Kennedy, eds.). Bat Conservation International, Austin, Texas.

Murray, S. W., and A. Kurta. 2004. Nocturnal activity of the endangered Indiana bat (*Myotis sodalis*). Journal of Zoology (London), 262:197–206.

Richter, A. R., Humphrey, S. R., Cope, J. B., and Brack, V., Jr. 1993. Modified cave entrances: thermal effect on body mass and resulting decline of endangered Indiana bats (*Myotis sodalis*). Conservation Biology 7: 407–415.

Romme, R. C., K. Tyrell, and V. Brack, Jr. 1995. Literature summary and habitat suitability index model: components of summer habitat for the Indiana bat, *Myotis sodalis*. Unpublished report. Nongame Program, Indiana Department of Natural Resources, Bloomington, 43 pp.

Sparks, D. W., J. O. Whitaker, Jr., and C. M. Ritzi. 2005. Foraging ecology of the endangered Indiana bat. *In* The Proceedings of the Indiana bat and coal mining: a technical interactive forum (K.C. Vories and A. Harrington, eds.). Office of Surface Mining, U.S. Department of the Interior, Alton, Illinois.

Sparks, D. W., C. M. Ritzi, J. E. Duchamp, and J. O. Whitaker, Jr. 2005. Foraging habitat of the Indiana bat (*Myotis sodalis*) at an urban-rural interface. Journal of Mammalogy, 86:713–718.

Taylor, D. A. R., and M. D. Tuttle 2007. Water for wildlife: a handbook for ranchers and range managers. Bat Conservation International, Austin Texas, 18 pp.

Turner, G. G., D. M. Reeder, and J. T. H. Coleman. 2011. A five-year assessment of mortality and geographic spread of white-nose syndrome in North American bats and a look to the future. Bat Research News, 52:13–27.

U.S. Fish and Wildlife Service. 2007a. Indiana bat draft recovery plan: first revision. Ft. Snelling, Minnesota.

U.S. Fish and Wildlife Service. 2007b. Michigan endangered and threatened species county distribution. Map. U.S. Fish and Wildlife Service, East Lansing, Michigan, 1 pp.

U.S. Fish and Wildlife Service. 2012. Rangewide Indiana bat summer survey guidance draft—February 3, 2012. Accessed 15 September 2012:

http://www.fws.gov/midwest/Endangered/mammals/inba/pdf/DraftINBASurveyGuidance.pdf

Winhold, L. 2007. Community ecology of bats in southern Lower Michigan, with emphasis on roost selection by *Myotis*. Unpubl. M.S. thesis, Eastern Michigan University, Ypsilanti, Michigan.

Winhold, L., and A. Kurta. 2006. Aspects of migration by the endangered Indiana bat, *Myotis sodalis*. Bat Research News, 47:1–6.

Winhold, L., E. Hough, and A. Kurta. 2005. Long-term fidelity of tree-roosting bats to a home area. Bat Research News, 46:9–10.

Figure 1. Location of Fowlerville, Michigan.

Figure 2. Location of Stanley Tools on the edge of Fowlerville, Michigan.

Figure 3. Records of Indiana bats close to Fowlerville, Michigan (Kurta, 1980; Kurta and Rice, 2002; Winhold, 2007).

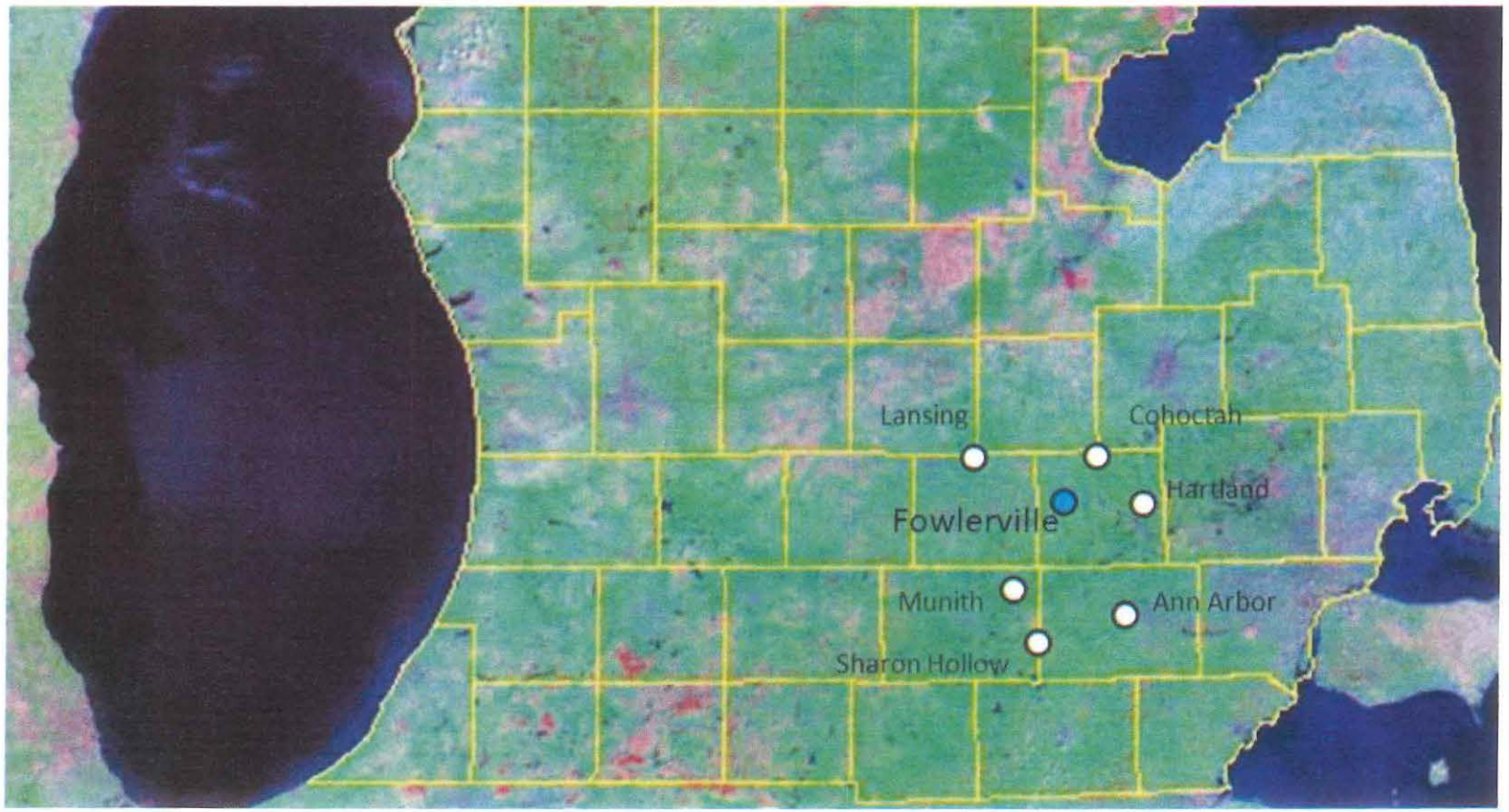


Figure 4. The Stanley Tools property, now occupied by American Compounding.

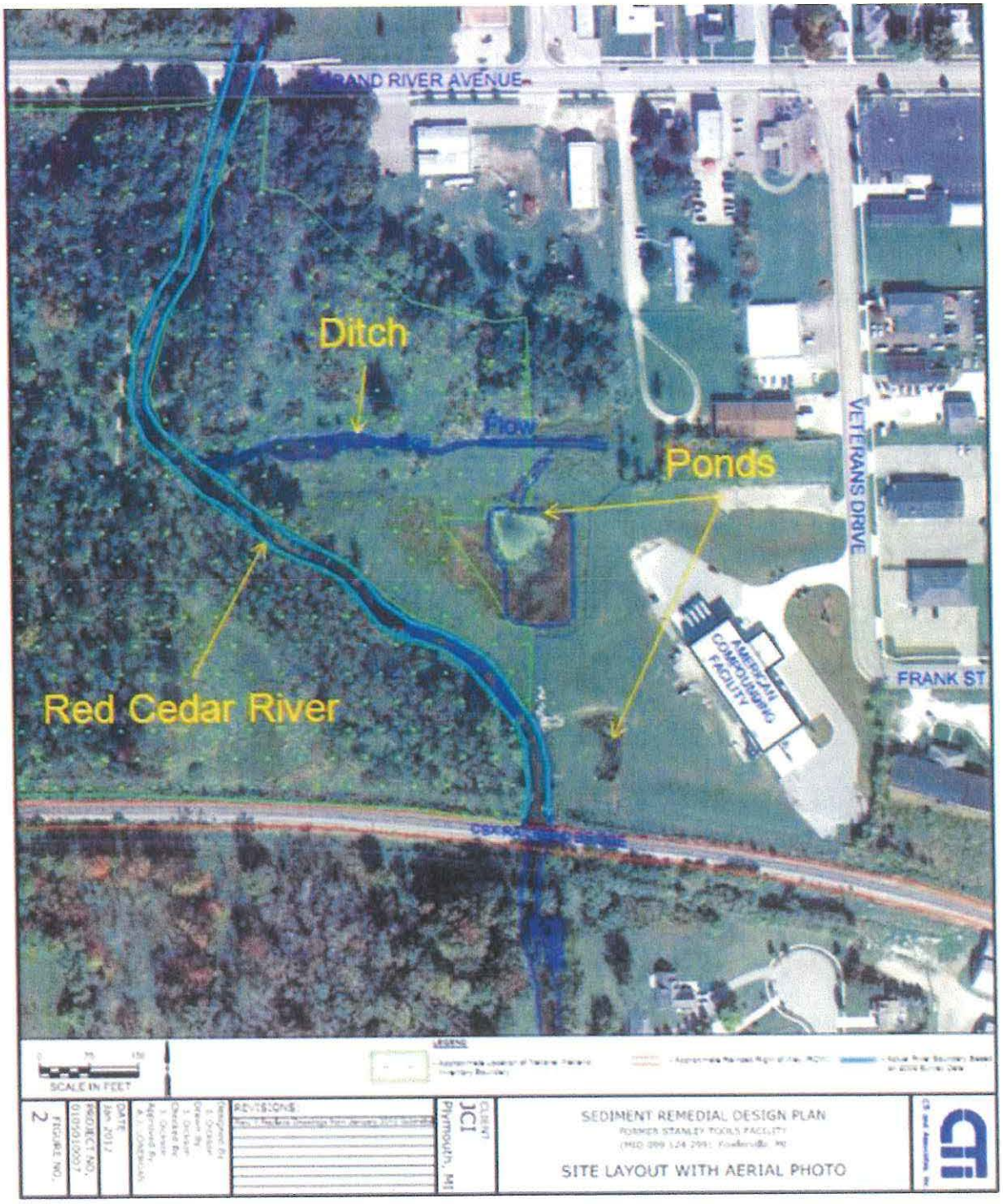


Figure 5. Open ponds on the property. Top) Southern pond, as shown in Fig. 4, looking north. Bottom) Northern pond, as shown in Fig. 4, looking east.

Figure 6. View of east side of river, looking northwest, in the southern part of the property. Note lack of trees.

Figure 7. Top) Wide portion of drainage ditch, looking east. Bottom) Ditch entering river.

Figure 8. Trees along the river, in the northern part of the project. Flagging indicates a tree that will be cut. Note extremely small diameters and high density of stems.

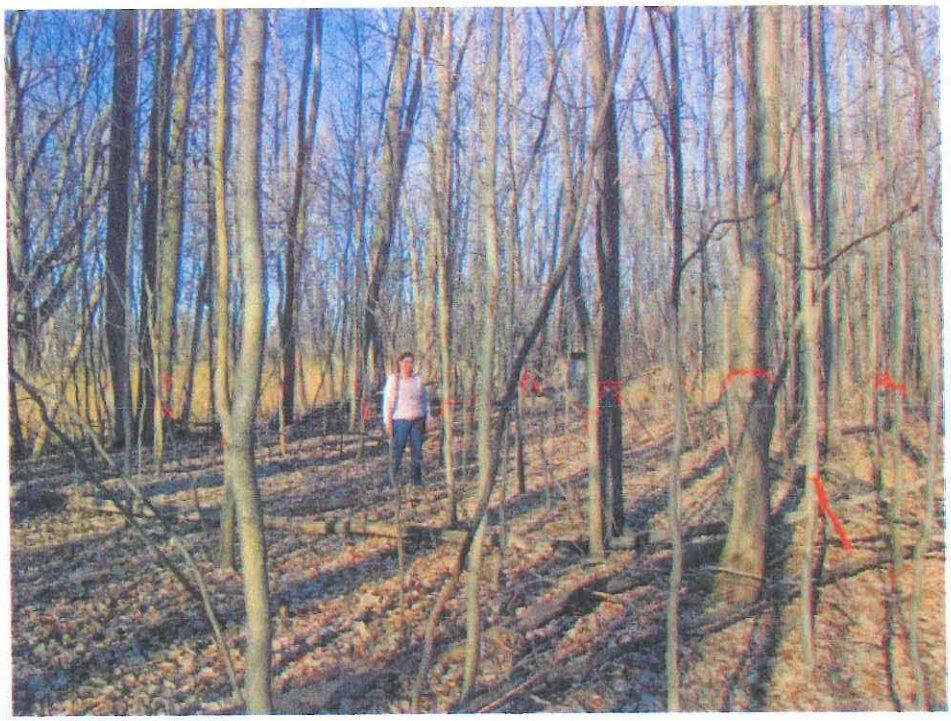
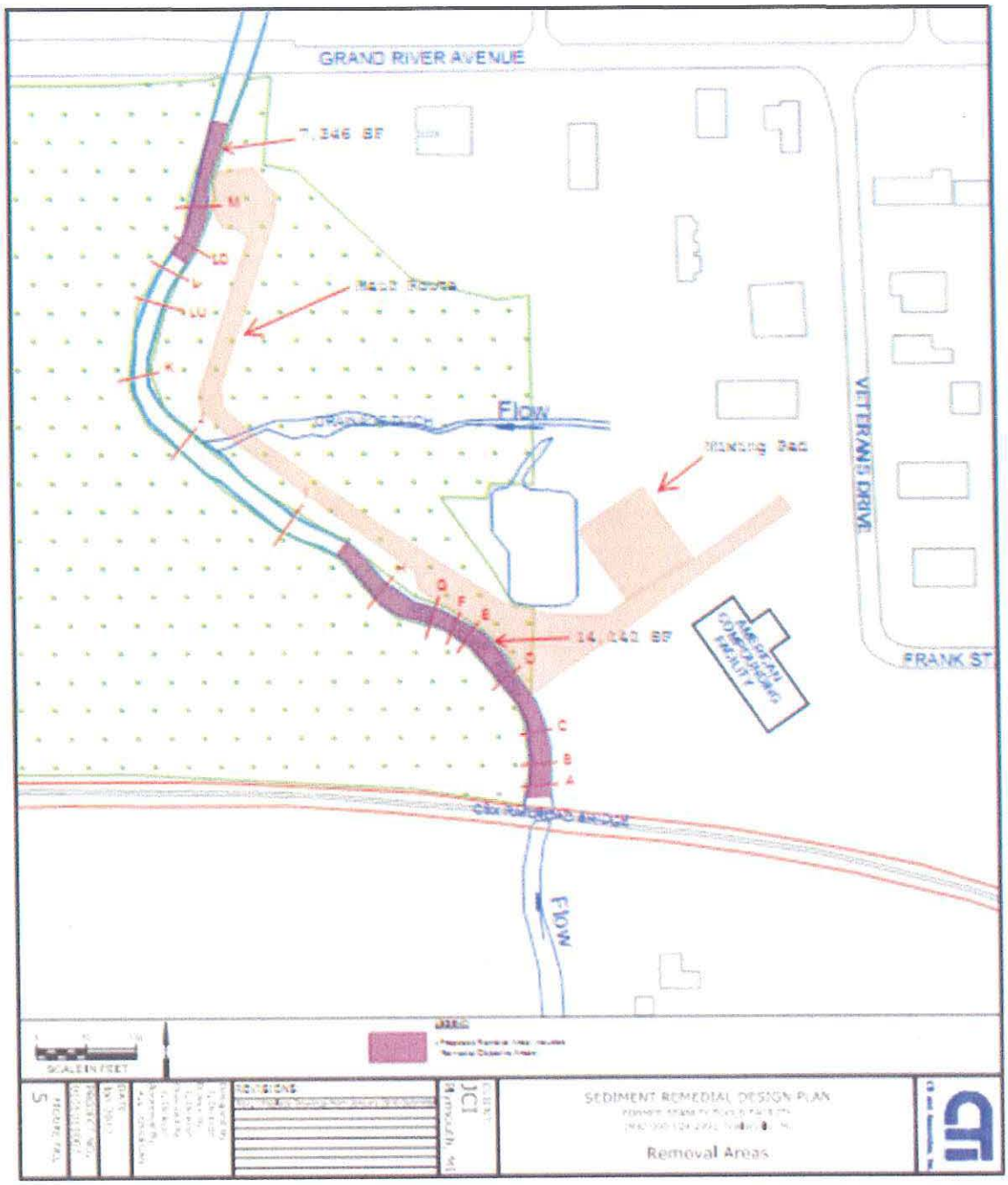


Figure 9. The former Stanley Tools site, with areas of contaminated sediments in the Red Cedar River shown in violet and dredging sites and the haul road shown in pink. Any trees within the pink area will be removed. Green indicates wetland. Compare with aerial photo in Fig. 4.



APPENDIX E

SEDIMENT REMOVAL VERIFICATION LOG (SAMPLE)

Sediment Removal Verification Log

Former Stanley Tools Facility (MID 099 124 299)
Fowlerville, Michigan

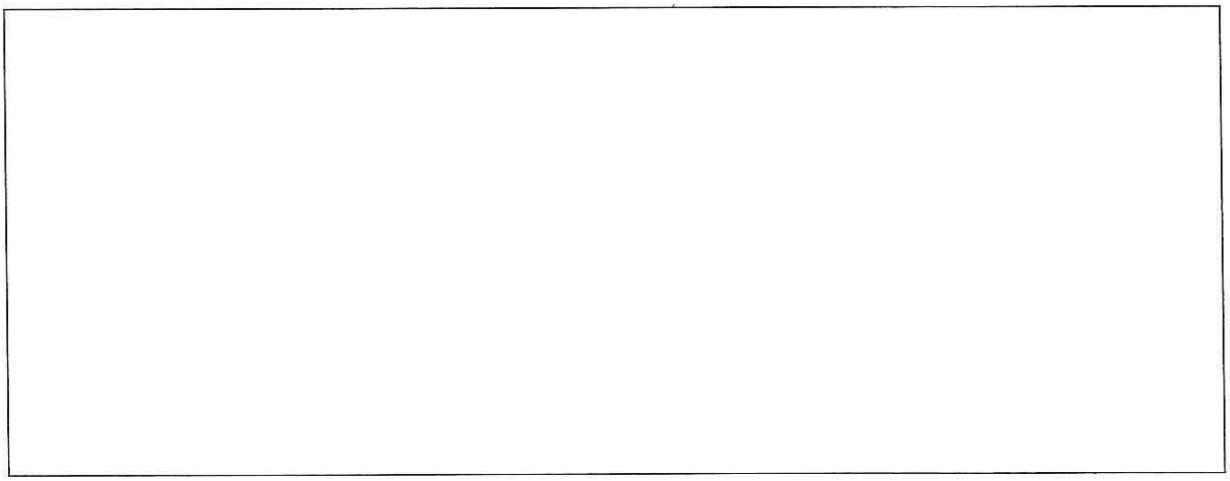
Date: _____

Time Start: _____

Time Complete: _____

Side of River: EAST WEST (circle one)

Start Station_____+_____ **End Station**_____+_____



X- Probe Locations

Notes:_____
_____
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APPENDIX F

APPENDIX F

SEDIMENT SOLIDIFICATION TRIAL RESULTS

Stanley Tools
Fowlerville, MI

TREATABILITY STUDY MEMORANDUM

January 2, 2013

Prepared for:
Terra Contracting Inc.

Prepared by:
Mintek Resources, Inc

Mintek makes no warranty or guarantee as to the findings in the attached document. This information is provided as a baseline operational study and should be used for informational purposes only. We encourage third party testing to validate the test results.

Mintek Resources, Inc.
2440 Dayton Xenia Road, Ste. D
P.O. Box 340187
Beavercreek, OH 45434-7124

January 2, 2013

Kyle Zatzke
Terra Contracting Inc.
5787 Stadium Drive
Kalamazoo, MI 49009

RE: Calciment® Bed Ash Mix designs for Stanley Tools.

Introduction:

Mintek Resources, Inc. was contacted by Terra Contracting Inc. to do mix designs and treatability testing for the Stanley Tools Project. Mintek Resources, Inc. received two (2) sediment samples from various locations on the project, which were obtained to perform a base line solidification study using Calciment® Bed Ash reagents.

Scope:

After receiving the samples and discussions with Kyle Zatzke, the following design criteria were established:

1) Using Calciment® Bed Ash solidification reagents, develop a mix design to pass a paint filter test on the sediment samples from each of the sampling locations from the project.

2) To develop a solidification mix formula from each of the designated areas to create a soil-like finished product in a 24 hour time frame. Measure the unconfined compressive strength during various points in the 24 hour time frame.

Strategy:

Mintek Resources, Inc. reviewed its Calciment® materials and selected products based on the following criteria:

- Performance
- Availability
- Cost
- Transportation Options

Calciment® Bed Ash was chosen as the test reagent. Calciment® Bed Ash was chosen due to its past performance, availability and location to the job site.

Bench Study:

Mintek conducted its testing in the laboratory at room temperature. These conditions may not reflect temperatures at the time of the project. Mintek's goal is to create a design that actually reflects real world operational methods and material handling, not lab settings or ASTM protocols.

After opening the 2 buckets from the sampling areas, a minimum of 3" of water was observed to have separated from the sample. This separation most likely took place during the shipment of the samples to Mintek. Once each of the bucket samples were opened, the buckets were remixed with the surface water. After one hour any water that had come back to the surface was decanted. The sediments and water were re-homogenized with a blender prior to sample extraction. A description of each of the sample areas is summarized in Attachment A.

To develop our base line information, we pulled 300 gram samples of the sediment and mixed them with Calciment® at 0% (control), 5%, 10%, and 15% mixes for a total of 7 samples. These mixes are based on actual weight to weight calculations. Ultimately, these mixes will determine which direction the dose rates will go.

5 Minute Results

5 minutes after the 5%, 10% and 15% mix design was completed; the Upstream 5% and 10% sediment demonstrated a soil like consistency and passed a paint filter test. The Down Stream sample 5% mix did not pass paint filter after 5 minutes, but the 10% marginally passed and the 15% passed the paint filter tests. No immediate strength gain was achieved in any of the mixed samples.

Four Hours

Four hours after the 5%, 10% and 15% mix design was completed; the Upstream 5% and 10% sediment demonstrated a soil like consistency within a 4 hour time frame. The Down Stream samples all passed paint filter test after 4 hours. Strength gain was achieved in both Upstream mixes and the Down Steam 10% and 15% mixes. Overall, Mintek determined that the sediments mixed well with Calciment® and the sediments dewatered efficiently using chemical solidification reagents. The test results for the paint filter test are shown in Attachment B. It is also of note that there was less than 1% volume change in all the samples, accounting for margin of error; I would report no volume change.

Twenty-Four Hours

Twenty four hours after initial mixing all samples were checked for paint filter and strength. As per the previous 4 hour results all samples mixed with Calciment® passed a paint filter test.

Conclusions:

Overall, Calciment® Bed Ash material performed well in these series of sediment mix designs. Our solidification reagents provided a variety of end products based on different application rates and times. From the information gathered for this report, Mintek Resources, Inc. recommends the following:

1. Upstream Sample – Paint filter can be achieved with 5% application rate after good mixing. Significant strength gains will occur after 4 hours
2. Down Stream Sample – Paint filter can be achieved marginally with 10% application after mixing and nominal time. After 4 hours from time of application, 5% - 15% will pass paint filter based on the sample received. After 4 hours from time of application, 10% and 15% will yield some strength gains.

This report is provided for informational purposes only. Mintek Resources, Inc. strongly recommends this information be used as a base line report. In addition, Mintek Resources, Inc. recommends an independent study be conducted for quantitative purposes.

If Mintek Resources Inc. can provide additional testing or operational support please do not hesitate to contact us at (937) 751-3516

Respectfully,

Mintek Resources Inc.

Attachment A
Mintek Resources, Inc.
Stanley Tools Project
Attachment A

Samples Area	Description
Upstream Sample	Sample was primarily brown sand and gravel. Some organics were present.
Downstream Sample	Sample was primarily black/grey silty clay. Highly organic material. Strong odor of petroleum. Very high moisture content.

Attachment B - Paint Filter Test
Calciment®

5 Minutes							
Samples Area	**0%**	**5%**	**10%**	**15%**			
Upstream	F	P	P	NA			
Downstream	F	F	P	P			

4 Hours							
Samples Area	**0%**	**5%**	**10%**	**15%**			
Upstream	F	P	P	P			
Downstream	F	P	P	P			

24 Hours							
Samples Area	**0%**	**5%**	**10%**	**15%**			
Upstream	F	P	P	P			
Downstream	F	P	P	P			

P = Passed Paint Filter Test
F = Failed Paint Filter Test

Attachment C Strength Testing (PSI)
Calciment®

4 Hours							
Samples Area	**0%**	**5%**	**10%**	**15%**			
Upstream	NR	Max	Max	NA			
Downstream	NR	NR	8.3 psi	16.6 psi			

All values expressed in PSI

NR = No reading

APPENDIX G

APPENDIX G

PORTABLE FIELD TURBIDIMETER MANUAL

CAT. NO. 46500-88

PORTABLE TURBIDIMETER

Model 2100P

Instrument and Procedure Manual

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CERTIFICATION

Hach Company certifies this instrument was tested thoroughly, inspected and found to meet its published specifications when it was shipped from the factory.

The Model 2100P Portable Turbidimeter has been tested and is certified as indicated to the following instrumentation standards:

Product Safety

Battery/Eliminator Power Supply Only:
120 Vac, 60 Hz, UL Listed & CSA Certified, Class 2
230 Vac, 50 Hz, VDE Approved, GS & CE marked

Immunity

2100P Turbidimeter Tested with external Battery/Eliminator Power Supply:
EN 50082-1 (European Generic Immunity Standard) **per 89/336/EEC EMC:** Supporting test records with Dash Straus and Goodhue, Inc. (now Intertek Testing Services), certified compliance by Hach Company.

Standards include:
IEC 801-2 Electro-Static Discharge
IEC 801-3 Radiated RF Electro-Magnetic Fields
IEC 801-4 Electrical Fast Transients/Burst

Emissions

2100P Turbidimeter Tested with external Battery/Eliminator Power Supply:
EN 50081-1 (Emissions) **per 89/336/EEC EMC:** Supporting test records by Amador Corp. (now TUV Product Services), certified compliance by Hach Company

Standards include:
EN 55022 (CISPR 22) Emissions, Class B Limits

Canadian Radio Interference-Causing Regulation, Chapter 1374, Class A: Supporting test records by Amador Corp. (now TUV Product Services), certified compliance by Hach Company

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

CERTIFICATION, continued

FCC Part 15, Class "A" Limits: Supporting test records by Amador Corp. (now TUV Product Services), certified compliance by Hach Company.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. this device may not cause harmful interference, and
2. this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area may cause harmful interference in which case the user will be required to correct the interference at his own expense.

The following techniques of reducing interference problems are applied easily:

1. Disconnect the battery eliminator from it's power source and from the 2100P Portable Turbidimeter to verify if it is the source of the interference
2. If the battery eliminator for the 2100P Portable Turbidimeter is plugged into the same outlet as the device with which it is interfering, try another outlet.
3. Move the 2100P Portable Turbidimeter away from the device receiving the interference.
4. Reposition the receiving antenna for the device receiving the interference.
5. Try combinations of the above.

SAFETY PRECAUTIONS

Please read this entire manual before unpacking, setting up, or operating this instrument. Pay particular attention to all danger and caution statements. Failure to do so could result in serious injury to the operator or damage to the equipment.

To ensure the protection provided by this equipment is not impaired, do not use or install this equipment in any manner other than that which is specified in this manual.

Use of Hazard Information

If multiple hazards exist, this manual will use the signal word (Danger, Caution, Note) corresponding to the greatest hazard.

DANGER
Indicates a potentially or imminently hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION
Indicates a potentially hazardous situation that may result in minor or moderate injury.

NOTE
Information that requires special emphasis.

Precautionary Labels

Read all labels and tags attached to the instrument. Personal injury or damage to the instrument could occur if not observed.

⚠ This symbol, if noted on the instrument, references the instruction manual for operational and/or safety information.

SPECIFICATIONS

Specifications subject to change without notice.
Operating specifications applicable at 25 °C unless noted.
Program software copyrighted by Hach Company, 1991.

Measurement Method: Ratio Nephelometric signal (90°) scatter light ratio to transmitted light

Range: 0-1000 NTU with automatic decimal point placement or manual range selection of 0-9.99, 0-99.9 and 0-1000 NTU

Accuracy: ± 2% of reading plus stray light from 0-1000 NTU

Resolution: 0.01 NTU on lowest range

Repeatability: ±1% of reading or 0.01 NTU, whichever is greater (with Gelex standards)

Response Time: 6 seconds for full step change without signal averaging in constant reading mode

Stray Light: <0.02 NTU

Standardization: StablCal® Stabilized Formazin primary standards or Formazin primary standards

Secondary Standards: Gelex® Secondary Standards

Display: Four-digit liquid crystal; 10.16 mm (0.4 in) high digits with custom icons

Light Source: Tungsten filament lamp; lamp life typically greater than 100,000 readings

Detectors: Silicon photovoltaic

Signal Averaging: Operator selectable on or off

Sample Cells: (Height X width) 60.0 X 25 mm (2.36 X 1 in)
Borosilicate glass with screw caps, marking band and fill line

Sample Required: 15 mL (0.5 oz.)

Storage Temperature: -40 to 60 °C (-40 to 140 °F) (instrument only)

SPECIFICATIONS, continued

Operating Temperature: 0 to 50 °C (32 to 122 °F) (instrument only)

Operating Humidity Range: 0 to 90% RH noncondensing at 30 °C;
0 to 80% RH noncondensing at 40 °C;
0 to 70% RH noncondensing at 50 °C

Power Requirements: Four AA Alkaline cells or optional battery eliminator

Battery Life: Typically 300 tests with signal average mode off; 180 tests with signal average mode on

Battery Eliminator (optional):

For 120 V eliminator: CSA and UL approved for 120 VAC ±10%, 60 Hz, 6 V at 800 mA DC output

For 230 V eliminator: CE (VDE) approval pending for 230 VAC ±10%, 50 Hz, 6 V at 900 mA DC output

Enclosure: High impact ABS plastic

Dimensions: 22.2 X 9.5 X 7.9 cm (8.75 X 3.75 X 3.12 in)

Instrument Weight: 520 kg (1 lb 2.5 oz)

Shipping Weight: 3.1 kg (6 lbs 8.5 oz)

OPERATION

DANGER

Handling chemical samples, standards, and reagents can be dangerous. Review the necessary Material Safety Data Sheets and become familiar with all safety procedures before handling any chemicals.

DANGER

La manipulation des échantillons chimiques, étalons et réactifs peut être dangereuse. Lire les Fiches de Données de Sécurité des Produits (FDSP) et se familiariser avec toutes les procédures de sécurité avant de manipuler tous les produits chimiques.

PELIGRO

La manipulación de muestras químicas, estándares y reactivos puede ser peligrosa. Revise las fichas de seguridad de materiales y familiarícese con los procedimientos de seguridad antes de manipular productos químicos.

GEFAHR

Das Arbeiten mit chemischen Proben, Standards und Reagenzien ist mit Gefahren verbunden. Es wird dem Benutzer dieser Produkte empfohlen, sich vor der Arbeit mit sicheren Verfahrensweisen und dem richtigen Gebrauch der Chemikalien vertraut zu machen und alle entsprechenden Materialsicherheitsdatenblätter aufmerksam zu lesen.

PERIGO

A manipulação de amostras, padrões e reagentes químicos pode ser perigosa. Reveja a folha dos dados de segurança do material e familiarize-se com todos os procedimentos de segurança antes de manipular quaisquer produtos químicos.

PERICOLO

La manipolazione di campioni, standard e reattivi chimici può essere pericolosa. La preghiamo di prendere conoscenza delle Schede Techniche necessarie legate alla Sicurezza dei Materiali e di abituarsi con tutte le procedure di sicurezza prima di manipolare ogni prodotto chimico.

SECTION 1 DESCRIPTION

1.1 General Description

The Hach Model 2100P Portable Turbidimeter (*Figure 1*) measures turbidity from 0.01 to 1000 NTU in automatic range mode with automatic decimal point placement. The manual range mode measures turbidity in three ranges: 0.01 to 9.99, 10 to 99.9 and 100 to 1000 NTU. Designed primarily for field use, the microprocessor-based Model 2100P has the range, accuracy, and resolution of many laboratory instruments. The instrument operates on four AA batteries or with an optional battery eliminator. Rechargeable nickel-cadmium cells may be used, but cannot be recharged in the instrument. The instrument automatically shuts off after 5.5 minutes if no keystrokes occur (does not influence operation). If this occurs, simply turn the instrument on – the 2100P will resume operation as if the power had not been interrupted. The instrument, all standard accessories, and the optional battery eliminator may be conveniently stored in the carrying case.

Figure 1 **2100P Turbidimeter and Accessories**

Note: *Avoid prolonged exposure to ultraviolet light and sunlight.*

Note: *Do not hold the instrument during measurements; place the instrument on a flat, steady surface.*

1.2 Accessories

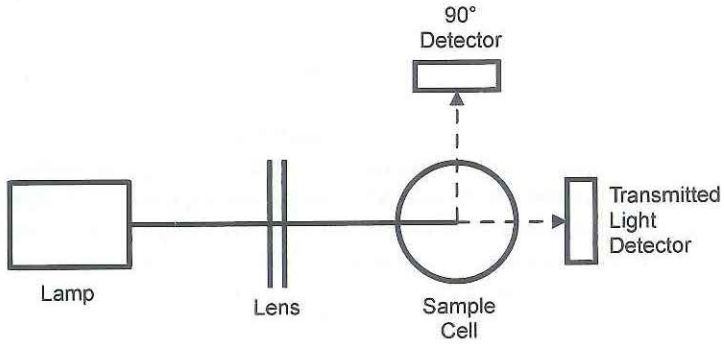
Accessories supplied with the turbidimeter include nine sample cells; three Gelex® Secondary Standards (included with 4650000 only); one sealed vial each of:
<0.1-NTU, 20-NTU, 100-NTU, and 800-NTU StablCal® Stabilized Formazin Standards; 4 AA alkaline batteries; 15 mL of silicone oil; oiling cloth; carrying case; instrument manual; and quick reference card.

1.3 Principle of Operation

The Model 2100P Portable Turbidimeter operates on the nephelometric principle of turbidity measurement. This instrument meets the design criteria specified by the United States Environmental Protection Agency, Method 180.1.

The optical system* (*Figure 2*) includes a tungsten-filament lamp, a 90° detector to monitor scattered light and a transmitted light detector. The instrument's microprocessor calculates the ratio of the signals from the 90° and transmitted light detectors. This ratio technique corrects for interferences from color and/or light absorbing materials (such as activated carbon) and compensates for fluctuations in lamp intensity, providing long-term calibration stability. The optical design also minimizes stray light, increasing measurement accuracy.

Figure 2 **Ratio Optical System**



* Patent number 4,198,161; other patents pending.

1.4 Preparation for Use

1.4.1 Unpacking

Remove the instrument and accessories from the shipping box and inspect them for damage that may have occurred due to rough handling or extreme weather conditions. Verify the following are present:

- Model 2100P Portable Turbidimeter
- Instrument Manual (with quick reference card)
- Set of StablCal Primary Standards in sealed vials, one each of:
  <0.1 NTU*
  20 NTU
  100 NTU
  800 NTU
- Standardization Kit containing Gelex Secondary Standards (0-10, 0-100 and 0-1000 ranges) (included with 4650000 only) plus nine sample cells with caps.
- Silicone Oil, 15-mL (0.5 oz) dropping bottle
- Oiling Cloth
- Carrying Case
- Four AA alkaline batteries

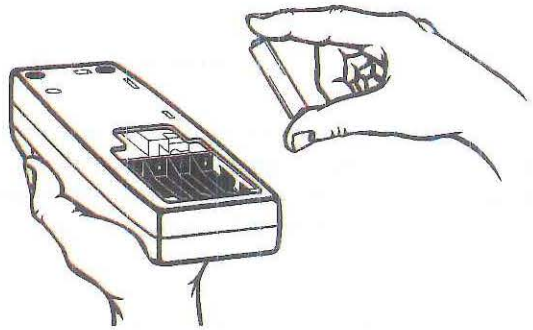
If any of the items are missing or damaged, please contact the Customer Service Department, Hach Company, Loveland, Colorado. The toll-free number in the United States is 800-227-4224. International customers should contact the Hach office or authorized distributor serving your area. Refer to *REPAIR SERVICE* on page 77. **Please do not return the instrument without prior authorization from Hach.**

* Used in place of the dilution water standard when performing a calibration.

⚠ 1.4.2 Battery Installation

The instrument is shipped completely assembled without the batteries installed. Before use, install the four AA alkaline batteries or connect the battery eliminator (*Figure 3*). For battery operation, remove the battery compartment cover on the instrument bottom and install the batteries. Correct battery polarity is shown on the battery holder. The instrument will not function if the batteries are not installed correctly. Reinstall the battery compartment cover.

Figure 3 Battery Installation



⚠ 1.4.3 Using the Battery Eliminator and Rechargeable Batteries

For operation with the optional battery eliminator, plug the eliminator jack into the connector on the turbidimeter side. The battery eliminator may be used with or without the batteries installed. **The eliminator will not charge batteries.** Rechargeable batteries may be used in the instrument, but must be removed for recharging. See *HOW TO ORDER* on page 76 for ordering information. To prolong battery life, the instrument lamp turns on temporarily when the **READ** key is depressed. Batteries are not necessary for battery eliminator operation.

1.4.4 Calibration

The 2100P Portable Turbidimeter is calibrated with Formazin Primary Standard at the factory. However, the instrument should be calibrated upon receipt for best results. Hach recommends recalibration with

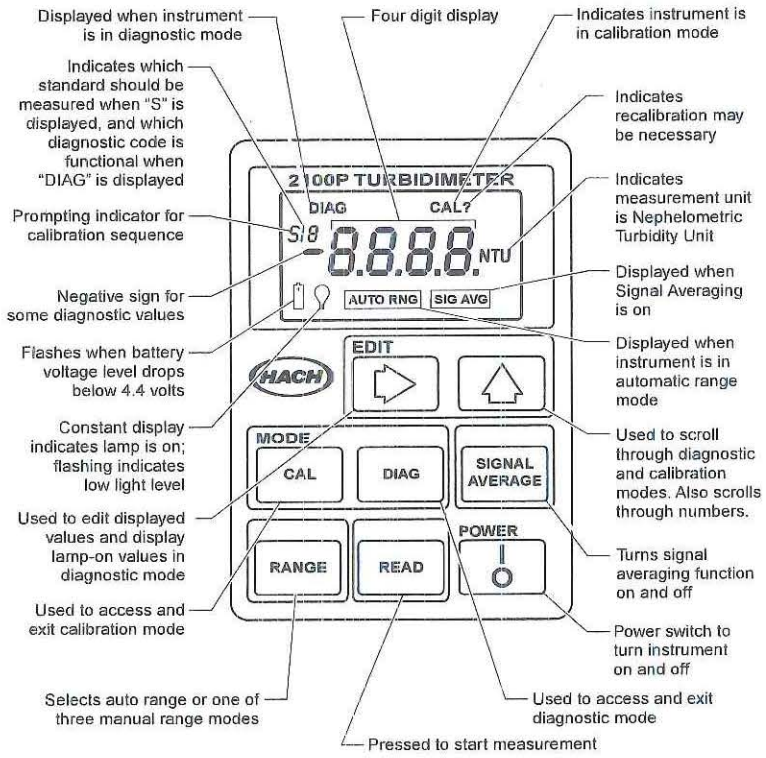
formazin once every three months, or more often as experience dictates. The Gelex Secondary Standards supplied with the instrument (included with 4650000 only) are labelled with general ranges for application, but must be assigned values before use from formazin calibration. See *Section 3.6* on page *37* for calibration instructions.

SECTION 2 TURBIDITY MEASUREMENT

2.1 Operating Controls and Indicators

Figure 4 shows the 2100P controls and indicators. Refer to *SECTION 3* for a detailed description of each control and indicator.

Figure 4 Keyboard and Display with Descriptions



2.2 Turbidity Measurement

Measurements may be made with the signal average mode on or off and in manual or automatic range selection mode. Using automatic range selection is recommended. Signal averaging uses more power and should be used only when the sample causes an unstable reading. Signal averaging measures and averages ten measurements while displaying

intermediate results. The initial value is displayed after about 11 seconds and the display is updated every 1.2 seconds until all ten measurements are taken (about 20 seconds). After this, the lamp turns off, but the final measured turbidity value continues to be displayed until another key is pressed.

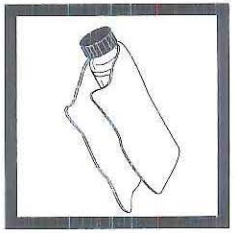
When not in signal average mode, the final value is displayed after about 13 seconds.

Accurate turbidity measurement depends on good measurement technique by the analyst, such as using clean sample cells in good condition and removing air bubbles (degassing). Refer to *Section 2.3* on page *22* for a detailed discussion of measurement techniques.

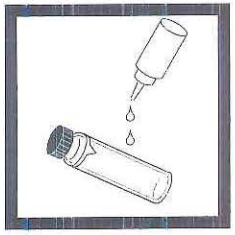
2.2.1 Turbidity Measurement Procedure

1. Collect a representative sample in a clean container. Fill a sample cell to the line (about 15 mL), taking care to handle the sample cell by the top. Cap the cell. (See *Section 2.3* on page *22* for more information about collecting a representative sample).

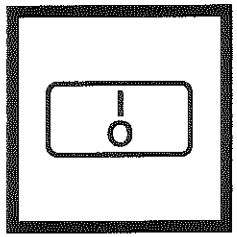
Note: The instrument automatically shuts off after 5.5 minutes if no keystrokes occur. To resume operation, press I/O.



2. Wipe the cell with a soft, lint-free cloth to remove water spots and fingerprints.

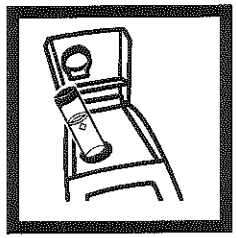


3. Apply a thin film of silicone oil. Wipe with a soft cloth to obtain an even film over the entire surface.

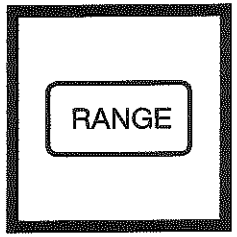


4. Press: **I/O.**

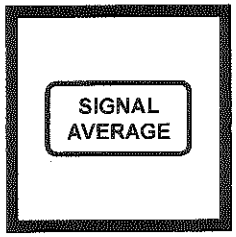
The instrument will turn on. Place the instrument on a flat, sturdy surface. Do not hold the instrument while making measurements.



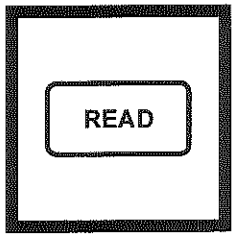
5. Insert the sample cell in the instrument cell compartment so the diamond or orientation mark aligns with the raised orientation mark in front of the cell compartment.
Close the lid.



6. Select manual or automatic range selection by pressing the **RANGE** key. The display will show **AUTO RNG** when the instrument is in automatic range selection.



7. Select signal averaging mode by pressing the **SIGNAL AVERAGE** key. The display will show **SIG AVG** when the instrument is using signal averaging. Use signal average mode if the sample causes a noisy signal (display changes constantly).



8. Press: **READ**

The display will show **- - - - NTU**, then the turbidity in NTU. Record the turbidity after the lamp symbol turns off.

***Note:** The instrument defaults to the last operating mode selected. If automatic range mode and signal averaging were used on the previous measurements, these options will automatically be selected for subsequent samples.*

2.2.2 Measurement Notes

- Always cap the sample cell to prevent spillage of sample into the instrument.
- When taking a reading, place the instrument on a level, stationary surface. It should not be held in the hand during measurement.
- Always close the sample compartment lid during measurement and storage.
- Always use clean sample cells in good condition. Dirty, scratched, or damaged cells can cause inaccurate readings.
- Do not leave a sample cell in the cell compartment for extended periods of time. This may compress the spring in the cell holder.
- Remove sample cell and batteries from instrument if the instrument is stored for extended time period (more than a month).
- Avoid operating in direct sunlight.
- Make certain cold samples do not "fog" the sample cell.
- Avoid settling of sample prior to measurement.
- Keep sample compartment lid closed to prevent dust and dirt from entering.

2.3 Measurement Techniques

Proper measurement techniques are important in minimizing the effects of instrument variation, stray light and air bubbles. Regardless of the instrument used, measurements are more accurate, precise and repeatable if the analyst pays close attention to proper measurement techniques.

Measure samples immediately to prevent temperature changes and settling. Avoid sample dilution when possible. Particles suspended in the original sample may dissolve or otherwise change characteristics when the sample temperature changes or when the sample is diluted, resulting in a non-representative sample measurement.

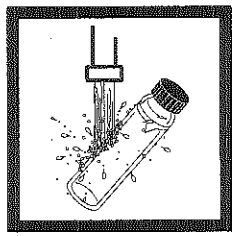
2.3.1 Cleaning Sample Cells

Cells must be extremely clean and free from significant scratches. The glass used to make cells is easily scratched – manufacturing cells free of minor scratches and other imperfections is difficult. However, minor imperfections are effectively masked by applying silicone oil as outlined in *Section 2.3.2*.

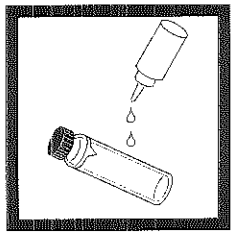
Clean the inside and outside of the cells by washing with laboratory detergent. Follow with multiple rinses of distilled or deionized water. Allow cells to air dry. Handle cells only by the top to minimize dirt, scratches and fingerprints in the light path.

2.3.2 Oiling the Sample Cell

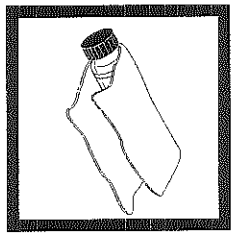
Applying a thin coat of silicone oil will mask minor imperfections and scratches which may contribute to turbidity or stray light. Use silicone oil equivalent to Hach Cat. No. 1269-36. This silicone oil has the same refractive index as glass. When applied in a thin, uniform coat, the oil fills in and masks minor scratches and other imperfections in the glass. Apply the oil uniformly by wiping with a soft, lint-free cloth. **Avoid application of excess oil.** Applying excess oil may retain dirt and contaminate the instrument's cell compartment.



1. Thoroughly clean the sample cell.



2. Apply a small bead of silicone oil from the top to the bottom of the cell-- just enough to coat the cell with a thin layer of oil.



3. Using a soft, lint-free cloth, spread the oil uniformly, then wipe off the excess so that only a thin coat of oil is left. The cell should appear nearly dry with little or no visible oil.

Note: Soft, lint-free cloth (velvet) works well for oiling. Store the oiling cloth with the sample cells and keep it free of dirt. After a few applications of oil, the cloth will contain enough residual oil that simply wiping the cell with the oiled cloth will provide a sufficient oil coat on the sample cell. Periodically, add a small amount of oil to the sample cell surface to replenish the oil in the cloth.

Note: Only a thin coat of oil on the sample cells is necessary. ***Avoid using excessive amounts of oil.***

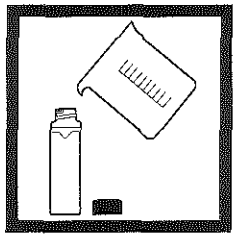
2.3.3 Orienting Sample Cells

Note: When orienting and matching cells, it may be more efficient to use the continuous reading mode. The instrument performs continuous readings if the **READ** *key is pressed and held. As long as the key is held, the lamp remains on and the display is updated every 1.2 seconds. The instrument cannot be used in continuous read mode if the Signal Averaging mode is on.*

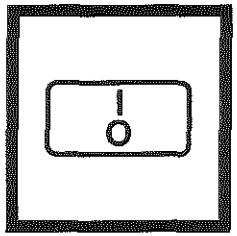
Precise measurements for very low turbidity samples require using a single cell for all measurements or optically matching the cells. Using one cell provides the best precision and repeatability. When one cell is used, an orientation mark (other than the factory-placed diamond) can be placed on the cell so it's inserted into the instrument with the same orientation each time.

2.3.3.1 Orienting a single cell

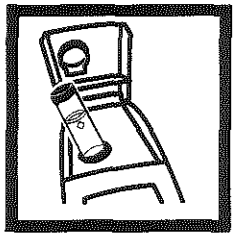
When using a single cell, make an index or orientation mark on the cell as follows:



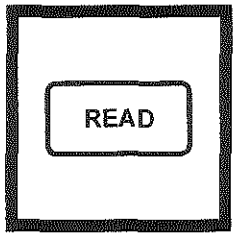
1. Fill the clean sample cell to the line with high quality water (< 0.5 NTU). Cap and wipe with lint-free cloth. Apply silicone oil. See *Section 3.6.2.2* on page *40* for more information about high quality water.



2. Press: **I/O** to turn the instrument on.



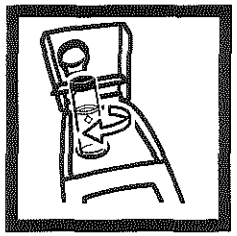
3. Insert the sample cell into the sample compartment. Close the cover.



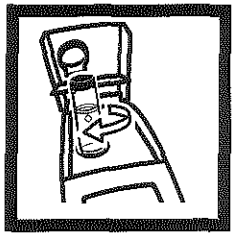
4. Press: **READ**

Record the cell's position in the cell compartment and the displayed reading.

Note: This procedure may be easier if the user holds the **READ** *key through the whole process. This allows the lamp to remain on and make continuous readings.*



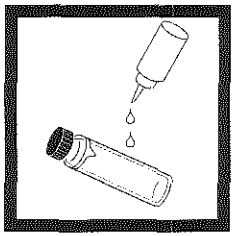
5. Remove the cell, rotate it slightly and reinsert it into the cell compartment. Close the cover, then press **READ**. Record the cell's position and the displayed reading.



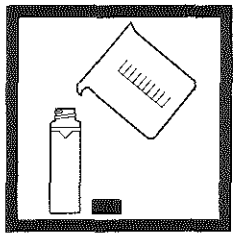
6. Repeat *step 5* until the lowest reading is displayed. Place an orientation mark on the cell's marking band near the top of the cell so the cell can be consistently inserted in the position that yields the lowest reading. When using the cell, always place it in the instrument so the orientation mark aligns with the raised mark on the instrument.

2.3.4 Matching multiple sample cells

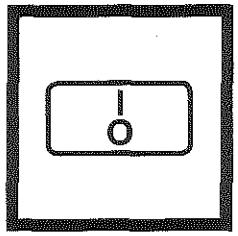
Precise measurements of very low turbidity samples require the cells be optically matched or a single cell be used for all measurements. If more than one cell is used, follow this procedure to match (index) the cells:



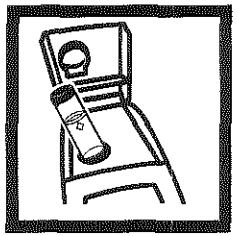
1. Clean and oil the sample cells as instructed in *Section 2.3.1* on page *23* and *Section 2.3.2* on page *23*.



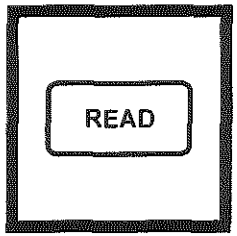
2. Fill the clean sample cells to the line with the same sample.



3. Press: **I/O** to turn the instrument on.



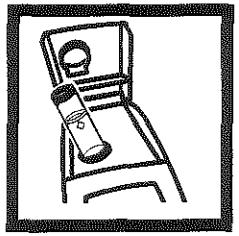
4. Insert the **first** sample cell into the sample compartment and close the cover.



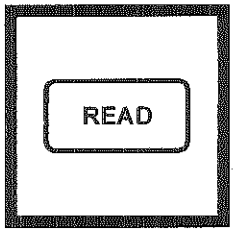
5. Press: **READ**

Record the cell's position in the cell compartment and the displayed reading. Place an orientation mark on the cell's marking band.

Note: This procedure may be easier if the user holds the **READ** *key through the whole process. This allows the lamp to remain on and make continuous readings.*

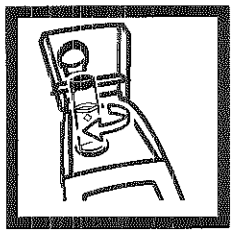


6. Insert the **second** sample cell into the cell compartment and close the cover.

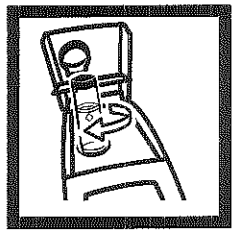


7. Press: **READ**

Record the cell's position in the cell compartment and the displayed reading.

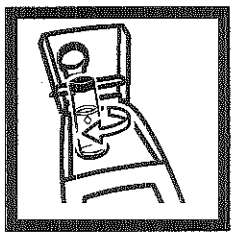


8. Remove the cell, rotate it slightly and reinsert into the cell compartment. Close the cover, then press **READ** again. Record the cell's position and the displayed reading.



9. Repeat *step 8* until the value displayed for the second cell is within 0.01 NTU (or 1%) of the value obtained for the first cell. Place an orientation mark on the second cell's marking band so it is consistently inserted in this position.

Note: Due to variability in glass, it may not be possible to match all cells.



10. Repeat *step 6* through *step 9* if matching other sample cells.

2.3.5 Removing Bubbles (Degassing)

Before measurement, removing air and other trapped gasses from the sample is strongly recommended, even if bubbles are not visible. Four degassing methods are commonly used:

1. applying a partial vacuum
2. adding a surfactant
3. using an ultrasonic bath
4. heating the sample

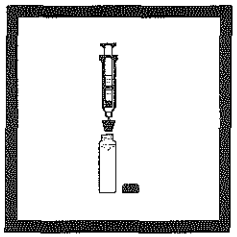
In some cases, more than one method may be necessary for effective bubble removal. For example, use of both a surfactant and ultrasonic bath may be necessary for some severe conditions. Use care with these techniques. If misused, sample turbidity can be altered.

Removing air bubbles by letting the sample stand for a period of time is not recommended. Particulates that cause turbidity may settle and the sample temperature may change. Both conditions may alter sample turbidity, resulting in measurements not representative of the original turbidity.

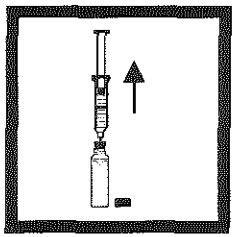
2.3.5.1 Application of vacuum

Apply a vacuum with any convenient, clean, oil-free vacuum source. The vacuum lowers the atmospheric pressure, allowing trapped bubbles to escape into the air above the sample. Vacuum works well with non-viscous samples (such as water) that don't contain volatile components. Applying vacuum to viscous, volatile-containing samples (paint resins) may cause the volatile components to come out of solution and aggravate the bubble problem.

To apply a vacuum, use a sample degassing kit equivalent to Cat No. 43975-00 (Degassing Kit) or 43975-10 (Degassing and Filtration Kit). These kits contain a syringe and rubber stopper for vacuum degassing. An electric or hand-operated pump equivalent to Cat No. 14283-00 or 14697-00, respectively, may also be used.



1. Fill a sample cell to the mark with sample. Insert a #2 single-hole rubber stopper and syringe into the cell. If using a pump, insert a piece of glass tubing into the stopper.



2. **Slowly** apply the vacuum by carefully pulling the plunger upward, then holding it. If using a hand or electric pump, connect the tubing to the vacuum pump with vacuum hose. Apply vacuum until visible gas bubbles disappear. **Slowly** release the vacuum. Remove the vacuum apparatus and cap the cell.

2.3.5.2 Adding a surfactant

Surfactants should be limited to severe problems when other degassing methods are ineffective. Surfactants change the surface tension of the water, which releases trapped gases. Hach recommends a surfactant such as Triton X-100 or the equivalent, Hach Cat No. 14096-37. Put one drop of Triton X-100 in the sample cell before adding sample.

Note: *Any turbidity contributed by surfactant addition is negligible.*

This technique is very effective when the water is super-saturated with air. However, changing the surface tension may accelerate settling of turbidity-causing particles. Mix the sample gently, but thoroughly, and analyze as soon as possible after adding the surfactant. Avoid vigorous mixing as the surfactant may foam. Rinse the sample cells thoroughly between samples to prevent surfactant accumulation.

2.3.5.3 Using an ultrasonic bath

Note: *The time necessary to expel bubbles may vary from a few seconds to a minute or more. To avoid excessive application of ultrasound, a simple procedure can be followed. First, apply ultrasound until all visible bubbles are absent. Then measure the sample turbidity. Apply ultrasound for a short time period and again measure turbidity. Continue for several repetitions, noting the treatment time and turbidity readings. If turbidity begins to increase instead of decrease, the ultrasound waves have probably started to alter the suspended particles. Note the time it takes for this to occur and record it as the maximum time limit for ultrasonic treatment.*

Ultrasonic baths effectively remove gas bubbles from most samples, especially viscous liquids. However, the ultrasonic waves which cause degassing may also alter the characteristics of the particles causing the turbidity. Turbidity depends on the size, shape, composition and refractive index of the suspended particles. Excessive ultrasound application may alter particle size and shape, thus changing sample turbidity. In some cases, ultrasound may aggravate air bubble removal by fracturing the bubbles, making degassing more difficult.

1. Fill a clean sample cell to the line with sample. Leave uncapped.

2. Immerse the cell (1/2 to 2/3 immersed) in an ultrasonic bath and allow it to stand until visible bubbles are expelled.

3. Remove the cell, cap, then thoroughly dry the cell. Apply silicone oil as directed.

2.3.5.4 Application of heat

Whenever possible, avoid using heat to degas samples because heat may change the characteristics of the suspended particles and cause volatile components to come out of solution. Gentle heating may be helpful for degassing some very viscous samples when combined with application of vacuum or ultrasound. If heat is necessary, heat the sample only until degassing occurs. The simplest technique is to prepare a warm water bath and partially immerse the filled sample cell. Use the shortest time necessary for expelling visible bubbles. Cool sample to original sample temperature before taking measurements.

2.3.6 Measuring Overrange Samples

Nephelometric turbidity measurement depends on detection of light scattered from particles suspended in the liquid. If the turbidity is very high, a significant amount of light is blocked or absorbed by the particles and only a small amount of light reaches the detector. This results in a negative interference – the measured turbidity is lower than the actual turbidity. This condition is called "going blind". A multidetector ratioing instrument, such as the Hach 2100P Turbidimeter, minimizes this effect and extends the instrument range. Highly turbid samples may also be diluted, but this should be avoided when possible since it may alter the characteristics of the suspended particles and produce erroneous results.

Light absorbing particles such as activated carbon and highly colored samples may also cause an instrument to "go blind". Dilution may not correct for these interferences. A ratioing instrument will correct for the presence of light absorbing particles and color.

2.3.7 Condensation (fogging)

Condensation may occur on the outside of the sample cell when measuring a cold sample in a warm, humid environment. Condensation interferes with turbidity measurement, so all moisture must be thoroughly wiped off the sample cell before measurement. If fogging recurs, let the sample warm slightly by standing at room temperature or immersing it in a warm bath for a short period. After warming, mix the sample thoroughly before measurement. Allowing samples to warm can alter sample turbidity, so it is best to avoid warming samples before measurement when possible.

2.3.8 Calibration

Turbidimeters must be properly calibrated with a primary standard. Hach recommends formazin or StablCal Stabilized Formazin for calibration. For U.S. Environmental Protection Agency (USEPA) reporting, calibrate at least as often as required by the appropriate regulatory agencies. The frequency of calibration depends on environmental conditions (humidity, temperature) and use. If necessary, calibrate more frequently.

Use secondary standards for periodic calibration checks. Please note that Gelex® standards must be assigned values after StablCal Stabilized Formazin calibration or formazin calibration and before use as secondary standards. Gelex standards must be recalibrated (values assigned) each time the instrument is calibrated with StablCal Stabilized Formazin or formazin. See *Section 3.6* on page *37* for detailed information on the use of StablCal Stabilized Formazin, formazin, and Gelex standards.

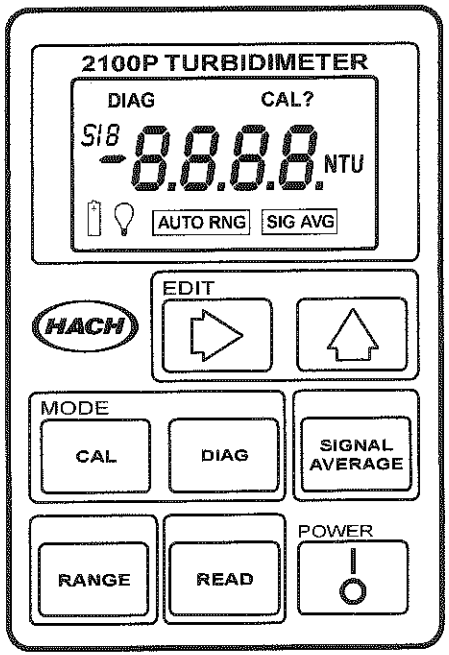
2.3.9 Representative Sampling

A representative sample accurately reflects the true condition of the water source from which the sample was taken. To ensure a representative sample, gently, but thoroughly, mix every sample before aliquots are taken. Do not allow the sample to settle.

When sampling from a tap in a distribution system or treatment plant, allow the water to run for at least five minutes before sampling. When sampling from a stream, reservoir, clarifier, or storage tank, collect at least one liter (1 quart) and thoroughly mix before measurement. If the water source is not uniform, it may be necessary to sample several locations at varying depths and combine the samples into a single, well-mixed composite sample before measurement.

SECTION 3 OPERATION

3.1 Operational Controls and Indicators



Key	Description
	Power key to turn instrument on and off. If no keys are pressed for 5.5 minutes, the instrument turns off automatically.
READ	Depressed to perform a measurement. To conserve battery power, the lamp turns on only when **READ** is depressed. A reading is displayed about 12 seconds after the key is depressed. During the delay, a flashing **NTU** is displayed. After the reading is displayed, the lamp turns off and the reading continues to be displayed. Continuous readings may be done by holding this key if **not** in the Signal Averaging mode. After the initial delay, the reading is updated every 1.2 seconds.
CAL	Used to perform a calibration or review calibration data. Also terminates a calibration or calibration review and returns to the 2100P measurement mode.

Key	Description
	Edits a flashing digit in the calibration mode or sequences through the calibration standards (S0,S1, S2, S3) or diagnostic menu.
	Used to move the editing cursor to the digits being edited in the calibration mode or initiate editing of a standard value.
SIGNAL AVERAGE	Turns the signal averaging function on or off.
DIAG	Selects the diagnostic mode.
RANGE	Selects Auto Range or Manual Range (one of three manual modes).

Display Icon	Description
DIAG	Turns on after the **DIAG** is pressed to access the diagnostic mode. A number displayed under the **DIAG** icon (1-9) indicates which diagnostic function is active. See *Section 5.1* on page *67* for more information on diagnostic codes.
CAL	Turns on after the **CAL** key is pressed to access the calibration mode and remains on during the calibration.
CAL?	Appears after calibration if a value entered during calibration is outside an acceptable range. May indicate an operator error or possible instrument malfunction. Flashing **CAL?** indicates the default calibration coefficients are being used (even after a user-calibration has been done) or that no calibration data is currently stored.
S__	Displayed during calibration. The S is followed by a number to indicate which standard value is currently being edited or displayed. Flashing number is prompting user for measurement of **S0**, **S1**, **S2** or **S3** to establish a calibration. Steady number identifies which standard's value is being displayed.
	Flashes when the battery voltage drops to 4.4 volts as an indication to change batteries. At <4.0 volts, the instrument automatically shuts off.
	The lamp symbol is constantly on when the lamp is on and flashes after a reading if a marginal light level reaches the transmitted light detector. A flashing icon indicates the sample may be too turbid (not within measurement range) and needs dilution or the lamp needs replacing.
SIGNAL AVERAGE	Indicates the signal averaging mode is on. The icon turns off if signal averaging is not selected.

Display Icon	Description
AUTO RNG	Indicates instrument is in automatic range mode. The icon turns off when manual range mode is selected.
8888	The 4-digit display is active when the instrument is on (measurements are displayed to three digits). After the **READ** key is pressed - - - - is displayed during wait periods.
NTU	Identifies the measurement units- Nephelometric Turbidity Units. This icon is active during measurements and in the calibration mode.

3.2 Using the Read Key

To preserve battery power and prolong lamp life, the lamp turns on only after the **READ** key is pressed. Pressing the key turns the instrument lamp on; after about 12 seconds, the lamp turns off, but the measurement value continues to be displayed. After the first measurement, a four-second recovery time occurs before another measurement can be started. If **READ** is pressed during the recovery time, the display will begin flashing, but the lamp will not turn on until the full four seconds have passed. If no other key strokes occur within 5.5 minutes, the instrument turns off.

3.2.1 Continuous Reading

The instrument cannot be used in continuous read mode if the Signal Averaging mode is on.

The instrument will perform continuous readings if the **READ** key is pressed and held. As long as the key is held, the lamp remains on and the display is updated every 1.2 seconds.

3.3 Using the Signal Averaging Key

The signal averaging mode compensates for reading fluctuations caused by drifting of sample particles through the light path. Signal averaging is turned on or off by pressing the **SIGNAL AVERAGE** key. The **SIG AVG** icon is displayed when signal averaging is on.

Signal averaging measures and averages ten measurements while displaying intermediate results. The initial value is displayed after about 11 seconds and the display is updated every 1.2 seconds until all ten measurements are taken (about 22 seconds). After 22 seconds, the lamp

turns off, but the final measured turbidity value continues to be displayed until another key is pressed.

When signal averaging is off, the instrument takes three measurements, the microprocessor averages them, then displays the average. If the **READ** key is held during measurement, the initial value is displayed in 12 seconds and is updated every 1.2 seconds as long as the **READ** key is held.

When the instrument is turned on, the instrument defaults to the signal averaging mode which was used during the last measurement.

3.4 Using the Range Selection Key

As shipped, the instrument defaults to automatic range mode. The first time the **RANGE** key is pressed, the instrument goes into manual range mode. The second, third, and fourth key strokes put the instrument in the 0.00-9.99, 10 to 99.9 or 100-1000 NTU range, respectively. Another key stroke brings the selection back to automatic range mode. When the automatic range mode is selected, the **AUTO RNG** icon is displayed. Range selection can be done any time except when a measurement or calibration is in progress.

When the instrument is turned on, the instrument defaults to the range mode and measurement range which was used during the last measurement.

3.5 Restoring the Default Calibration

To restore and use the default calibration, turn the instrument off. Press and hold **DIAG**, then press and release **I/O**. Release **DIAG** when the software version number disappears from the display. (For models with serial number less than 920300000800, **2100** disappears). This clears any user-entered calibration from memory; the 2100P will use the default calibration for measurement. **CAL?** will appear and continue to flash until a user-entered calibration is successfully completed.

For best results, a user-entered calibration should be done every three months.

3.6 Calibration

Calibration of the 2100P Turbidimeter is based on formazin, the primary standard for turbidity. The instrument's electronic and optical design provide long-term stability and minimize the need for frequent calibration. The two-detector ratioing system compensates for most fluctuations in lamp output. **A formazin recalibration should be performed at least once every three months,** more often if experience indicates the need. When calibration is necessary, use a primary standard such as StablCal™ Stabilized Standards or formazin standards.

Hach Company only recommends the use of StablCal® Stabilized Formazin or formazin standards for the calibration of Hach turbidimeters. Hach Company cannot guarantee the performance of the turbidimeter if calibrated with co-polymer styrene divinylbenzene beads or other suspensions.

Important Note: DO NOT calibrate with Gelex® Secondary Standards. Gelex standards are designed for instrument verification, not calibration.

3.6.1 StablCal Stabilized Formazin Standards*

Most consistent results will be achieved with the use of StablCal Stabilized Formazin Standards for calibration. Refer to *Section 3.6.1.2* and *Section 3.6.1.3* for information on preparing the standards for use.

Note: Hach StablCal Stabilized Formazin in 20-, 100-, and 800-NTU values is packaged in convenient sets for calibration of the 2100P Turbidimeter. The set may be ordered in 500-mL size bottles by specifying Cat. No. 26594-00, in 100-mL size bottles by specifying Cat. No. 26594-10 or in sealed vials by ordering Cat. No. 26594-05. (See OPTIONAL ACCESSORIES AND REAGENTS on page 74.)

3.6.1.1 Storing and Handling StablCal Stabilized Standards

For optimum results when using StablCal Stabilized Standards, adhere to the following recommendations:

* StablCal Stabilized Formazin is cited as a primary standard in Hach Method 8195, an acceptable version of USEPA Method 180.1.

- Do not transfer the standard to another container for storage.
- Do not return standard from the sample cell back into the its original container. Standard contamination will result.
- Store standards between 0 and 25 °C.
- For long-term storage, refrigeration at 5 °c is recommended. Do not store above 25 °C.
- Allow the standard to acclimate to ambient instrument conditions before use (not to exceed 40 °C).
- Store away from direct sunlight. Store vials in their respective kit or shipping box with the cover in place.

3.6.1.2 Preparing Bulk StablCal Stabilized Standards

Bulk standards that have been sitting undisturbed for longer than a month must be shaken to break the condensed suspension into its original particle size. Start at *step 1* for these standards. If the standards are used on at least a weekly interval, start at *step 3*.

Important Note: These instructions do not apply to <0.1-NTU* StablCal Standards; <0.1NTU StablCal Standards should not be shaken or inverted.

1. Shake the standard vigorously for 2-3 minutes to resuspend any particles.
2. Allow the standard to stand undisturbed for 5 minutes.
3. Gently invert the bottle of StablCal 5 to 7 times.
4. Prepare the sample cell for measurement using traditional preparation techniques. This usually consists of oiling the sample cell (see*Section 2.3.2* on page *23*) and marking the cell to maintain the same orientation in the sample cell compartment (see *Section 2.3.3* on page *24*). This step will eliminate any optical variations in the sample cell.

* Used in place of the dilution water standard when performing a calibration.

5. Rinse the sample cell at least one time with the standard and discard the rinse.

6. Immediately fill the sample cell with the standard. Cap the sample cell and let it stand for one minute. The standard is now ready for use in the calibration procedure, *Section 3.6.3*.

3.6.1.3 Preparing StablCal Stabilized Standards in Sealed Vials

Sealed vials that have been sitting undisturbed for longer than a month must be shaken to break the condensed suspension into its original particle size. Start at *step 1* for these standards. If the standards are used on at least a weekly interval, start at *step 3*

Important Note: These instructions do not apply to <0.1-NTU* StablCal Standards; <0.1NTU StablCal Standards should not be shaken or inverted.

1. Shake the standard vigorously for 2-3 minutes to resuspend any particles.

2. Allow the standard to stand undisturbed for 5 minutes.

3. Gently invert the vial of StablCal 5 to 7 times.

4. Prepare the vial for measurement using traditional preparation techniques. This usually consists of oiling the vial (see *Section 2.3.2* on page *23*) and marking the vial to maintain the same orientation in the sample cell compartment (see *Section 2.3.3* on page *24*). This step will eliminate any optical variations in the sample vial.

5. Let the vial stand for one minute. The standard is now ready for use in the calibration procedure, *Section 3.6.3*.

3.6.2 Formazin Primary Standards

Perform the procedure in *Section 3.6.2.1* to prepare a 4000-NTU standard. Alternately, order a 4000-NTU stock solution from Hach by specifying Cat. 2461-49. Prepare the dilutions from the 4000-NTU stock solution by following the instructions in *Section 3.6.2.4*.

3.6.2.1 Preparing Formazin Stock Solution

Dilute formazin standard solutions from a 4000 NTU stock solution equivalent to Hach Cat. No. 2461-49. The prepared stock solution is stable for up to one year when properly prepared. An alternative to purchasing the 4000 NTU stock solution is preparing a stock solution as follows:

1. Dissolve 5.000 grams of reagent grade hydrazine sulfate ($N_2H_4 \cdot H_2SO_4$) in 400 mL of distilled water.

2. Dissolve 50.000 grams of pure hexamethylenetetramine in 400 mL of distilled water.

3. Pour the two solutions into a 1000-mL volumetric flask and dilute to the mark with distilled water.

4. Let the solution stand for 48 hours at 25 °C (77 °F) to develop the 4000-NTU stock suspension. The standing temperature is critical for correct formation of formazin polymers.

5. Mix the 4000 NTU suspension for at least ten minutes before use. Then it can be diluted with distilled or demineralized water to achieve a solution of the desired NTU value.

Instead of diluting a formazin stock solution, StablCal Stabilized Formazin Standards may be used. Order the StablCal Calibration Set for the 2100P Turbidimeter, Cat.No. 26594-00 (500-mL bottles), Cat. No. 26594-10 (100 mL bottles), or Cat. No. 26594-05 (sealed vials). (See *OPTIONAL ACCESSORIES AND REAGENTS* on page *74*.)

3.6.2.2 Correcting for Turbidity of Dilution Water

The 2100P Turbidimeter automatically compensates for turbidity contributed by dilution water when calculating the true value of the lowest formazin standard. Use high quality distilled or deionized water less than 0.5 NTU. The instrument will display E 1 after calibration if

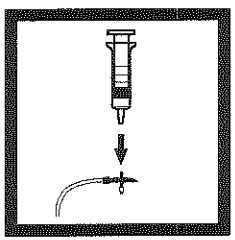
the dilution water turbidity is greater than 0.5 NTU. In this case, prepare the water as directed below.

The value of the dilution water can be arbitrarily forced to zero (see calibration procedure). This is not recommended for most applications and, if done, should be done only if the dilution water turbidity is less than 0.2 NTU.

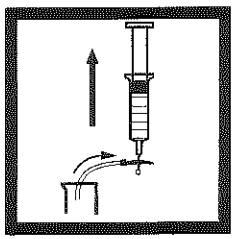
3.6.2.3 Preparing Dilution Water

Note: *Use the same dilution water for all dilutions and the sample blank.*

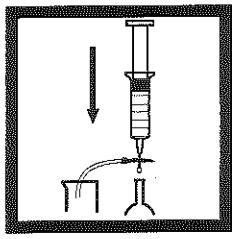
Collect at least 1000 mL of high quality dilution water (distilled or deionized water). The 2100P Turbidimeter, as received from the factory, is precalibrated and may be used to check the dilution water turbidity. If the turbidity is greater than 0.5 NTU, filter the water with the Sample Filtration and Degassing Kit (Cat. No. 43975-10) or equivalent. When measuring low range turbidity, clean all glassware with 1:1 hydrochloric acid and rinse several times with dilution water. If the glassware is not used immediately, use stoppers to prevent contamination from small particles.



1. Attach the syringe to the 3-way valve by gently twisting the square end into the syringe tip. Attach the connector, tubing and a 0.2 micron filter (clear part faces syringe) as shown. Be sure the connections are tight.



2. Fill a beaker or container with the water to be filtered. Insert the tubing into the container. Slowly draw the water into the syringe by pulling up on the syringe plunger.



3. Draw about 50 mL of sample into the syringe. Slowly push on the plunger to force the water through the filter and into a graduated cylinder or volumetric flask. Repeat Steps 2 and 3 until the desired amount of water is obtained.

Note: *As the filter clogs, it gets more difficult to push water through it. At this point, discard the filter and attach a new filter. Replacement filters are available in packages of 10 (Cat. No. 23238-10).*

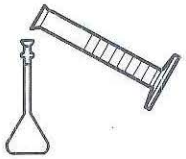
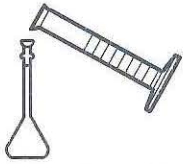
3.6.2.4 Preparing Formazin Dilutions (Factory recommended)

Hach Company recommends using 20, 100, and 800 NTU formazin standards for calibrating the 2100P Turbidimeter. Dilutions with other NTU values can be prepared and used (see *Section 3.6.3.1* on page *48*). If problems occur when using alternate solutions, use the dilutions specified here.

Prepare all formazin dilutions immediately before use and discard after calibration. The 4000 NTU solution is stable for up to a year, but dilutions deteriorate more rapidly. Use the same high quality water (turbidity <0.5 NTU) for the dilutions and the blank.

Preparing the 20, 100 and 800 NTU standards

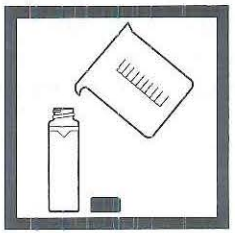
Table 1 Formazin Standard Preparation

	Step 1	Step 2	Step 3
Standards			
20 NTU	Add 100 mL of dilution water to a clean **200-mL** class A volumetric flask.	With a TenSette* pipet, add 1.00 mL of well-mixed 4000 NTU Formazin stock solution to the 200-mL flask.	Dilute to the mark with dilution water. Stopper and mix.
100 NTU	Add 100 mL of dilution water to a clean **200-mL** class A volumetric flask.	With a TenSette pipet, add 5.00 mL of well-mixed 4000 NTU Formazin stock solution to the 200-mL flask.	Dilute to the mark with dilution water. Stopper and mix.
800 NTU	Add 50 mL of dilution water to a clean **100-mL** class A volumetric flask.	With a TenSette pipet, add 20.00 mL of well-mixed 4000 NTU Formazin stock solution to the 100-mL flask.	Dilute to the mark with dilution water. Stopper and mix.

* A class A volumetric pipet may be used in place of a TenSette Pipet.

3.6.3 Calibrating the Turbidimeter

Note: For best accuracy use the same sample cell or four matched sample cells for all measurements during calibration. Always insert the cell so the orientation mark placed on the cell during the matching procedure is correctly aligned. (See Section 2.3.4 on page 26 for matching sample cells).

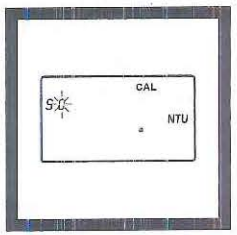


1. Rinse a clean sample cell with dilution water several times. Then fill the cell to the line (about 15 mL) with dilution water or use StablCal <0.1 NTU standard.

Note: The same dilution water used for preparing the standards must be used in this step.

2. Insert the sample cell in the cell compartment by aligning the orientation mark on the cell with the mark on the front of the cell compartment. Close the lid. Press **I/O**.

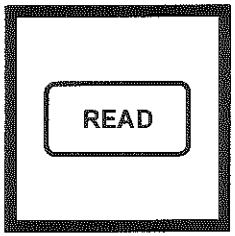
Note: Choose signal average mode option (on or off) before pressing **CAL** *– the* **SIGNAL AVERAGE** *key is not functional in calibration mode.*



3. Press: **CAL**

The **CAL** and **S0** icons will be displayed (the **0** will flash). The 4-digit display will show the value of the S0 standard for the previous calibration. If the blank value was forced to 0.0, the display will be blank (as shown). Press → to get a numerical display.

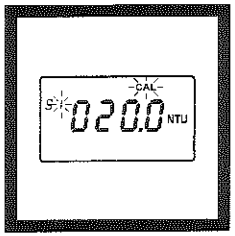
Hach Company only recommends the use of StablCal® Stabilized Formazin or formazin standards for the calibration of Hach turbidimeters. Hach Company cannot guarantee the performance of the turbidimeter if calibrated with co-polymer styrene divinylbenzene beads or other suspensions. DO NOT calibrate with Gelex® Secondary Standards.



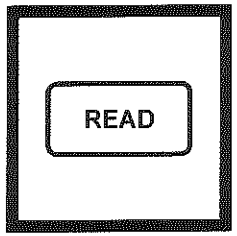
4. Press: **READ**

The instrument will count from 60 to 0, (67 to 0 if signal average is on), read the blank and use it to calculate a correction factor for the 20 NTU standard measurement. If the dilution water is ≥ 0.5 NTU, E 1 will appear when the calibration is calculated (See *Section 3.6.2.3* on page *41* for more dilution water information). The display will automatically increment to the next standard. Remove the sample cell from the cell compartment.

Note: *The turbidity of the dilution water can be "forced" to zero by pressing → rather than reading the dilution water. The display will show* **S0 NTU** *and the ↑ key must be pressed to continue with the next standard.*



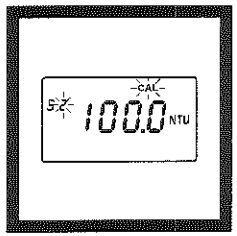
5. The display will show the **S1** (with the 1 flashing) and **20 NTU** or the value of the S1 standard for the previous calibration. If the value is incorrect, edit the value by pressing the → key until the number that needs editing flashes. Use the ↑ key to scroll to the correct number. After editing, fill a clean sample cell to the line with **well mixed** 20 NTU StablCal Standard or 20 NTU formazin standard. Insert the sample cell into the cell compartment by aligning the orientation mark on the cell with the mark on the front of the cell compartment. Close the lid.



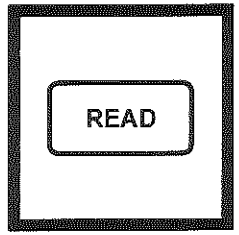
6. Press: **READ**

The instrument will count from 60 to 0 (67 to 0 if signal average is on), measure the turbidity and store the value. The display will automatically increment to the next standard. Remove the sample cell from the cell compartment.

Note: *For potable water applications with low turbidity values the instrument calibration may be stopped after the 20 NTU StablCal Standard has been read. Press* **CAL** *after reading the 20 NTU standard. The instrument calibration is now complete for the range of 0-20 NTU only. The instrument will continue to read turbidity values above 20 NTU. These values were not updated during the 0-20 NTU calibration.*

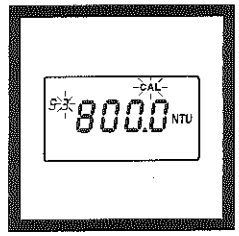


7. The display will show the **S2** (with the 2 flashing) and **100 NTU** or the value of the S2 standard for the previous calibration. If the value is incorrect, edit the value by pressing the → key until the number that needs editing flashes. Use the ↑ key to scroll to the correct number. After editing, fill a clean sample cell to the line with **well mixed** 100 NTU StablCal Standard or 100 NTU formazin standard. Insert the sample cell into the cell compartment by aligning the orientation mark on the cell with the mark on the front of the cell compartment. Close the lid.

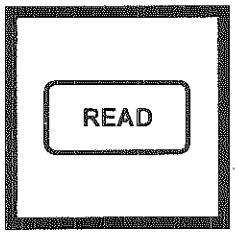


8. Press: **READ**

The instrument will count from 60 to 0 (67 to 0 if signal average is on), measure the turbidity and store the value. Then, the display will automatically increment to the next standard. Remove the sample cell from the cell compartment.

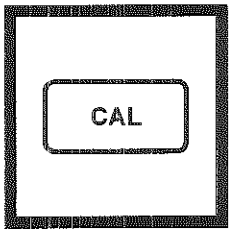


9. The display will show the **S3** (with the 3 flashing) and **800 NTU** or the value of the S3 standard for the previous calibration. If the value is incorrect, edit the value by pressing the → key until the number that needs editing flashes. Use the ↑ key to scroll to the correct number. After editing, fill a clean sample cell to the line with **well mixed** 800 NTU StablCal Standard or 800 NTU formazin standard. Insert the sample cell into the cell compartment by aligning the orientation mark on the cell with the mark on the front of the cell compartment. Close the lid.



10. Press: **READ**

The instrument will count from 60 to 0 (67 to 0 if signal average is on), measure the turbidity and store the value. Then the display will increment back to the S0 display. Remove the sample cell from the cell compartment.



11. Press: **CAL** to accept the calibration. The instrument will return to measurement mode automatically.

Note: Pressing **CAL** *completes the calculation of the calibration coefficients. If calibration errors occurred during calibration, error messages will appear after* **CAL** *is pressed. If* **E 1** *or* **E 2** *appear, check the standard preparation and review the calibration; repeat the calibration if necessary. If* **CAL?** *appears, an error may have occurred during calibration. If* **CAL?** *is flashing, the instrument is using the default calibration.*

NOTES

- If the **I/O** key is pressed during calibration, the new calibration data is lost and the old calibration will be used for measurements. Once in calibration mode, only the **READ**, **I/O**, ↑, and → keys function. Signal averaging and range mode must be selected before entering the calibration mode.

- If **E 1** or **E 2** are displayed, an error occurred during calibration. Check the standard preparation and review the calibration; repeat the calibration if necessary. Press **DIAG** to cancel the error message (**E 1** or **E 2**). To continue without repeating the calibration, press **I/O** twice to restore the previous calibration. If **CAL?** is displayed, an error may have occurred during calibration. The previous calibration may not be restored. Either recalibrate or use the calibration as is.

- To review a calibration, press **CAL** and then ↑ to view the calibration standard values. As long as **READ** is never pressed and **CAL** is not flashing, the calibration will not be updated. Press **CAL** again to return to the measurement mode.

3.6.3.1 Preparing User-selected Formazin Dilutions

The formazin solutions should span the entire range of the instrument. Hach recommends preparing three standards:

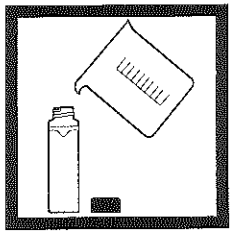
1. 10 to 30 NTU
2. 90 to 110 NTU
3. 700 to 900 NTU

The standards must have a difference of at least 60 NTU.
In addition, a blank made from the dilution water should be prepared.

Prepare the formazin standard solutions from the well mixed 4000 NTU stock solution as specified in *Section 3.6.2.4* on page *42* and dilution water as specified in *Section 3.6.2.2* and *Section 3.6.2.3* on page *41*. Make the standards **immediately** before use and discard them after calibration is done.

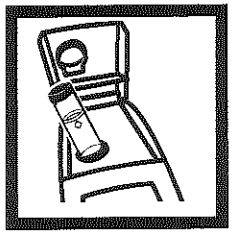
3.6.3.2 Calibrating with User-selected Standards

Note: For best accuracy use the same sample cell or four matched sample cells for all measurements during calibration. Always insert the sample cell with the same orientation.



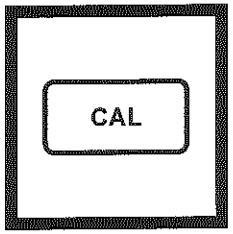
1. Fill a clean sample cell to the line (about 15 mL) with dilution water.

Note: The same dilution water used for preparing the standards must be used in this step.



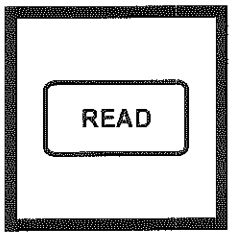
2. Insert the sample cell into the cell compartment and close the lid. Press **I/O**.

Note: Choose signal average mode option (on or off) before pressing **CAL** *– the* **SIGNAL AVERAGE** *key is not functional in calibration mode.*



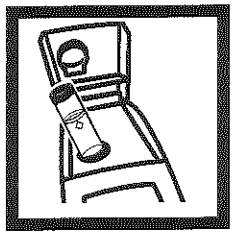
3. Press: **CAL**.

The **CAL** and **S0** icons will appear (the **0** will flash). The 4-digit display will show the value of the S0 standard for the previous calibration.

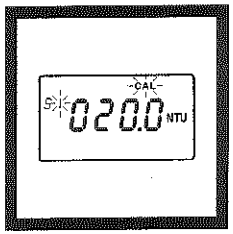


4. Press: **READ**.

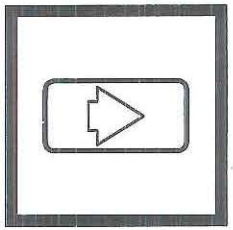
The instrument will count from 60 to 0 (67 to 0 if signal average is on), measure the blank and use it to calculate a correction factor for the lowest standard. If the dilution water is ≥0.5 NTU, **E 1** will appear (see *Section 3.6.2.3* on page *41* for more dilution water information). The display will automatically increment to the next standard. Remove the sample cell from the cell compartment.



5. Thoroughly mix the 10 to 30 NTU range standard, then fill a clean sample cell to the line with the standard. Insert the sample cell into the cell compartment



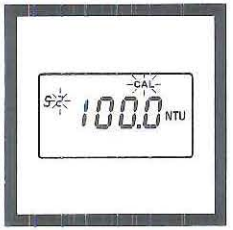
6. The display will show the **S1** icon (with the **1** flashing) and **20 NTU** or the value of the S1 standard for the previous calibration.



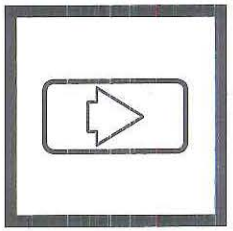
7. Edit the standard concentration by pressing →. The **1** will stop flashing and the left digit in the display will flash. Press ↑ to scroll the digit up to the appropriate number. Press → again to move the cursor to the next digit and edit it in the same manner.

8. When all the digits show the appropriate value, press **READ**. The instrument will count from 60 to 0 (67 to 0 if signal average is on), measure the turbidity and store the value. The display will automatically increment to the next standard. Remove the sample cell from the cell compartment.

9. Thoroughly mix the 90 to 110 NTU standard, then fill a clean sample cell to the line with the standard. Insert the cell into the cell compartment.

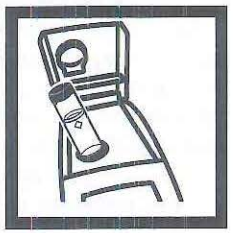


10. The display will show the **S2** icon (with the **2** flashing) and **100 NTU** or the value of the S2 standard for the previous calibration.

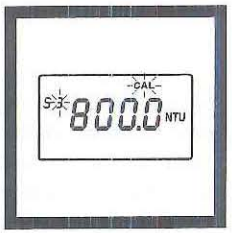


11. Edit the standard concentration by pressing →. The **2** will stop flashing and the left digit in the display will flash. Press ↑ to scroll the digit up to the appropriate number. Press → again to move the cursor to the next digit and edit it in the same manner.

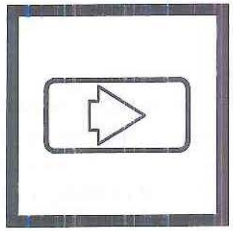
12. When all the digits show the appropriate value, press **READ**. The instrument will count from 60 to 0 (67 to 0 if signal average is on), measure the turbidity and store the value. Remove the sample cell from the cell compartment.



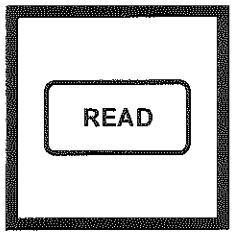
13. Thoroughly mix the 700 to 900 NTU standard, then fill a clean sample cell to the line with the standard. Insert the cell into the cell compartment.



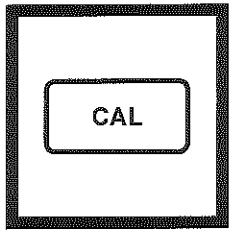
14. The display will show the **S3** icon (with the **3** flashing) and **800 NTU** or the value of the S3 standard for the previous



15. Edit the standard concentration by pressing →. The **3** will stop flashing and the left digit in the display will flash. Press ↑ to scroll the digit up to the appropriate number. Press → again to move the cursor to the next digit and edit it in the same manner.



16. When all the digits show the appropriate value, press **READ**. The instrument will count from 60 to 0 (67 to 0 if signal average is on), measure the turbidity and store the value. The instrument will increment back to **S0**. Remove the sample cell from the cell compartment.



17. Press: **CAL**.

The instrument will store the new calibration data and return the instrument to the measurement mode. It will use the new calibration to calculate turbidity for subsequent measurements.

Note: Pressing **CAL** *completes the calculation of the calibration coefficients. If calibration errors occurred during calibration, error messages will appear after* **CAL** *is pressed. If* **E 1** *or* **E 2** *appear, check the standard preparation and review the calibration; repeat the calibration if necessary. If* **CAL?** *appears, an error may have occurred during calibration. If* **CAL?** *is flashing, the instrument is using the default calibration.*

NOTES

- If the **I/O** key is pressed during calibration, the new calibration data is lost and the old calibration will be used for measurements. Once in calibration mode, only the **READ**, **I/O**, ↑, and → keys function. Signal averaging and range mode must be selected before entering the calibration mode.

- If **E 1** or **E 2** are displayed, an error occurred during calibration. Check the standard preparation and review the calibration; repeat the calibration if necessary. If the error messages recur, calibrate using the factory specified standards, *Section 3.6.2.4* on page *42* and *Section 3.6.3* on page *44*. Press **DIAG** to cancel the error message (**E 1** or **E 2**). To continue without repeating the calibration, press **I/O** twice to restore the previous calibration. If **CAL?** is displayed, an error may have occurred during calibration. The previous calibration may not be restored. Either recalibrate or use the calibration as is.

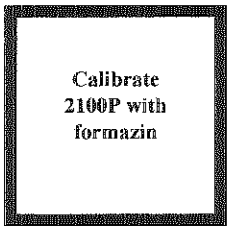
- To review a calibration, press **CAL** and then only ↑ to view the calibration standard values. As long as **READ** is never pressed and **CAL** isn't flashing, the calibration will not be updated. Press **CAL** again to return to the measurement mode.

3.6.4 Using Gelex® Secondary Turbidity Standards

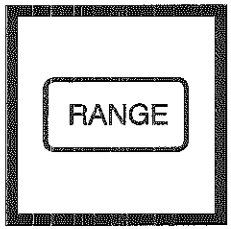
Note: *Store Gelex standards at room temperature. Do not allow to freeze or exceed 50 °C.*

Gelex Secondary Standards (included with 4650000 only) are particulate suspensions similar to formazin primary standards in light scattering characteristics. NTU values on the Gelex standards indicate the range for which they should be used. Due to minor variations in glass and individual instrument optical systems, the true value of the Gelex standards must be determined against formazin in the same instrument they will be used with for later calibration checks.

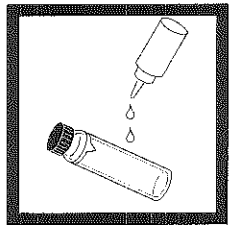
3.6.4.1 Assigning Values to Gelex Standards



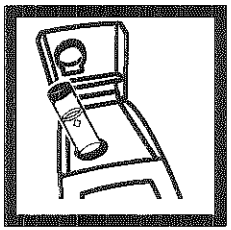
1. Calibrate the instrument with formazin.



2. Select automatic range mode using the **RANGE** key.

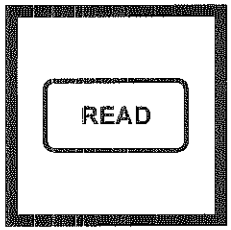


3. Thoroughly clean the outside of the Gelex vials and apply a thin coating of silicone oil.



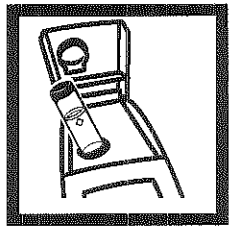
4. Place the 0-10 NTU Gelex standard in the cell compartment so the diamond on the vial aligns with the orientation mark on the instrument. Close the sample lid.

Note: Correct cell orientation is essential to obtain accurate Gelex values. Always orient the cell so the diamond mark aligns with the orientation mark on the instrument.



5. Press: **READ.**

Record the displayed value, remove the vial from the instrument and mark the value on the band near the top of the vial.



6. Repeat *step 3* through *step 5* for the other Gelex standards, being careful to orient the cells properly.

7. Re-assign values to the Gelex standards each time the instrument is calibrated with formazin.

3.6.4.2 Routine Calibration Check With Gelex Standards

The 2100P Turbidimeter does not require standardization before every measurement as some turbidimeters do. Periodically, as experience dictates, check the instrument calibration using the appropriate Gelex Secondary Standard. Be sure the Gelex standards are aligned correctly when inserting them (diamond aligns with orientation mark). If the reading is not within 5% of the previously established value, recalibrate the instrument with StablCal Stabilized Formazin Primary Standard or formazin primary standard (*Section 3.6.3* on page *44*).

Important Note: DO NOT calibrate with Gelex® Secondary Standards. Gelex standards are designed for instrument verification, not calibration.

MAINTENANCE

Some of the following manual sections contain information in the form of warnings, cautions and notes that require special attention. Read and follow these instructions carefully to avoid personal injury and damage to the instrument. Only personnel qualified to do so, should conduct the maintenance tasks described in this portion of the manual.

Certains des chapitres suivants de ce mode d'emploi contiennent des informations sous la forme d'avertissements, messages de prudence et notes qui demandent une attention particulière. Lire et suivre ces instructions attentivement pour éviter les risques de blessures des personnes et de détoriation de l'appareil. Les tâches d'entretien décrites dans cette partie du mode d'emploi doivent être seulement effectuées par le personnel qualifié pour le faire.

Algunos de los capítulos del manual que presentamos contienen muy importante información en forma de alertas, notas y precauciones a tomar. Lea y siga cuidadosamente estas instrucciones a fin de evitar accidentes personales y daños al instrumento. Las tareas de mantenimiento descritas en la presente sección deberán ser efectuadas únicamente por personas debidamente cualificadas.

Einige der folgenden Abschnitte dieses Handbuchs enthalten Informationen in Form von Warnungen, Vorsichtsmaßnahmen oder Anmerkungen, die besonders beachtet werden müssen. Lesen und befolgen Sie diese Instruktionen aufmerksam, um Verletzungen von Personen oder Schäden am Gerät zu vyyyermeiden. In diesem Abschnitt beschriebene Wartungsaufgaben dürfen nur von qualifiziertem Personal durchgeführt werden.

Algumas das seguintes secções do manual contêm informações em forma de advertências, precauções e notas que requerem especial atenção. Leia e siga atentamente as presentes instruções para evitar ferimentos pessoais e não danificar o instrumento. As tarefas de manutenção descritas nesta parte do manual só poderão ser executadas por pessoal qualificado.

SECTION 4 MAINTENANCE

4.1 Cleaning

Keep the turbidimeter and accessories as clean as possible and store the instrument in the carrying case when not in use. Avoid prolonged exposure to sunlight and ultraviolet light. Wipe spills up promptly. Wash sample cells with non-abrasive laboratory detergent, rinse with distilled or demineralized water, and air dry. Avoid scratching the cells and wipe all moisture and fingerprints off the cells before inserting them into the instrument. Failure to do so can give inaccurate readings. See *Section 2.3.1* on page *23* for more information about sample cell care.

4.2 Battery Replacement

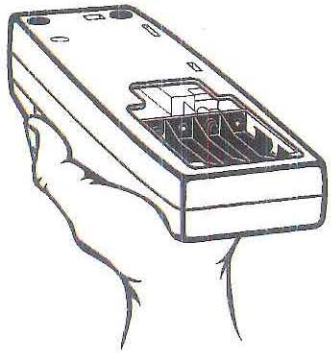
AA alkaline cells typically last for about 300 tests with the signal averaging mode off, about 180 tests if signal averaging is used. The "battery" icon flashes when battery replacement is needed. Refer to *Section 1.4.2* on page *16* for battery installation instructions. If the batteries are changed within 30 seconds, the instrument retains the latest range and signal average selections. If it takes more than 30 seconds, the instrument uses the default settings.

If, after changing batteries, the instrument will not turn off or on and the batteries are good, remove the batteries and reinstall them. If the instrument still won't function, contact Hach Service or the nearest authorized dealer.

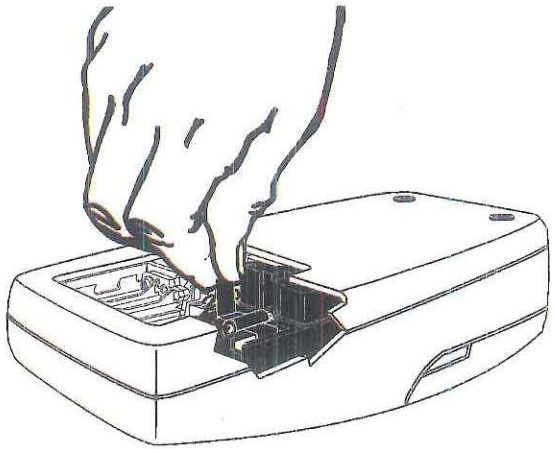
4.3 Lamp Replacement

The procedure below explains lamp installation and electrical connections. Use a small screwdriver to remove and install the lamp leads in the terminal block. The instrument requires calibration after lamp replacement.

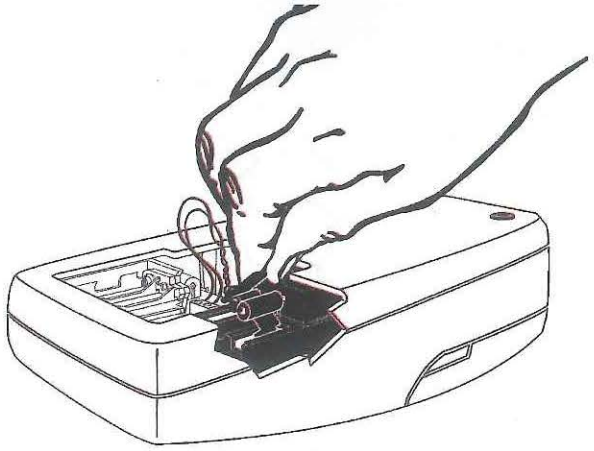
1. Orient the instrument so it is upside down and the top faces away from you. Remove the battery cover and at least one battery.



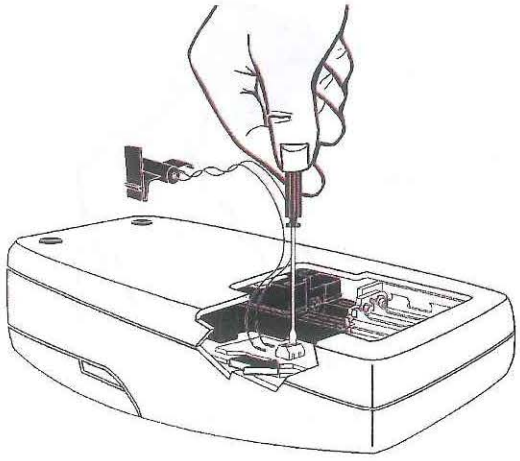
2. Remove the lamp assembly by grasping the tab on the left side of the assembly. Firmly, but gently, slide the assembly towards the rear of the instrument.



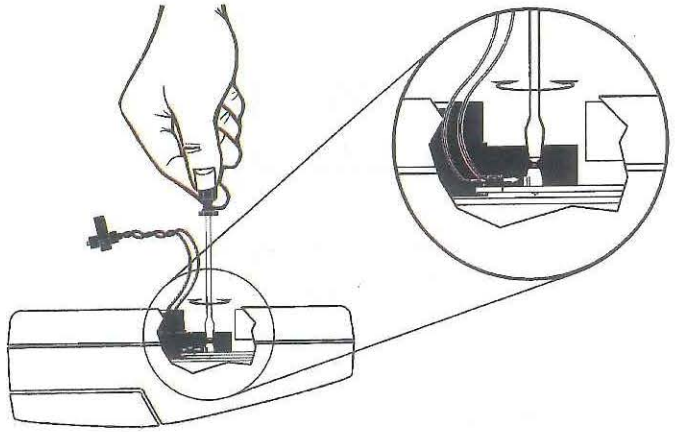
3. Rotate the tab towards the nearest outside edge. The assembly should release and slip out easily.



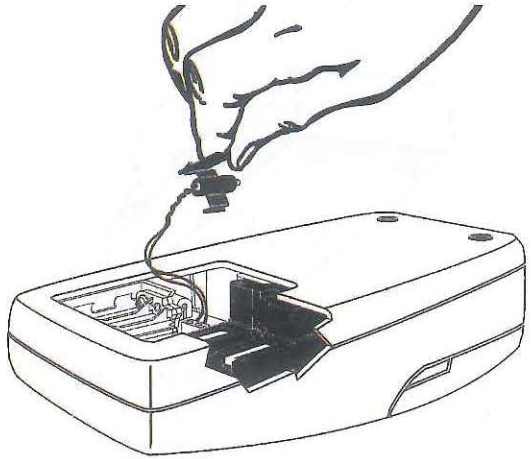
4. Back the terminal block screws **partially** out (1 to 2 turns) and remove the old lamp leads.



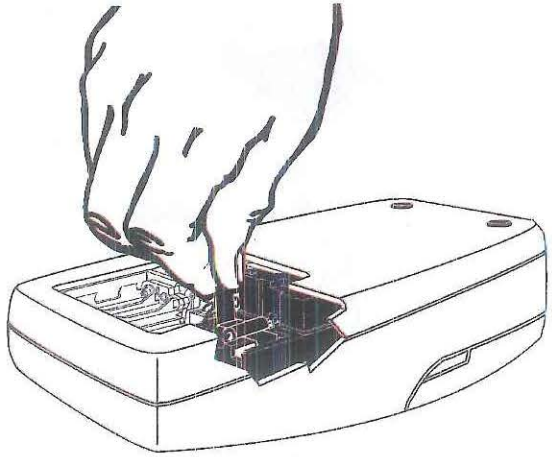
5. Gently bend the wires of the new lamp assembly into an "L" shape so they fit easily into the housing. Insert the leads into the terminal screws and tighten with clockwise turns. Gently tug on the wires to make sure they are connected to the terminal block.



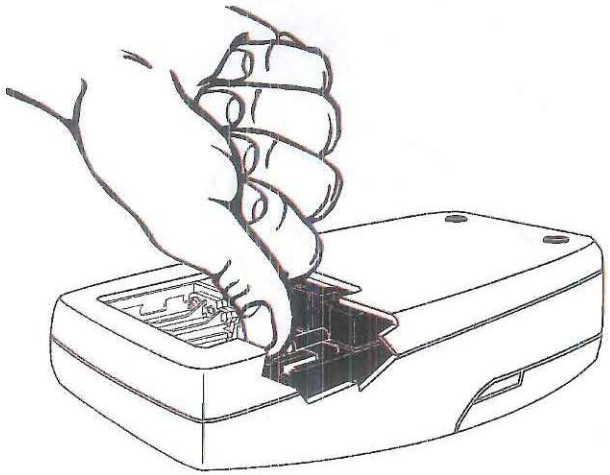
6. Hold the new lamp assembly by the tab with the lamp facing the tope (keyboard) of the instrument. Slide the small catch on the other side of the assembly into the black plastic slot (towards the nearest edge of the instrument).



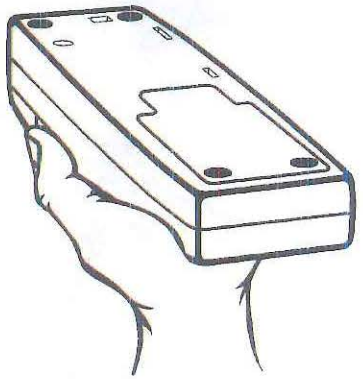
7. Snap the U-shaped bottom of the tab into the slot on the left side of the black plastic that holds the lamp assembly.



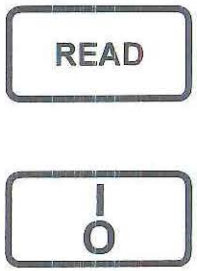
8. With your thumb, firmly slide the assembly forward until it stops. Again, push firmly against the tab to make sure the lamp is seated correctly.



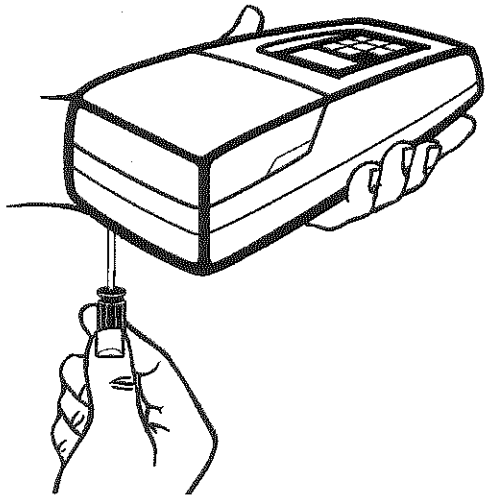
9. Replace the battery(s) and battery cover.



10. Insert the 800 NTU formazin standard into the sample cell. Press and hold **READ**. Then press **I/O**. Release the **READ** key after the software version number disappears from the display (for models with serial numbers less than 920300000800, **2100** disappears).



11. Adjust the scattered light amplifier output by inserting a small flat-bladed screwdriver into the trimpot hole (located on bottom). Adjust the display to read 2.5 ± 0.3 volts (2.0 volts for models that display **2100** when turned on).



12. Press **I/O** to exit gain adjust mode.

13. Perform a formazin calibration according to *Section 3.6.3* on page *44* or *Section 3.6.3.1* on page *48*.

SECTION 5 TROUBLESHOOTING

5.1 Using the Diagnostic Functions Key

Enter the diagnostic mode by pressing the **DIAG** key. Exit this mode at any time by pressing the key again. The diagnostic mode allows access to information about instrument function which may be useful for servicing and troubleshooting.

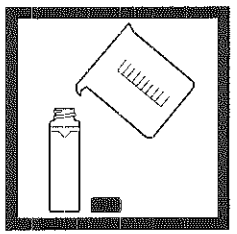
5.1.1 Basic Diagnostic Codes

The diagnostic codes are:

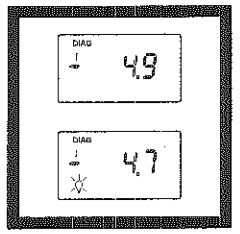
Code	Description
1	Checks the battery voltage with the lamp on, then with the lamp off. This is a dual diagnostic code.
2	Displays calibration coefficient a_0
3	Displays calibration coefficient a_1
4	Displays calibration coefficient b_0
5	Displays calibration coefficient b_1
6	Displays the lamp voltage (about 3 volts)
7	Displays the dark voltage of the transmitted light detector amplifier with the lamp off and the detector amplifier voltage with the lamp on.
8	Displays the high gain dark voltage of the 90° detector amplifier with the lamp off and the detector amplifier voltage with the lamp on.*
9	Displays the low gain dark voltage of the 90° detector amplifier with the lamp off and the detector amplifier voltage with the lamp on.

* Samples with turbidity >10 NTU may display - - - for the lamp-on amplifier voltage.

5.2 The Diagnostic Procedure

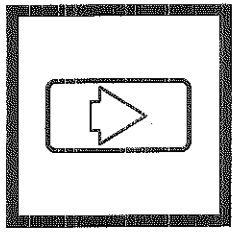


1. Fill a clean sample cell to the line with clear water, cap the cell and place it in the cell compartment. Press the **READ** key and wait until the reading is finished.

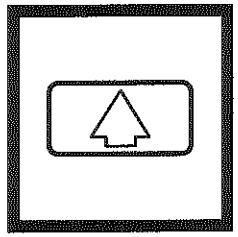


2. Press: **DIAG**

The **DIAG** icon will turn on and **1** will be displayed below the icon. The instrument will measure the battery voltage with the lamp off and display the result in volts (V). Then the lamp icon will turn on and the instrument will measure the voltage with the lamp on. The value is briefly displayed before defaulting to the lamp-off reading. To repeat the measurement, press **READ**.



3. To continuously display the lamp-on voltage, press →. The lamp icon will flash. Press → to turn the lamp icon off (the lamp is not on during this display).



4. Press the ↑ key to scroll through the other diagnostics. Each press of the key increments the digit in the small numerical display below the **DIAG** icon and the result of the diagnostic measurement is then displayed. Each press of the **READ** key updates the value. For measurements made with the lamp off and again with the lamp on, the measurement with the lamp off is displayed when the diagnostic is entered. To see the second measurement with the lamp on, press the → key (only works with diagnostic codes 1, 7, 8, & 9). The lamp icon will flash and the lamp-on measurement will be displayed in volts. Press → to turn the lamp icon off.

Note: *DIAG 8 will display ----- for the lamp-on voltage if a of >10 NTU is placed in the cell compartment.*

5.3 Other Instrument Diagnostics

5.3.1 Display Test

Pressing and holding the **I/O** key turns on all the display icons and elements so you can determine if all the elements and icons are functioning. The display test sequence will cycle as long as the key is held down.

5.4 Error Messages

Error messages indicate sample interferences and/or instrument malfunction.

5.4.1 Flashing Numeric Display

If the highest value in the range selected is flashing in the display, the sample is too turbid (or overrange) for the selected range. In automatic or manual range, **1000** flashes if the sample is over the instrument's range. In manual range mode, select the next higher range mode if **9.99** or **99.9** flashes. See *Section 2.3.6* on page *31* for measuring overrange samples. The display will stop flashing if a sample within range is inserted and read.

5.4.2 E Messages

An error message indicates either an instrument failure or an operation cannot be performed. **An error message can be cleared by pressing DIAG** (display will return to previous measurement or calibration value). The meter continues to operate as best it can. If the message occurs during a calibration, calibration can continue. If the error message occurs when a calibration is being calculated, the instrument will discard the new calibration and retain the old calibration. Error messages and corrective actions are listed below.

5.4.3 CAL?

A flashing **CAL?** appears when the instrument is using the default calibration programmed at the factory. It will appear if the analyst has erased the user-entered calibration using the procedure to restore the default calibration or after and E 4 error is cleared by pressing DIAG. Recalibrate as soon as possible when **CAL?** appears. **CAL?** (not flashing) appears when a calibration has questionable validity.

SECTION 5, continued

Message*	Probable Cause	Corrective Action
E1	Dilution water is ≥ 0.5 NTU.	Start calibration over with better quality dilution water or use a membrane filter to filter the water before use.
E2	Two standards have the same value or their difference is less than 60 NTU. Not all standards were read during the calibration. Standard 1 is too low (<10 NTU).	Recheck preparation of standards and repeat calibration.
E3	Low light error.	Re-read measurement. Check lamp** Check for obstructed light path. Dilution may be necessary.
E4	EEPROM malfunction.	Check sum failed. Press **I/O**. If E 4 reappears, call Hach service. If **CAL?** appears, recalibrate.
E5	A/D overrange.	Check for obstructed light path. Call Hach Service.
E6	A/D underrange.	Check for open lid during reading and re-read. Check for obstructed light path. If persists, call Hach Service.
E7	Light Leak.	Close lid before pressing **READ** key.
E8	Bad lamp circuit.	Reinsert lamp leads at terminal block-make sure the lead ends are not touching each other.If this fails, call Hach Service.

* Error messages 4, 5, and 6 may indicate a failure in the internal electronics.
** Check lamp by inserting a pencil or piece of paper into the cell compartment and pressing READ. Light should be visible on the inserted object.

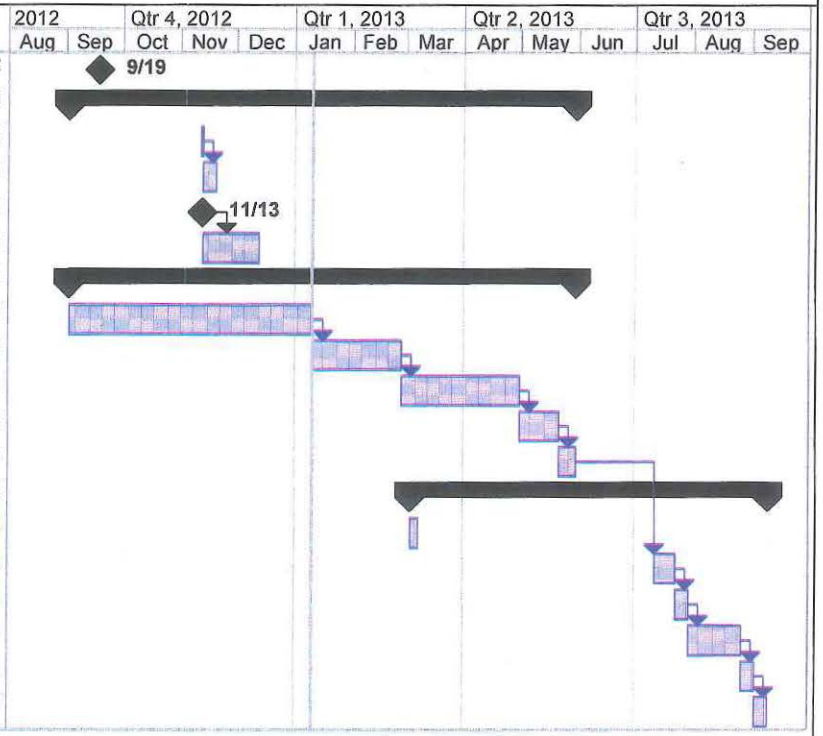
APPENDIX H

APPENDIX H

GANTT CHART PROJECT SCHEDULE

JANUARY 2013 - SCHEDULE UPDATE
FINAL SEDIMENT REMEDIAL DESIGN PLAN DREDGING SCHEDULE
FORMER STANLEY TOOLS FACILITY
FOWLERVILLE, MICHIGAN

ID	Task Name	Duration	Start	Finish
1	Removal Contractor Selection	0 days	Wed 9/19/12	Wed 9/19/12
2	**Removal Permitting**	**194 days**	**Mon 9/3/12**	**Thu 5/30/13**
3	Indiana Bat Survey	1 day	Mon 11/12/12	Mon 11/12/12
4	Indiana Bat Survey	5 days	Tue 11/13/12	Mon 11/19/12
5	Regulator Pre-Application Meeting	0 days	Tue 11/13/12	Tue 11/13/12
6	Written Findings	22 days	Tue 11/13/12	Wed 12/12/12
7	**MDEQ/USACE Joint Permit**	**194 days**	**Mon 9/3/12**	**Thu 5/30/13**
8	Application Prep/Submittal	94 days	Mon 9/3/12	Thu 1/10/13
9	Initial Agency Review Time	33 days	Fri 1/11/13	Tue 2/26/13
10	Public Notice (20 to 45 days)	45 days	Wed 2/27/13	Tue 4/30/13
11	Address Comments/Issue	15 days	Wed 5/1/13	Tue 5/21/13
12	Permit Approval	7 days	Wed 5/22/13	Thu 5/30/13
13	**Dredging**	**136 days**	**Mon 3/4/13**	**Mon 9/9/13**
14	Tree Removal	4 days	Mon 3/4/13	Thu 3/7/13
15	Mobilization	7 days	Fri 7/12/13	Mon 7/22/13
16	Curtain Install/Debris Removal	5 days	Tue 7/23/13	Mon 7/29/13
17	Dredging/Stabilization/Off-Site Disposal	20 days	Tue 7/30/13	Mon 8/26/13
18	Extra Removal (if needed)	5 days	Tue 8/27/13	Mon 9/2/13
19	Demob/restoration	5 days	Tue 9/3/13	Mon 9/9/13



Project: New Permit Dredging Schedu
Date: Thu 1/10/13

Task
Split
Progress
Milestone
Summary
Project Summary
External Tasks
External Milestone
Deadline

APPENDIX I

APPENDIX I

MDEQ INSPECTION LETTER

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING DISTRICT OFFICE

RICK SNYDER
GOVERNOR

DAN WYANT
DIRECTOR

December 4, 2012

Mr. Michael Stoelton
Johnson Controls, Inc.
49200 Halyard Drive
Plymouth, MI 48170

Dear Mr. Stoelton:

SUBJECT: Preapplication Meeting
Michigan Department of Environmental Quality (MDEQ)
File Number 12-47-0073-P

This letter is a follow-up to our November 13, 2012, pre-application meeting with your consultant CTi and Associates, Inc., regarding the proposed dredging project at the former Stanley Tool Facility in the City of Fowlerville, Livingston County. The purpose of a preapplication meeting is to provide you with information that will clarify the permit process, answer preliminary questions about your specific project in order to avoid delays at a later date, and to determine, if possible, the need for wetland or inland lakes and streams permits.

During this meeting we reviewed the need to obtain a permit under Part 301, Inland Lakes and Streams; Part 303, Wetlands Protection, and the State's Floodplain Regulatory Authority found in Part 31, Water Resources Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA). The review was based on discussion of the attached plan and proposed project, and review of the proposed site.
During the review of the project site and plan, the MDEQ's Water Resources Division (WRD) staff determined that a permit is required for the project as proposed.

This determination is based on the enclosed project plan prepared by CTi and Associates, Inc., dated January 2012, along with other information provided at the time of this meeting only. Provided that the proposed project and location are not altered, this determination is binding on the MDEQ for a period of two years from the date of this meeting.

During the meeting, we also discussed a number of issues related to the project, including the following:

- Information needed to complete an application form.
- Possible alternative design options to minimize project effects on aquatic resources.
- What information should be included in the project plans.

Please note that this is not a permit. The WRD cannot indicate during a preapplication meeting whether or not a permit will be issued. The WRD cannot make a decision regarding a permit until it has considered all of the information provided in the final permit application, and, in some instances, has also considered comments received in response to a public notice of the project. Therefore, WRD staff cannot legally tell you whether the project will be permitted in advance of a permit application being submitted and reviewed.

The MDEQ file number assigned to this project is 12-47-0073-P. Please keep a record of this file number, and use it when submitting a final application or otherwise corresponding with our office on this project.

We appreciate the opportunity to meet with you or your representative to address these concerns. We have established a file for this project, and the information submitted to date will be used to facilitate processing of the final application. If you should have follow up questions before then, please contact me at 517-335-6270 e-mail, kolhofft@michigan.gov; or MDEQ, WRD, Lansing District Office, 525 West Allegan Street, 4th Floor-North, Lansing, Michigan 48933-1502.

Sincerely,

Thomas Kolhoff
Water Resources Division

Enclosure
cc: Mr. Andrew Lonergan, CTi and Associates, Inc.
Mr. James Dickson, CTi and Associates, Inc.

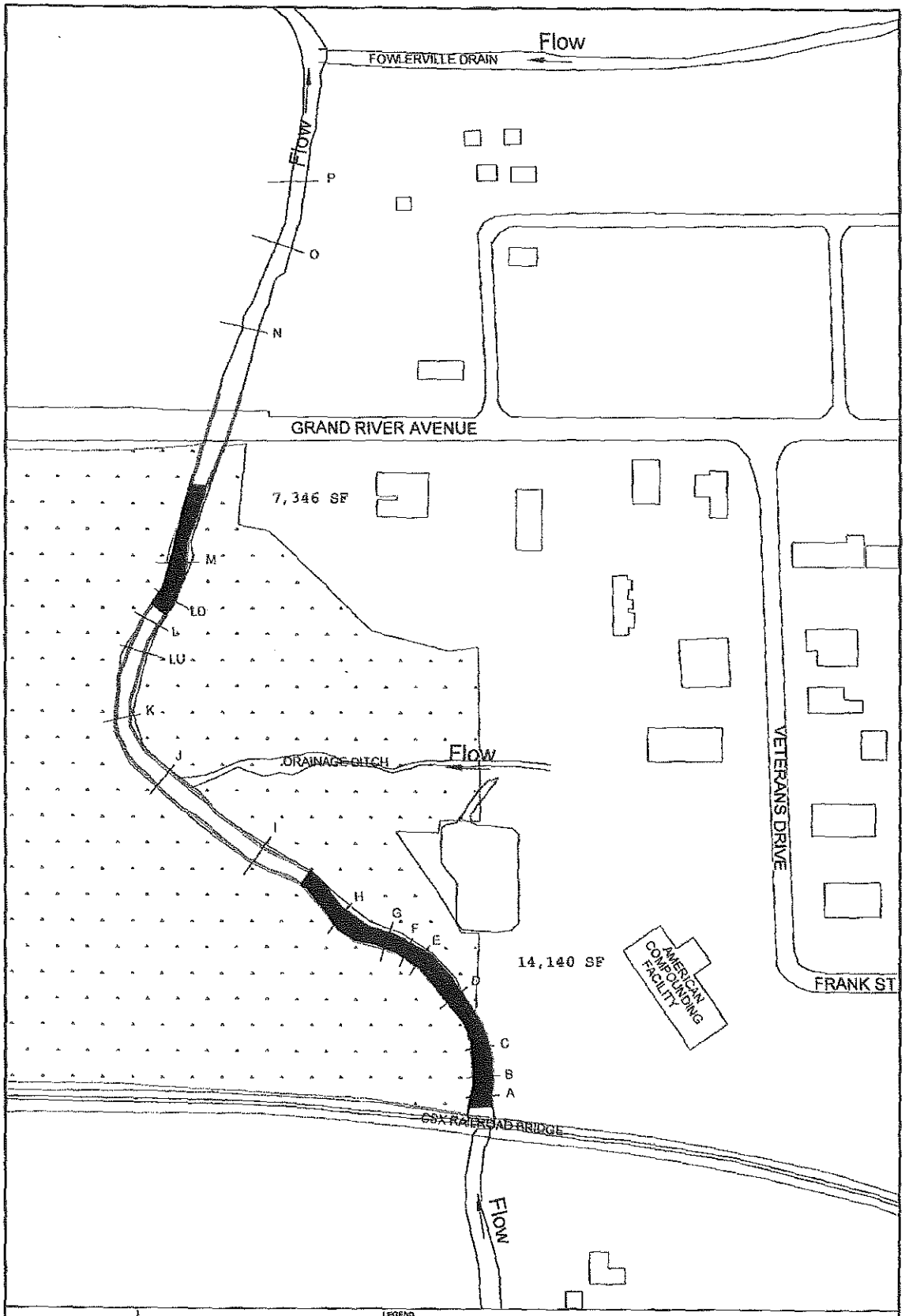


FIGURE NO. 5	PROJECT NO. 0105016007	DATE Jan 2012	Designed By: J. Dickson Drawn By: J. Dickson Checked By: J. Dickson Approved By: A.J. LONERGAN	REVISIONS: Rev. 1 Replace Drawings from January 2010 Submittal	CLIENT: JCI Plymouth, MI

SEDIMENT REMEDIAL DESIGN PLAN
FORMER STANLEY TOOLS FACILITY
(MID 099 124 299), Fowlerville, MI

Removal Areas

CB and Associates, Inc.

D-3-7

CTI and Associates, Inc.
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January 29, ~~2009~~ 2010

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RCRA ECAB, DE-9J
77 W. Jackson Blvd.
Chicago, Illinois 60604

RE: Sediment Remedial Design Plan
Former Stanley Tools Facility (MID 099 124 299)
Fowlerville, Michigan

Dear Mr. Thomas:

Please find the attached Sediment Remedial Design Plan for the Former Stanley Tools Facility (MID 099 124 299), located in Fowlerville, Michigan. The Sediment Remedial Design Plan was prepared pursuant to your letters dated June 11, 2009 and November 4, 2009, and the response letter from Johnson Controls, Inc. dated November 17, 2009.

If you have questions, don't hesitate to contact Michael L. Stoelton, Johnson Controls, Inc. at (734) 254-5657, or me at (248) 560-0715.

Sincerely,

CTI and ASSOCIATES, INC.

Andrew J. Lonergan, PG
Project Manager

037

Johnson Controls

Sediment Remedial Design Plan

Former Stanley Tools Facility (MID 099 124 299)
Fowlerville, Michigan

Prepared for:

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Submitted to:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5, RCRA CORRECTIVE ACTION SECTION
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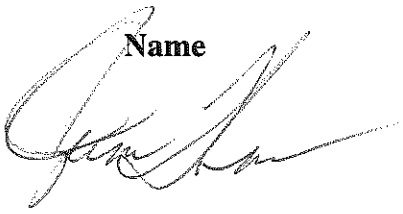
EPA and MDNRE - RCRA Corrective Action Meeting Sediment Remedial Design Overview For the Johnson Controls, Inc. Site, of Fowlerville, MI by JCI and CTI and Associates, April 13, 2010

Sign-In Sheet

Name	Affiliation	Phone	Email
	EPA	312-886-6010	

EPA and MDNRE - RCRA Corrective Action Meeting Sediment Remedial Design Overview For the Johnson Controls, Inc. Site, of Fowlerville, MI by JCI and CTI and Associates, April 13, 2010

Sign-In Sheet

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1.0 INTRODUCTION

Johnson Controls, Inc. (JCI) currently holds Resource Conservation and Recovery Act (RCRA) corrective action responsibility at the Former Stanley Tools Facility (MID 099 124 299) in Fowlerville, Michigan (Figure 1). JCI's ultimate goal for the site is to eliminate unacceptable risks to public health and the environment resulting from past releases, and to redevelop the property for beneficial use.

In October 2002, EPA provided a draft Administrative Order on Consent (AOC) to JCI, and through negotiations, a final AOC was executed in December 2002 for the site (U.S. EPA Docket No. RCRA-05-2003-004). This is a performance-based AOC; the RCRA corrective action process requirements imposed by EPA were significantly streamlined, reducing and/or eliminating the need for formal submittals, approvals to proceed with investigative or remedial activities. The AOC focused on (a) the submittal of the EI Reports (demonstrating stabilization of impacted groundwater migration, and positive control of human health exposures) by February 15, 2004; (b) the Final Corrective Measures Proposal (FCMP) was required to be submitted by February 15, 2004; (c) corrective measures for the site as needed to protect human health and the environment; and (d) submission of a Final Remedy Construction Completion Report. Complete site historical information is contained in the site's administrative record, located at the Fowlerville Public Library in Fowlerville, Michigan.

Remedies are currently in place for soil and groundwater at the site. This Sediment Remedial Design Plan discusses the planned Interim Measure Sediment Removal Action that addresses sediment impacts.

1.1 SITE BACKGROUND

The site is located at 425 Frank Street, in Fowlerville, Livingston County, Michigan (Figure 1). It is approximately 14 acres in size. Following soil cleanup in 2003, a portion of the site was sold to, and re-developed by American Compounding Specialties, Inc. The remainder of the site is undeveloped. The layout of the facility is shown on Figures 2 and 3.

The site is bordered to the north by the Copeland Construction property and Grand River Avenue; to the south by the CSX rail line; to the west by the Red Cedar River; and to the east by Veterans Drive (formerly Detroit Street). The area surrounding the site is largely commercial and light industrial with some interspersed residential properties to the north, east, and south. A variety of businesses operate in the immediate vicinity of the site, including; a metals shop, an auto parts store, an auto body shop, a video store, a warehouse, and the local VFW hall.

In 1949, Utilex Manufacturing Company first developed the site for zinc die casting operations. The plant underwent several expansions and ownership transfers between 1949 and 1980. Stanley Tools purchased the plant to make hand tools in 1980. Various plating operations continued at the site until 1985. Plating operations produced a variety of liquid wastes and sludges that were treated on-site using multiple treatment/holding pits and/or lagoons. Several known spills and releases of wastes were documented over

the years that resulted in contamination of the site. Wastes were known to have been discharged onto the soil surface at various locations, in two drainage ditches, and into the Red Cedar River. The plant was closed in 1985 and remained unused until 1993, when building demolitions were completed. JCI assumed responsibility for site cleanup efforts with the purchase of the former Stanley Tools facility.

Several environmental activities were performed at the site between 1988 and 2002, including multiple soil and water investigations; sampling and analysis; a RCRA Facility Investigation (RFI); and several Interim Measures (IMs). These activities were summarized in a RFI Report submitted to the EPA in October 2001. In December 2002, the AOC was finalized.

In 2003, over 90,000 tons of impacted soils were removed from the site; groundwater characterization was completed; and Draft Environmental Indicator (EI) reports for Groundwater Under Control and Human Health Under Control were prepared and submitted as drafts for USEPA review. As required by the AOC, the both EI reports and the FCMP were submitted in February 2004. The FCMP made the following recommendations.

- Soil impacts at the site were remediated and no further action for soil was required.
- Residual groundwater impacts at the site were expected to improve because the soil sources were removed and that groundwater should be controlled with the proposed monitoring program conducted under a Mixing Zone Determination issued by the State of Michigan.
- Institutional controls would be placed on soil and groundwater at the site.
- Sediments did not pose a threat to human receptors, but comparison of sediment data to available screening criteria indicated potential ecological impacts. It was recommended that an ecological study be completed to develop site-specific cleanup levels protective of ecological receptors. Sediment removal, as appropriate, would then follow.

In 2006, USEPA issued a Statement of Basis for the site and held public comment. On December 1, 2006, the USEPA issued the Final Decision and Response to Comments, Selection of Remedial Alternative for the site. The Final Decision accepted the sediment recommendation from the FCMP and JCI began work on implementing the ecological study to identify site-specific sediment cleanup levels protective of ecological receptors.

The ecological study was completed in 2007, by Entact, Inc. of Chicago, Illinois and was presented in a document entitled, "Technical Report: March 2008 Groundwater Monitoring Program Results and Baseline Ecological Risk Assessment" (Entact, 2008), referred to as the BERA. Following USEPA review of the BERA, meetings, and associated correspondence, the USEPA issued a letter on June 11, 2009 regarding corrective measure implementation for sediment. The June 11, 2009 letter listed Remedial Objectives (ROs) for sediment, limited the data used for the evaluation to data collected in 2003 and later, and called for submission of a Remedial Design Plan for sediment corrective measures.

Upon receipt of the June 11, 2009 USEPA letter, JCI initiated work on collection of pre-design data for the sediment corrective measure and preparation of this document.

1.2 PURPOSE AND OBJECTIVE

This document is prepared to provide the design plan for removal of sediments in the Red Cedar River as an Interim Measure to restore the habitat quality for benthic organisms. The objectives of this document are to:

- identify the removal areas, removal approach and cleanup verification process for sediments in the Red Cedar River;
- obtain regulatory concurrence for the planned removal effort; and
- outline planned actions to monitor the natural recovery of the Red Cedar River's benthic community over time as new fine sediments are naturally deposited into the remediation area from upstream.

1.3 PREVIOUS INVESTIGATIONS

Complete historical information for the site is contained in the site's administrative record, located at the Fowlerville Public Library in Fowlerville, Michigan. Several key documents were used during the preparation of Interim Design Plan, including:

- Documentation of Environmental Indicators Determination, Current Human Health Under Control, RCRIS Code (CA 725) (Earth Tech/Weston, February 2004);
- Documentation of Environmental Indicators Determination, Migration of Contaminated Groundwater Under Control, RCRIS Code (CA 750) (Earth Tech/Weston, February 2004);
- Final Corrective Measures Proposal (Earth Tech/Weston, February 2004);
- Sediment Technical Memorandum, Appendix C of Final Corrective Measures Proposal (Earth Tech/Weston, February 2004);
- Statement of Basis (USEPA, 2006);
- Final Decision and Response to Comments, Selection of Remedial Alternative (USEPA, 2006);
- Technical Report: March 2008 Groundwater Monitoring Program Results and Baseline Ecological Risk Assessment" (Entact, 2008); and,
- USEPA letter regarding corrective measure implementation for sediment (USEPA June 11, 2009).

1.4 PRE-DESIGN FIELD EFFORT

In November 2009, additional characterization was conducted to support the sediment remedial design plan. Sample collection transects are shown in Figure 4. Figures 5 though 8 show the transect locations with individual sampling locations identified. The objectives of additional characterization are provided below:

1. Sediment samples from three locations each at three new transects were obtained. Additionally, bank and overbank samples were obtained from both sides of the river at these new transects. These transects are located north of Grand River Avenue and south of the City of Fowlerville Drain located approximately 600 feet north of Grand River Avenue. Sampling at these locations was conducted to determine impacts north of Grand River Avenue.

2. Historical "L" transect (shown on Figure 7) was re-sampled in addition, and two new transects immediately upstream (LU) and downstream (LD) of transect "L" were added. The sampling objective at these new transects was to verify the presence and extent of contaminant indicated by the historical sample SDL1012-052003-02 (a duplicate at the SD-L1 location), that showed a lead remedial objective (RO) criteria exceedence.

3. A composite sample was obtained from in-channel sediment located between transects A and H (locations SD-A1, SD-C1, SD-E1, SD-E2 and SD-H1). Sediment stabilization treatability testing was conducted with this sample to evaluate sediment stabilization options.

4. Surface grab samples were collected from bank and overbank locations along the west side of the river in line with each of the original 2003 transects (A through M on Figures 5 through 7). The analytical results of these samples are used to evaluate potential risk due to soils transported of the river channel during high rivers stages and/or flooding, and to evaluate potential risk from bank and overbank soils eroding into the river channel.

5. Two sets of bank and overbank surface grab samples were obtained from the east side of the stream, located upstream and downstream of the "L" transect (Figure 7). These samples provide data north of the drainage ditch and south of Grand River Avenue, where no soil samples from historical site remediation exist. The analytical results of these samples are used to evaluate potential risk due to soils transported out of the river channel during high rivers stages and/or flooding, and to evaluate potential risk from bank and overbank soils eroding into the river channel.

1.4.1 Sampling Methodology

To prevent cross contamination of samples, sediment sampling was conducted starting downstream near the Fowlerville Drain and working upstream towards the CSX Railroad. A total of 27 sediment discrete samples were collected using a 2-inch steel sediment sampler. The sampler uses a disposable plastic soil catcher that fits on the end of a 2-inch plastic liner fitted into the steel sleeve. The core tip allows the plastic soil core catcher and liner to fit snuggly over the lip of the core tip. After the soil core catcher and liner are placed on the core tip, they are loaded into a standard multi-stage base section and screwed together. A sliding hammer is used to drive the sampler into the sediment until no further penetration is achieved after three successive blows. During deployment, the flap cap opens and allows excess air and water to escape through

the top of the sampler – eliminating pressure buildup. The sediment enters and fills the liner. When the sampler is lifted the flap closes and creates suction to assist the soil core catcher in retaining the sample.

The depth of sampler penetration, sediment characteristics and recovery was logged for each sampling location. For depths greater than 15-inches, the sediment was divided into two portions and transferred to two stainless steel bowls. After gently mixing the contents in the bowls, samples were placed in laboratory provided containers, and stored in coolers with ice pack for transport to laboratory. One duplicate sample and three field blanks were analyzed for quality control evaluation. The sediment sampler was decontaminated after each sample. New liners were used to sample each location.

Table 1 provides the sediment sampling log. The depth of each sample is noted for volume calculations, which is described in succeeding sections. In-channel sediment laboratory analytical data from 2003 to 2009 sampling events are presented in Table 2. Laboratory data for all samples collected in 2009 is provided in Appendix A.

A total of 42 soil samples were collected from bank and overbank locations. These soil samples were collected from 0 to 6 inches below the surface. Two duplicates and seven field blanks were collected for quality control evaluation. Bank and overbank laboratory data are presented in Table 3.

Sediment and soil samples were analyzed for the following parameters using the indicated methods:

Parameter(s)	Analytical Method
Volatile Organic Chemicals	SW-846 8260B
Semi-Volatile Organic Chemicals	SW-846 8270C
Polychlorinated Biphenols (as Aroclors)	SW-846 8082
Metals (arsenic, aluminum, barium, cadmium, chromium, copper, lead, nickel, selenium, silver, zinc, mercury)	SW-846 6020A/7470A/7471A
Hexavalent chromium	SW-846 3060A/7196A
Cyanide, free and total	SW-846 9010B/9014
Total Organic Carbon	Walkley-Black
Fractional Organic Carbon	ASTM D 2974-87
Percent Solids	SW-846 3550B/SM 2540B.3

2.0 ANALYTICAL RESULTS EVALUATION

As directed by the USEPA, laboratory data collected since 2003 was utilized to prepare this sediment remedial design plan. The in-channel sediment analytical results are provided in Table 2, which includes the 2003, 2007 and 2009 sample results. Sampling locations are shown on Figures 5, 6, 7, and 8.

The soil analytical results from post-remediation samples collected in 2003, following the soils corrective measure, were used to provide data for soil conditions east of the Red Cedar River at the site proper. As discussed in Section 1.4, additional bank and overbank samples were collected in 2009 to augment this 2003 soil data set. The bank and overbank soil analytical results are provided in Table 3.

The following sections provide the evaluation of these results.

2.1 USEPA REMEDIAL OBJECTIVES (RO) FOR SEDIMENT

The Remedial Objectives (RO) that apply to the site were provided by the USEPA in the letter dated June 11, 2009 (Appendix B). The USEPA ROs for in-channel sediments are listed below:

- Chromium – 110 mg/kg;
- Nickel – 49 mg/kg;
- Zinc – 460 mg/kg;
- Copper – 91 mg/kg; and
- Lead – 83 mg/kg.

Comparison of the analytical results with the ROs is discussed in Section 2.5 and summarized on Table 4.

2.2 MDEQ OPERATIONAL MEMORANDUM NO. 4 (OP. MEMO 4)

The Remediation and Redevelopment Division (RRD) of Michigan Department of Environmental Quality (MDEQ) Operational Memorandum No. 4, Attachment 3, Interim Final, August 2, 2006, adopts the Ecological Screening Levels for sediments developed by USEPA, Region V RCRA, (August 22, 2003) for screening potential water quality standards violations due to presence of hazardous substances. It is anticipated that during the permitting process for the Interim Measure Sediment Removal Action, Op. Memo 4 screening levels will be considered. The Ecological Screening Levels are provided in Appendix B. Comparison of the analytical results with the Op. Memo 4 screening levels is discussed in Section 2.5 and summarized on Table 4.

2.3 SITE SPECIFIC BACKGROUND VALUES

Site-specific background values were developed in 2003 and presented in *Technical Memorandum: Sediment Quality Survey, Preliminary Sediment Cleanup Criteria and Data Evaluation.* Site specific background values are provided in Appendix B. At total of 19 samples were upstream of the railroad bridge to establish site specific background values. This memorandum notes that the site-specific

background values for inorganic chemicals are generally similar to state-wide default background values for soils developed for Part 201. The site-specific values for arsenic, barium, selenium and zinc are somewhat higher that state background values. The site-specific values for cadmium, chromium, copper, cyanide lead, mercury, nickel and silver are approximately the same as or somewhat lower than the state default values.

2.4 MICHIGAN PART 201 GENERIC RESIDENTIAL SOIL DIRECT CONTACT CRITERIA (RSDC)

The bank and overbank analytical results from 2003 to 2009 are compared with Part 201 RSDC to determine potential risk due to human direct contact with soils. The RSDC for each of the chemical constituents is provided in Table 3, with the analytical results. The only compound that exceeds RSDC is arsenic, and all values are at or below the Site Specific Background Values discussed in Section 2.3. Based on this comparison, the bank and overbank soils do not pose an unacceptable risk to human health.

2.5 POINT BY POINT SCREENING

The in-channel sediment results are screened against both the ROs and the Op. Memo 4 ecological screening levels in Table 2 on a sample location by sample location (Point by Point) basis. The data that exceed Op. Memo 4 screening levels, but are below the site specific background values, are marked in the Table 2. Values that exceed Op Memo 4 screening levels, but are below site-specific background, are not carried forward in the point by point analysis.

Table 4 presents a summary of the point by point evaluation for the in-channel sediments. ROs and Op. Memo 4 parameters are presented in columns and sampling locations are presented rows. An "X" indicates that a particular parameter exceeds that criterion at that location. Table 4 presents only those locations with an exceedence; sampling locations with no exceedences are not shown. RO criteria exceedences are observed five at locations adjacent to the site proper (SD-A1, SD-C1, SD-E1, SD-E2, SD-H1) and at transect LD (SD-LD2).

The polynuclear aromatic hydrocarbon (PNA) exceedences for transects N to P, which are located downstream of the Grand River Avenue bridge, are consistent with anthropogenic input expected for an active roadway. Additionally, as discussed in Section 1.4, the 2003 L transect results (SD-L1, SD-L2, and SD-L3) were re-sampled during the 2009 sampling event to determine current conditions of the sediments in this area. The 2009 L transect characterization results were used in the development Table 4.

Further evaluation of the data was also performed using the Surface Weighted Average Concentration (SWAC) methodolgy. SWAC analysis is presented in Section 3.

3.0 SURFACE WEIGHTED AVERAGE CONCENTRATION (SWAC)

In addition to the point by point analysis presented in Section 2.5, SWAC calculations were also completed for the site. The SWAC calculations allow evaluation of removal options, and their potential benefits to the benthic community, on a stream reach basis, and also allows for numerical consideration of soil data from stream banks and overbank areas in evaluating the benefits of potential cleanup scenarios.

The SWAC calculation is a means to identify the areas for removal of contaminated sediment and soils. The SWAC value for each chemical constituent is a weighted average that represents the concentration attributable a particular constituent for the entire stream reach. The calculated SWAC values for each chemical constituent can then be compared with cleanup criteria to identify chemical constituents that contribute to ecological risk within the stream reach.

The SWAC calculation consists of establishing two parameters: 1) determining the area influenced by each sampling location and 2) assigning a conservative concentration value for each chemical constituent equally distributed throughout the influence area. This allows for analysis by the sum of products for individual constituents and the area associated with that sampling location (area concentration). The individual area's concentration is then divided by the sum of all areas to render an average concentration for every individual constituent for the entire stream reach.

To ensure that the calculation is conservative for the constituent concentrations, the maximum value collected at each location irrespective of depth is used for the evaluation. Using the maximum detected value regardless of depth results in the worst case concentration values. This defines the terminology "Surface Weighted Average Concentration".

The SWAC for a chemical constituent is calculated using the formula:

$$SWAC_i = \left[(C_1 * A_1) + (C_2 * A_2) \ldots\ldots (C_n * A_n) \right] \Big/ \left[A_1 + A_2 \ldots\ldots A_n \right]$$

Where, i *– chemical constituent*
C_n *– concentration of chemical constituent, i, at sampling location n*
A_n *– area of sample location n*

The method of determining the area influenced by each sampling location, and the chemical constituent concentration associated with each area of influence, is provided below.

3.1 SWAC DEVELOPMENT METHODOLOGY

3.1.1 Influence Area of Sample Points

Influence area for each sample location is identified using the Thiessen Method. Creation of polygons using this method consists of connecting the perpendicular bisectors of lines drawn between the sample locations and surface type boundaries to develop polygons. The outer boundary is selected for each surface type (i.e. in-channel, bank or overbank). The boundary for in-channel is the water's edge; the boundaries for the banks are the water's edge and top of bank on both sides of the river; and the boundaries for overbank areas are the top of bank and 20 feet offset on both banks. The sketch below illustrates the creation of polygons using Thiessen method. Figures 9 through 11 shows the influence area for each sampling location.

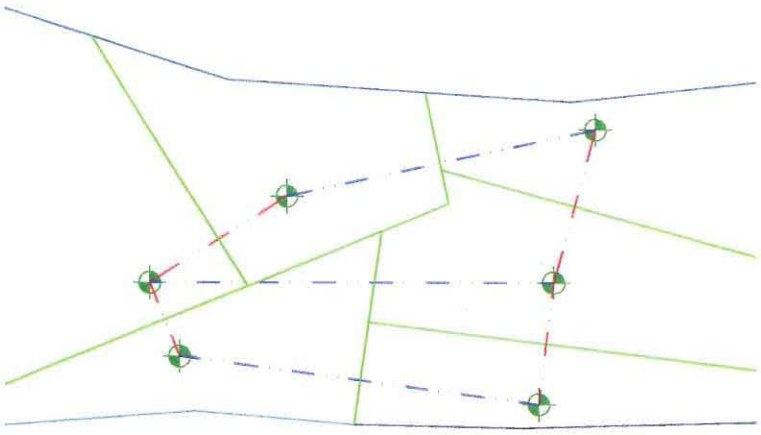


Illustration 1: Assigning areas to each sampling location

3.1.2 Chemical Constituent Concentration

At sampling locations where there are more than one sample results from varying depths, or multiple sampling events, or duplicate samples, the maximum of these results for each chemical constituent is considered to represent that particular sampling location. The only exception to this was at Transect L, where 2009 data was used rather 2003 data.

Laboratory data, especially at low concentration, is often qualified with "flags". The "U" flags show that an analyte is not detected (ND) above the method detection limit (MDL). The "U" flag result values shown in Tables 2 and 3 are the reporting limit (RL), which are higher than MDL. The MDLs vary for the same chemical constituent at different sampling locations. For purposes of calculating SWAC, half the maximum MDL was used for "U" flagged analytical results. The "J" flags show that a chemical constituent was observed below the RL, but above the MDL and therefore the actual concentration is considered an estimated value. For "J" flagged results, the

concentration reported by the laboratory was used in the SWAC calculation. Appendix C contains supporting information for all SWAC concentration values used in the calculations.

Bank and overbank analytical data were also used in the SWAC analysis. Because bank and overbank samples are not in the channel, an attenuation factor was applied to the reported concentration. The attenuation factor is based on the probability the soil will be eroded into the stream channel. The attenuation factor for bank sample results is 0.5 and assumes that only half the bank soil is likely to be eroded into the stream due to stream having a tendency to cut into one bank at a time.

The attenuation factor for overbank sample results is 0.1 and assumes that only 1/10th of the overbank soils will be transported to the stream. This assumption is based on transport hindrance of contaminant adhered soil particles from the low velocity of the flood water in the floodplain, and the presence of vegetation to block suspended particles.

The attenuation factors presented above have been used at other sites in Region V, specifically the Hayton Area Remediation Project (HARP) OU-1 Source Area and Jordan Creek Cleanup work that took place in New Holstein, WI.

3.2 PRE-REMOVAL SWAC ANALYSIS

The pre-removal SWAC values are calculated for two scenarios: 1) using in-channel only data, and 2) using a combined data set including the in-channel, bank and overbank data. Scenario 2 recognizes that bank and floodplain soils will be introduced to the stream and contribute to natural recovery of the sediment quality within the river reach.

The pre-removal scenario, referred to as the "baseline" SWAC, is presented in Tables 5 for in-channel only and combined (in-channel, bank and overbank). No RO exceedences, in either the in-channel or combined SWAC values, are present on Table 5. Therefore, comparison of SWAC values to USEPA ROs indicates that no sediment removals are required when the entire stream reach is considered. For reference, bank and overbank attenuated values are presented in Table 6.

The baseline SWAC values are also compared to Op. Memo 4 screening values in Table 5. The following compounds exceeded the Op. Memo 4 screening values.

- 1, 1-Dichloroethane - The average detection limit for all samples considered is 16 ug/kg. Half the detection limit exceeds the Op. Memo 4 screening value (0.575 ug/kg).
- Acetone – The SWAC value is below site specific background value
- 2-Butanone (MEK) - The SWAC value is below site specific background value
- Acenaphthene - In-Channel only, not Combined
- Acenaphthythene In-Channel only, not Combined
- Benzo(a)anthracene - The SWAC value is below site specific background value.

- Dibenz(a,h)anthracene - In-Channel only not Combined
- Phenanthrene - The SWAC value is below site specific background value.
- Pyrene - The SWAC value is below site specific background value.
- Total PCBs – In-Channel and Combined
- Arsenic Total - The SWAC value is below site specific background value.
- Chromium, Total - In-Channel only not Combined
- Copper, Total - In-Channel only not Combined
- Cyanide – The SWAC value is below site specific background value.

To assist in the evaluation of the improvements realized through sediment removal, the baseline SWAC will be used for comparison purposes against the resulting SWAC values determined from post-removal concentrations. This comparison is discussed further in Section 3.4.

3.3 CHEMICALS OF POTENTIAL CONCERN (COPC)

Based on the information presented above, a list of chemicals of potential concern (COPCs) has been prepared. The USEPA ROs are COPCs. Constituents that exceed Op. Memo 4 screening values, but are shown to be below the site-specific background concentrations, are not considered COPCs. The COPCs are presented below.

- 1, 1-Dichloroethane
- Acenaphthene
- Acenaphthythene
- Dibenz(a,h)anthracene
- Total PCBs
- Chromium, Total
- Copper, Total
- Lead, Total
- Nickel, Total
- Zinc, Total

3.4 SEDIMENT REMOVAL OPTIONS

This section evaluates two different removal option scenarios.

3.4.1 Option 1 - Minimum Removal Areas

In removal Option 1, spot removal is considered at locations that exceed the ROs. The entire influence area associated with the sampling location would be removed. As discussed in Section 2.5, this option would remove RO exceedences observed during the point by point comparison. Option 1 involves removal of the following:

- The top 26 inches of Polygon SD-A1 (25.6 CY);
- The top 14 inches of Polygon SD-C1 (16.9 CY);
- The top 9 inches of Polygon SD-E1 (26.8 CY);
- The top 25 inches of Polygon SD-E2 (29.1 CY);
- The top 33 inches of Polygon SD-H1 (100.1 CY); and
- The top 26 inches of Polygon SD-LD2 (34.7 CY).

Figure 12 shows the areas proposed for removal and Table 7 summarizes the volume removed. This option results in a total removal of 233.2 CY of sediment from the Red Cedar River.

For this post-removal evaluation, the concentration of each chemical constituent assumed to be present at the sediment removal locations after removal is determined as follows:

- For removal of only the top layer(s) of sediment, the concentration value for each chemical constituent remaining in the bottom layer is used.
- For any analytical result with a "U" flag in the bottom layer, ½ the maximum method detection limit is used.
- For removal of all the sediment layers, ½ the maximum detection limit for each chemical constituent is used.

With modified concentration values for removed polygons, the calculation yields resultant SWAC values. Table 8 provides the post-removal SWAC analysis summary for Option 1 and presents values for in-channel and combined calculations. The results from this post-removal SWAC calculation indicate no exceedences for RO's. The following observations are provided relative to Op. Memo 4 screening values:

- Post-removal SWAC values for Acetone, 2-Butanone, Benzo(a)anthracene, Pyrene, Arsenic, and Cyanide are below the site-specific background;
- 1, 1-Dichloroethane – In Channel and Combined (½ MDL is above the Op. Memo 4 screening value, and point by point exceedence still exist at SD-A2, SD-A3, SD-B1, SD-B2 and SD-B3);
- Acenaphthene – In Channel only;
- Acenaphthythene – In Channel only; and
- Dibenz(a,h)anthracene – In Channel only.

3.4.2 Option 2 - Proposed Removal Areas

In removal Option 2, all fine sediment from Transect A polygons to Transect H polygons and the polygons at Transect LD would be removed. The Option 2 removal areas are shown on Figure 12. Individual polygons to be removed under Option 2 are presented on Table 7. Option 2 will result in a removal of about 1,019.2 CY (786 CY more than Option 1). This option will remove

all areas impacted above the ROs for the site, and a bulk of the point by point exceedences observed relative to the Op. Memo 4 screening values shown on Table 4.

Table 9 provides the post-removal SWAC analysis summary for Option 2 and presents values for in-channel and combined calculations. For this post-removal evaluation, ½ the maximum detection limit for each chemical constituent is assumed to be present at the sediment removal locations after removal. The results from the Option 2 post-removal SWAC calculation indicate no exceedences for RO's. The following observations are provided relative to Op. Memo 4 screening values:

- Post-removal SWAC values for Acetone, 2-Butanone, Benzo(a)anthracene, Pyrene, Arsenic, and Cyanide are below the site-specific background;
- 1, 1-Dichloroethane –In Channel and Combined (½ MDL is above the Op. Memo 4 screening value, and all locations with detections would be removed);
- Acenaphthene – In Channel only;
- Acenaphthythene – In Channel only; and
- Dibenz(a,h)anthracene – In Channel only.

3.4.3 Recommended Option

A comparative analysis of the data for the two removal options was completed for the selection of a preferred option. The results of the comparative analysis, presented below, indicate that sediment removal Option 2 is the preferred option.

1. Both Options 1 and 2 remove all point by point RO exceedences.
2. More of the point by point exceedences for Op. Memo 4 screening values are removed under Option 2 than under Option 1 (as shown in Table 10).
3. Post-removal SWAC values are lower for Option 2. Table 11 presents a comparison of pre- and post-removal SWAC values for COPCs listed in Section 3.3.
4. Overall, Option 2 leaves fewer exceedences and has lower post-removal SWAC values. Together these indicate that a greater benefit to the habitat for benthic organisms will result.
5. Removal of the all fine sediment adjacent to the site in Option 2 provides increased confidence that impacts from prior operations are mitigated.
6. Option 2 will result in the re-establishment of a benthic community this is more representative of and consistent with background.

4.0 SEDIMENT REMOVAL PLAN

The fine sediments discussed in Option 2 (Section 3.4) will be removed from the Red Cedar River between the toes of the bank on either side of the channel without undermining bank stability. All fine sediment from Transect A polygons to Transect H polygons and the polygons at Transect LD will be removed, as shown in Figure 12. The removal is anticipated to be performed in a dry environment by use of temporary cofferdams and routing the Red Cedar River base flow around the dredging areas with pumps. Base flow will be returned to the river without treatment. The dredging depth varies from 6 to 33 inches of fine sediment, as shown on Table 7. The dredged material will be mixed with stabilizing agent in the dry river bed, and the mixture will be loaded onto trucks for off-site disposal.

The finalization of the design will include input from the dredging contractor selected through performance-based specification bidding. Key elements for the planned removal design are provided below. Scheduling for the sediment removal is discussed in Section 6.

4.1 PHYSICAL LAYOUT

The sediment removal areas are located between the CSX Railroad Bridge and the drainage ditch north of the site. An isolated impact area (transect LD influence area) is also located in the stream reach half way between the drainage ditch north of the site and Grand River Avenue. Figure 13 provides a conceptual layout for sediment removal activity.

4.1.1 Site Access

The proposed removal areas are surrounded by designated wetlands, mitigation floodplains and dense vegetation/mature trees. Additionally, the manufacturing facility (American Compounding Specialties, Inc.) on the property has expansion plans for construction in early Spring 2010. Appendix D provides the National Wetland Inventory based wetland map, FEMA Flood Insurance Map for the Site and proposed expansion plan for American Compounding. Because of the presence of wetlands and floodplains, site access and work area access are dependent on obtaining relevant permits. Permitting is further discussed in Section 5.0.

Access roads and/or matting will be required for many components of the project. These have been laid out conceptually of Figure 13 and discussed below. However, due to this work being bid out on a performance basis and potential permitting issues, actual locations for all items except removal areas are subject to change. As currently planned, access to upstream cofferdam and river base flow pumping system will be gained from Garden Lane Street south of the CSX Railroad line along the east bank of the River. JCI currently has an access agreement with this property owner for routine monitoring. Access for a majority of the work is anticipated off of Jackson Street which has a dead end north of the site. JCI owns or has access agreements in place for a majority of the work area shown. This route will provide access to build and maintain the

other two cofferdams, water pumping systems, water treatment systems if required, equipment staging and transfer pad if required, and a bulk of the removal equipment, and disposal transportation.

Access for removal areas at transects A through H, and potentially LD, may require an additional route on the west side of the river off Grand River Avenue, along private residential driveway and existing drain easements and utility easements. Clearing of mature trees/dense vegetation would be required to access the stream from the west. This route may require obtaining permission from the residential owner and obtaining access to drain easements. Accessing the work areas from the west is not preferred, but may be required (for southern polygons) because of the planned expansion at the American Compounding Specialties, Inc. facility.

One additional access constraint is related to the close proximity (approximately 60 feet) of the CSX Railroad ROW and bridge. As currently planned, a temporary cofferdam will be located upstream of the bridge and piping to manage river base flow will pass under the bridge (see Figure 13). Because of proximity to the bridge, CSX Railroad will be contacted to obtain permission to access and remove sediment in this vicinity. The removal of sediment in this vicinity may be influenced by bridge load bearing conditions. Negotiations with the Railroad could impact project schedule.

4.1.2 Staging Areas for Equipment and Material

Materials will be staged areas near the work areas to aid in the sediment removal effort. A lined transfer pad may be constructed, if required, to stage wet sediments for draining and stabilization if in-channel efforts are not effective.

4.1.3 Cofferdams and Water Management

In order to perform the removal under dry stream conditions, temporary cofferdams will be installed in the river upstream and downstream of the removal areas. The base flow of the river will be diverted by pumping without treatment from upstream to downstream of the work area. The working area may be managed by other small coffer dams to aid in dewatering the removal areas. The final arrangement (number and location) of coffer dams will be determined with contractor input during performance bidding and during permitting.

The work areas will be dewatered to within 6 inches above the sediment surface by pumping without treatment and discharged downstream of the lower temporary cofferdam. The remaining water will be removed via temporary sumps excavated in the stream bed. This water will be treated with a minimum of filtration and carbon media before being discharged downstream. The treated discharge shall be managed in accordance with the NPDES permit as discussed in Section 5.

4.2 STABILIZATION AND EXCAVATION

It is anticipated that the sediments will be dewatered as discussed Section 4.1.3 to the extent practical and stabilized in-situ. The dredging depth (Table 1) varies from 6 to 33 inches of fine sediment. Excavation depths were determined on a per polygon basis by review of sampling records, which note the depth of compact layers underlying the fine sediments. These excavation depths are estimated. Actual excavation depths will be determined in the field via direct observation. The goal is to remove the fine sediments to the underlying compacted layer.

Based on the treatability study (see Appendix E) conducted with a composite sample collected in 2009, the proposed stabilizing agent is Type F Fly ash, or similar stabilization agent. Stabilization will be completed in-channel so that the excavated material will pass the paint filter test. The stabilized sediment will then be direct loaded into trucks for off-site transportation and disposal. All sediments mixed with the stabilizing agent will be removed from the channel, and the removal will be verified visually. If in-channel stabilization proves difficult, a lined stabilization pad will be constructed to dewater and stabilize wet loose sediments. The water accumulated in this pad will either evaporate or be pumped and treated for NPDES discharge. The detailed means and methods of stabilization will determined during performance based bidding with qualified contractors.

4.3 TRANSPORTATION AND DISPOSAL

As part of the 2009 sediment sampling, grab samples were collected from the hot spots SD-A1, SD-C1, SD-E1, SD-E2 and SD-H1. These samples were composited and analyzed by TCLP for metals and found to have no exceedences of disposal criteria. The treatability study report is provided in Appendix E. Based on this report, the waste can be disposed of as non-hazardous waste. It is anticipated that the stabilized sediments will be disposed of in a nearby landfill, determined during selection of the construction contractor. The waste will be hauled to the landfill by truck.

4.4 CLEANUP CONFIRMATION SAMPLING

Upon completion of the removal and visual verification that sediment mixed with stabilizing agent has been removed, confirmation samples will be collected. Confirmation samples will be collected at the vicinity of 2009 sampling locations. The analytical results for samples will be compared with the ROs for the site. Exceedence of the RO will result in further excavation until confirmatory sample(s) from that area are at or below the ROs. Stream water will not be allowed to enter that area until a sample below the RO criteria is obtained.

Upon completion of the project, the SWAC analysis will be completed with the analytical results from the post remediation confirmation samples. For the post-removal SWAC analysis, ½ the maximum detection limit values for "U" flagged laboratory results will be used. Post-removal SWAC calculation will be presented in the Remedy Construction Completion Report (discussed in Section 4.6).

4.5 SITE RESTORATION

Upon obtaining below-criteria confirmation samples, the temporary cofferdams will be removed and base flow restored to the excavation areas. The fine sediment removal areas will not be refilled with clean sediment. The river will be allowed to naturally transport fine sediments in these areas.

All constructed access roads will be removed and disturbed areas will be seeded and mulched. Any disturbed bank will be stabilized, and completed with installation of erosion control mats. The transfer pad, if constructed, will be removed and disposed of as non-hazardous waste and the disturbed area will be mulched and seeded.

4.6 REMEDY CONSTRUCTION COMPLETION REPORT

A Remedy Construction Complete report will be prepared and submitted to USEPA to document the interim action for sediments. This report will describe the site activities completed during the sediment removal process, including permit compliance documentation. The process of remediation confirmation sampling to meet the RO criteria and the post-removal SWAC calculations will be presented. The report will also contain records of as-builts, photographs, transportation/disposal manifests to fully document the interim action for sediments. Scheduling is discussed in Section 6.

5.0 PERMITTING

5.1 JOINT PERMIT APPLICATION

The Michigan Department of Natural Resources and Environment (MDNRE) regulate activities where land and water interface. In accordance with Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, a permit is required for these activities in order to show avoidance of wetland resources to the greatest extent possible or minimization of unavoidable wetland impacts. Similarly, in accordance with Part 31, Water Resources Protection, of the Natural Resources and Environmental Protection Act (NREPA), 1994 PA 451, as amended, a permit is required to show avoidance of alteration of 100-year floodplain. Appendix D shows the designated wetlands and floodplain at and around the site.

Access to the Site will traverse through designated wetland and floodplain, which requires installation of temporary access road(s). Additionally, some part of staging and/or stabilization pad may be installed temporarily near wetland and floodplain area. The MDNRE/USACE Joint Permit Application (JPA) package covers permit requirements pursuant to state and federal rules and regulations for activities involving dredging, wetlands, and floodplain. MDNRE/USACE JPA will be prepared and submitted for approval.

For scheduling purposes, it is noted that the review time to determine if an application is administratively complete for processing ranges from 15 to 30 days. Technical processing time, after the application is determined to be administratively complete, ranges from 60 to 90 days. Processing times will be longer if a public hearing is held.

5.2 NPDES APPLICATION

A National Pollutant Discharge Elimination System (NPDES) permit is required by law for anyone discharging, or proposing to discharge, waste or wastewater into the surface waters of the State of Michigan. Dewatering discharge undergoing minimal treatment will constitute as wastewater. There are three types of NPDES permits- individual permits, General Permits and "permit by rule." The Michigan Department of Natural Resources and Environment (MDNRE) Water Bureau staff determines the appropriate permit type for each surface water discharge. It is anticipated that a General Permit will be required. The General Permit is designed to cover permittees with similar operations and/or type of discharge. General permits contain effluent limitations protective of most surface waters statewide.

For scheduling purposes, it is noted that the MDNRE determines if an application is administratively complete within 30 days of the receipt of the application. When the application is deemed administratively complete, MDNRE has 180 days to grant or deny that permit, unless the applicant and the department agree to extend the time period.

6.0 SCHEDULE FOR SEDIMENT REMOVAL

A listing of major milestones for the planned sediment removal is provided below. Estimated durations are provided for each milestone/activity. The durations are estimated because, and described in Section 5 Permitting, the permitting process duration may vary significantly.

1. Approval of Sediment Remedial Action Design Plan (estimated duration is 30 to 90 days).

2. Request and schedule a pre-permit application meeting with EPA and MDNRE staff to discuss the planned effort and initiate the permitting process (estimated duration is 14 days).

3. Conduct pre-permit application meeting (1 day).

4. Receipt of MDNRE written findings regarding the permit requirements (14 days after pre-permitting application meeting).

5. Preparation of Joint Permit and NPDES permit applications (estimated duration is 45 days).

6. Within 14 days of pre-permitting conference, begin access communications with CSX Railroad (on-going during permit application preparation process).

7. Within 14 days of receiving MDNRE written findings regarding permit requirements, initiate performance-based bidding (30 days to complete contractor selection).

8. Obtain work completion details, finalize permit applications, and submit applications (estimated duration is 15 to 30 days after subcontractor selection).

9. Permit application review (minimum of 180 day for NPDES review, and 60-90 days for the Joint Permit). Estimated durations may vary depending on public comment.

10. Upon approval of permits, schedule removal work mobilization during the next warm dry construction period (late Summer/early Fall). The year for execution of the sediment removal action (2010 or 2011) will depend on when necessary regulatory approvals are granted. Below is a summary / sequence of planned sediment removal actions. The removal action is expected to require 8 to 15 weeks for completion.

    - Mobilize to site and prepare access to work areas
    - Install temporary coffer dams and stream/drain pumping systems
    - Isolate and dewater the work areas using additional coffer dams as appropriate

- Stabilize fine sediments with type F flyash (or similar) and remove sediments by direct loading into trucks where possible
- Transport to Type II landfill or other approved disposal facility
- Verify that sediment and flyash are removed from work area
- Perform post removal verification sampling
- After obtaining satisfactory verification sample results, allow stream flow back to work area.
- Restore/stabilize loose banks and areas impacted by removal action.
- Demobilize from site and conduct post removal photo documentation (8 to 15 weeks)

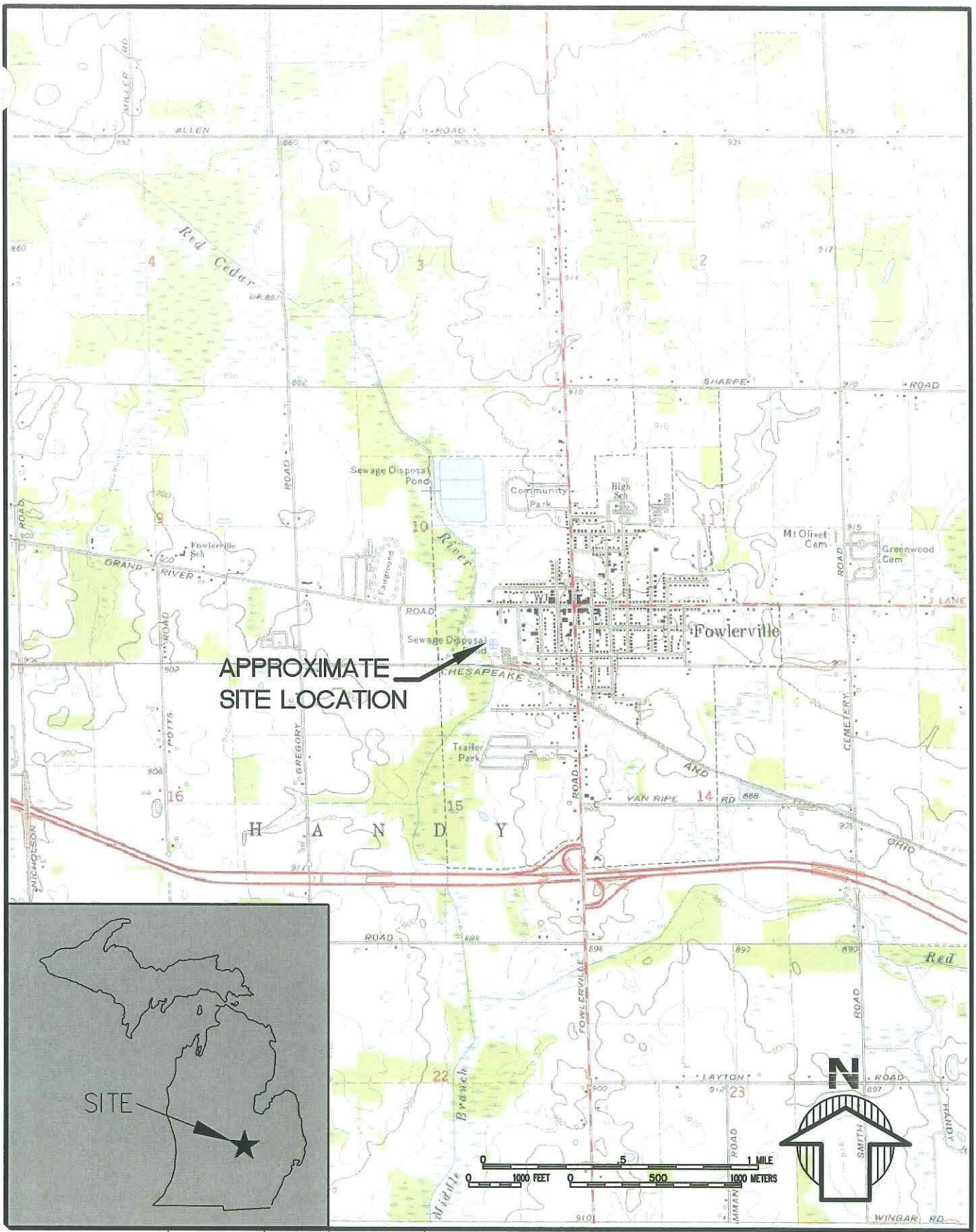
11. Submit Remedy Construction Completion Report to USEPA (60 days after completion of on-site activities).
12. Five years after removal action is complete, perform stream recovery verification as discussed in Section 7.0 and submit the final report to USEPA within 10 week of completion.

7.0 STREAM RECOVERY VERIFICATION

In order to evaluate the overall success of the interim removal action, stream recovery verification will be conducted. Photographs of the river immediately after completion of removal action will visually document the baseline conditions. Because of the removal of all fine sediments, it is anticipated that time will be required for new fine sediments from upstream to return to the excavated areas. The amount of time required for the mobilization and reposition of fine sediments will depend on hydraulic factors (e.g., frequency of flooding events, precipitation variances seasonally, etc.). The benthic community will return to the areas with the new fine sediments from upstream. It is anticipated that after a 5-year period, the benthic community will be re-established and a representative survey can be completed.

The stream recovery verification will consist of duplicating the benthic surveys detailed in the Baseline Ecological Risk Assessment" (Entact, 2008). The objective is to demonstrate improvement in benthic macro invertebrate diversity and population. In addition to the benthic survey, photo documentation in the same locations as the baseline will be collected and compared. It is anticipated that the survey will demonstrate successful recovery of habitat and populations when compared to the BERA and verify that interim action objectives have been met. It is also anticipated that stream recovery verification will be performed once and a report will be submitted to the USEPA within 10 weeks of completion.

FIGURES



CTI and Associates, Inc.	PLATE I	SCALE:	NONE	**SITE LOCATION MAP** JCI – FORMER STANLEY TOOLS FACILITY 425 FRANK STREET FOWLERVILLE, MI	DESIGNED BY: RC
		PROJECT NO.:	75010040		DRAWN BY: BDA
		FILE NAME:	JCI_FOWLERVILLE LOC MAP		CHECKED BY:
		DATE:	AUG. 2007		APPROVED BY:

0 75 150

SCALE IN FEET

N

LEGEND

- Approximate Location of National Wetland Inventory Boundary
- Approximate Railroad Right of Way (ROW)
- Actual River Boundary Based on 2009 Survey Data

CLIENT:
JCI
Plymouth, MI

REVISIONS:

Designed By: C.KOGANTI
Drawn By: C.KOGANTI
Checked By: J.R. DICKSON
Approved By: A.J. LONERG

DATE
Jan 2010

PROJECT NO
095010XXX

FIGURE NO
2

SEDIMENT REMEDIAL DESIGN PLAN

FORMER STANLEY TOOLS FACILITY
(MID 099 124 299), Fowlerville, MI

SITE LAYOUT WITH AERIAL PHOTO

CTI and Associates

VETERANS DRIVE

FRANK ST.

AMERICAN COMPOUNDING FACILITY

Flow

FOWLERVILLE DRAIN

GRAND RIVER AVENUE

Flow

DRAINAGE DITCH

RED CEDAR RIVER

CSX RAILROAD BRIDGE

Flow

Flow

LEGEND

- Approximate Location of National Wetland Inventory Boundary

- Approximate Railroad Right of Way (ROW)

- Actual River Boundary Based on 2009 Survey Data

SCALE IN FEET

0 75 150

CTI and Associates, Inc.

SEDIMENT REMEDIAL DESIGN PLAN
FORMER STANLEY TOOLS FACILITY
(MID 099 124 299), Fowlerville, MI

SITE LAYOUT

CLIENT:
JCI
Plymouth, MI

REVISIONS:

Designed By:
C.KOGANTI
Drawn By:
C.KOGANTI
Checked By:
J.R. DICKSON
Approved By:
A.J. LONERGAN

DATE
Jan 2010

PROJECT NO.
095010XXX

FIGURE NO.
3

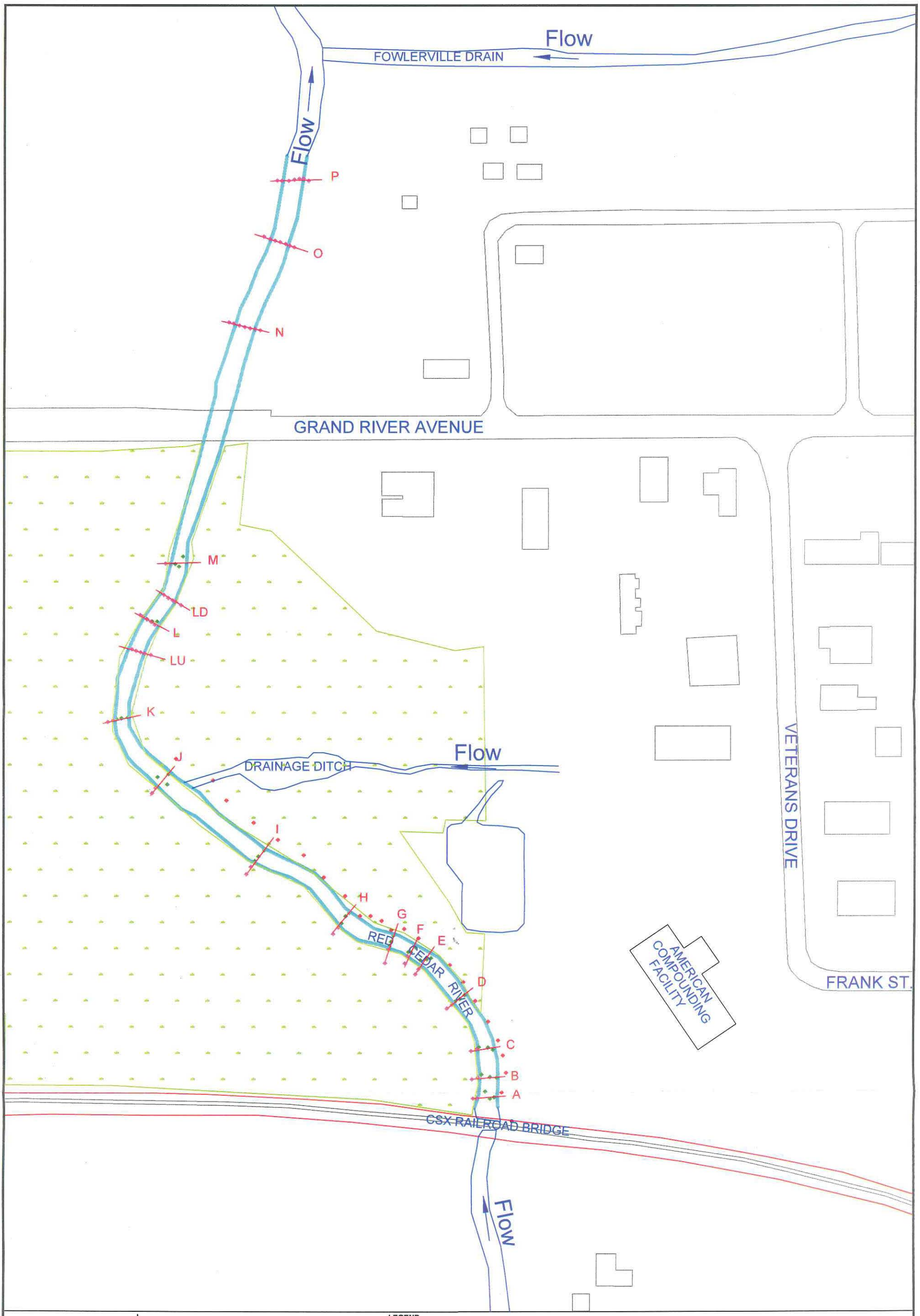


FIGURE NO. 4

PROJECT NO. 095010XXX

DATE Jan 2010

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Checked By: J.R. DICKSON
Approved By: A.J. LONERGAN

REVISIONS:

CLIENT: JCI Plymouth, MI

SEDIMENT REMEDIAL DESIGN PLAN

FORMER STANLEY TOOLS FACILITY
(MID 099 124 299), Fowlerville, MI

SAMPLE TRANSECT LOCATIONS

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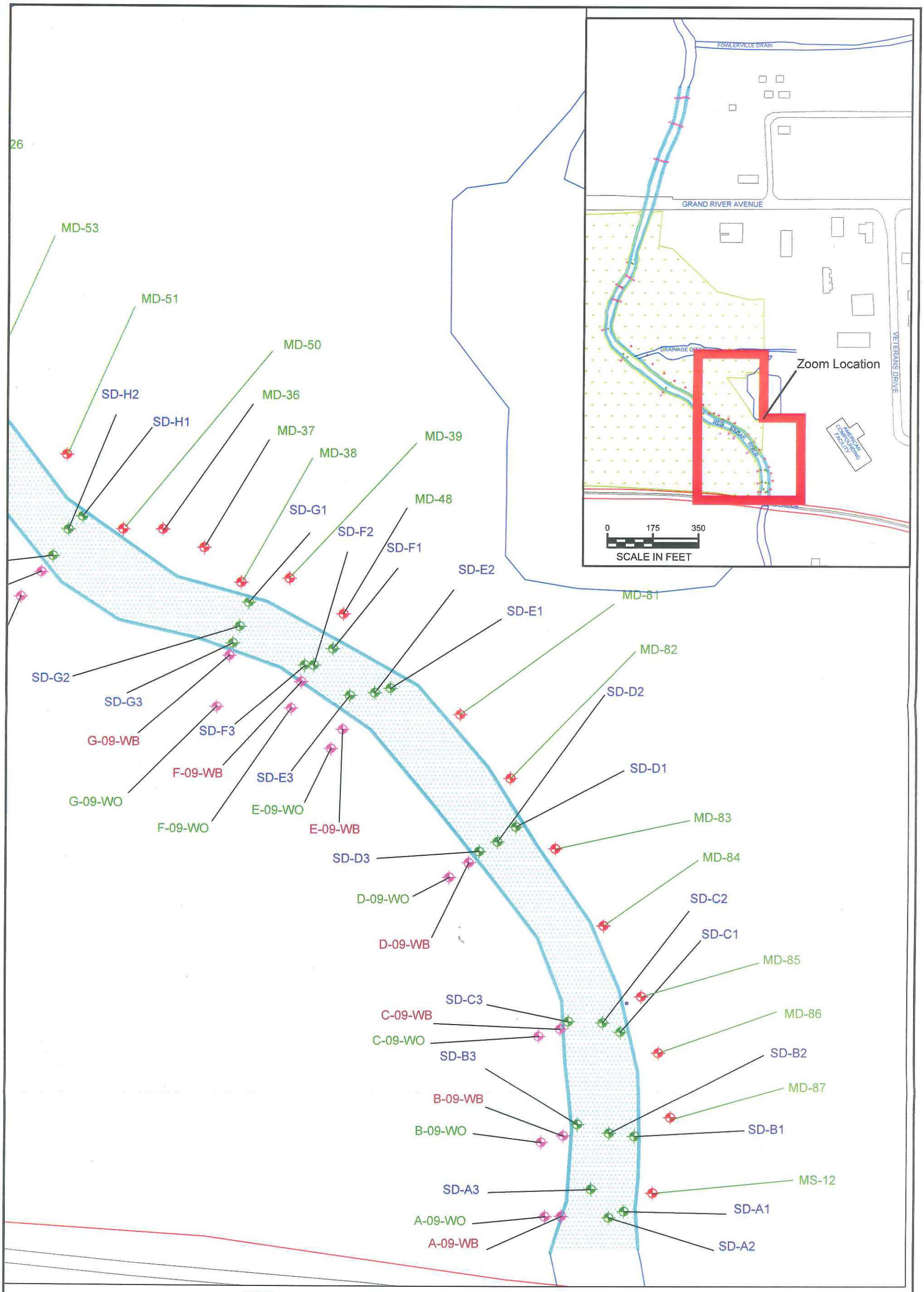

FIGURE NO. 5

PROJECT NO. 095010XXX

DATE Jan 2010

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Checked By: J.R. DICKSON
Approved By: A.J. LONERGAN

REVISIONS:

CLIENT: JCI Plymouth, MI

SEDIMENT REMEDIAL DESIGN PLAN

FORMER STANLEY TOOLS FACILITY
(MID 099 124 299), Fowlerville, MI

SAMPLE LOCATIONS

CTI and Associates, Inc.

SD-L3/(2003 SD-L1)

SD-LU2

LU-09-EO

LU-09-EB

SD-LU3

1

MD-58

SD-J1

SD-J2

MD-21

MD-53

MD-23

MD-24

SD-I2

MD-26

SD-I1

MD-53

MD-51

SD-I3

I-09-WB

I-09-WO

SD-H2

SD-H1

SD-H3

H-09-WB

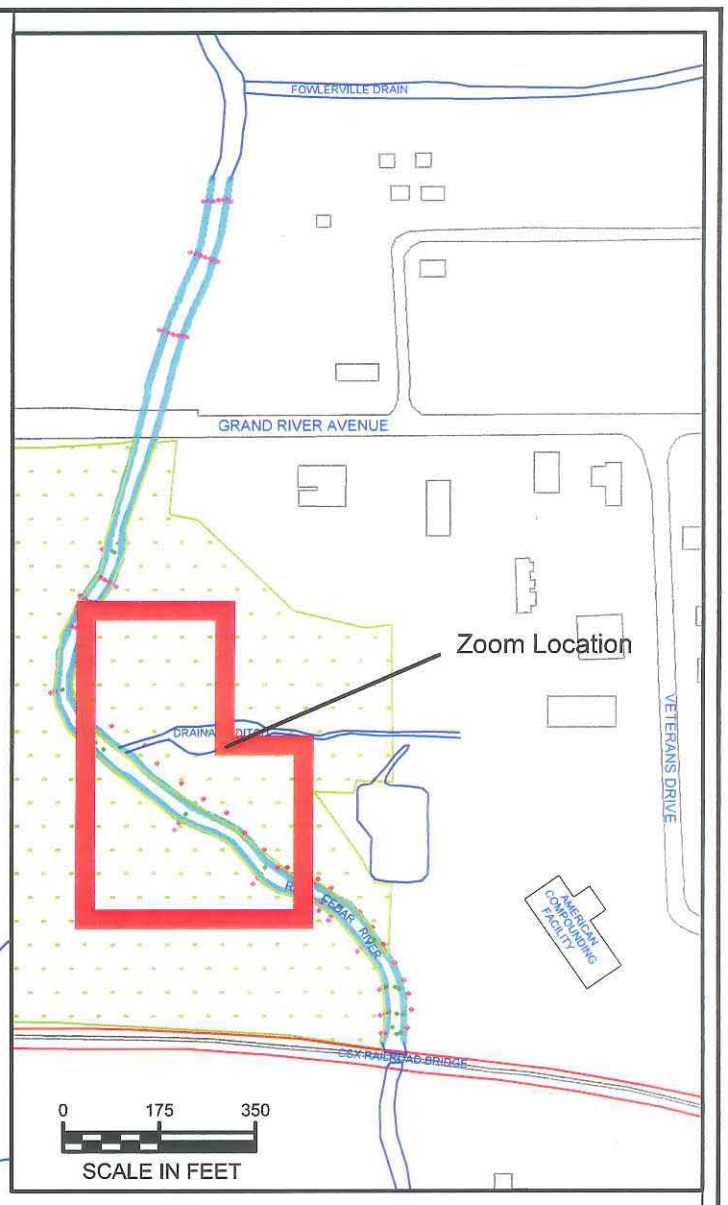
H-09-WO

SD-G2

SD-G3

G-09-WB

SD-F3



0 20 40

SCALE IN FEET

N

LEGEND

- 2003 Sample Location
- 2003 Verification Sample Location Estimated
- 2009 Sample Location (Surveyed 2009)

FIGURE NO. 6

PROJECT NO. 095010XXX

DATE Jan 2010

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Checked By: J.R. DICKSON
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REVISIONS:

CLIENT: JCI Plymouth, MI

SEDIMENT REMEDIAL DESIGN PLAN

FORMER STANLEY TOOLS FACILITY
(MID 099 124 299), Fowlerville, MI

SAMPLE LOCATIONS

CTI and Associates, Inc.

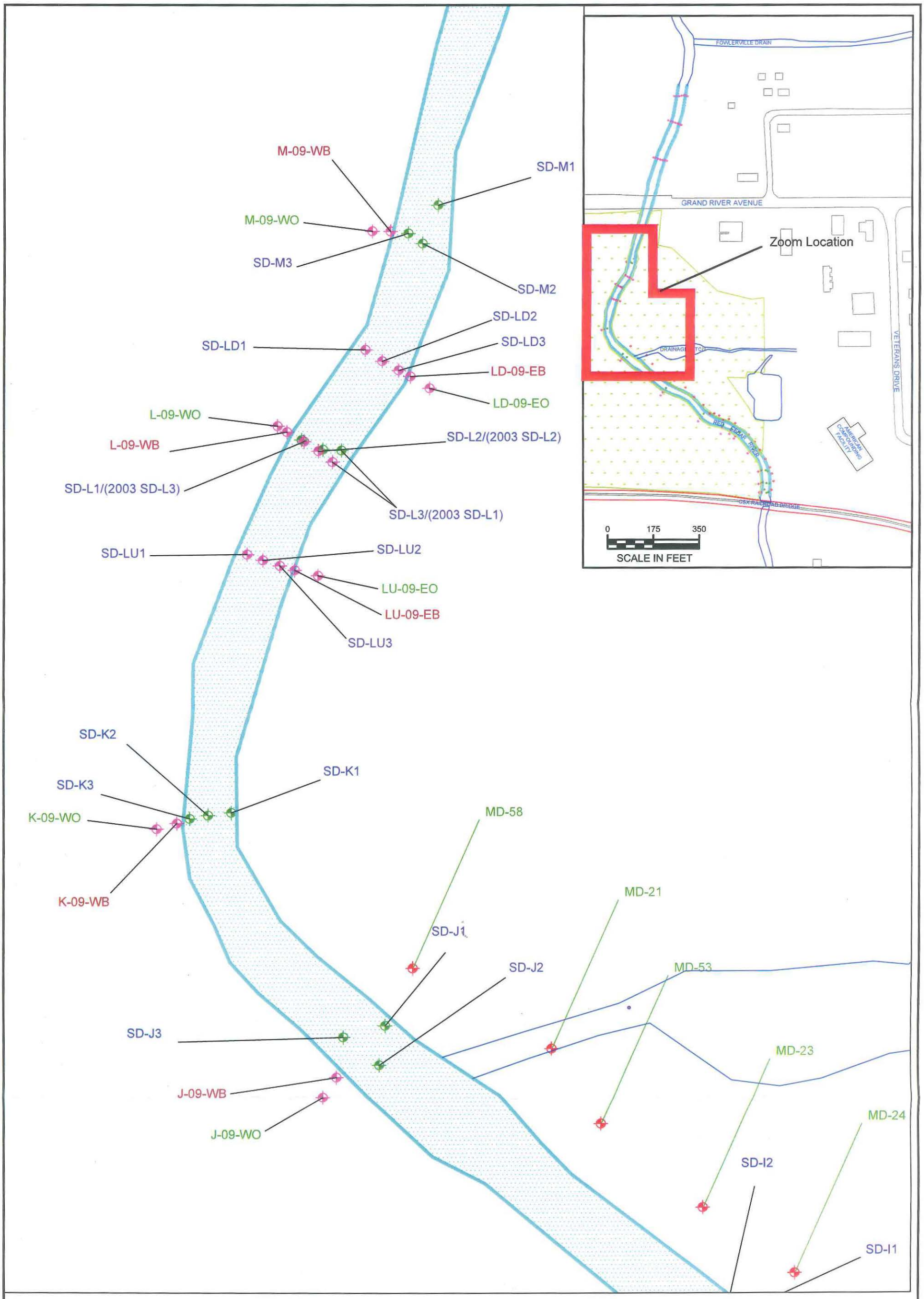

FIGURE NO. 7

PROJECT NO. 095010XXX

DATE Jan 2010

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Checked By: J.R. DICKSON
Approved By: A.J. LONERGAN

REVISIONS:

CLIENT: JCI Plymouth, MI

SEDIMENT REMEDIAL DESIGN PLAN

FORMER STANLEY TOOLS FACILITY
(MID 099 124 299), Fowlerville, MI

SAMPLE LOCATIONS

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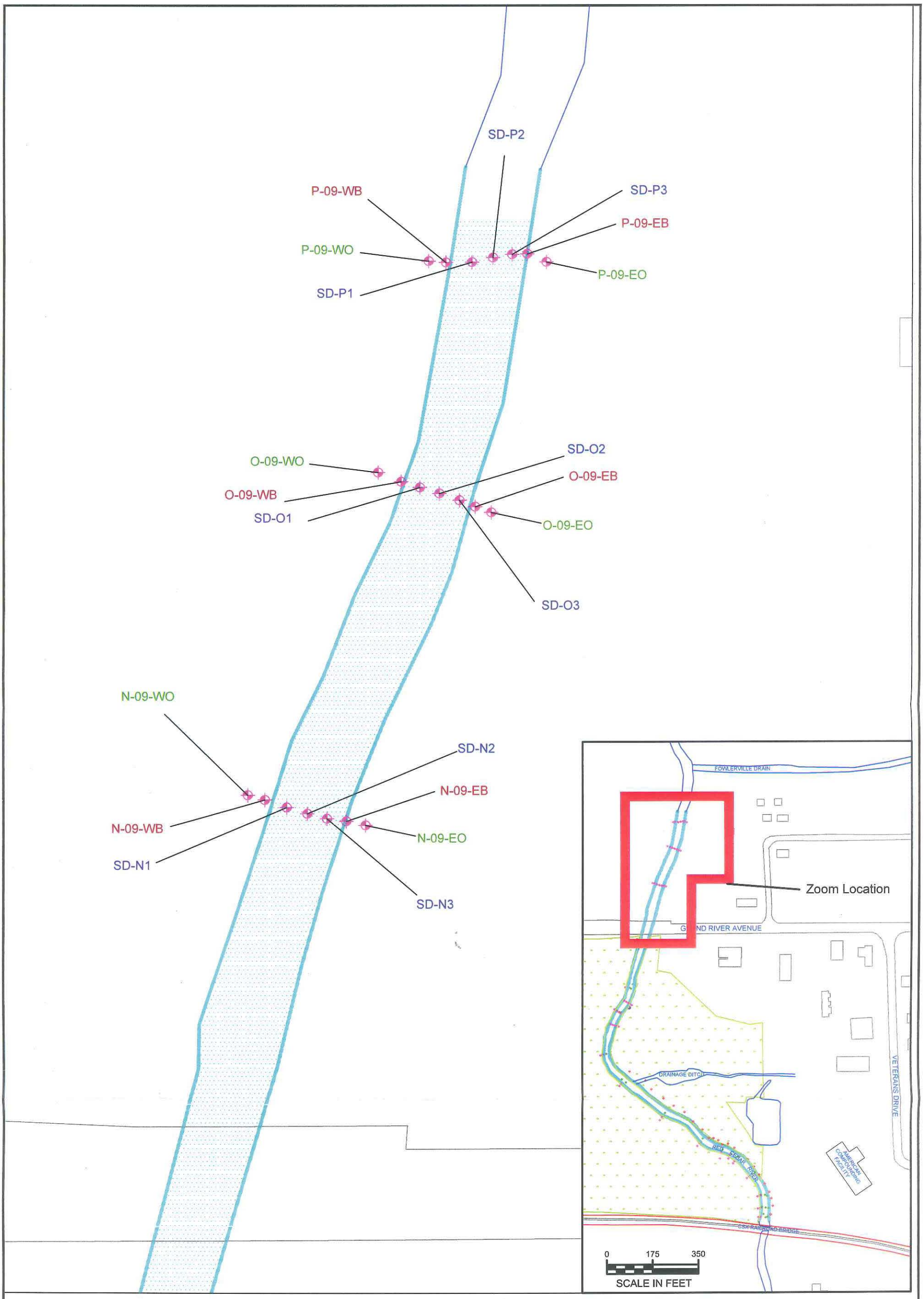

FIGURE NO. 8	PROJECT NO. 095010XXX	DATE Jan 2010	Designed By: C.KOGANTI Drawn By: C.KOGANTI Checked By: J.R. DICKSON Approved By: A.J. LONERGAN	REVISIONS:	CLIENT: JCI Plymouth, MI

SEDIMENT REMEDIAL DESIGN PLAN

FORMER STANLEY TOOLS FACILITY
(MID 099 124 299), Fowlerville, MI

SAMPLE LOCATIONS

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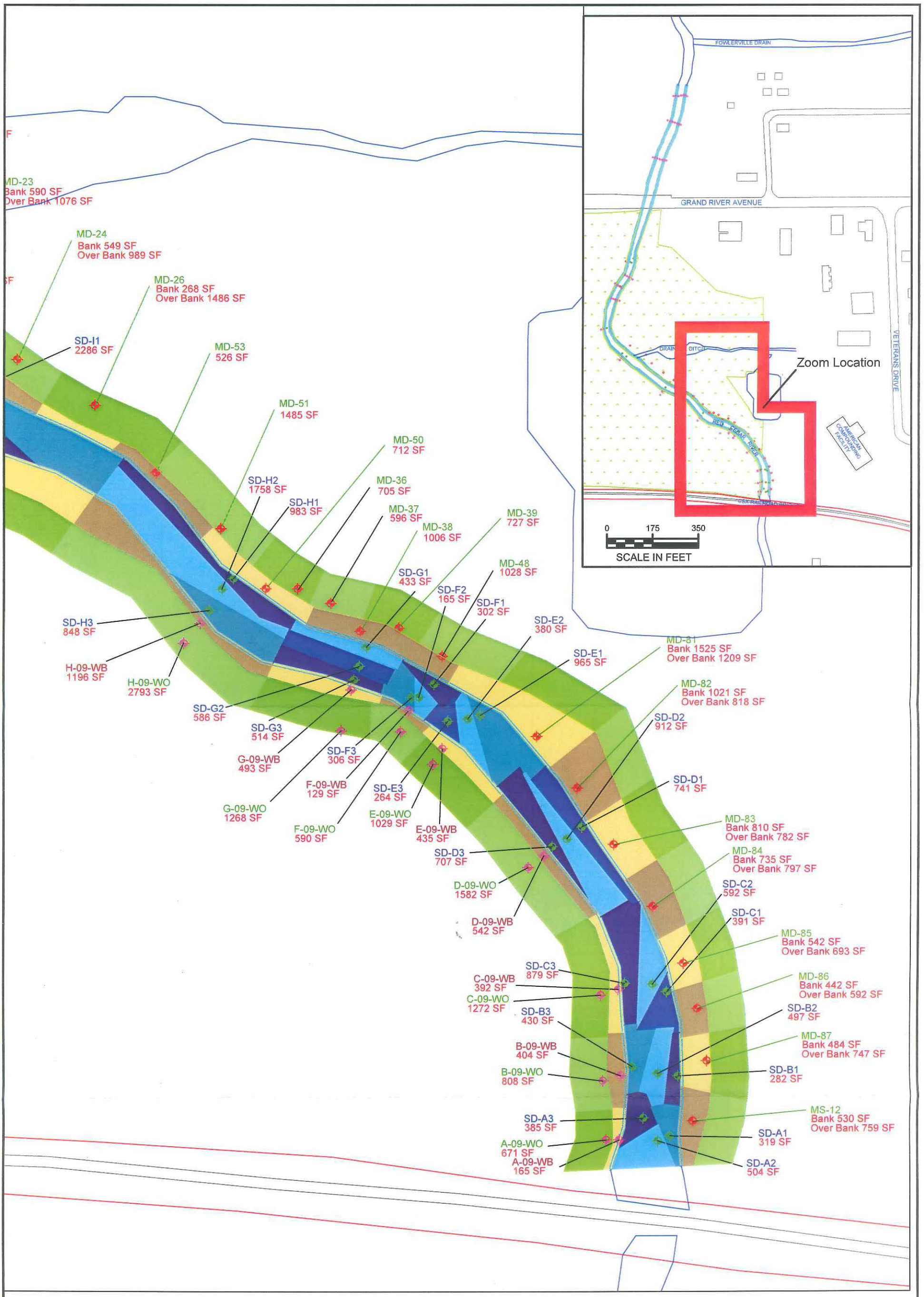

FIGURE NO. 9

PROJECT NO. 095010XXX

DATE Jan 2010

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Checked By: J.R. DICKSON
Approved By: A.J. LONERGAN

REVISIONS:

CLIENT: JCI Plymouth, MI

SEDIMENT REMEDIAL DESIGN PLAN

FORMER STANLEY TOOLS FACILITY
(MID 099 124 299), Fowlerville, MI

SWAC POLYGONS

CTI and Associates, Inc.

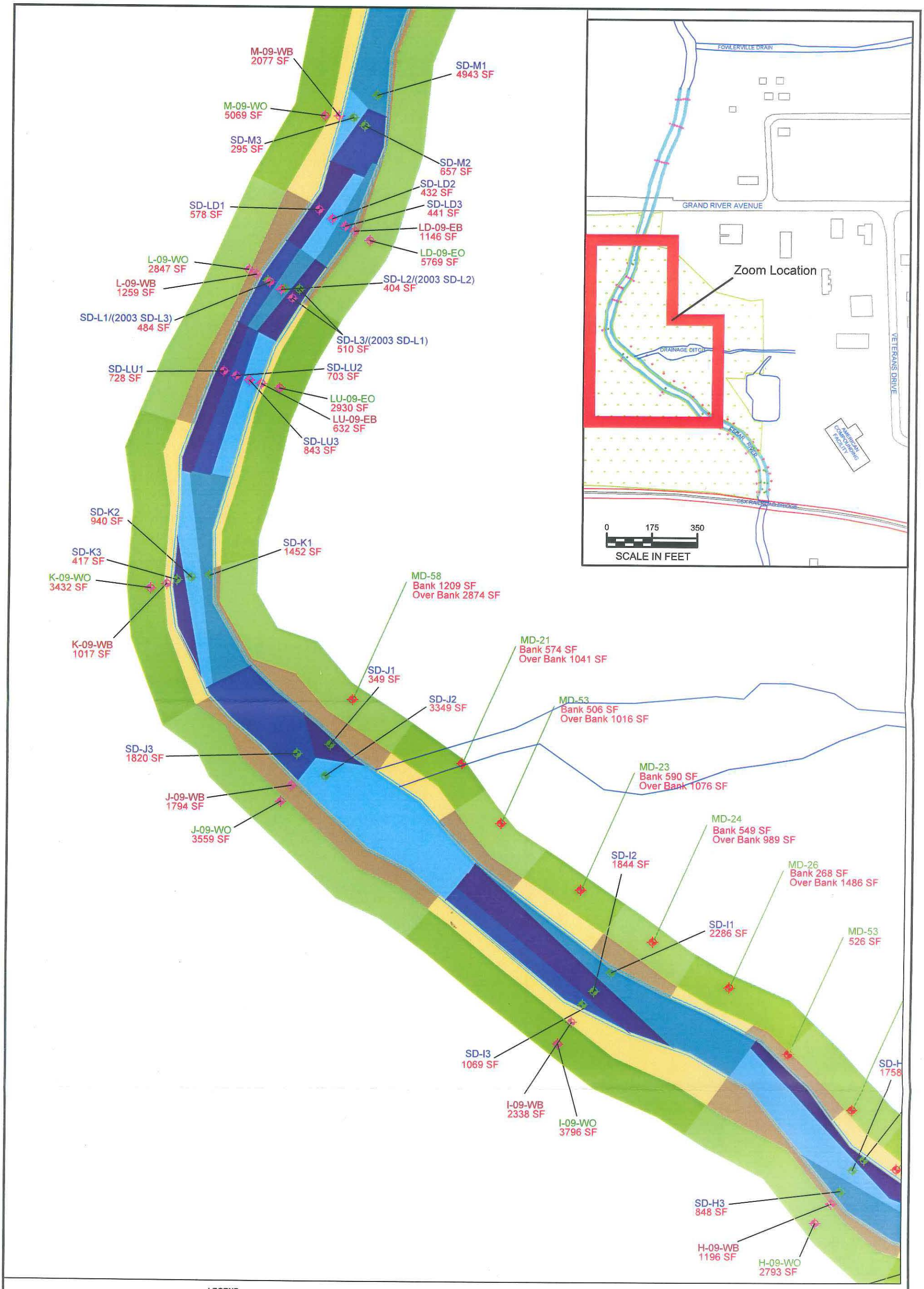

FIGURE NO. 10

PROJECT NO. 095010XXX

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REVISIONS:

CLIENT: JCI
Plymouth, MI

SEDIMENT REMEDIAL DESIGN PLAN

FORMER STANLEY TOOLS FACILITY
(MID 099 124 299), Fowlerville, MI

SWAC POLYGONS

CTI and Associates, Inc.

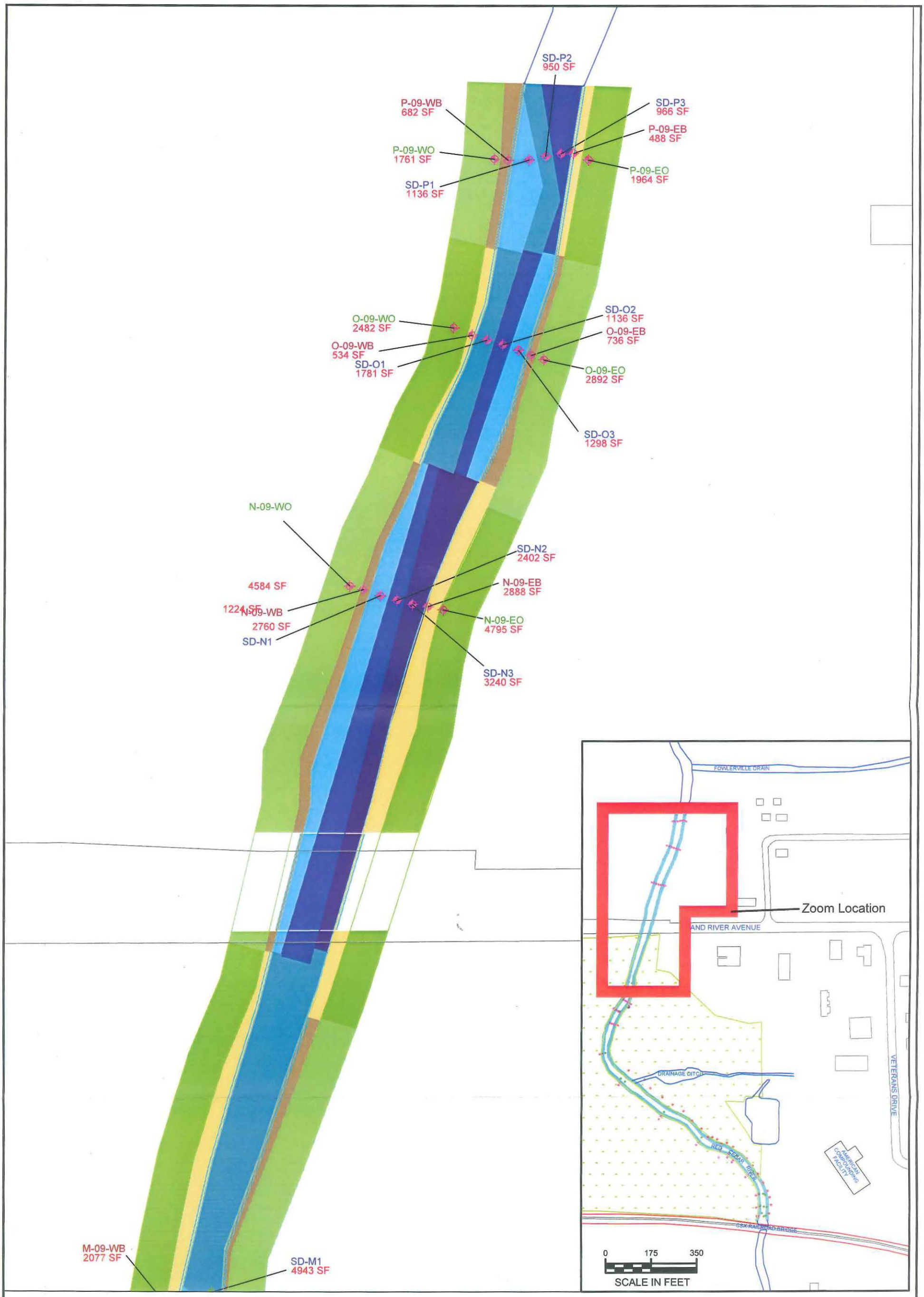

FIGURE NO. 11

PROJECT NO. 095010XXX

DATE Jan 2010

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Checked By: J.R. DICKSON
Approved By: A.J. LONERGAN

REVISIONS:

CLIENT: JCI Plymouth, MI

SEDIMENT REMEDIAL DESIGN PLAN

FORMER STANLEY TOOLS FACILITY
(MID 099 124 299), Fowlerville, MI

SWAC POLYGONS

CTI and Associates, Inc

VETERANS DRIVE

FRANK ST.

AMERICAN COMPOUNDING FACILITY

FOWLERVILLE DRAIN

GRAND RIVER AVENUE

DRAINAGE DITCH

CSX RAILROAD BRIDGE

Flow

Flow

Flow

Flow

A

B

C

D

E

F

G

H

I

J

K

L

LU

LD

M

N

O

P

LEGEND

- Proposed Removal Area (Includes Remedial Objective Areas)

- Remedial Objective Only Removal Area

SCALE IN FEET

0 75 150

CTI and Associates, Inc.

SEDIMENT REMEDIAL DESIGN PLAN

FORMER STANLEY TOOLS FACILITY

(MID 099 124 299), Fowlerville, MI

Removal Areas

CLIENT:
JCI
Plymouth, MI

REVISIONS:

Designed By:
C.KOGANTI
Drawn By:
C.KOGANTI
Checked By:
J.R. DICKSON
Approved By:
A.J. LONERGAN

DATE
Jan 2010

PROJECT NO.
095010XXX

FIGURE NO.
12

Flow

GRAND RIVER AVENUE

JACKSON STREET

DRAINAGE DITCH

AMERICAN COMPOUNDING FACILITY

CSX RAILROAD BRIDGE

Flow

GARDEN LANE STREET

LEGEND

- Conceptual Temporary Dam Locations
- Temporary Discharge Hose/Pipe for River/Drain Pumping
- Sediment Removal Areas
- Potential Access Routes
- Dewatering and Water Treatment
- Staging and Potential Transfer Pad (if needed)

0 75 150

SCALE IN FEET

N

FIGURE NO. 13

PROJECT NO. 095010XXX

DATE Jan 2010

Designed By: C.KOGANTI
Drawn By: C.KOGANTI
Checked By: J.R. DICKSON
Approved By: A.J. LONERGAN

REVISIONS:

CLIENT: JCI Plymouth, MI

SEDIMENT REMEDIAL DESIGN PLAN

FORMER STANLEY TOOLS FACILITY
(MID 099 124 299), Fowlerville, MI

Conceptual Removal Layout

CTI and Associates, Inc.

TABLES

TABLE 1
2009 SEDIMENT SAMPLING FIELD LOG

FORMER STANLEY TOOLS FACILITY (MID 099 124 299)
FOWLERVILLE, MI

Transect	Sample Identification		Date of Sample	Time of Sample	Depth of Water	Sediment Thickness	% Recovery	Sample Depth	Notes
P	1	a	11/18/09	1325	10"	4'	60	0-1'	Coarse SAND with gravel, dark gray to 4'
		b						1-2'	
	2	a	11/18/09	1350	15"	3'	40	0-1'	5" of Coarse SAND grading into gray silt to 14"
		b						1-2'	
	3	a	11/19/09	950	15"	10"	40	0-1	Sandy-SILT, fine to medium grained, dark brown, trace fine gravel
O	1	a	11/19/09	1115	12"	2'	50	0-1'	Medium to coarse SAND, dark brown, trace fine gravel to 2'
		b						1-2'	
	2	a	11/19/09	1135	16"	15"	50	0-1'	Medium to coarse SAND, dark brown to gray, trace fine gravel
	3	a	11/19/09	1200	19"	14"	50	0-1'	4" of coarse SAND, dark brown, trace fine gravel grading into a fine to medium sandy-
N	1	a	11/19/09	1325	14"	26"	50	0-1'	9" of find to medium SAND grading into a black silty-SAND to 14"
		b						1-2'	
	2	a	11/19/09	1345	24"	24"	50	0-1'	Fine to medium SAND, gray, trace fine gravel and shells to 24"
		b						1-2"	DUP SD-1 collected at N-09-SD-2b
	3	a	11/19/09	1415	22"	30"	50	0-1'	Fine to medium SAND, gray, trace fine gravel and shells to 30"
		b						1-2"	
LD	1	a	11/19/09	1520	25"	14"	50	0-1'	Fine to medium SAND, dark brown, trace fine gravel to 14"
		b						1-2'	
	2	a	11/19/09	1545	10"	26"	50	0-1'	Fine SAND grading to a fine to medium SAND
		b						1-2"	1" of fine to medium SAND grading into a coarse SAND
	3	a	11/19/09	1615	12"	27"	15	0-1'	Dark Gray, Fine silty-SAND with organic material grading into a gray, fine SAND
L	1	a	11/23/09	920	20"	10"	70	0-1'	Medium to coarse SAND with gravel
	2	a	11/19/09	1700	15"	15"	50	0-1'	Course gravelly-SAND grading to a black silty-SAND
	3	a	11/23/09	945	7"	31"	40	0-1'	Fine SAND, dark brown to black, trace coarse sand and fine gravel
		b						1-2'	fine to medium silty-SAND, dark brown to black, trace fine gravel
LU	1	a	11/23/09	1015	26"	12"	50	0-1'	Fine to coarse silty-SAND with wood and gravel
	2	a	11/23/09	1055	24"	10"	50	0-1'	Coarse SAND with gravel grading to a fine to medium SAND
	3	a	11/23/09	1110	13"	13"	50	0-1'	Medium to coarse SAND with gravel grading to a fine to medium silty-SAND
Composite	H-09-CS-1		11/23/09	1300 to 1530	22"	33"	50	Collected entire sediment column from each composite location	Silty-SAND with organics grading to a well sorted, fine to medium SAND with organics
	E-09-CS-1				22"	25"	25		Coarse SAND with organic material grading to a fine silty-SAND with organics
	E-09-CS-2				21"	9"	65		Fine silty-SAND, dark brown to black, trace fine gravel
	C-09-CS-1				31"	14"	20		SAND into SILT, CLAY at bottom
	A-09-CS-1				26"	26"	40		Sandy-SILT grading to a Silty-SAND and back to a sandy-SILT

TABLE 2
IN-CHANNEL SEDIMENT ANALYTICAL RESULTS - 2003 to 2009
FORMER STANLEY TOOLS FACILITY (MID 099 124 299)
Fowlerville, MI

	Remedial Objectives	Op. Memo 4			Location	SD-A1	SD-A1	SD-A1	SD-A2	SD-A2	SD-A2	SD-A3	SD-A3	SDB1	SDB2	SDB3	SDB3	SDB3	SDB3*	SD-C1	SD-C1	SD-C1	SDC2	SD-C3*	SD-C3*	SD-C3
					Field ID:	SDA1012-042303-01	SD-A1-006	SDA11224-042303-01	SDA2012-042303-01	SDA2012-042303-02	SDA21224-042303-01	SDA3012-042303-01	SDA31224-042303-01	SDB1-0016-101703-01	SDB2-0016-101703-01	SDB3-0012-101703-01	SDB3-1228-101703-01	SDB3-1228-101703-02	SDB3-3642-101703-01	SDC1012-042203-01	SD=C1-005	SDC11224-042203-01	SDC2-0013-101703-01	SDC3012-042203-01	SDC31224-042203-01	SDC31224-042203-02
					Date Sampled:	4/23/2003	7/24/2007	4/23/2003	4/23/2003	4/23/2003	4/23/2003	4/23/2003	4/23/2003	10/17/2003	10/17/2003	10/17/2003	10/17/2003	10/17/2003	10/17/2003	4/22/2003	7/24/2007	4/22/2003	10/17/2003	4/22/2003	4/22/2003	4/22/2003
					Data Type	Origional	Origional	Origional	Origional	Duplicate	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Duplicate	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Duplicate
					Material Type	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sand	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
					Sample Event	2003	2007	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2007	2003	2003	2003	2003	2003
					Depth (inches):	0 - 12	0 - 12	12 - 24	0 - 12	0 - 12	12 - 24	0 - 12	12 - 24	0 - 16	0 - 16	0 - 12	12 - 28	12 - 28	36 - 42	0 - 12	0 - 12	12 - 24	0 - 13	0 - 12	12 - 24	12 - 24
Volatile Organic Compounds																										
1,1,1,2-Tetrachloroethane	-	-	630-20-6	ug/kg		78 U	NA	73 U	83 U	77 U	63 U	74 U	51 U	63 U	65 U	120 U	81 U	80 U	56 U	66 U	NA	50 U	69 U	70 U	70 U	79 U
1,1,1-Trichloroethane	-	-	71-55-6	ug/kg		78 U	NA	73 U	83 U	77 U	63 U	74 U	51 U	63 U	65 U	120 U	81 U	80 U	56 U	66 U	NA	50 U	69 U	70 U	70 U	79 U
1,1,2,2-Tetrachloroethane	-	-	79-34-5	ug/kg		78 U	NA	73 U	83 U	77 U	63 U	74 U	51 U	63 U	65 U	120 U	81 U	80 U	56 U	66 U	NA	50 U	69 U	70 U	70 U	79 U
1,1,2-Trichloroethane	-	-	79-00-5	ug/kg		78 U	NA	73 U	83 U	77 U	63 U	74 U	51 U	63 U	65 U	120 U	81 U	80 U	56 U	66 U	NA	50 U	69 U	70 U	70 U	79 U
1,1-Dichloroethane	-	0.575	75-34-3	ug/kg		78 U	NA	73 U	**34 J**	**96**	**73**	35 JB	**69**	**96**	**52 J**	120 U	**21 J**	**18 J**	56 U	**37 J**	NA	**30 J**	69 U	70 U	70 U	**17 J**
1,1-Dichloroethene	-	-	75-35-4	ug/kg		78 U	NA	73 U	83 U	77 U	63 U	74 U	51 U	63 U	65 U	120 U	81 U	80 U	56 U	66 U	NA	50 U	69 U	70 U	70 U	79 U
1,1-Dichloropropylene	-	-	563-58-6	ug/kg		78 U	NA	73 U	83 U	77 U	63 U	74 U	51 U	63 U	65 U	120 U	81 U	80 U	56 U	66 U	NA	50 U	69 U	70 U	70 U	79 U
1,2,3-Trichlorobenzene	-	-	87-61-6	ug/kg		390 UJB	NA	370 U	410 U	380 U	320 U	370 U	250 U	320 U	330 U	620 U	410 U	400 U	280 U	330 U	NA	250 U	340 U	350 U	350 U	400 U
1,2,3-Trichloropropane	-	-	96-18-4	ug/kg		78 U	NA	73 U	83 U	77 U	63 U	74 U	51 U	63 U	65 U	120 U	81 U	80 U	56 U	66 U	NA	50 U	69 U	70 U	70 U	79 U
1,2,4-Trichlorobenzene	-	-	120-82-1	ug/kg		12 JB	NA	73 U	83 U	77 U	63 U	74 U	51 U	63 U	65 U	120 U	81 U	80 U	56 U	66 U	NA	50 U	69 U	70 U	70 U	79 U
1,2,4-Trimethylbenzene	-	-	95-63-6	ug/kg		27 JB	NA	24 JB	21 JB	24 JB	16 JB	16 JB	51 U	7.6 J	10 J	17 J	81 U	80 U	56 U	19 JB	NA	28 JB	9 J	17 JB	70 U	79 U
1,2-Dibromo-3-chloropropane	-	-	96-12-8	ug/kg		78 U	NA	73 U	83 U	77 U	63 U	74 U	51 U	63 U	65 U	120 U	81 U	80 U	56 U	66 U	NA	50 U	69 U	70 U	70 U	79 U
1,2-Dichlorobenzene	-	-	95-50-1	ug/kg		78 U	NA	73 U	83 U	77 U	63 U	74 U	51 U	63 U	65 U	120 U	81 U	80 U	56 U	66 U	NA	18 J	69 U	70 U	70 U	79 U
1,2-Dichloroethane	-	-	107-06-2	ug/kg		78 U	NA	73 U	83 U	77 U	63 U	74 U	51 U	63 U	65 U	120 U	81 U	80 U	56 U	66 U	NA	50 U	69 U	70 U	70 U	79 U
1,2-Dichloroethene	-	-	540-59-0	ug/kg		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	-	-	78-87-5	ug/kg		78 U	NA	73 U	83 U	77 U	63 U	74 U	51 U	63 U	65 U	120 U	81 U	80 U	56 U	66 U	NA	50 U	69 U	70 U	70 U	79 U
1,3,5-Trimethylbenzene	-	-	108-67-8	ug/kg		78 U	NA	73 U	83 U	77 U	63 U	74 U	51 U	63 U	65 U	120 U	81 U	80 U	56 U	13 JB	NA	11 JB	69 U	70 U	70 U	79 U
1,3-Dichlorobenzene	-	-	541-73-1	ug/kg		78 U	NA	73 U	83 U	77 U	63 U	74 U	51 U	63 U	65 U	120 U	81 U	80 U	56 U	66 U	NA	50 U	69 U	70 U	70 U	79 U
1,3-Dichloropropane	-	-	142-28-9	ug/kg		78 U	NA	73 U	83 U	77 U	63 U	74 U	51 U	63 U	65 U	120 U	81 U	80 U	56 U	66 U	NA	50 U	69 U	70 U	70 U	79 U
1,4-Dichlorobenzene	-	-	106-46-7	ug/kg		78 U	NA	73 U	83 U	77 U	63 U	74 U	51 U	63 U	65 U	120 U	81 U	80 U	56 U	66 U	NA	50 U	69 U	70 U	70 U	79 U
2,2-Dichloropropane	-	-	594-20-7	ug/kg		78 U	NA	73 U	83 U	77 U	63 U	74 U	51 U	63 U	65 U	120 U	81 U	80 U	56 U	66 U	NA	50 U	69 U	70 U	70 U	79 U
2-Chlorotoluene	-	-	95-49-8	ug/kg		78 U	NA	73 U	83 U	77 U	63 U	74 U	51 U	63 U	65 U	120 U	81 U	80 U	56 U	66 U	NA	50 U	69 U	70 U	70 U	79 U
2-Hexanone	-	-	591-78-6	ug/kg		780 U	NA	730 U	830 U	770 U	630 U	740 U	510 U	630 U	650 U	1200 U	810 U	800 U	560 U	660 U	NA	500 U	690 U	700 U	700 U	790 U
4-Chlorotoluene	-	-	106-43-4	ug/kg		78 U	NA	73 U	83 U	77 U	63 U	74 U	51 U	63 U	65 U	120 U	81 U	80 U	56 U	66 U	NA	50 U	69 U	70 U	70 U	79 U
4-Isopropyltoluene	-	-	99-87-6	ug/kg		78 U	NA	73 U	83 U	77 U	63 U	74 U	51 U	63 U	65 U	120 U	81 U	80 U	56 U	66 U	NA	50 U	69 U	70 U	70 U	79 U
4-Methyl-2-pentanone	-	-	108-10-1	ug/kg		780 U	NA	730 U	830 U	770 U	630 U	740 U	510 U	630 U	650 U	1200 U	810 U	800 U	560 U	660 U	NA	500 U	690 U	700 U	700 U	790 U
Acetone	-	9.9	67-64-1	ug/kg		320 JB	NA	240 JB	300 JB	340 JB	220 JB	290 JB	130 JB	**490 J***	**540 J***	**1100 J**	**450 J***	**560 J***	**320 J***	210 JB	NA	160 JB	690 U	260 JB	220 JB	310 JB
Acrolein	-	-	107-02-8	ug/kg		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	-	-	71-43-2	ug/kg		78 U	NA	73 U	83 U	77 U	63 U	74 U	51 U	63 U	65 U	120 U	81 U	80 U	56 U	66 U	NA	50 U	69 U	70 U	70 U	79 U
Bromobenzene	-	-	108-86-1	ug/kg		78 U	NA	73 U	83 U	77 U	63 U	74 U	51 U	63 U	65 U	120 U	81 U	80 U	56 U	66 U	NA	50 U	69 U	70 U	70 U	79 U
Bromochloromethane	-	-	74-97-5	ug/kg		78 U	NA	73 U	83 U	77 U	63 U	74 U	51 U	63 U	65 U	120 U	81 U	80 U	56 U	66 U	NA	50 U	69 U	70 U	70 U	79 U
Bromoform	-	-	75-25-2	ug/kg		78 U	NA	73 U	83 U	77 U	63 U	74 U	51 U	63 U	65 U	120 U	81 U	80 U	56 U	66 U	NA	50 U	69 U	70 U	70 U	79 U
Bromomethane	-	-	74-83-9	ug/kg		78 U	NA	73 U	83 U	77 U	63 U	74 U	51 U	63 U	65 U	120 U	81 U	80 U	56 U	66 U	NA	50 U	69 U	70 U	70 U	79 U
Carbon disulfide	-	-	75-15-0	ug/kg		780 U	NA	730 U	830 U	18 J	630 U	740 U	510 U	12 J	25 J	1200 U	20 J	21 J	560 U	660 U	NA	500 U	690 U	700 U	700 U	790 U
Carbon tetrachloride	-	-	56-23-5	ug/kg		78 U	NA	73 U	83 U	77 U	63 U	74 U	51 U	63 U	65 U	120 U	81 U	80 U	56 U	66 U	NA	50 U	69 U	70 U	70 U	79 U
Chlorobenzene	-	-	108-90-7	ug/kg		78 U	NA	73 U	83 U	77 U	63 U	74 U	51 U	63 U	65 U	120 U	81 U	80 U	56 U	66 U	NA	50 U	69 U	70 U	70 U	79 U
Chloroethane	-	-	75-00-3	ug/kg		78 U	NA	73 U	83 U	77 U	63 U	74 U	51 U	63 U	65 U	120 U	81 U	80 U	56 U	66 U	NA	50 U	69 U	70 U	70 U	79 U
Chloroform	-	-	67-66-3	ug/kg		78 U	NA	21 J	15 J	22 J	13 J	22 J	11 J	63 U	65 U	120 U	81 U	80 U	56 U	18 J	NA	16 J	69 U	70 U	70 U	16 J
Chloromethane	-	-	74-87-3	ug/kg		29 J	NA	23 J	23 J	31 J	28 J	23 J	51 U	63 U	65 U	120 U	81 U	80 U	56 U	32 J	NA	20 J	69 U	23 J	30 J	23 J
cis-1,2-Dichloroethene	-	-	156-59-2	ug/kg		78 U	NA	73 U	56 J	240	1100	38 J	1100	2000	160	120 U	130	160	120	1100	NA	710	49 J	70 U	70 U	79 U
cis-1,3-Dichloropropene	-	-	10061-01-5	ug/kg		78 U	NA	73 U	83 U	77 U	63 U	74 U	51 U	63 U	65 U	120 U	81 U	80 U	56 U	66 U	NA	50 U	69 U	70 U	70 U	79 U
Dibromochloromethane	-	-	124-48-1	ug/kg		78 U	NA	73 U	83 U	77 U	63 U	74 U	51 U	63 U	65 U	120 U	81 U	80 U	56 U	66 U	NA	50 U	69 U	70 U	70 U	79 U
Dibromomethane	-	-	74-95-3	ug/kg		78 U	NA	73 U	83 U	77 U	63 U	74 U	51 U	63 U	65 U	120 U	81 U	80 U	56 U	66 U	NA	50 U	69 U	70 U	70 U	79 U
Dichlorobromomethane	-	-	75-27-4	ug/kg		78 U	NA	73 U	83 U	77 U	63 U	74 U	51 U	63 U	65 U	120 U	81 U	80 U	56 U	66 U	NA	50 U	69 U	70 U	70 U	79 U
Dichlorodifluoromethane	-	-	75-71-8	ug/kg		78 U	NA	73 U	83 U	77 U	63 U	74 U	51 U	63 U	65 U	120 U	81 U	80 U	56 U	66 U	NA	50 U	69 U	70 U	70 U	79 U
Ethylbenzene	-	-	100-41-4	ug/kg		78 U	NA	73 U	83 U	77 U	63 U	74 U	51 U	63 U	65 U	120 U	81 U	80 U	56 U	14 J	NA	50 U	69 U	70 U	70 U	79 U
Ethylene dibromide	-	-	106-93-4	ug/kg		78 U	NA	73 U	83 U	77 U	63 U	74 U	51 U	63 U	65 U	120 U	81 U	80 U	56 U	66 U	NA	50 U	69 U	70 U	70 U	79 U
Hexachlorobutadiene	-	26.5	87-68-3	ug/kg		42 JB	NA	29 JB	830 U	770 U	630 U	740 U	510 U	320 U	330 U	620 U	410 U	400 U	280 U	660 U	NA	500 U	340 U	700 U	700 U	790 U
Isopropylbenzene	-	-	98-82-8	ug/kg		78 U	NA	73 U	83 U	77 U	63 U	74 U	51 U	63 U	65 U	120 U	81 U	80 U	56 U	66 U	NA	50 U	69 U	70 U	70 U	79 U
Methyl ethyl ketone	-	42.4	78-93-3	ug/kg		**210 J***	NA	**140 J***	**160 J***	**200 J***	**100 J***	**180 J***	**85 J***	**620 J**	**460 J***	**850 J**	**350 J***	**380 J***	**480 J***	660 U	NA	500 U	**570 J**	**120 J***	**140 J***	**160 J***
Methyl tert butyl ether	-	-	1634-04-4	ug/kg		780 U	NA	730 U	830 U	770 U	630 U	740 U	510 U	630 U	650 U	1200 U	810 U	800 U	560 U	660 U	NA	500 U	690 U	700 U	700 U	790 U
Methylene chloride	-	159	75-09-2	ug/kg		78 U	NA	73 U	83 U	77 U	63 U	74 U	51 U	37 J	48 J	84 J	51	46 J	46 J	66 U	NA	50 U	49 J	70 U	70 U	79 U
n-Butylbenzene	-	-	104-51-8	ug/kg		78 U	NA	73 U	83 U	77 U	63 U	74 U	51 U	63 U	65 U	120 U	81 U	80 U	56 U	66 U	NA	50 U	69 U	70 U	70 U	79 U
n-Propylbenzene	-	-	103-65-1	ug/kg		78 U	NA	73 U	83 U	77 U	63 U	74 U	51 U	63 U	65 U	120 U	81 U	80 U	56 U	66 U	NA	50 U	69 U	70 U	70 U	79 U
Naphthalene	-	176	91-20-3	ug/kg		21 JB	NA	16 JB	21 JB	32 JB	11 JB	25 JB	7 JB	320 U	**290 J**	76 J	410 U	400 U	280 U	11 JB	NA	7 JB	32 J	10 JB	170 U	200 U
o-Xylene	-	-	95-47-6	ug/kg		78 U	NA	73 U	83 U	77 U	63 U	74 U	51 U	63 U	65 U	120 U	81 U	80 U	56 U	8 J	NA	50 U	69 U	70 U	70 U	79 U
sec-Butylbenzene	-	-	135-98-8	ug/kg		78 U	NA	73 U	83 U	77 U	63 U	74 U	51 U	63 U	65 U	120 U	81 U	80 U	56 U	66 U	NA	50 U	69 U	70 U	70 U	79 U
Styrene	-	-	100-42-5	ug/kg		78 U	NA	73 U	83 U	77 U	63 U	74 U	51 U	63 U	65 U	120 U	81 U	80 U	56 U	66 U	NA	50 U	69 U	70 U	70 U	79 U
tert-Butylbenzene	-	-	98-06-6	ug/kg		78 U	NA	73 U	83 U	77 U	63 U	74 U	51 U	63 U	65 U	120 U	81 U	80 U	56 U	66 U	NA	50 U	69 U	70 U	70 U	79 U
Tetrachloroethene	-	-	127-18-4	ug/kg		78 U	NA	73 U	83 U	77 U	63 U	74 U	51 U	63 U	65 U	120 U	81 U	80 U	56 U	66 U	NA	50 U	69 U	70 U	70 U	79 U
Toluene	-	-	108-88-3	ug/kg		78 U	NA	73 U	83 U	25 J	63 U	74 U	51 U	63 U	65 U	120 U	81 U	9.6 J	56 U	18 J	NA	50 U	7.6 J	70 U	70 U	79 U
trans-1,2-Dichloroethylene	-	-	156-60-5	ug/kg		78 U	NA	73 U	25 J	45 J	78	19 JB	58	160	39 J	120 U	81 U	80 U	56 U	100	NA	88	69 U	70 U	26 J	79 U
trans-1,3-Dichloropropene	-	-	10061-02-6	ug/kg		78 U	NA	73 U	83 U	77 U	63 U	74 U	51 U	63 U	65 U	120 U	81 U	80 U	56 U	66 U	NA	50 U	69 U	70 U	70 U	79 U
Trichloroethene	-	112	79-01-6	ug/kg		78 U	NA	73 U	83 U	77 U	63 U	74 U	41 JB	63 U	80	120 U	81 U	80 U	56 U	**410**	NA	**690**	69 U	70 U	70 U	79 U
Trichlorofluoromethane	-	-	75-69-4	ug/kg		78 U	NA	73 U	83 U	77 U	63 U	74 U	51 U	63 U	65 U	120 U	81 U	80 U	56 U	66 U	NA	50 U	69 U	70 U	70 U	79 U
Vinyl chloride	-	-	75-01-4	ug/kg		78 U	NA	73 U	83 U	77 U	63 U	74 U	51 U	63 U	65 U	120 U	81 U	80 U	56 U	66 U	NA	50 U	69 U	70 U	70 U	79 U
Xylene, Meta + Para	-	-	Not Applicable	ug/kg		40 J	NA	35 J	41 J	150 U	130 U	150 U	100 U	130 U	130 U	250 U	160 U	160 U	110 U	32 J	NA	100 U	140 U	140 U	140 U	160 U

TABLE 2
IN-CHANNEL SEDIMENT ANALYTICAL RESULTS - 2003 to 2009
FORMER STANLEY TOOLS FACILITY (MID 099 124 299)
Fowlerville, MI

	Remedial Objectives	Op. Memo 4			Location	SD-A1	SD-A1	SD-A1	SD-A2	SD-A2	SD-A2	SD-A3	SD-A3	SDB1	SDB2	SDB3	SDB3	SDB3	SDB3*	SD-C1	SD-C1	SD-C1	SDC2	SD-C3*	SD-C3*	SD-C3
					Field ID:	SDA1012-042303-01	SD-A1-006	SDA11224-042303-01	SDA2012-042303-01	SDA2012-042303-02	SDA21224-042303-01	SDA3012-042303-01	SDA31224-042303-01	SDB1-0016-101703-01	SDB2-0016-101703-01	SDB3-0012-101703-01	SDB3-1228-101703-01	SDB3-1228-101703-02	SDB3-3642-101703-01	SDC1012-042203-01	SD=C1-005	SDC11224-042203-01	SDC2-0013-101703-01	SDC3012-042203-01	SDC31224-042203-01	SDC31224-042203-02
					Date Sampled:	4/23/2003	7/24/2007	4/23/2003	4/23/2003	4/23/2003	4/23/2003	4/23/2003	4/23/2003	10/17/2003	10/17/2003	10/17/2003	10/17/2003	10/17/2003	10/17/2003	4/22/2003	7/24/2007	4/22/2003	10/17/2003	4/22/2003	4/22/2003	4/22/2003
					Data Type	Origional	Origional	Origional	Origional	Duplicate	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Duplicate	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Duplicate
					Material Type	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sand	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
					Sample Event	2003	2007	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2007	2003	2003	2003	2003	2003
					Depth (inches):	0 - 12	0 - 12	12 - 24	0 - 12	0 - 12	12 - 24	0 - 12	12 - 24	0 - 16	0 - 16	0 - 12	12 - 28	12 - 28	36 - 42	0 - 12	0 - 12	12 - 24	0 - 13	0 - 12	12 - 24	12 - 24
Semi-Volatile Organic Compounds																										
1,2,4-Trichlorobenzene	-	-	120-82-1	ug/kg		330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U
1,2-Benzphenanthracene	-	-	218-01-9	ug/kg		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	-	-	95-50-1	ug/kg		330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	3.2 J	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U
1,3-Dichlorobenzene	-	-	541-73-1	ug/kg		330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U
1,4-Dichlorobenzene	-	-	106-46-7	ug/kg		330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	4.4 J	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U
2,4,5-Trichlorophenol	-	-	95-95-4	ug/kg		330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U
2,4,6-Trichlorophenol	-	-	88-06-2	ug/kg		330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U
2,4-Dichlorophenol	-	-	120-83-2	ug/kg		330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U
2,4-Dimethylphenol	-	-	105-67-9	ug/kg		330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U
2,4-Dinitrophenol	-	-	51-28-5	ug/kg		1700 U	NA	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	NA	1700 U	1700 U	1700 U	1700 U	1700 U
2,4-Dinitrotoluene	-	-	121-14-2	ug/kg		330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U
2,6-Dinitrotoluene	-	-	606-20-2	ug/kg		330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U
2-Chloronaphthalene	-	-	91-58-7	ug/kg		330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U
2-Chlorophenol	-	-	95-57-8	ug/kg		330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U
2-Methylnaphthalene	-	20.2	91-57-6	ug/kg		330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	**40 J**	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U
2-Methylphenol	-	-	95-48-7	ug/kg		330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	17 J	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U
2-Nitroaniline	-	-	88-74-4	ug/kg		1700 U	NA	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	NA	1700 U	1700 U	1700 U	1700 U	1700 U
2-Nitrophenol	-	-	88-75-5	ug/kg		330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U
3,3-Dichlorobenzidine	-	-	91-94-1	ug/kg		2000 U	NA	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	NA	2000 U	2000 U	2000 U	2000 U	2000 U
3,4-Methylphenol	-	-	108-39-4	ug/kg		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	-	-	99-09-2	ug/kg		1700 U	NA	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	NA	1700 U	1700 U	1700 U	1700 U	1700 U
4,6-Dinitro-2-methylphenol	-	-	534-52-1	ug/kg		1700 U	NA	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	NA	1700 U	1700 U	1700 U	1700 U	1700 U
4-Bromophenyl-phenylether	-	-	101-55-3	ug/kg		330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U
4-Chloroaniline	-	-	106-47-8	ug/kg		1700 U	NA	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	NA	1700 U	1700 U	1700 U	1700 U	1700 U
4-Chlorophenyl-phenylether	-	-	7005-72-3	ug/kg		330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U
4-Methylphenol	-	-	106-44-5	ug/kg		54 J	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	11 J	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U
4-Nitroaniline	-	-	100-01-6	ug/kg		1700 U	NA	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	NA	1700 U	1700 U	1700 U	1700 U	1700 U
4-Nitrophenol	-	-	100-02-7	ug/kg		1700 U	NA	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	NA	1700 U	1700 U	1700 U	1700 U	1700 U
Acenaphthene	-	6.71	83-32-9	ug/kg		330 U	1360 U	330 U	**48 J**	330 U	330 U	**96 J**	330 U	**26 J**	**100 J**	**10 J**	330 U	330 U	330 U	330 U	1640 U	330 U	**44 J**	330 U	330 U	330 U
Acenaphthylene	-	5.87	208-96-8	ug/kg		330 U	2730 U	330 U	330 U	330 U	330 U	330 U	**21 J**	330 U	330 U	330 U	330 U	330 U	330 U	330 U	3280 U	330 U	**24 J**	330 U	330 U	330 U
Anthracene	-	57.2	120-12-7	ug/kg		38 J	1360 U	330 U	41 J	330 U	330 U	330 U	330 U	17 J	**110 J**	44 J	330 U	330 U	330 U	330 U	1640 U	330 U	**140 J**	330 U	330 U	330 U
Benz(a)anthracene	-	108	56-55-3	ug/kg		**160 J***	682 U	330 U	**310 J**	330 U	330 U	330 U	330 U	66 J	**250 J***	**200 J***	330 U	330 U	330 U	330 U	820 U	330 U	**280 J***	44 J	330 U	330 U
Benzidine	-	-	92-87-5	ug/kg		5000 U	NA	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	NA	5000 U	5000 U	5000 U	5000 U	5000 U
Benzo(a)pyrene	-	150	50-32-8	ug/kg		100 J	111	330 U	**160 J***	330 U	330 U	330 U	330 U	56 J	**170 J***	**240 J***	330 U	330 U	330 U	330 U	82 U	330 U	**260 J***	40 J	330 U	330 U
Benzo(b)fluoranthene	-	-	205-99-2	ug/kg		180 J	682 U	330 U	210 J	330 U	330 U	330 U	330 U	86 J	140 J	230 J	330 U	330 U	330 U	330 U	820 U	330 U	300 J	330 U	330 U	330 U
Benzo(g,h,i)perylene	-	170	191-24-2	ug/kg		4 J	1360 U	330 U	32 J	330 U	330 U	330 U	330 U	48 J	110 J	**190 J**	330 U	330 U	330 U	330 U	1640 U	330 U	170 J	330 U	330 U	330 U
Benzo(k)fluoranthene	-	240	207-08-9	ug/kg		120 J	1360 U	330 U	140 J	330 U	330 U	330 U	330 U	31 J	170 J	220 J	330 U	330 U	330 U	330 U	1640 U	330 U	150 J	330 U	330 U	330 U
Benzoic acid	-	-	65-85-0	ug/kg		3300 U	NA	3300 U	3300 U	3300 U	3300 U	3300 U	3300 U	3300 U	3300 U	3300 U	210 J	120 J	3300 U	3300 U	NA	3300 U	9.4 J	3300 U	3300 U	3300 U
Benzyl alcohol	-	-	100-51-6	ug/kg		1300 U	NA	1300 U	1300 U	1300 U	1300 U	1300 U	1300 U	1300 U	1300 U	1300 U	1300 U	1300 U	1300 U	1300 U	NA	1300 U	1300 U	1300 U	1300 U	1300 U
bis(2-Chloroethoxy)methane	-	-	111-91-1	ug/kg		330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U
bis(2-Chloroethyl)ether	-	-	111-44-4	ug/kg		100 U	NA	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	NA	100 U	100 U	100 U	100 U	100 U
bis(2-Chloroisopropyl)ether	-	-	108-60-1	ug/kg		330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U
bis(2-Ethylhexyl)phthalate	-	182	117-81-7	ug/kg		**240 J**	NA	52 J	91 J	83 J	44 J	330 U	29 J	86 J	100 J	61 J	24 J	20 J	9.5 J	63 J	NA	36 J	49 J	330 U	330 U	330 U
Butyl benzyl phthalate	-	-	85-68-7	ug/kg		680	NA	320 J	460	140 J	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	5 J	330 U	NA	330 U	330 U	13 J	330 U	330 U
Carbazole	-	-	86-74-8	ug/kg		330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	14 J	41 J	34 J	330 U	330 U	330 U	330 U	NA	330 U	25 J	330 U	330 U	330 U
Chrysene	-	166	218-01-9	ug/kg		**250 J***	1360 U	330 U	**180 J***	38 J	330 U	330 U	330 U	80 J	**240 J***	**280 J***	5.2 J	4.3 J	3.1 J	330 U	1640 U	330 U	**310 J***	56 J	330 U	330 U
Di-N-Butyl phthalate	-	-	84-74-2	ug/kg		330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	35 J	47 J	80 J	110 J	62 J	47 J	27 J	61 J	NA	58 J	40 J	64 J	84 J
Di-N-Octyl phthalate	-	-	117-84-0	ug/kg		330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	14 J	330 U	330 U	330 U	330 U	NA	330 U	7.4 J	330 U	330 U	330 U
Dibenz(a,h)anthracene	-	33	53-70-3	ug/kg		330 U	68.2 U	330 U	330 U	330 U	330 U	330 U	330 U	10 J	**48 J**	**72 J**	330 U	330 U	330 U	330 U	82 U	330 U	**42 J**	330 U	330 U	330 U
Dibenzofuran	-	-	132-64-9	ug/kg		330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	4.2 J	65 J	330 U	330 U	330 U	330 U	330 U	NA	330 U	16 J	330 U	330 U	330 U
Diethylphthalate	-	-	84-66-2	ug/kg		330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	20 J	11 J	21 J	12 J	12 J	5.8 J	330 U	NA	330 U	17 J	330 U	330 U	330 U
Dimethyl phthalate	-	-	131-11-3	ug/kg		3300 U	NA	3300 U	3300 U	3300 U	3300 U	3300 U	3300 U	3300 U	3300 U	3300 U	3300 U	3300 U	3300 U	3300 U	NA	3300 U	3300 U	3300 U	3300 U	3300 U
Fluoranthene	-	423	206-44-0	ug/kg		**460***	1360 U	330 U	**610***	140 J	330 U	100 J	330 U	140 J	**550***	**620***	11 J	9.5 J	330 U	330 U	1640 U	330 U	**640**	130 J	330 U	43 J
Fluorene	-	77.4	86-73-7	ug/kg		330 U	1360 U	330 U	330 U	330 U	330 U	330 U	330 U	20 J	160 J	18 J	330 U	330 U	330 U	330 U	1640 U	330 U	48 J	330 U	330 U	330 U
Hexachlorobenzene	-	-	118-74-1	ug/kg		330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U
Hexachlorobutadiene	-	-	87-68-3	ug/kg		330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U
Hexachlorocyclopentadiene	-	-	77-47-4	ug/kg		330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U
Hexachloroethane	-	-	67-72-1	ug/kg		330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U
Indeno(1,2,3-cd)pyrene	-	200	193-39-5	ug/kg		330 U	682 U	330 U	330 U	330 U	330 U	330 U	330 U	56 J	96 J	160 J	330 U	330 U	330 U	330 U	820 U	330 U	170 J	330 U	330 U	330 U
Isophorone	-	-	78-59-1	ug/kg		330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U
N-Nitroso-di-N-propylamine	-	-	621-64-7	ug/kg		330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U
N-Nitrosodiphenylamine	-	-	86-30-6	ug/kg		330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U
Naphthalene	-	-	91-20-3	ug/kg		330 U	1360 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	170 J	330 U	330 U	330 U	330 U	330 U	1640 U	330 U	330 U	330 U	330 U	330 U
Nitrobenzene	-	-	98-95-3	ug/kg		200 U	NA	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	NA	200 U	200 U	200 U	200 U	200 U
p-Chloro-m-cresol	-	-	59-50-7	ug/kg		330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U
Pentachlorophenol	-	-	87-86-5	ug/kg		800 U	NA	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	NA	800 U	800 U	800 U	800 U	800 U
Phenanthrene	-	204	85-01-8	ug/kg		84 J	1360 U	330 U	170 J	330 U	330 U	330 U	330 U	64 J	**330**	25 J	330 U	330 U	330 U	330 U	1640 U	330 U	**400**	70 J	330 U	330 U
Phenol	-	-	108-95-2	ug/kg		330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U
PNAs, Total	-	-	TPNA	ug/kg		1776	NA	NA	2451	288	NA	316	NA	840	3045	2759	24.2	22.8	6.3	NA	NA	NA	3468	440	NA	80
Pyrene	-	195	129-00-0	ug/kg		**380***	1360 U	330 U	**550**	110 J	330 U	120 J	330 U	140 J	**510***	**450***	8 J	9 J	3.2 J	330 U	1640 U	330 U	**490***	100 J	330 U	37 J

TABLE 2
IN-CHANNEL SEDIMENT ANALYTICAL RESULTS - 2003 to 2009
FORMER STANLEY TOOLS FACILITY (MID 099 124 299)
Fowlerville, MI

				Location	SD-A1	SD-A1	SD-A1	SD-A2	SD-A2	SD-A2	SD-A3	SD-A3	SDB1	SDB2	SDB3	SDB3	SDB3	SDB3*	SD-C1	SD-C1	SD-C1	SDC2	SD-C3*	SD-C3*	SD-C3
				Field ID:	SDA1012-042303-01	SD-A1-006	SDA11224-042303-01	SDA2012-042303-01	SDA2012-042303-02	SDA21224-042303-01	SDA3012-042303-01	SDA31224-042303-01	SDB1-0016-101703-01	SDB2-0016-101703-01	SDB3-0012-101703-01	SDB3-1228-101703-01	SDB3-1228-101703-02	SDB3-3642-101703-01	SDC1012-042203-01	SD=C1-005	SDC11224-042203-01	SDC2-0013-101703-01	SDC3012-042203-01	SDC31224-042203-01	SDC31224-042203-02
				Date Sampled:	4/23/2003	7/24/2007	4/23/2003	4/23/2003	4/23/2003	4/23/2003	4/23/2003	4/23/2003	10/17/2003	10/17/2003	10/17/2003	10/17/2003	10/17/2003	10/17/2003	4/22/2003	7/24/2007	4/22/2003	10/17/2003	4/22/2003	4/22/2003	4/22/2003
				Data Type	Origional	Origional	Origional	Origional	Duplicate	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Duplicate	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Duplicate
				Material Type	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sand	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
				Sample Event	2003	2007	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2007	2003	2003	2003	2003	2003
	Remedial Objectives	Op. Memo 4		Depth (inches):	0 - 12	0 - 12	12 - 24	0 - 12	0 - 12	12 - 24	0 - 12	12 - 24	0 - 16	0 - 16	0 - 12	12 - 28	12 - 28	36 - 42	0 - 12	0 - 12	12 - 24	0 - 13	0 - 12	12 - 24	12 - 24
Polychlorinated Biphenyls (PCBs):																								
PCB, Total	-	**59.8**	TPCB	ug/kg	18 J	29.6 U	NA	NA	NA	NA	NA	NA	26 J	**67 J**	NA	NA	NA	NA	NA	29.2 U	NA	NA	NA	5.2 J	NA
PCB-1016	-	**59.8**	12674-11-2	ug/kg	330 U	29.6 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	29.2 U	330 U	330 U	330 U	330 U	330 U
PCB-1221	-	**59.8**	11104-28-2	ug/kg	330 U	29.6 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	29.2 U	330 U	330 U	330 U	330 U	330 U
PCB-1232	-	**59.8**	11141-16-5	ug/kg	330 U	29.6 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	29.2 U	330 U	330 U	330 U	330 U	330 U
PCB-1242	-	**59.8**	53469-21-9	ug/kg	330 U	29.6 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	29.2 U	330 U	330 U	330 U	330 U	330 U
PCB-1248	-	**59.8**	12672-29-6	ug/kg	18 J	29.6 U	330 U	330 U	330 U	330 U	330 U	330 U	26 J	**67 J**	330 U	330 U	330 U	330 U	330 U	29.2 U	330 U	330 U	330 U	5.2 J	330 U
PCB-1254	-	**59.8**	11097-69-1	ug/kg	330 U	29.6 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	29.2 U	330 U	330 U	330 U	330 U	330 U
PCB-1260	-	**59.8**	11096-82-5	ug/kg	330 U	29.6 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	29.2 U	330 U	330 U	330 U	330 U	330 U
Total Metals:																									
Aluminum, Total	-	-	7429-90-5	mg/kg	3870	NA	NA	NA	NA	NA	NA	2870	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2700	NA	NA
Arsenic, Total	-	**9.79**	7440-38-2	mg/kg	9.2	8.64	8.4	5.8	7.1	3	8.3	3.2	4.2	8	**15***	**14***	**10***	**14***	7.6	**10.9***	3.4	6.3	4.4	9.4	**14***
Barium, Total	-	-	7440-39-3	mg/kg	53	NA	40	28	38	7.5	56	12	41	40	125	67	60	15	21	NA	7.1	38	36	34	42
Cadmium, Total	-	-	7440-43-9	mg/kg	0.52	0.848 U	0.55	0.36	0.31	0.28	0.45	0.41	0.16	0.12	0.4	0.26	0.23	0.071	0.48	0.820 U	0.28	0.11	0.31	0.36	0.5
Chromium, Total	**110**	**43.4**	7440-47-3	mg/kg	**97**	**133**	7.6	23	25	4.8	20	7.3	27	**54**	12	9.5	12	7	12	**77.2**	4.4	14	13	18	17
Copper, Total	**91**	**31.6**	7440-50-8	mg/kg	**85**	**97**	9.5	17	21	4.4	29	6.4	24	**32**	9.5	8.3	9.2	6.5	22	**107**	9.9	9.8	5	14	19
Lead, Total	**83**	**35.8**	7439-92-1	mg/kg	26	15.1	14	5.9	**45**	2	6.5	3.3	5.2	10	16	6.8	5.9	3.2	5	11.2	2.7	5.9	27	6.7	7
Mercury, Total	-	-	7439-97-6	mg/kg	0.046 J	NA	0.024 J	0.038 J	0.034 J	0.1 U	0.031 J	0.1 U	0.043 J	0.045 J	0.061 J	0.056 J	0.03 J	0.0091 J	0.021 J	NA	0.1 U	0.027 J	0.034 J	0.05 J	0.085 J
Nickel, Total	49	**22.7**	7440-02-0	mg/kg	**71**	**57.9**	10	19	20	8.2	17	12	19	**24**	9.6	9.7	9.1	8.4	**39**	**267**	**34**	8.8	7	18	**27**
Selenium, Total	-	-	7782-49-2	mg/kg	0.61	NA	0.75	0.3 J	0.36	0.22 J	0.63	0.79	0.22 J	0.24 J	0.64	0.54	0.42	0.18 J	0.22 J	NA	0.35	0.21 J	0.46	0.51	0.58
Silver, Total	-	-	7440-22-4	mg/kg	0.074 J	NA	0.082 J	0.055 J	0.04 J	0.036 J	0.1 J	0.07 J	0.022 J	0.034 J	0.076 J	0.081 J	0.07 J	0.045 J	0.068 J	NA	0.037 J	0.032 J	0.052 J	0.064 J	0.066 J
Zinc, Total	**460**	**121**	7440-66-6	mg/kg	**372**	**527**	35	76	85	13	83	21	77	174	63	38	37	16	**249**	**675**	11	44	32	56	64
Chromium(VI)	-	-	18540-29-9	mg/kg	18 U	NA	26 U	55 U	43 U	2 U	58 U	2 U	2 U	2 U	3.4 U	3.2 U	2.6 U	2 U	2 U	NA	2 U	2 U	19 U	39 U	32 U
Miscellaneous Parameters:																									
Cyanide, Free	-	**0.1**	57-12-5	mg/kg	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cyanide, Total	-	**0.1**	57-12-5	mg/kg	**0.2***	NA	0.2 U	0.07 J	0.04 J	0.03 J	0.012 J	0.2 U	**0.77***	**0.31***	**0.73***	**1.6**	**0.56***	0.2 U	0.09 J	NA	0.2 U	**0.25***	0.02 J	**0.35***	**0.35***
Fractional Organic Carbon	-	-	FOC	%	NA	NA	NA	NA	NA	NA	NA	NA	2.8	3.5	12	8.3	7.2	0.5	NA	NA	NA	4.5	NA	NA	NA
Percent moisture	-	-	MOIST	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Percent Solids	-	-	SOLID	%	65	NA	71	60	67	86	66	90	73	76	42	58	62	90	87	NA	91	73	72	69	68
Percent Solids	-	-	Solids	%	NA	58.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	61	NA	NA	NA	NA	NA
Total Organic Carbon	-	-	TOC	%	7.1	20800	5.6	8.1	5.3	1	6	0.6	NA	NA	NA	NA	NA	NA	1	NA	0.4	NA	2.7	5.7	4.6

Notes:
NA - Indicates that the sample was not analyzed for that parameter.
U - Inidcates that the result was not detected above the Method Detection Limit (MDL).
J - Indicates an estimated value with the result detection above the Method Detection Limit (MDL)but below the Reporting Limit (RL).
B - Indicates that that compound was also detected in a Blank and qualified as a likely lab contaminant.
* - Indicates that the exceeded value is below the Site Specific Background Value.
Values that are Bold and Underlined Exceed the Op. Memo 4 criteria.
Values that are Highlighed indicate Remedial Objective Exceedance.

TABLE 2
IN-CHANNEL SEDIMENT ANALYTICAL RESULTS - 2003 to 2009
FORMER STANLEY TOOLS FACILITY (MID 099 124 299)
Fowlerville, MI

			Location		SD-C3	SD-D1	SD-D2	SD-D2*	SD-D3	SD-E1	SD-E1	SD-E1	SD-E2	SD-E2	SD-E2	SD-E3	SD-E3*	SD-F1*	SD-F1	SD-F2	SD-F2*	SD-F3	SD-F3*	SD-G1	SD-G1
			Field ID:		SDC3-4248-101703-01	SDD1-0006-101603-01	SDD2-0007-101603-01	SDD2-2430-101703-01	SDD3-0012-101603-01	SDE1012-042203-01	SDE11224-042203-01	SDE1-3642-101703-01	SDE2012-042203-01	SD-E2-003	SDE21224-042203-01	SDE3012-042203-01	SDE31224-042203-01	SDF1-0012-101603-01	SDF1-1224-101603-01	SDF2-0012-101603-01	SDF2-1226-101603-01	SDF3-0012-101603-01	SDF3-1222-101603-01	SDG1-0012-101603-01	SDG1-1228-101603-01
			Date Sampled:		10/17/2003	10/16/2003	10/16/2003	10/17/2003	10/16/2003	4/22/2003	4/23/2003	10/17/2003	4/22/2003	7/24/2007	4/22/2003	4/22/2003	4/22/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003
			Data Type		Origional	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Origional
			Material Type		Sand	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sand	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
			Sample Event		2003	2003	2003	2003	2003	2003	2003	2003	2003	2007	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003
	Remedial Objectives	Op. Memo 4	Depth (inches):		42 - 48	0 - 6	0 - 7	24 - 30	0 - 12	0 - 12	12 - 24	36 - 42	0 - 12	0 - 12	12 - 24	0 - 12	12 - 24	0 - 12	12 - 24	0 - 12	12 - 26	0 - 12	12 - 22	0 - 12	12 - 28
Volatile Organic Compounds																									
1,1,1,2-Tetrachloroethane	-	-	630-20-6	ug/kg	86 U	62 U	72 U	58 U	74 U	82 U	57 U	63 U	92 U	NA	100 U	71 U	58 U	54 U	54 U	69 U	59 U	74 U	63 U	77 U	59 U
1,1,1-Trichloroethane	-	-	71-55-6	ug/kg	86 U	62 U	72 U	58 U	74 U	82 U	57 U	63 U	92 U	NA	100 U	71 U	58 U	54 U	54 U	69 U	59 U	74 U	63 U	77 U	59 U
1,1,2,2-Tetrachloroethane	-	-	79-34-5	ug/kg	86 U	62 U	72 U	58 U	74 U	82 U	57 U	63 U	92 U	NA	100 U	71 U	58 U	54 U	54 U	69 U	59 U	74 U	63 U	77 U	59 U
1,1,2-Trichloroethane	-	-	79-00-5	ug/kg	86 U	62 U	72 U	58 U	74 U	82 U	57 U	63 U	92 U	NA	100 U	71 U	58 U	54 U	54 U	69 U	59 U	74 U	63 U	77 U	59 U
1,1-Dichloroethane	-	0.575	75-34-3	ug/kg	**24 J**	**14 J**	**28 J**	58 U	74 U	82 U	57 U	63 U	92 U	NA	100 U	71 U	58 U	54 U	54 U	69 U	59 U	74 U	63 U	77 U	59 U
1,1-Dichloroethene	-	-	75-35-4	ug/kg	86 U	62 U	72 U	58 U	74 U	82 U	57 U	63 U	92 U	NA	100 U	71 U	58 U	54 U	54 U	69 U	59 U	74 U	63 U	77 U	59 U
1,1-Dichloropropylene	-	-	563-58-6	ug/kg	86 U	62 U	72 U	58 U	74 U	82 U	57 U	63 U	92 U	NA	100 U	71 U	58 U	54 U	54 U	69 U	59 U	74 U	63 U	77 U	59 U
1,2,3-Trichlorobenzene	-	-	87-61-6	ug/kg	430 U	310 U	360 U	290 U	370 U	410 U	280 U	310 U	460 U	NA	510 U	360 U	290 U	270 U	270 U	350 U	290 U	370 U	310 U	380 U	290 U
1,2,3-Trichloropropane	-	-	96-18-4	ug/kg	86 U	62 U	72 U	58 U	74 U	82 U	57 U	63 U	92 U	NA	100 U	71 U	58 U	54 U	54 U	69 U	59 U	74 U	63 U	77 U	59 U
1,2,4-Trichlorobenzene	-	-	120-82-1	ug/kg	86 U	62 U	72 U	58 U	74 U	82 U	57 U	63 U	92 U	NA	100 U	71 U	58 U	54 U	54 U	69 U	59 U	74 U	63 U	NA	NA
1,2,4-Trimethylbenzene	-	-	95-63-6	ug/kg	86 U	14 J	12 J	58 U	12 J	82 U	57 U	63 U	18 JB	NA	100 U	71 U	58 U	21 J	18 J	19 J	14 J	13 J	12 J	77 U	59 U
1,2-Dibromo-3-chloropropane	-	-	96-12-8	ug/kg	86 U	62 U	72 U	58 U	74 U	82 U	57 U	63 U	92 U	NA	100 U	71 U	58 U	54 U	54 U	69 U	59 U	74 U	63 U	77 U	59 U
1,2-Dichlorobenzene	-	-	95-50-1	ug/kg	86 U	62 U	72 U	58 U	74 U	82 U	57 U	63 U	23 J	NA	100 U	22 J	58 U	54 U	54 U	69 U	59 U	74 U	63 U	330 U, 77 U	330 U, 59 U
1,2-Dichloroethane	-	-	107-06-2	ug/kg	86 U	62 U	72 U	58 U	74 U	82 U	57 U	63 U	92 U	NA	100 U	71 U	58 U	54 U	54 U	69 U	59 U	74 U	63 U	77 U	59 U
1,2-Dichloroethene	-	-	540-59-0	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	-	-	78-87-5	ug/kg	86 U	62 U	72 U	58 U	74 U	82 U	57 U	63 U	92 U	NA	100 U	71 U	58 U	54 U	54 U	69 U	59 U	74 U	63 U	77 U	59 U
1,3,5-Trimethylbenzene	-	-	108-67-8	ug/kg	86 U	62 U	72 U	58 U	74 U	82 U	57 U	63 U	92 U	NA	100 U	71 U	58 U	54 U	54 U	69 U	59 U	74 U	63 U	77 U	59 U
1,3-Dichlorobenzene	-	-	541-73-1	ug/kg	86 U	62 U	72 U	58 U	74 U	82 U	57 U	63 U	92 U	NA	100 U	71 U	58 U	54 U	54 U	69 U	59 U	74 U	63 U	330 U, 77 U	330 U, 59 U
1,3-Dichloropropane	-	-	142-28-9	ug/kg	86 U	62 U	72 U	58 U	74 U	82 U	57 U	63 U	92 U	NA	100 U	71 U	58 U	54 U	54 U	69 U	59 U	74 U	63 U	77 U	59 U
1,4-Dichlorobenzene	-	-	106-46-7	ug/kg	86 U	62 U	72 U	58 U	74 U	82 U	57 U	63 U	92 U	NA	100 U	71 U	58 U	54 U	54 U	69 U	59 U	74 U	63 U	NA	NA
2,2-Dichloropropane	-	-	594-20-7	ug/kg	86 U	62 U	72 U	58 U	74 U	82 U	57 U	63 U	92 U	NA	100 U	71 U	58 U	54 U	54 U	69 U	59 U	74 U	63 U	77 U	59 U
2-Chlorotoluene	-	-	95-49-8	ug/kg	86 U	62 U	72 U	58 U	74 U	82 U	57 U	63 U	92 U	NA	100 U	71 U	58 U	54 U	54 U	69 U	59 U	74 U	63 U	77 U	59 U
2-Hexanone	-	-	591-78-6	ug/kg	860 U	620 U	720 U	580 U	740 U	820 U	570 U	630 U	920 U	NA	1000 U	710 U	580 U	540 U	540 U	690 U	590 U	740 U	630 U	770 U	590 U
4-Chlorotoluene	-	-	106-43-4	ug/kg	86 U	62 U	72 U	58 U	74 U	82 U	57 U	63 U	92 U	NA	100 U	71 U	58 U	54 U	54 U	69 U	59 U	74 U	63 U	77 U	59 U
4-Isopropyltoluene	-	-	99-87-6	ug/kg	86 U	62 U	72 U	58 U	74 U	82 U	57 U	63 U	92 U	NA	100 U	71 U	58 U	54 U	54 U	69 U	59 U	74 U	63 U	77 U	59 U
4-Methyl-2-pentanone	-	-	108-10-1	ug/kg	860 U	620 U	720 U	580 U	740 U	820 U	570 U	630 U	920 U	NA	1000 U	710 U	580 U	540 U	540 U	690 U	590 U	740 U	630 U	770 U	590 U
Acetone	-	9.9	67-64-1	ug/kg	**670 J***	**510 J***	**350 J***	**610***	**430 J***	300 JB	200 JB	630 U	350 JB	NA	370 JB	260 JB	210 JB	**330 J***	**440 J***	**640 J***	590 U	**660 J***	**440 J***	**360 J***	590 U
Acrolein	-	-	107-02-8	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	-	-	71-43-2	ug/kg	86 U	62 U	72 U	58 U	74 U	82 U	57 U	63 U	92 U	NA	100 U	71 U	58 U	54 U	54 U	69 U	59 U	74 U	63 U	77 U	59 U
Bromobenzene	-	-	108-86-1	ug/kg	86 U	62 U	72 U	58 U	74 U	82 U	57 U	63 U	92 U	NA	100 U	71 U	58 U	54 U	54 U	69 U	59 U	74 U	63 U	77 U	59 U
Bromochloromethane	-	-	74-97-5	ug/kg	86 U	62 U	72 U	58 U	74 U	82 U	57 U	63 U	92 U	NA	100 U	71 U	58 U	54 U	54 U	69 U	59 U	74 U	63 U	77 U	59 U
Bromoform	-	-	75-25-2	ug/kg	86 U	62 U	72 U	58 U	74 U	82 U	57 U	63 U	92 U	NA	100 U	71 U	58 U	54 U	54 U	69 U	59 U	74 U	63 U	77 U	59 U
Bromomethane	-	-	74-83-9	ug/kg	86 U	62 U	72 U	58 U	74 U	82 U	57 U	63 U	92 U	NA	100 U	71 U	58 U	54 U	54 U	69 U	59 U	74 U	63 U	77 U	59 U
Carbon disulfide	-	-	75-15-0	ug/kg	43 J	620 U	74 J	580 U	740 U	42 J	12 J	16 J	920 U	NA	44 J	710 U	580 U	540 U	540 U	690 U	590 U	740 U	630 U	22 J	590 U
Carbon tetrachloride	-	-	56-23-5	ug/kg	86 U	62 U	72 U	58 U	74 U	82 U	57 U	63 U	92 U	NA	100 U	71 U	58 U	54 U	54 U	69 U	59 U	74 U	63 U	77 U	59 U
Chlorobenzene	-	-	108-90-7	ug/kg	86 U	62 U	72 U	58 U	74 U	14 J	35 J	17 J	92 U	NA	100 U	71 U	58 U	54 U	54 U	69 U	59 U	74 U	63 U	77 U	59 U
Chloroethane	-	-	75-00-3	ug/kg	86 U	62 U	72 U	58 U	74 U	82 U	57 U	63 U	92 U	NA	100 U	71 U	58 U	54 U	54 U	69 U	59 U	74 U	63 U	77 U	59 U
Chloroform	-	-	67-66-3	ug/kg	86 U	62 U	72 U	58 U	74 U	14 J	22 J	63 U	92 U	NA	17 J	10 J	14 J	54 U	54 U	69 U	59 U	74 U	63 U	77 U	59 U
Chloromethane	-	-	74-87-3	ug/kg	86 U	62 U	72 U	58 U	74 U	82 U	57 U	63 U	92 U	NA	100 U	71 U	58 U	54 U	54 U	69 U	59 U	74 U	63 U	77 U	59 U
cis-1,2-Dichloroethene	-	-	156-59-2	ug/kg	30 J	57 J	420	58 U	74 U	82 U	57 U	63 U	92 U	NA	100 U	71 U	58 U	54 U	54 U	69 U	59 U	74 U	63 U	77 U	59 U
cis-1,3-Dichloropropene	-	-	10061-01-5	ug/kg	86 U	62 U	72 U	58 U	74 U	82 U	57 U	63 U	92 U	NA	100 U	71 U	58 U	54 U	54 U	69 U	59 U	74 U	63 U	77 U	59 U
Dibromochloromethane	-	-	124-48-1	ug/kg	86 U	62 U	72 U	58 U	74 U	82 U	57 U	63 U	92 U	NA	100 U	71 U	58 U	54 U	54 U	69 U	59 U	74 U	63 U	77 U	59 U
Dibromomethane	-	-	74-95-3	ug/kg	86 U	62 U	72 U	58 U	74 U	82 U	57 U	63 U	92 U	NA	100 U	71 U	58 U	54 U	54 U	69 U	59 U	74 U	63 U	77 U	59 U
Dichlorobromomethane	-	-	75-27-4	ug/kg	86 U	62 U	72 U	58 U	74 U	82 U	57 U	63 U	92 U	NA	100 U	71 U	58 U	54 U	54 U	69 U	59 U	74 U	63 U	77 U	59 U
Dichlorodifluoromethane	-	-	75-71-8	ug/kg	86 U	62 U	72 U	58 U	74 U	82 U	57 U	63 U	92 U	NA	100 U	71 U	58 U	54 U	54 U	69 U	59 U	74 U	63 U	77 U	59 U
Ethylbenzene	-	-	100-41-4	ug/kg	86 U	62 U	72 U	58 U	74 U	82 U	57 U	63 U	92 U	NA	100 U	71 U	58 U	8 J	54 U	69 U	59 U	74 U	63 U	77 U	59 U
Ethylene dibromide	-	-	106-93-4	ug/kg	86 U	62 U	72 U	58 U	74 U	82 U	57 U	63 U	92 U	NA	100 U	71 U	58 U	54 U	54 U	69 U	59 U	74 U	63 U	77 U	59 U
Hexachlorobutadiene	-	26.5	87-68-3	ug/kg	430 U	310 U	360 U	290 U	370 U	820 U	570 U	310 U	920 U	NA	1000 U	710 U	580 U	270 U	270 U	350 U	290 U	370 U	310 U	NA	NA
Isopropylbenzene	-	-	98-82-8	ug/kg	86 U	62 U	72 U	58 U	74 U	82 U	57 U	63 U	92 U	NA	100 U	71 U	58 U	54 U	54 U	69 U	59 U	74 U	63 U	77 U	59 U
Methyl ethyl ketone	-	42.4	78-93-3	ug/kg	**300 J***	**670**	**610 J**	**510 J***	**620 J**	**160 J***	**140 J***	**370 J***	**220 J***	NA	**220 J***	**200 J***	**200 J***	**320 J***	**550**	**530 J**	**500 J***	**900**	**470 J***	**710 J**	**530 J**
Methyl tert butyl ether	-	-	1634-04-4	ug/kg	860 U	620 U	720 U	580 U	740 U	820 U	570 U	630 U	920 U	NA	1000 U	710 U	580 U	540 U	540 U	690 U	590 U	740 U	630 U	770 U	590 U
Methylene chloride	-	159	75-09-2	ug/kg	50 J	47 J	62 J	41 J	60 J	82 U	57 U	79 J	92 U	NA	100 U	71 U	58 U	24 J	32 J	58 J	46 J	41 J	46 J	23 J	26 J
n-Butylbenzene	-	-	104-51-8	ug/kg	86 U	62 U	72 U	58 U	74 U	82 U	57 U	63 U	92 U	NA	100 U	21 JB	58 U	54 U	54 U	69 U	59 U	74 U	63 U	77 U	59 U
n-Propylbenzene	-	-	103-65-1	ug/kg	86 U	62 U	72 U	58 U	74 U	82 U	57 U	63 U	92 U	NA	100 U	71 U	58 U	54 U	54 U	69 U	59 U	74 U	63 U	77 U	59 U
Naphthalene	-	176	91-20-3	ug/kg	430 U	310 U	360 U	290 U	38 J	210 U	21 JB	310 U	230 U	NA	31 JB	36 JB	9 JB	23 J	270 U	350 U	290 U	370 U	310 U	330 U, 380 U	290 U, 330 U
o-Xylene	-	-	95-47-6	ug/kg	86 U	62 U	72 U	58 U	74 U	82 U	57 U	63 U	15 J	NA	100 U	71 U	58 U	64	54 U	69 U	59 U	74 U	63 U	77 U	59 U
sec-Butylbenzene	-	-	135-98-8	ug/kg	86 U	62 U	72 U	58 U	74 U	82 U	57 U	63 U	58 J	NA	100 U	33 J	58 U	54 U	54 U	69 U	59 U	74 U	63 U	77 U	59 U
Styrene	-	-	100-42-5	ug/kg	86 U	62 U	72 U	58 U	74 U	82 U	57 U	63 U	92 U	NA	100 U	71 U	58 U	54 U	54 U	69 U	59 U	74 U	63 U	77 U	59 U
tert-Butylbenzene	-	-	98-06-6	ug/kg	86 U	62 U	72 U	58 U	74 U	82 U	57 U	63 U	92 U	NA	100 U	71 U	58 U	54 U	54 U	69 U	59 U	74 U	63 U	77 U	59 U
Tetrachloroethene	-	-	127-18-4	ug/kg	86 U	62 U	72 U	58 U	74 U	82 U	57 U	63 U	92 U	NA	100 U	71 U	58 U	54 U	54 U	69 U	59 U	74 U	63 U	77 U	59 U
Toluene	-	-	108-88-3	ug/kg	86 U	8.7 J	13 J	58 U	19 J	25 J	10 J	63 U	25 J	NA	15 J	71 U	58 U	14 J	12 J	19 J	10 J	11 J	10 J	77 U	59 U
trans-1,2-Dichloroethylene	-	-	156-60-5	ug/kg	86 U	62 U	81	58 U	74 U	82 U	57 U	63 U	92 U	NA	100 U	71 U	58 U	54 U	54 U	69 U	59 U	74 U	63 U	77 U	59 U
trans-1,3-Dichloropropene	-	-	10061-02-6	ug/kg	86 U	62 U	72 U	58 U	74 U	82 U	57 U	63 U	92 U	NA	100 U	71 U	58 U	54 U	54 U	69 U	59 U	74 U	63 U	77 U	59 U
Trichloroethene	-	112	79-01-6	ug/kg	86 U	62 U	72 U	58 U	74 U	42 JB	27 JB	63 U	42 J	NA	59 JB	71 U	25 JB	54 U	54 U	69 U	59 U	74 U	63 U	77 U	59 U
Trichlorofluoromethane	-	-	75-69-4	ug/kg	86 U	62 U	72 U	58 U	74 U	82 U	57 U	63 U	92 U	NA	100 U	71 U	58 U	54 U	54 U	69 U	59 U	74 U	63 U	77 U	59 U
Vinyl chloride	-	-	75-01-4	ug/kg	86 U	62 U	72 U	58 U	74 U	82 U	57 U	63 U	92 U	NA	100 U	71 U	58 U	54 U	54 U	69 U	59 U	74 U	63 U	77 U	59 U
Xylene, Meta + Para	-	-	Not Applicable	ug/kg	170 U	120 U	140 U	120 U	150 U	160 U	110 U	120 U	180 U	NA	200 U	140 U	120 U	32 J	25 J	30 J	23 J	150 U	120 U	150 U	120 U

TABLE 2
IN-CHANNEL SEDIMENT ANALYTICAL RESULTS - 2003 to 2009
FORMER STANLEY TOOLS FACILITY (MID 099 124 299)
Fowlerville, MI

				Location	SD-C3	SD-D1	SD-D2	SD-D2*	SD-D3	SD-E1	SD-E1	SD-E1	SD-E2	SD-E2	SD-E2	SD-E3	SD-E3*	SD-F1*	SD-F1	SD-F2	SD-F2*	SD-F3	SD-F3*	SD-G1	SD-G1
				Field ID:	SDC3-4248-101703-01	SDD1-0006-101603-01	SDD2-0007-101603-01	SDD2-2430-101703-01	SDD3-0012-101603-01	SDE1012-042203-01	SDE11224-042203-01	SDE1-3642-101703-01	SDE2012-042203-01	SDE-E2-003	SDE21224-042203-01	SDE3012-042203-01	SDE31224-042203-01	SDF1-0012-101603-01	SDF1-1224-101603-01	SDF2-0012-101603-01	SDF2-1226-101603-01	SDF3-0012-101603-01	SDF3-1222-101603-01	SDG1-0012-101603-01	SDG1-1228-101603-01
				Date Sampled:	10/17/2003	10/16/2003	10/16/2003	10/17/2003	10/16/2003	4/22/2003	4/23/2003	10/17/2003	4/22/2003	7/24/2007	4/22/2003	4/22/2003	4/22/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003
				Data Type	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Origional
				Material Type	Sand	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sand	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
				Sample Event	2003	2003	2003	2003	2003	2003	2003	2003	2003	2007	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003
	Remedial Objectives	Op. Memo 4		Depth (inches):	42 - 48	0 - 6	0 - 7	24 - 30	0 - 12	0 - 12	12 - 24	36 - 42	0 - 12	0 - 12	12 - 24	0 - 12	12 - 24	0 - 12	12 - 24	0 - 12	12 - 26	0 - 12	12 - 22	0 - 12	12 - 28
Semi-Volatile Organic Compounds																								
1,2,4-Trichlorobenzene	-	-	120-82-1	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	350 U	330 U	330 U	330 U	330 U	330 U	330 U, 77 U	330 U, 59 U
1,2-Benzphenanthracene	-	-	218-01-9	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	-	-	95-50-1	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	NA
1,3-Dichlorobenzene	-	-	541-73-1	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	NA
1,4-Dichlorobenzene	-	-	106-46-7	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U, 77 U	330 U, 59 U
2,4,5-Trichlorophenol	-	-	95-95-4	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
2,4,6-Trichlorophenol	-	-	88-06-2	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
2,4-Dichlorophenol	-	-	120-83-2	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
2,4-Dimethylphenol	-	-	105-67-9	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
2,4-Dinitrophenol	-	-	51-28-5	ug/kg	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	NA	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U
2,4-Dinitrotoluene	-	-	121-14-2	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
2,6-Dinitrotoluene	-	-	606-20-2	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
2-Chloronaphthalene	-	-	91-58-7	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
2-Chlorophenol	-	-	95-57-8	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
2-Methylnaphthalene	-	20.2	91-57-6	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	**940**	NA	**410**	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
2-Methylphenol	-	-	95-48-7	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
2-Nitroaniline	-	-	88-74-4	ug/kg	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	NA	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U
2-Nitrophenol	-	-	88-75-5	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
3,3-Dichlorobenzidine	-	-	91-94-1	ug/kg	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	NA	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U
3,4-Methylphenol	-	-	108-39-4	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	-	-	99-09-2	ug/kg	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	NA	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U
4,6-Dinitro-2-methylphenol	-	-	534-52-1	ug/kg	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	NA	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U
4-Bromophenyl-phenylether	-	-	101-55-3	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
4-Chloroaniline	-	-	106-47-8	ug/kg	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	NA	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U
4-Chlorophenyl-phenylether	-	-	7005-72-3	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
4-Methylphenol	-	-	106-44-5	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
4-Nitroaniline	-	-	100-01-6	ug/kg	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	NA	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U
4-Nitrophenol	-	-	100-02-7	ug/kg	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	NA	1700 U	1700 U[m]	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U
Acenaphthene	-	6.71	83-32-9	ug/kg	330 U	330 U	**10 J**	330 U	**9.5 J**	330 U	330 U	3.6 J	330 U	1640 U	330 U	330 U	330 U	330 U	330 U	5.1 J	330 U	330 U	330 U	330 U	330 U
Acenaphthylene	-	5.87	208-96-8	ug/kg	330 U	330 U	**6.2 J**	330 U	330 U	330 U	330 U	330 U	330 U	3280 U	330 U	330 U	330 U	330 U	330 U	4.7 J	330 U	330 U	330 U	330 U	330 U
Anthracene	-	57.2	120-12-7	ug/kg	330 U	3.3 J	23 J	330 U	35 J	**300 J**	**91 J**	330 U	330 U	1640 U	**370**	330 U	330 U	330 U	330 U	13 J	330 U	330 U	330 U	330 U	330 U
Benz(a)anthracene	-	108	56-55-3	ug/kg	330 U	14 J	90 J	4 J	**180 J***	**850**	**300 J***	5.3 J	330 U	821 U	**1100**	330 U	330 U	8 J	330 U	56 J	5.9 J	21 J	330 U	330 U	330 U
Benzidine	-	-	92-87-5	ug/kg	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	NA	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U
Benzo(a)pyrene	-	150	50-32-8	ug/kg	330 U	12 J	79 J	330 U	**160 J***	**630**	**230 J***	5.6 J	330 U	82.5	**830**	330 U	330 U	9.3 J	330 U	51 J	330 U	18 J	330 U	330 U	330 U
Benzo(b)fluoranthene	-	-	205-99-2	ug/kg	330 U	14 J	110 J	330 U	210 J	610	230 J	330 U	330 U	821 U	900	330 U	330 U	14 J	330 U	74 J	330 U	23 J	330 U	330 U	330 U
Benzo(g,h,i)perylene	-	170	191-24-2	ug/kg	330 U	15 J	54 J	6.3 J	120 J	**330**	86 J	5.8 J	330 U	1640 U	320 J	330 U	330 U	6.4 J	330 U	42 J	330 U	10 J	330 U	330 U	330 U
Benzo(k)fluoranthene	-	240	207-08-9	ug/kg	330 U	9.3 J	43 J	330 U	99 J	**470**	220 J	330 U	330 U	1640 U	**520**	330 U	330 U	6.4 J	330 U	19 J	330 U	12 J	330 U	330 U	330 U
Benzoic acid	-	-	65-85-0	ug/kg	3300 U	5.5 J	3300 U	3300 U	27 J	3300 U	3300 U	3300 U	3300 U	NA	3300 U	3300 U	3300 U	3300 U	3300 U	8.9 J	3300 U	3300 U	3300 U	150 J	45 J
Benzyl alcohol	-	-	100-51-6	ug/kg	1300 U	5.1 J	1300 U	1300 U	1300 U	1300 U	1300 U	1300 U	1300 U	NA	1300 U	1300 U	1300 U	1300 U	1300 U	1300 U	1300 U	1300 U	1300 U	1300 U	1300 U
bis(2-Chloroethoxy)methane	-	-	111-91-1	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
bis(2-Chloroethyl)ether	-	-	111-44-4	ug/kg	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	NA	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
bis(2-Chloroisopropyl)ether	-	-	108-60-1	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
bis(2-Ethylhexyl)phthalate	-	182	117-81-7	ug/kg	24 J	22 J	55 J	14 J	51 J	**890**	54 J	11 J	330 U	NA	**2800**	100 J	51 J	20 J	16 J	41 J	14 J	23 J	20 J	11 J	9.4 J
Butyl benzyl phthalate	-	-	85-68-7	ug/kg	7.5 J	330 U	330 U	330 U	330 U	49 J	330 U	330 U	330 U	NA	330 U	330 U	330 U	18 J	330 U	330 U	330 U	330 U	330 U	330 U	330 U
Carbazole	-	-	86-74-8	ug/kg	330 U	330 U	5.8 J	330 U	21 J	110 J	43 J	330 U	330 U	NA	180 J	330 U	330 U	330 U	330 U	8.3 J	330 U	330 U	330 U	330 U	330 U
Chrysene	-	166	218-01-9	ug/kg	330 U	13 J	75 J	6.4 J	160 J	**630**	**310 J***	7.3 J	330 U	1640 U	**890**	330 U	330 U	10 J	330 U	57 J	6.3 J	18 J	330 U	330 U	330 U
Di-N-Butyl phthalate	-	-	84-74-2	ug/kg	76 J	38 J	55 J	72 J	77 J	330 U	330 U	75 J	330 U	NA	330 U	330 U	58 J	34 J	49 J	77 J	30 J	34 J	34 J	29 J	20 J
Di-N-Octyl phthalate	-	-	117-84-0	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	100 J	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
Dibenz(a,h)anthracene	-	33	53-70-3	ug/kg	330 U	330 U	14 J	330 U	27 J	330 U	330 U	330 U	330 U	82.1 U	330 U	330 U	330 U	330 U	330 U	10 J	330 U	330 U	330 U	330 U	330 U
Dibenzofuran	-	-	132-64-9	ug/kg	330 U	330 U	330 U	330 U	4.8 J	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
Diethylphthalate	-	-	84-66-2	ug/kg	10 J	11 J	13 J	11 J	13 J	330 U	330 U	8.3 J	330 U	NA	330 U	330 U	330 U	330 U	9.6 J	7.8 J	10 J	7.5 J	11 J	12 J	5.9 J	3.7 J
Dimethyl phthalate	-	-	131-11-3	ug/kg	3300 U	3300 U	12 J	3300 U	3300 U	3300 U	3300 U	3300 U	3300 U	NA	3300 U	3300 U	3300 U	3300 U	3300 U	3300 U	3300 U	3300 U	3300 U	3300 U	3300 U
Fluoranthene	-	423	206-44-0	ug/kg	330 U	28 J	160 J	7.3 J	**430***	**1700**	**660**	4.7 J	350	1640 U	**2600**	120 J	330 U	21 J	330 U	140 J	12 J	40 J	6.8 J	5.4 J	330 U
Fluorene	-	77.4	86-73-7	ug/kg	330 U	330 U	12 J	330 U	15 J	220 J	65 J	330 U	330 U	1640 U	360	330 U	330 U	330 U	330 U	7.1 J	330 U	330 U	330 U	330 U	330 U
Hexachlorobenzene	-	-	118-74-1	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
Hexachlorobutadiene	-	-	87-68-3	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U, 380 U	290 U, 330 U
Hexachlorocyclopentadiene	-	-	77-47-4	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
Hexachloroethane	-	-	67-72-1	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
Indeno(1,2,3-cd)pyrene	-	200	193-39-5	ug/kg	330 U	7.5 J	54 J	330 U	120 J	**350**	110 J	330 U	330 U	821 U	**300 J**	330 U	330 U	6.3 J	330 U	36 J	330 U	8.8 J	330 U	330 U	330 U
Isophorone	-	-	78-59-1	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
N-Nitroso-di-N-propylamine	-	-	621-64-7	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
N-Nitrosodiphenylamine	-	-	86-30-6	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
Naphthalene	-	-	91-20-3	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	1640 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	NA
Nitrobenzene	-	-	98-95-3	ug/kg	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	NA	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
p-Chloro-m-cresol	-	-	59-50-7	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
Pentachlorophenol	-	-	87-86-5	ug/kg	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	NA	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U
Phenanthrene	-	204	85-01-8	ug/kg	330 U	12 J	51 J	7 J	180 J	**1000**	**380**	8.2 J	**240 J***	1640 U	**1300**	43 J	330 U	8.2 J	330 U	38 J	8.5 J	11 J	3 J	330 U	330 U
Phenol	-	-	108-95-2	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
PNAs, Total	-	-	TPNA	ug/kg	NA	154.1	921.2	39	2065.5	8590	3282	51.5	1890	NA	12200	244	NA	105.6	NA	652.9	44.7	197.8	16	NA	NA
Pyrene	-	195	129-00-0	ug/kg	330 U	26 J	140 J	8 J	**320 J***	**1500**	**600**	11 J	**360***	1640 U	**2300**	81 J	330 U	16 J	330 U	100 J	12 J	36 J	6.2 J	330 U	330 U

TABLE 2
IN-CHANNEL SEDIMENT ANALYTICAL RESULTS - 2003 to 2009
FORMER STANLEY TOOLS FACILITY (MID 099 124 299)
Fowlerville, MI

				Location	SD-C3	SD-D1	SD-D2	SD-D2*	SD-D3	SD-E1	SD-E1	SD-E1	SD-E2	SD-E2	SD-E2	SD-E3	SD-E3*	SD-F1*	SD-F1	SD-F2	SD-F2*	SD-F3	SD-F3*	SD-G1	SD-G1
				Field ID:	SDC3-4248-101703-01	SDD1-0006-101603-01	SDD2-0007-101603-01	SDD2-2430-101703-01	SDD3-0012-101603-01	SDE1012-042203-01	SDE11224-042203-01	SDE1-3642-101703-01	SDE2012-042203-01	SD-E2-003	SDE21224-042203-01	SDE3012-042203-01	SDE31224-042203-01	SDF1-0012-101603-01	SDF1-1224-101603-01	SDF2-0012-101603-01	SDF2-1226-101603-01	SDF3-0012-101603-01	SDF3-1222-101603-01	SDG1-0012-101603-01	SDG1-1228-101603-01
				Date Sampled:	10/17/2003	10/16/2003	10/16/2003	10/17/2003	10/16/2003	4/22/2003	4/23/2003	10/17/2003	4/22/2003	7/24/2007	4/22/2003	4/22/2003	4/22/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003
				Data Type	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Origional
				Material Type	Sand	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sand	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
				Sample Event	2003	2003	2003	2003	2003	2003	2003	2003	2003	2007	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003
	Remedial Objectives	Op. Memo 4		Depth (inches):	42 - 48	0 - 6	0 - 7	24 - 30	0 - 12	0 - 12	12 - 24	36 - 42	0 - 12	0 - 12	12 - 24	0 - 12	12 - 24	0 - 12	12 - 24	0 - 12	12 - 26	0 - 12	12 - 22	0 - 12	12 - 28
Polychlorinated Biphenyls (PCBs):																								
PCB, Total	-	**59.8**	TPCB	ug/kg	NA	NA	16 J	NA	NA	**9180 J**	12 J	16 J	**560 J**	29.9 U	**4900**	**262 J**	34 J	12 J	NA	**320 J**	11 J	44 J	NA	NA	NA
PCB-1016	-	**59.8**	12674-11-2	ug/kg	330 U	330 U	330 U	330 U	330 U	640 U	330 U	330 U	330 U	29.9 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
PCB-1221	-	**59.8**	11104-28-2	ug/kg	330 U	330 U	330 U	330 U	330 U	640 U	330 U	330 U	330 U	29.9 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
PCB-1232	-	**59.8**	11141-16-5	ug/kg	330 U	330 U	330 U	330 U	330 U	640 U	330 U	330 U	330 U	29.9 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
PCB-1242	-	**59.8**	53469-21-9	ug/kg	330 U	330 U	330 U	330 U	330 U	640 U	330 U	330 U	330 U	29.9 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
PCB-1248	-	**59.8**	12672-29-6	ug/kg	330 U	330 U	16 J	330 U	330 U	**8700**	12 J	16 J	**370**	29.9 U	**4500**	**240 J**	34 J	12 J	330 U	**320 J**	11 J	44 J	330 U	NA	NA
PCB-1254	-	**59.8**	11097-69-1	ug/kg	330 U	330 U	330 U	330 U	330 U	640 U	330 U	330 U	330 U	29.9 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
PCB-1260	-	**59.8**	11096-82-5	ug/kg	330 U	330 U	330 U	330 U	330 U	**480 J**	330 U	330 U	**190 J**	29.9 U	**400**	22 J	330 U	330 U	330 U	59 J	330 U	330 U	330 U	330 U	330 U
Total Metals:																									
Aluminum, Total	-	-	7429-90-5	mg/kg	NA	NA	NA	NA	NA	4360	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic, Total	-	**9.79**	7440-38-2	mg/kg	**17***	6.1	7.3	5.7	8.7	**19***	5.4	2.2	**18***	**10.7***	**11***	4.3	1.4	4.5	2.4	5.7	1.5	7.5	1.3	**65**	**21***
Barium, Total	-	-	7440-39-3	mg/kg	56	32	28	21	67	64	13	11	133	NA	119	31	9.9	19	17	37	7.5	43	7.4	36	21
Cadmium, Total	-	-	7440-43-9	mg/kg	0.18	0.081	0.12	0.057 J	0.2	0.86	0.27	0.089	0.87	0.821 U	1.3	0.23	0.29	0.066	0.041 J	0.088	0.036 J	0.18	0.035 J	0.093	0.063
Chromium, Total	**110**	**43.4**	7440-47-3	mg/kg	7.3	13	27	5	11	**181**	5.1	5.4	**1760**	**112**	**396**	29	4.8	11	4.7	12	4.3	**58**	4.5	16	6.9
Copper, Total	**91**	**31.6**	7440-50-8	mg/kg	**39**	12	15	6.1	10	**230**	9	4.9	**1370**	**133**	**513**	23	3.7	8.2	2.5	25	2	**36**	2.6	12	3.6
Lead, Total	**83**	**35.8**	7439-92-1	mg/kg	5.2	5.4	5.1	3.5	6.7	**51**	5.5	3.7	34	**789**	**97**	5.4	2.2	3.2	3.2	6	1.6	7.5	1.7	3.9	2.7
Mercury, Total	-	-	7439-97-6	mg/kg	0.052 J	0.02 J	0.025 J	0.013 J	0.045 J	0.3	0.014 J	0.0099 J	0.12	NA	0.41	0.035 J	0.1 U	0.0097 J	0.1 U	0.026 J	0.1 U	0.044 J	0.1 U	0.019 J	0.0096 J
Nickel, Total	49	**22.7**	7440-02-0	mg/kg	**40**	12	12	8	12	**87**	8.8	6.4	**189**	**43.5**	**165**	15	6.2	9.1	5.5	9.7	4.6	**26**	4.5	8.9	7
Selenium, Total	-	-	7782-49-2	mg/kg	0.41	0.25	0.19 J	0.18 J	0.34	0.58	0.11 J	0.33	1.5	NA	1.5	0.041 J	0.17 J	0.14 J	0.1 J	0.19 J	0.088 J	0.33	0.086 J	0.19 J	0.17 J
Silver, Total	-	-	7440-22-4	mg/kg	0.054 J	0.06 J	0.021 J	0.029 J	0.035 J	0.34 J	0.043 J	0.048 J	0.14 J	NA	0.8 J	0.04 J	0.042 J	0.04 J	0.033 J	0.035 J	0.023 J	0.036 J	0.028 J	0.04 J	0.048 J
Zinc, Total	**460**	**121**	7440-66-6	mg/kg	26	26	37	16	47	**289**	20	16	**1930**	**158**	**721**	55	21	24	10	43	9.4	85	10	65	17
Chromium(VI)	-	-	18540-29-9	mg/kg	2.7 U	2 U	2 U	2 U	2 U	9 U	2 U	2 U	34 U	NA	65 U	2.1 U	2 U	2 U	2 U	2 U	2 U	2.2 U	2 U	2 U	0.18 J
Miscellaneous Parameters:																									
Cyanide, Free	-	**0.1**	57-12-5	mg/kg	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**1.3**	NA	0.08 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA
Cyanide, Total	-	**0.1**	57-12-5	mg/kg	0.2 U	0.2 U	**1.2**	0.05 J	0.26	0.26	0.2 U	0.2 U	**23**	NA	**14**	**0.3***	0.2 U	0.06 J	0.2 U	**0.43***	0.2 U	**1.3**	0.2 U	0.2 U	0.2 U
Fractional Organic Carbon	-	-	FOC	%	9.6	1.7	5.1	0.7	6.2	NA	NA	0.5	NA	NA	NA	NA	NA	0.8	0.2	2.2	0.3	4.5	0.3	9.7	0.9
Percent moisture	-	-	MOIST	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Percent Solids	-	-	SOLID	%	58	82	70	87	66	64	89	85	51	NA	50	70	84	88	87	80	86	66	83	NA	NA
Percent Solids	-	-	Solids	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	60.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	69	87
Total Organic Carbon	-	-	TOC	%	NA	NA	NA	NA	NA	4.7	0.6	NA	8.5	NA	9.2	3.7	0.8	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
NA - Indicates that the sample was not analyzed for that parameter.
U - Inidcates that the result was not detected above the Method Detection Limit (MDL).
J - Indicates an estimated value with the result detection above the Method Detection Limit (MDL)but below the Reporting Limit (RL).
B - Indicates that that compound was also detected in a Blank and qualified as a likely lab contaminant.
* - Indicates that the exceeded value is below the Site Specific Background Value.
Values that are Bold and Underlined Exceed the Op. Memo 4 criteria.
Values that are Highlighed indicate Remedial Objective Exceedance.

TABLE 2
IN-CHANNEL SEDIMENT ANALYTICAL RESULTS - 2003 to 2009
FORMER STANLEY TOOLS FACILITY (MID 099 124 299)
Fowlerville, MI

			Location		SD-G1*	SD-G2	SD-G2	SD-G2	SD-G3	SD-H1	SD-H1	SD-H1	SD-H2	SD-H2	SD-H2*	SD-H2*	SD-H3	SD-H3	SD-I1*	SD-I1*	SD-I1*	SD-I1*	SD-I2*	SD-I2*	SD-I2*
			Field ID:		SDG1-1228-101603-02	SDG2-0012-101603-01	SDG2-1227-101603-01	SDG2-1227-101603-02	SDG3-0014-101603-01	SDHI-0012-101603-01	SDHI-1224-101603-01	SDHI-2436-101603-01	SDH2-0012-101603-01	SDH2-1224-101603-01	SDH2-2445-101603-01	SDH2-2445-101603-02	SDH3-0012-101603-01	SDH3-1221-101603-01	SDI1-0012-101503-01	SDI1-1224-101503-01	SDI1-2445-101503-01	SDI1-2445-101503-02	SDI2-0012-101503-01	SDI2-1224-101503-01	SDI2-2436-101503-01
			Date Sampled:		10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/15/2003	10/15/2003	10/15/2003	10/15/2003	10/15/2003	10/15/2003	10/15/2003
			Data Type		Duplicate	Origional	Origional	Duplicate	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Duplicate	Origional	Origional	Origional	Origional	Origional	Duplicate	Origional	Origional	Origional
			Material Type		Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sand	Sand	Sediment	Sediment	Sediment	Sediment	Sand	Sand	Sediment	Sediment	Sediment
			Sample Event		2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003
	Remedial Objectives	Op. Memo 4	Depth (inches):		12 - 28	0 - 12	12 - 27	12 - 27	0 - 14	0 - 12	12 - 0	24 - 36	0 - 12	12 - 24	24 - 45	24 - 45	0 - 12	12 - 21	0 - 12	12 - 0	24 - 45	24 - 45	0 - 12	12 - 24	24 - 36
Volatile Organic Compounds																									
1,1,1,2-Tetrachloroethane	-	-	630-20-6	ug/kg	67 U	59 U	62 U	62 U	72 U	81 U	70 U	58 U	66 U	68 U	58 U	59 U	85 U	54 U	78 U	58 U	56 U	50 U	62 U	57 U	68 U
1,1,1-Trichloroethane	-	-	71-55-6	ug/kg	67 U	59 U	62 U	62 U	72 U	81 U	70 U	58 U	66 U	68 U	58 U	59 U	85 U	54 U	78 U	58 U	56 U	50 U	62 U	57 U	68 U
1,1,2,2-Tetrachloroethane	-	-	79-34-5	ug/kg	67 U	59 U	62 U	62 U	72 U	81 U	70 U	58 U	66 U	68 U	58 U	59 U	85 U	54 U	78 U	58 U	56 U	50 U	62 U	57 U	68 U
1,1,2-Trichloroethane	-	-	79-00-5	ug/kg	67 U	59 U	62 U	62 U	72 U	81 U	70 U	58 U	66 U	68 U	58 U	59 U	85 U	54 U	78 U	58 U	56 U	50 U	62 U	57 U	68 U
1,1-Dichloroethane	-	0.575	75-34-3	ug/kg	67 U	59 U	62 U	62 U	72 U	81 U	70 U	58 U	50 J	68 U	58 U	59 U	85 U	54 U	78 U	58 U	56 U	50 U	62 U	57 U	68 U
1,1-Dichloroethene	-	-	75-35-4	ug/kg	67 U	59 U	62 U	62 U	72 U	81 U	70 U	58 U	66 U	68 U	58 U	59 U	85 U	54 U	78 U	58 U	56 U	50 U	62 U	57 U	68 U
1,1-Dichloropropylene	-	-	563-58-6	ug/kg	67 U	59 U	62 U	62 U	72 U	81 U	70 U	58 U	66 U	68 U	58 U	59 U	85 U	54 U	78 U	58 U	56 U	50 U	62 U	57 U	68 U
1,2,3-Trichlorobenzene	-	-	87-61-6	ug/kg	330 U	300 U	310 U	310 U	360 U	410 U	350 U	290 U	330 U	340 U	290 U	290 U	420 U	270 U	390 U	290 U	280 U	250 U	310 U	280 U	340 U
1,2,3-Trichloropropane	-	-	96-18-4	ug/kg	67 U	59 U	62 U	62 U	72 U	81 U	70 U	58 U	66 U	68 U	58 U	59 U	85 U	54 U	78 U	58 U	56 U	50 U	62 U	57 U	68 U
1,2,4-Trichlorobenzene	-	-	120-82-1	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	-	-	95-63-6	ug/kg	67 U	59 U	62 U	62 U	72 U	68 J	70 U	58 U	66 U	18 J	58 U	59 U	85 U	54 U	78 U	9.2 J	56 U	50 U	62 U	57 U	68 U
1,2-Dibromo-3-chloropropane	-	-	96-12-8	ug/kg	67 U	59 U	62 U	62 U	72 U	81 U	70 U	58 U	66 U	68 U	58 U	59 U	85 U	54 U	78 U	58 U	56 U	50 U	62 U	57 U	68 U
1,2-Dichlorobenzene	-	-	95-50-1	ug/kg	330 U, 67 U	330 U, 59 U	330 U, 62 U	330 U, 62 U	330 U, 72 U	330 U, 81 U	330 U, 70 U	330 U, 58 U	330 U, 66 U	330 U, 68 U	330 U, 58 U	330 U, 59 U	330 U, 85 U	14 J, 330 U	330 U, 78 U	330 U, 58 U	330 U, 56 U	330 U, 50 U	330 U, 62 U	330 U, 57 U	330 U, 68 U
1,2-Dichloroethane	-	-	107-06-2	ug/kg	67 U	59 U	62 U	62 U	72 U	81 U	70 U	58 U	66 U	68 U	58 U	59 U	85 U	54 U	78 U	58 U	56 U	50 U	62 U	57 U	68 U
1,2-Dichloroethene	-	-	540-59-0	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	-	-	78-87-5	ug/kg	67 U	59 U	62 U	62 U	72 U	81 U	70 U	58 U	66 U	68 U	58 U	59 U	85 U	54 U	78 U	58 U	56 U	50 U	62 U	57 U	68 U
1,3,5-Trimethylbenzene	-	-	108-67-8	ug/kg	67 U	59 U	62 U	62 U	72 U	46 J	70 U	58 U	66 U	68 U	58 U	59 U	85 U	54 U	78 U	58 U	56 U	50 U	62 U	57 U	68 U
1,3-Dichlorobenzene	-	-	541-73-1	ug/kg	330 U, 67 U	330 U, 59 U	330 U, 62 U	330 U, 62 U	330 U, 72 U	330 U, 81 U	330 U, 70 U	330 U, 58 U	330 U, 66 U	330 U, 68 U	330 U, 58 U	330 U, 59 U	330 U, 85 U	330 U, 54 U	330 U, 78 U	330 U, 58 U	330 U, 56 U	330 U, 50 U	330 U, 62 U	330 U, 57 U	330 U, 68 U
1,3-Dichloropropane	-	-	142-28-9	ug/kg	67 U	59 U	62 U	62 U	72 U	81 U	70 U	58 U	66 U	68 U	58 U	59 U	85 U	54 U	78 U	58 U	56 U	50 U	62 U	57 U	68 U
1,4-Dichlorobenzene	-	-	106-46-7	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2-Dichloropropane	-	-	594-20-7	ug/kg	67 U	59 U	62 U	62 U	72 U	81 U	70 U	58 U	66 U	68 U	58 U	59 U	85 U	54 U	78 U	58 U	56 U	50 U	62 U	57 U	68 U
2-Chlorotoluene	-	-	95-49-8	ug/kg	67 U	59 U	62 U	62 U	72 U	81 U	70 U	58 U	66 U	68 U	58 U	59 U	85 U	54 U	78 U	58 U	56 U	50 U	62 U	57 U	68 U
2-Hexanone	-	-	591-78-6	ug/kg	670 U	590 U	620 U	620 U	720 U	810 U	700 U	580 U	660 U	680 U	580 U	590 U	850 U	540 U	780 U	580 U	560 U	500 U	620 U	570 U	680 U
4-Chlorotoluene	-	-	106-43-4	ug/kg	67 U	59 U	62 U	62 U	72 U	81 U	70 U	58 U	66 U	68 U	58 U	59 U	85 U	54 U	78 U	58 U	56 U	50 U	62 U	57 U	68 U
4-Isopropyltoluene	-	-	99-87-6	ug/kg	67 U	59 U	62 U	62 U	72 U	81 U	70 U	58 U	66 U	68 U	58 U	59 U	85 U	54 U	78 U	58 U	56 U	50 U	62 U	57 U	68 U
4-Methyl-2-pentanone	-	-	108-10-1	ug/kg	670 U	590 U	620 U	620 U	720 U	810 U	700 U	580 U	660 U	680 U	580 U	590 U	850 U	540 U	780 U	580 U	560 U	500 U	620 U	570 U	680 U
Acetone	-	9.9	67-64-1	ug/kg	**320 J***	590 U	**820**	**310 J***	**440 J***	**560 J***	**880**	**390 J***	**430 J***	**640 J***	**400 J***	**400 J***	**700 J***	**450 J***	**400 J***	**250 J***	**310 J***	500 U	**340 J***	**300 J***	**320 J***
Acrolein	-	-	107-02-8	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	-	-	71-43-2	ug/kg	67 U	59 U	62 U	62 U	72 U	81 U	70 U	58 U	66 U	38 J	58 U	59 U	85 U	54 U	78 U	58 U	56 U	50 U	62 U	57 U	68 U
Bromobenzene	-	-	108-86-1	ug/kg	67 U	59 U	62 U	62 U	72 U	81 U	70 U	58 U	66 U	68 U	58 U	59 U	85 U	54 U	78 U	58 U	56 U	50 U	62 U	57 U	68 U
Bromochloromethane	-	-	74-97-5	ug/kg	67 U	59 U	62 U	62 U	72 U	81 U	70 U	58 U	66 U	68 U	58 U	59 U	85 U	54 U	78 U	58 U	56 U	50 U	62 U	57 U	68 U
Bromoform	-	-	75-25-2	ug/kg	67 U	59 U	62 U	62 U	72 U	81 U	70 U	58 U	66 U	68 U	58 U	59 U	85 U	54 U	78 U	58 U	56 U	50 U	62 U	57 U	68 U
Bromomethane	-	-	74-83-9	ug/kg	67 U	59 U	62 U	62 U	72 U	81 U	70 U	58 U	66 U	68 U	58 U	59 U	85 U	54 U	78 U	58 U	56 U	50 U	62 U	57 U	68 U
Carbon disulfide	-	-	75-15-0	ug/kg	670 U	16 J	620 U	620 U	33 J	810 U	700 U	580 U	660 U	680 U	580 U	590 U	33 J	540 U	27 J	13 J	560 U	500 U	16 J	570 U	12 J
Carbon tetrachloride	-	-	56-23-5	ug/kg	67 U	59 U	62 U	62 U	72 U	81 U	70 U	58 U	66 U	68 U	58 U	59 U	85 U	54 U	78 U	58 U	56 U	50 U	62 U	57 U	68 U
Chlorobenzene	-	-	108-90-7	ug/kg	67 U	59 U	62 U	62 U	72 U	81 U	70 U	58 U	66 U	68 U	58 U	59 U	85 U	54 U	78 U	58 U	56 U	50 U	62 U	57 U	68 U
Chloroethane	-	-	75-00-3	ug/kg	67 U	59 U	62 U	62 U	72 U	81 U	70 U	58 U	66 U	68 U	58 U	59 U	85 U	54 U	78 U	58 U	56 U	50 U	62 U	57 U	68 U
Chloroform	-	-	67-66-3	ug/kg	67 U	59 U	62 U	62 U	72 U	81 U	70 U	58 U	66 U	68 U	58 U	59 U	85 U	54 U	78 U	58 U	56 U	50 U	62 U	57 U	68 U
Chloromethane	-	-	74-87-3	ug/kg	67 U	59 U	62 U	62 U	72 U	81 U	70 U	58 U	66 U	68 U	58 U	59 U	85 U	54 U	78 U	58 U	56 U	50 U	62 U	57 U	68 U
cis-1,2-Dichloroethene	-	-	156-59-2	ug/kg	67 U	59 U	62 U	62 U	20 J	81 U	70 U	58 U	360	68 U	58 U	59 U	85 U	54 U	78 U	58 U	56 U	50 U	62 U	57 U	68 U
cis-1,3-Dichloropropene	-	-	10061-01-5	ug/kg	67 U	59 U	62 U	62 U	72 U	81 U	70 U	58 U	66 U	68 U	58 U	59 U	85 U	54 U	78 U	58 U	56 U	50 U	62 U	57 U	68 U
Dibromochloromethane	-	-	124-48-1	ug/kg	67 U	59 U	62 U	62 U	72 U	81 U	70 U	58 U	66 U	68 U	58 U	59 U	85 U	54 U	78 U	58 U	56 U	50 U	62 U	57 U	68 U
Dibromomethane	-	-	74-95-3	ug/kg	67 U	59 U	62 U	62 U	72 U	81 U	70 U	58 U	66 U	68 U	58 U	59 U	85 U	54 U	78 U	58 U	56 U	50 U	62 U	57 U	68 U
Dichlorobromomethane	-	-	75-27-4	ug/kg	67 U	59 U	62 U	62 U	72 U	81 U	70 U	58 U	66 U	68 U	58 U	59 U	85 U	54 U	78 U	58 U	56 U	50 U	62 U	57 U	68 U
Dichlorodifluoromethane	-	-	75-71-8	ug/kg	67 U	59 U	62 U	62 U	72 U	81 U	70 U	58 U	66 U	68 U	58 U	59 U	85 U	54 U	78 U	58 U	56 U	50 U	62 U	57 U	68 U
Ethylbenzene	-	-	100-41-4	ug/kg	67 U	59 U	62 U	62 U	72 U	81 U	70 U	58 U	66 U	14 J	58 U	59 U	85 U	54 U	78 U	58 U	56 U	50 U	62 U	57 U	68 U
Ethylene dibromide	-	-	106-93-4	ug/kg	67 U	59 U	62 U	62 U	72 U	81 U	70 U	58 U	66 U	68 U	58 U	59 U	85 U	54 U	78 U	58 U	56 U	50 U	62 U	57 U	68 U
Hexachlorobutadiene	-	26.5	87-68-3	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	-	-	98-82-8	ug/kg	67 U	59 U	62 U	62 U	72 U	81 U	70 U	58 U	66 U	68 U	58 U	59 U	85 U	54 U	78 U	58 U	56 U	50 U	62 U	57 U	68 U
Methyl ethyl ketone	-	42.4	78-93-3	ug/kg	**400 J***	**430 J***	**430 J***	**560 J**	**640 J**	**230 J***	**600 J**	**600**	**580 J**	**710**	**410 J***	**410 J***	**620 J**	**590**	**460 J***	**350 J***	**250 J***	**290 J***	**400 J***	**360 J***	**500 J***
Methyl tert butyl ether	-	-	1634-04-4	ug/kg	670 U	590 U	620 U	620 U	720 U	810 U	700 U	580 U	660 U	680 U	580 U	590 U	850 U	540 U	780 U	580 U	560 U	500 U	620 U	570 U	680 U
Methylene chloride	-	159	75-09-2	ug/kg	29 J	38 J	41 J	23 J	31 J	41 J	47 J	29 J	120 J	25 J	28 J	28 J	41 J	29 J	62 J	31 J	31 J	46 J	36 J	30 J	56 J
n-Butylbenzene	-	-	104-51-8	ug/kg	67 U	59 U	62 U	62 U	72 U	81 U	70 U	58 U	66 U	68 U	58 U	59 U	85 U	54 U	78 U	58 U	56 U	50 U	62 U	57 U	68 U
n-Propylbenzene	-	-	103-65-1	ug/kg	67 U	59 U	62 U	62 U	72 U	19 J	70 U	58 U	66 U	68 U	58 U	59 U	85 U	54 U	78 U	58 U	56 U	50 U	62 U	57 U	68 U
Naphthalene	-	176	91-20-3	ug/kg	330 U	1.8 J, 300 U	310 U, 330 U	310 U, 330 U	330 U, 360 U	330 U, 410 U	330 U, 350 U	290 U, 330 U	330 U	330 U, 38 J	290 U, 330 U	290 U, 330 U	330 U, 420 U	270 U, 330 U	330 U, 390 U	290 U, 330 U	280 U, 330 U	250 U, 330 U	310 U, 330 U	280 U, 330 U	330 U, 340 U
o-Xylene	-	-	95-47-6	ug/kg	67 U	59 U	62 U	62 U	72 U	81 U	70 U	58 U	66 U	18 J	58 U	59 U	85 U	54 U	78 U	58 U	56 U	50 U	62 U	57 U	68 U
sec-Butylbenzene	-	-	135-98-8	ug/kg	67 U	59 U	62 U	62 U	72 U	81 U	70 U	58 U	66 U	68 U	58 U	59 U	85 U	54 U	78 U	58 U	56 U	50 U	62 U	57 U	68 U
Styrene	-	-	100-42-5	ug/kg	67 U	59 U	62 U	62 U	72 U	81 U	70 U	58 U	66 U	68 U	58 U	59 U	85 U	54 U	78 U	58 U	56 U	50 U	62 U	57 U	68 U
tert-Butylbenzene	-	-	98-06-6	ug/kg	67 U	59 U	62 U	62 U	72 U	81 U	70 U	58 U	66 U	68 U	58 U	59 U	85 U	54 U	78 U	58 U	56 U	50 U	62 U	57 U	68 U
Tetrachloroethene	-	-	127-18-4	ug/kg	67 U	59 U	62 U	62 U	72 U	81 U	70 U	58 U	66 U	68 U	58 U	59 U	85 U	54 U	78 U	58 U	56 U	50 U	62 U	57 U	68 U
Toluene	-	-	108-88-3	ug/kg	8.7 J	9.5 J	62 U	62 U	7.9 J	11 J	70 U	58 U	12 J	140	58 U	11 J	12 J	54 U	13 J	8.1 J	6.7 J	5.8 J	14 J	6 J	68 U
trans-1,2-Dichloroethylene	-	-	156-60-5	ug/kg	67 U	59 U	62 U	62 U	72 U	81 U	70 U	58 U	46 J	68 U	58 U	59 U	85 U	54 U	78 U	58 U	56 U	50 U	62 U	57 U	68 U
trans-1,3-Dichloropropene	-	-	10061-02-6	ug/kg	67 U	59 U	62 U	62 U	72 U	81 U	70 U	58 U	66 U	68 U	58 U	59 U	85 U	54 U	78 U	58 U	56 U	50 U	62 U	57 U	68 U
Trichloroethene	-	112	79-01-6	ug/kg	67 U	59 U	62 U	62 U	72 U	81 U	70 U	58 U	66 U	68 U	58 U	59 U	85 U	54 U	78 U	58 U	56 U	50 U	62 U	57 U	68 U
Trichlorofluoromethane	-	-	75-69-4	ug/kg	67 U	59 U	62 U	62 U	72 U	81 U	70 U	58 U	66 U	68 U	58 U	59 U	85 U	54 U	78 U	58 U	56 U	50 U	62 U	57 U	68 U
Vinyl chloride	-	-	75-01-4	ug/kg	67 U	59 U	62 U	62 U	72 U	81 U	70 U	58 U	66 U	68 U	58 U	59 U	85 U	54 U	78 U	58 U	56 U	50 U	62 U	57 U	68 U
Xylene, Meta + Para	-	-	Not Applicable	ug/kg	130 U	120 U	120 U	120 U	140 U	170 U	140 U	120 U	130 U	39 J	120 U	120 U	170 U	110 U	160 U	120 U	110 U	100 U	120 U	110 U	140 U

TABLE 2
IN-CHANNEL SEDIMENT ANALYTICAL RESULTS - 2003 to 2009
FORMER STANLEY TOOLS FACILITY (MID 099 124 299)
Fowlerville, MI

	Remedial Objectives	Op. Memo 4			Location	SD-G1*	SD-G2	SD-G2	SD-G2	SD-G3	SD-H1	SD-H1	SD-H1	SD-H2	SD-H2	SD-H2*	SD-H2*	SD-H3	SD-H3	SD-I1*	SD-I1*	SD-I1*	SD-I1*	SD-I2*	SD-I2*	SD-I2*
					Field ID:	SDG1-1228-101603-02	SDG2-0012-101603-01	SDG2-1227-101603-01	SDG2-1227-101603-02	SDG3-0014-101603-01	SDHI-0012-101603-01	SDHI-1224-101603-01	SDHI-2436-101603-01	SDH2-0012-101603-01	SDH2-1224-101603-01	SDH2-2445-101603-01	SDH2-2445-101603-02	SDH3-0012-101603-01	SDH3-1221-101603-01	SDI1-0012-101503-01	SDI1-1224-101503-01	SDI1-2445-101503-01	SDI1-2445-101503-02	SDI2-0012-101503-01	SDI2-1224-101503-01	SDI2-2436-101503-01
					Date Sampled:	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/15/2003	10/15/2003	10/15/2003	10/15/2003	10/15/2003	10/15/2003	10/15/2003
					Data Type	Duplicate	Origional	Origional	Duplicate	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Duplicate	Origional	Origional	Origional	Origional	Origional	Duplicate	Origional	Origional	Origional
					Material Type	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sand	Sediment	Sediment	Sediment	Sediment	Sand	Sand	Sediment	Sediment	Sediment
					Sample Event	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003
					Depth (inches):	12 - 28	0 - 12	12 - 27	12 - 27	0 - 14	0 - 12	12 - 0	24 - 36	0 - 12	12 - 24	24 - 45	24 - 45	0 - 12	12 - 21	0 - 12	12 - 0	24 - 45	24 - 45	0 - 12	12 - 24	24 - 36
Semi-Volatile Organic Compounds																										
1,2,4-Trichlorobenzene	-	-	120-82-1	ug/kg	330 U, 67 U	330 U, 59 U	330 U, 62 U	330 U, 62 U	330 U, 72 U	330 U, 81 U	330 U, 70 U	330 U, 58 U	330 U, 66 U	330 U, 68 U	330 U, 58 U	330 U, 59 U	330 U, 85 U	330 U, 54 U	330 U, 78 U	330 U, 58 U	330 U, 56 U	330 U, 50 U	330 U, 62 U	330 U, 57 U	330 U, 68 U
1,2-Benzphenanthracene	-	-	218-01-9	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	-	-	95-50-1	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	-	-	541-73-1	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	-	-	106-46-7	ug/kg	330 U, 67 U	330 U, 59 U	330 U, 62 U	330 U, 62 U	330 U, 72 U	330 U, 81 U	330 U, 70 U	330 U, 58 U	330 U, 66 U	330 U, 68 U	330 U, 58 U	330 U, 59 U	330 U, 85 U	330 U, 54 U	330 U, 78 U	330 U, 58 U	330 U, 56 U	330 U, 50 U	330 U, 62 U	330 U, 57 U	330 U, 68 U
2,4,5-Trichlorophenol	-	-	95-95-4	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
2,4,6-Trichlorophenol	-	-	88-06-2	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
2,4-Dichlorophenol	-	-	120-83-2	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
2,4-Dimethylphenol	-	-	105-67-9	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	8.8 J	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
2,4-Dinitrophenol	-	-	51-28-5	ug/kg	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U
2,4-Dinitrotoluene	-	-	121-14-2	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
2,6-Dinitrotoluene	-	-	606-20-2	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
2-Chloronaphthalene	-	-	91-58-7	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
2-Chlorophenol	-	-	95-57-8	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
2-Methylnaphthalene	-	20.2	91-57-6	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
2-Methylphenol	-	-	95-48-7	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
2-Nitroaniline	-	-	88-74-4	ug/kg	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U
2-Nitrophenol	-	-	88-75-5	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
3,3-Dichlorobenzidine	-	-	91-94-1	ug/kg	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U
3,4-Methylphenol	-	-	108-39-4	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	-	-	99-09-2	ug/kg	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U
4,6-Dinitro-2-methylphenol	-	-	534-52-1	ug/kg	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U
4-Bromophenyl-phenylether	-	-	101-55-3	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
4-Chloroaniline	-	-	106-47-8	ug/kg	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	2.4 J	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U
4-Chlorophenyl-phenylether	-	-	7005-72-3	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
4-Methylphenol	-	-	106-44-5	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
4-Nitroaniline	-	-	100-01-6	ug/kg	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U
4-Nitrophenol	-	-	100-02-7	ug/kg	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U
Acenaphthene	-	6.71	83-32-9	ug/kg	330 U	**8 J**	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
Acenaphthylene	-	5.87	208-96-8	ug/kg	330 U	**9.700001 J**	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
Anthracene	-	57.2	120-12-7	ug/kg	330 U	**64 J**	330 U	330 U	330 U	330 U	330 U	330 U	29 J	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	5.3 J	330 U	330 U
Benz(a)anthracene	-	108	56-55-3	ug/kg	330 U	**180 J***	330 U	330 U	6.8 J	330 U	6.3 J	330 U	28 J	12 J	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	28 J	330 U	330 U
Benzidine	-	-	92-87-5	ug/kg	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U
Benzo(a)pyrene	-	150	50-32-8	ug/kg	330 U	**180 J***	330 U	330 U	9.9 J	330 U	330 U	330 U	28 J	330 U	330 U	330 U	9.4 J	330 U	330 U	330 U	330 U	330 U	23 J	330 U	330 U
Benzo(b)fluoranthene	-	-	205-99-2	ug/kg	330 U	140 J	330 U	330 U	11 J	330 U	330 U	330 U	41 J	330 U	330 U	330 U	11 J	330 U	330 U	330 U	330 U	330 U	22 J	330 U	330 U
Benzo(g,h,i)perylene	-	170	191-24-2	ug/kg	330 U	92 J	330 U	330 U	330 U	330 U	330 U	330 U	18 J	3 J	330 U	330 U	3.3 J	330 U	330 U	330 U	330 U	330 U	14 J	330 U	330 U
Benzo(k)fluoranthene	-	240	207-08-9	ug/kg	330 U	120 J	330 U	330 U	330 U	6 J	330 U	330 U	14 J	330 U	330 U	330 U	5.6 J	330 U	330 U	330 U	330 U	330 U	15 J	330 U	330 U
Benzoic acid	-	-	65-85-0	ug/kg	22 J	3300 U	30 J	8.3 J	3300 U	3300 U	140 J	3300 U	6.4 J	320 J	210 J	140 J	3300 U	3300 U	3300 U	3300 U	5.8 J	3300 U	3300 U	130 J	6.4 J
Benzyl alcohol	-	-	100-51-6	ug/kg	1300 U	1300 U	1300 U	1300 U	1300 U	1300 U	1300 U	1300 U	1300 U	1300 U	1300 U	1300 U	1300 U	1300 U	1300 U	1300 U	1300 U	1300 U	1300 U	1300 U	1300 U
bis(2-Chloroethoxy)methane	-	-	111-91-1	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
bis(2-Chloroethyl)ether	-	-	111-44-4	ug/kg	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
bis(2-Chloroisopropyl)ether	-	-	108-60-1	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
bis(2-Ethylhexyl)phthalate	-	182	117-81-7	ug/kg	11 J	14 J	13 J	11 J	16 J	20 J	**260 J**	10 J	23 J	**200 J**	15 J	9 J	49 J	12 J	23 J	19 J	19 J	16 J	13 J	18 J	18 J
Butyl benzyl phthalate	-	-	85-68-7	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	17 J	330 U	6.1 J	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
Carbazole	-	-	86-74-8	ug/kg	330 U	27 J	330 U	330 U	330 U	330 U	330 U	330 U	9 J	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
Chrysene	-	166	218-01-9	ug/kg	330 U	180 J	330 U	330 U	9.5 J	6.6 J	9.1 J	330 U	26 J	12 J	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	26 J	330 U	330 U
Di-N-Butyl phthalate	-	-	84-74-2	ug/kg	23 J	26 J	27 J	24 J	35 J	37 J	31 J	28 J	29 J	25 J	29 J	30 J	39 J	25 J	57 J	40 J	31 J	40 J	28 J	34 J	52 J
Di-N-Octyl phthalate	-	-	117-84-0	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
Dibenz(a,h)anthracene	-	33	53-70-3	ug/kg	330 U	**40 J**	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
Dibenzofuran	-	-	132-64-9	ug/kg	330 U	7.2 J	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
Diethylphthalate	-	-	84-66-2	ug/kg	4.4 J	5.5 J	5.1 J	4.5 J	7.8 J	8.2 J	330 U	5.9 J	7.9 J	330 U	6.8 J	6.8 J	13 J	6.6 J	15 J	12 J	8.9 J	9.5 J	11 J	9.4 J	14 J
Dimethyl phthalate	-	-	131-11-3	ug/kg	3300 U	3300 U	3300 U	3300 U	3300 U	3300 U	3300 U	3300 U	6.5 J	3300 U	3300 U	3300 U	3300 U	3300 U	3300 U	3300 U	3300 U	3300 U	3300 U	3300 U	3300 U
Fluoranthene	-	423	206-44-0	ug/kg	330 U	**470***	330 U	330 U	25 J	13 J	20 J	330 U	62 J	22 J	330 U	330 U	21 J	330 U	330 U	330 U	330 U	330 U	43 J	330 U	330 U
Fluorene	-	77.4	86-73-7	ug/kg	330 U	35 J	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
Hexachlorobenzene	-	-	118-74-1	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
Hexachlorobutadiene	-	-	87-68-3	ug/kg	330 U	300 U, 330 U	310 U, 330 U	310 U, 330 U	330 U, 360 U	330 U, 410 U	330 U, 350 U	290 U, 330 U	330 U	330 U, 340 U	290 U, 330 U	290 U, 330 U	330 U, 420 U	270 U, 330 U	330 U, 390 U	290 U, 330 U	280 U, 330 U	250 U, 330 U	310 U, 330 U	280 U, 330 U	330 U, 340 U
Hexachlorocyclopentadiene	-	-	77-47-4	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
Hexachloroethane	-	-	67-72-1	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
Indeno(1,2,3-cd)pyrene	-	200	193-39-5	ug/kg	330 U	81 J	330 U	330 U	330 U	330 U	330 U	330 U	18 J	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	14 J	330 U	330 U
Isophorone	-	-	78-59-1	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
N-Nitroso-di-N-propylamine	-	-	621-64-7	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
N-Nitrosodiphenylamine	-	-	86-30-6	ug/kg	330 U	330 U	330 U	330 U	4.7 J	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
Naphthalene	-	-	91-20-3	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene	-	-	98-95-3	ug/kg	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
p-Chloro-m-cresol	-	-	59-50-7	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
Pentachlorophenol	-	-	87-86-5	ug/kg	800 U	4.5 J	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U
Phenanthrene	-	204	85-01-8	ug/kg	330 U	**370**	330 U	330 U	9.8 J	5.1 J	10 J	330 U	32 J	330 U	330 U	330 U	9.4 J	330 U	330 U	330 U	330 U	330 U	11 J	330 U	330 U
Phenol	-	-	108-95-2	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	14 J	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	19 J	330 U
PNAs, Total	-	-	TPNA	ug/kg	NA	NA	NA	NA	90	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	-	195	129-00-0	ug/kg	330 U	**420***	330 U	330 U	18 J	11 J	17 J	330 U	53 J	26 J	330 U	330 U	15 J	330 U	330 U	330 U	330 U	330 U	42 J	330 U	330 U

TABLE 2
IN-CHANNEL SEDIMENT ANALYTICAL RESULTS - 2003 to 2009
FORMER STANLEY TOOLS FACILITY (MID 099 124 299)
Fowlerville, MI

					Location	SD-G1*	SD-G2	SD-G2	SD-G2	SD-G3	SD-H1	SD-H1	SD-H1	SD-H2	SD-H2	SD-H2*	SD-H2*	SD-H3	SD-H3	SD-I1*	SD-I1*	SD-I1*	SD-I1*	SD-I2*	SD-I2*	SD-I2*
					Field ID:	SDG1-1228-101603-02	SDG2-0012-101603-01	SDG2-1227-101603-01	SDG2-1227-101603-02	SDG3-0014-101603-01	SDHI-0012-101603-01	SDHI-1224-101603-01	SDHI-2436-101603-01	SDH2-0012-101603-01	SDH2-1224-101603-01	SDH2-2445-101603-01	SDH2-2445-101603-02	SDH3-0012-101603-01	SDH3-1221-101603-01	SDI1-0012-101503-01	SDI1-1224-101503-01	SDI1-2445-101503-01	SDI1-2445-101503-02	SDI2-0012-101503-01	SDI2-1224-101503-01	SDI2-2436-101503-01
					Date Sampled:	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/15/2003	10/15/2003	10/15/2003	10/15/2003	10/15/2003	10/15/2003	10/15/2003
					Data Type	Duplicate	Origional	Origional	Duplicate	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Duplicate	Origional	Origional	Origional	Origional	Origional	Duplicate	Origional	Origional	Origional
					Material Type	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sand	Sand	Sediment	Sediment	Sediment	Sediment	Sand	Sand	Sediment	Sediment	Sediment
					Sample Event	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003
	Remedial Objectives	Op. Memo 4			Depth (inches):	12 - 28	0 - 12	12 - 27	12 - 27	0 - 14	0 - 12	12 - 0	24 - 36	0 - 12	12 - 24	24 - 45	24 - 45	0 - 12	12 - 21	0 - 12	12 - 0	24 - 45	24 - 45	0 - 12	12 - 24	24 - 36
Polychlorinated Biphenyls (PCBs):																										
PCB, Total	-	**59.8**	TPCB	ug/kg	NA	NA	NA	NA	15 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1016	-	**59.8**	12674-11-2	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
PCB-1221	-	**59.8**	11104-28-2	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
PCB-1232	-	**59.8**	11141-16-5	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
PCB-1242	-	**59.8**	53469-21-9	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
PCB-1248	-	**59.8**	12672-29-6	ug/kg	NA	NA	NA	NA	15 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1254	-	**59.8**	11097-69-1	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
PCB-1260	-	**59.8**	11096-82-5	ug/kg	330 U	17 J	330 U	330 U	10 J	23 J	**67 J**	330 U	49 J	**120 J**	330 U	330 U	27 J	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U
Total Metals:																										
Aluminum, Total	-	-	7429-90-5	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic, Total	-	**9.79**	7440-38-2	mg/kg	**22***	**12***	3.6	4.6	6.6	**10***	8.2	5.3	4.5	6.4	8.9	6.8	**11***	4.6	8.9	**18***	6.3	**10***	4.9	3.4	6.4
Barium, Total	-	-	7440-39-3	mg/kg	14	14	6.7	7.2	40	77	49	37	25	28	19	11	54	9.4	54	13	11	8.4	17	7	11
Cadmium, Total	-	-	7440-43-9	mg/kg	0.041 J	0.11	0.027 J	0.049 J	0.2	0.26	0.17	0.14	0.088	0.11	0.059	0.039 J	0.28	0.045 J	0.21	0.068	0.056 J	0.053 J	0.076	0.029 J	0.054 J
Chromium, Total	**110**	**43.4**	7440-47-3	mg/kg	7.4	7	4.5	4.8	16	41	771	13	16	**99**	5.1	5.1	**71**	6.7	26	9.8	5.2	4.2	10	3.6	4.1
Copper, Total	**91**	**31.6**	7440-50-8	mg/kg	2.3	5.1	1.8	2.6	15	**33**	**563**	11	20	**61**	2.6	1.7	**63**	3	17	3.1	3.3	2	2.8	0.8 J	1.2 J
Lead, Total	**83**	**35.8**	7439-92-1	mg/kg	1.8	17	1.6	1.9	10	22	14	5.9	4.6	9	2.1	1.7	11	2.1	7.5	2.9	2.4	1.9	5.7	1.5	1.6
Mercury, Total	-	-	7439-97-6	mg/kg	0.1 U	0.029 J	0.1 U	0.1 U	0.044 J	0.053 J	0.03 J	0.019 J	0.017 J	0.062 J	0.012 J	0.1 U	0.049 J	0.1 U	0.057 J	0.015 J	0.0096 J	0.1 U	0.031 J	0.012 J	0.012 J
Nickel, Total	**49**	**22.7**	7440-02-0	mg/kg	6.2	6.5	6.5	7.8	12	**26**	**150**	12	**41**	**40**	5.3	5.3	**45**	7.2	11	7.9	7	9.1	6.1	3.5	3.8
Selenium, Total	-	-	7782-49-2	mg/kg	0.11 J	0.17 J	0.23 U	0.11 J	0.27 J	0.36 U	0.38	0.13 J	0.13 J	0.26 J	0.13 J	0.13 J	0.46	0.14 J	0.36	0.12 J	0.16 J	0.29	0.14 J	0.33 U	0.13 J
Silver, Total	-	-	7440-22-4	mg/kg	0.035 J	0.035 J	0.023 J	0.041 J	0.047 J	0.06 J	0.049 J	0.083 J	0.047 J	0.09 J	0.037 J	0.03 J	0.06 J	0.038 J	0.061 J	0.046 J	0.039 J	0.038 J	0.033 J	0.019 J	0.023 J
Zinc, Total	**460**	**121**	7440-66-6	mg/kg	11	18	8.9	10	60	79	**784**	36	101	**178**	11	9.7	**127**	11	50	15	11	7.1	19	9.9	8.8
Chromium(VI)	-	-	18540-29-9	mg/kg	0.3 J	2 U	2 U	2.1	2 U	0.9 J	2 U	2 U	2 U	2 U	0.13 J	2 U	2 U	0.19 J	2 U	0.42 J	0.34 J	2 U	2 U	2 U	3
Miscellaneous Parameters:																										
Cyanide, Free	-	**0.1**	57-12-5	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide, Total	-	**0.1**	57-12-5	mg/kg	0.2 U	0.2 U	0.2 U	0.2 U	0.07 J	**1.4**	**11**	**0.74***	**0.24***	**1.4**	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Fractional Organic Carbon	-	-	FOC	%	0.8	1.1	0.3	0.2	11	15	5.5	1.4	1.9	5.3	1.1	1.3	24	0.8	6.4	1.6	0.7	0.6	1.8	1.1	3.3
Percent moisture	-	-	MOIST	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Percent Solids	-	-	SOLID	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Percent Solids	-	-	Solids	%	86	89	87	85	71	57	69	80	82	71	86	85	59	85	63	84	90	90	84	82	73
Total Organic Carbon	-	-	TOC	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
NA - Indicates that the sample was not analyzed for that parameter.
U - Inidcates that the result was not detected above the Method Detection Limit (MDL).
J - Indicates an estimated value with the result detection above the Method Detection Limit (MDL)but below the Reporting Limit (RL).
B - Indicates that that compound was also detected in a Blank and qualified as a likely lab contaminant.
* - Indicates that the exceeded value is below the Site Specific Background Value.
Values that are Bold and Underlined Exceed the Op. Memo 4 criteria.
Values that are Highlighed indicate Remedial Objective Exceedance.

TABLE 2
IN-CHANNEL SEDIMENT ANALYTICAL RESULTS - 2003 to 2009
FORMER STANLEY TOOLS FACILITY (MID 099 124 299)
Fowlerville, MI

					Location	SD-I3	SD-I3*	SD-I3*	SD-J1	SD-J1*	SD-J1*	SD-J2	SD-J2	SD-J2	SD-J2	SD-J3	SD-I3*	SD-K1	SD-K2*	SD-K2*	SD-K1	SD-K3	SD-K3*	SD-LU1*	SD-LU2*	SD-LU3*
					Field ID:	SDI3-0012-101503-01	SDI3-1231-101503-01	SDI3-1231-101503-02	SDJ1012-042203-01	SDJ11224-042203-01	SDJ11224-042203-02	SDJ2-0012-101503-01	SD-J2-001	SD-J2-001/FD	SDJ2-1224-101503-01	SDJ3012-042203-01	SDJ31224-042203-01	SDK1-0012-101503-01	SDK2-0012-101503-01	SDK2-1224-101503-01	SDK1-1224-101503-01	SDK3-0012-101503-01	SDK3-1224-101503-01	LU-09-SD-1A 0911479-02	LU-09-SD-2A 0911479-03	LU-09-SD-3A 0911479-01
					Date Sampled:	10/15/2003	10/15/2003	10/15/2003	4/22/2003	4/22/2003	4/22/2003	10/15/2003	7/24/2007	7/24/2007	10/15/2003	4/22/2003	4/22/2003	10/15/2003	10/15/2003	10/15/2003	10/15/2003	10/15/2003	10/15/2003	40140	40140	40140
					Data Type	Origional	Origional	Duplicate	Origional	Origional	Duplicate	Origional	Origional	Duplicate	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Origional
					Material Type	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
					Sample Event	2003	2003	2003	2003	2003	2003	2003	2007	2007	2003	2003	2003	2003	2003	2003	2003	2003	2003	2009	2009	2009
	Remedial Objectives	Op. Memo 4			Depth (inches):	0 - 12	12 - 31	12 - 31	0 - 12	12 - 24	12 - 24	0 - 12	0 - 12	0 - 12	12 - 24	0 - 12	12 - 24	0 - 12	0 - 12	12 - 0	12 - 24	0 - 12	12 - 24	0 - 12	0 - 10	0 - 13
Volatile Organic Compounds																										
1,1,1,2-Tetrachloroethane	-	-	630-20-6	ug/kg		120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U	67 U	55 U	62 U	59 U	65 U
1,1,1-Trichloroethane	-	-	71-55-6	ug/kg		120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U	67 U	55 U	62 U	59 U	65 U
1,1,2,2-Tetrachloroethane	-	-	79-34-5	ug/kg		120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U	67 U	55 U	62 U	59 U	65 U
1,1,2-Trichloroethane	-	-	79-00-5	ug/kg		120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U	67 U	55 U	62 U	59 U	65 U
1,1-Dichloroethane	-	0.575	75-34-3	ug/kg		120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U	67 U	55 U	62 U	59 U	65 U
1,1-Dichloroethene	-	-	75-35-4	ug/kg		120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U	67 U	55 U	62 U	59 U	65 U
1,1-Dichloropropylene	-	-	563-58-6	ug/kg		120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U	67 U	55 U	62 U	59 U	65 U
1,2,3-Trichlorobenzene	-	-	87-61-6	ug/kg		610 U	290 U	280 U	380 U	290 U	280 U	280 U	NA	NA	320 U	420 U	390 U	400 U	280 U	290 U	380 U	330 U	270 U	62 U	59 U	65 U
1,2,3-Trichloropropane	-	-	96-18-4	ug/kg		120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U	67 U	55 U	62 U	59 U	65 U
1,2,4-Trichlorobenzene	-	-	120-82-1	ug/kg		NA	NA	NA	77 U	57 U	56 U	NA	NA	NA	NA	84 U	77 U	NA	NA	NA	NA	NA	NA	62 U	59 U	65 U
1,2,4-Trimethylbenzene	-	-	95-63-6	ug/kg		120 U	59 U	56 U	77 U	57 U	10 JB	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	12 J	77 U	11 J	55 U	62 U	59 U	65 U
1,2-Dibromo-3-chloropropane	-	-	96-12-8	ug/kg		120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U	67 U	55 U	310 U	290 U	330 U
1,2-Dichlorobenzene	-	-	95-50-1	ug/kg		120 U, 330 U	330 U, 59 U	330 U, 56 U	77 U	57 U	56 U	330 U, 56 U	NA	NA	330 U, 65 U	84 U	77 U	330 U, 80 U	330 U, 56 U	330 U, 59 U	330 U, 77 U	330 U, 67 U	330 U, 55 U	62 U	59 U	65 U
1,2-Dichloroethane	-	-	107-06-2	ug/kg		120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U	67 U	55 U	62 U	59 U	65 U
1,2-Dichloroethene	-	-	540-59-0	ug/kg		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	120 U	120 U	130 U
1,2-Dichloropropane	-	-	78-87-5	ug/kg		120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U	67 U	55 U	62 U	59 U	65 U
1,3,5-Trimethylbenzene	-	-	108-67-8	ug/kg		120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U	67 U	55 U	62 U	59 U	65 U
1,3-Dichlorobenzene	-	-	541-73-1	ug/kg		120 U, 330 U	330 U, 59 U	330 U, 56 U	77 U	57 U	56 U	330 U, 56 U	NA	NA	330 U, 65 U	84 U	77 U	330 U, 80 U	330 U, 56 U	330 U, 59 U	330 U, 77 U	330 U, 67 U	330 U, 55 U	62 U	59 U	65 U
1,3-Dichloropropane	-	-	142-28-9	ug/kg		120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U	67 U	55 U	62 U	59 U	65 U
1,4-Dichlorobenzene	-	-	106-46-7	ug/kg		NA	NA	NA	77 U	57 U	56 U	NA	NA	NA	NA	84 U	77 U	NA	NA	NA	NA	NA	NA	62 U	59 U	65 U
2,2-Dichloropropane	-	-	594-20-7	ug/kg		120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U	67 U	55 U	62 U	59 U	65 U
2-Chlorotoluene	-	-	95-49-8	ug/kg		120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U	67 U	55 U	62 U	59 U	65 U
2-Hexanone	-	-	591-78-6	ug/kg		1200 U	590 U	560 U	770 U	570 U	560 U	560 U	NA	NA	650 U	840 U	770 U	800 U	560 U	590 U	770 U	670 U	550 U	3100 U	2900 U	3300 U
4-Chlorotoluene	-	-	106-43-4	ug/kg		120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U	67 U	55 U	62 U	59 U	65 U
4-Isopropyltoluene	-	-	99-87-6	ug/kg		120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U	67 U	55 U	62 U	59 U	65 U
4-Methyl-2-pentanone	-	-	108-10-1	ug/kg		1200 U	590 U	560 U	770 U	570 U	560 U	560 U	NA	NA	650 U	840 U	770 U	800 U	560 U	590 U	770 U	670 U	550 U	3100 U	2900 U	3300 U
Acetone	-	9.9	67-64-1	ug/kg		**590 J***	**380 J***	**460 J***	260 JB	190 JB	190 JB	**250 J***	NA	NA	650 U	340 JB	250 JB	**710 J***	560 U	**300 J***	**550 J***	670 U	550 U	840 U	**110 J***	**180 J***
Acrolein	-	-	107-02-8	ug/kg		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	310 U	290 U	330 U
Benzene	-	-	71-43-2	ug/kg		120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U	67 U	55 U	62 U	59 U	65 U
Bromobenzene	-	-	108-86-1	ug/kg		120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U	67 U	55 U	62 U	59 U	65 U
Bromochloromethane	-	-	74-97-5	ug/kg		120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U	67 U	55 U	62 U	59 U	65 U
Bromoform	-	-	75-25-2	ug/kg		120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U	67 U	55 U	62 U	59 U	65 U
Bromomethane	-	-	74-83-9	ug/kg		120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U	67 U	55 U	62 U	59 U	65 U
Carbon disulfide	-	-	75-15-0	ug/kg		1200 U	14 J	560 U	28 J	570 U	560 U	15 J	NA	NA	41 J	840 U	22 J	800 U	560 U	590 U	52 J	670 U	550 U	310 U	290 U	330 U
Carbon tetrachloride	-	-	56-23-5	ug/kg		120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U	67 U	55 U	62 U	59 U	65 U
Chlorobenzene	-	-	108-90-7	ug/kg		120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U	67 U	55 U	62 U	59 U	65 U
Chloroethane	-	-	75-00-3	ug/kg		120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U	67 U	55 U	62 U	59 U	65 U
Chloroform	-	-	67-66-3	ug/kg		120 U	59 U	56 U	14 J	12 J	16 J	56 U	NA	NA	65 U	18 J	15 J	80 U	56 U	59 U	77 U	67 U	55 U	62 U	59 U	65 U
Chloromethane	-	-	74-87-3	ug/kg		120 U	59 U	56 U	77 U	57 U	16 J	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U	67 U	55 U	62 U	59 U	65 U
cis-1,2-Dichloroethene	-	-	156-59-2	ug/kg		120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U	67 U	55 U	62 U	59 U	65 U
cis-1,3-Dichloropropene	-	-	10061-01-5	ug/kg		120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U	67 U	55 U	62 U	59 U	65 U
Dibromochloromethane	-	-	124-48-1	ug/kg		120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U	67 U	55 U	62 U	59 U	65 U
Dibromomethane	-	-	74-95-3	ug/kg		120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U	67 U	55 U	62 U	59 U	65 U
Dichlorobromomethane	-	-	75-27-4	ug/kg		120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U	67 U	55 U	NA	NA	NA
Dichlorodifluoromethane	-	-	75-71-8	ug/kg		120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U	67 U	55 U	62 U	59 U	65 U
Ethylbenzene	-	-	100-41-4	ug/kg		120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	8.2 J	77 U	67 U	55 U	62 U	59 U	65 U
Ethylene dibromide	-	-	106-93-4	ug/kg		120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U	67 U	55 U	62 U	59 U	65 U
Hexachlorobutadiene	-	26.5	87-68-3	ug/kg		NA	NA	NA	770 U	570 U	560 U	NA	NA	NA	NA	840 U	770 U	NA	NA	NA	NA	NA	NA	62 U	59 U	65 U
Isopropylbenzene	-	-	98-82-8	ug/kg		120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U	67 U	55 U	62 U	59 U	65 U
Methyl ethyl ketone	-	42.4	78-93-3	ug/kg		**640 J**	590 U	**230 J***	**150 J***	**92 J***	**110 J***	**290 J***	NA	NA	**420 J***	**230 J***	**170 J***	**690 J**	**380 J***	**450 J***	**570 J**	**620 J**	**340 J***	**52 J***	**52 J***	**78 J***
Methyl tert butyl ether	-	-	1634-04-4	ug/kg		1200 U	590 U	560 U	770 U	570 U	560 U	560 U	NA	NA	650 U	840 U	770 U	800 U	560 U	590 U	770 U	670 U	550 U	62 U	59 U	65 U
Methylene chloride	-	159	75-09-2	ug/kg		90 J	29 J	43 J	77 U	57 U	56 U	17 J	NA	NA	54 J	84 U	77 U	27 J	10 J	29 J	38 J	45 J	16 J	61 J	30 J	44 J
n-Butylbenzene	-	-	104-51-8	ug/kg		120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U	67 U	55 U	62 U	59 U	65 U
n-Propylbenzene	-	-	103-65-1	ug/kg		120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U	67 U	55 U	62 U	59 U	65 U
Naphthalene	-	176	91-20-3	ug/kg		330 U, 610 U	290 U, 330 U	280 U, 330 U	12 JB	9 JB	140 U	280 U, 330 U	NA	NA	320 U, 330 U	11 JB	190 U	330 U, 400 U	280 U, 330 U	290 U, 330 U	330 U, 380 U	330 U	270 U, 330 U	310 U	290 U	330 U
o-Xylene	-	-	95-47-6	ug/kg		120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U	67 U	55 U	62 U	59 U	65 U
sec-Butylbenzene	-	-	135-98-8	ug/kg		120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U	67 U	55 U	62 U	59 U	65 U
Styrene	-	-	100-42-5	ug/kg		120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U	67 U	55 U	62 U	59 U	65 U
tert-Butylbenzene	-	-	98-06-6	ug/kg		120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U	67 U	55 U	62 U	59 U	65 U
Tetrachloroethene	-	-	127-18-4	ug/kg		120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U	67 U	22 J	62 U	59 U	65 U
Toluene	-	-	108-88-3	ug/kg		16 J	59 U	56 U	77 U	57 U	56 U	11 J	NA	NA	15 J	84 U	77 U	80 U	56 U	18 J	77 U	17 J	8.8 J	62 U	59 U	65 U
trans-1,2-Dichloroethylene	-	-	156-60-5	ug/kg		120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U	67 U	55 U	62 U	59 U	65 U
trans-1,3-Dichloropropene	-	-	10061-02-6	ug/kg		120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U	67 U	55 U	62 U	59 U	65 U
Trichloroethene	-	112	79-01-6	ug/kg		120 U	59 U	56 U	48 JB	57 U	56 U	56 U	NA	NA	65 U	54 JB	37 JB	80 U	56 U	59 U	77 U	67 U	55 U	62 U	59 U	65 U
Trichlorofluoromethane	-	-	75-69-4	ug/kg		120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U	67 U	55 U	62 U	59 U	65 U
Vinyl chloride	-	-	75-01-4	ug/kg		120 U	59 U	56 U	77 U	57 U	56 U	56 U	NA	NA	65 U	84 U	77 U	80 U	56 U	59 U	77 U	67 U	55 U	62 U	59 U	65 U
Xylene, Meta + Para	-	-	Not Applicable	ug/kg		240 U	120 U	110 U	150 U	110 U	110 U	110 U	NA	NA	130 U	170 U	150 U	160 U	110 U	22 J	150 U	130 U	110 U	120 U	120 U	130 U

TABLE 2
IN-CHANNEL SEDIMENT ANALYTICAL RESULTS - 2003 to 2009
FORMER STANLEY TOOLS FACILITY (MID 099 124 299)
Fowlerville, MI

			Location		SD-I3	SD-I3*	SD-I3*	SD-J1	SD-J1*	SD-J1*	SD-J2	SD-J2	SD-J2	SD-J2	SD-J3	SD-J3*	SD-K1	SD-K2*	SD-K2*	SD-K1	SD-K3	SD-K3*	SD-LU1*	SD-LU2^	SD-LU3^
			Field ID:		SDI3-0012-101503-01	SDI3-1231-101503-01	SDI3-1231-101503-02	SDJ1012-042203-01	SDJ11224-042203-01	SDJ11224-042203-02	SDJ2-0012-101503-01	SDJ-J2-001	SDJ-J2-001/FD	SDJ2-1224-101503-01	SDJ3012-042203-01	SDJ31224-042203-01	SDK1-0012-101503-01	SDK2-0012-101503-01	SDK2-1224-101503-01	SDK1-1224-101503-01	SDK3-0012-101503-01	SDK3-1224-101503-01	LU-09-SD-1A 0911479-02	LU-09-SD-2A 0911479-03	LU-09-SD-3A 0911479-01
			Date Sampled:		10/15/2003	10/15/2003	10/15/2003	4/22/2003	4/22/2003	4/22/2003	10/15/2003	7/24/2007	7/24/2007	10/15/2003	4/22/2003	4/22/2003	10/15/2003	10/15/2003	10/15/2003	10/15/2003	10/15/2003	10/15/2003	40140	40140	40140
			Data Type		Origional	Origional	Duplicate	Origional	Origional	Duplicate	Origional	Origional	Duplicate	Origional	Origional	Origional	Origional	Origional	Original	Origional	Origional	Origional	Original	Original	Original
			Material Type		Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
			Sample Event		2003	2003	2003	2003	2003	2003	2003	2007	2007	2003	2003	2003	2003	2003	2003	2003	2003	2003	2009	2009	2009
	Remedial Objectives	Op. Memo 4	Depth (inches):		0 - 12	12 - 31	12 - 31	0 - 12	12 - 24	12 - 24	0 - 12	0 - 12	0 - 12	12 - 24	0 - 12	12 - 24	0 - 12	0 - 12	12 - 0	12 - 24	0 - 12	12 - 24	0 - 12	0 - 10	0 - 13
Semi-Volatile Organic Compounds																								
1,2,4-Trichlorobenzene	-	-	120-82-1	ug/kg	120 U, 330 U	330 U, 59 U	330 U, 56 U	330 U	330 U	330 U	330 U, 56 U	NA	NA	330 U, 65 U	330 U	330 U	330 U, 80 U	330 U, 56 U	330 U, 59 U	330 U, 77 U	330 U, 67 U	330 U, 55 U	62 U	59 U	65 U
1,2-Benzphenanthracene	-	-	218-01-9	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	32	13 J	98
1,2-Dichlorobenzene	-	-	95-50-1	ug/kg	NA	NA	NA	330 U	330 U	330 U	NA	NA	NA	NA	330 U	330 U	NA	NA	NA	NA	NA	NA	62 U	59 U	65 U
1,3-Dichlorobenzene	-	-	541-73-1	ug/kg	NA	NA	NA	330 U	330 U	330 U	NA	NA	NA	NA	330 U	330 U	NA	NA	NA	NA	NA	NA	62 U	59 U	65 U
1,4-Dichlorobenzene	-	-	106-46-7	ug/kg	120 U, 330 U	330 U, 59 U	330 U, 56 U	330 U	330 U	330 U	330 U, 56 U	NA	NA	330 U, 65 U	330 U	330 U	330 U, 80 U	330 U, 56 U	330 U, 59 U	330 U, 77 U	330 U, 67 U	330 U, 55 U	62 U	59 U	65 U
2,4,5-Trichlorophenol	-	-	95-95-4	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	23 U	20 U	23 U
2,4,6-Trichlorophenol	-	-	88-06-2	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	23 U	20 U	23 U
2,4-Dichlorophenol	-	-	120-83-2	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	23 U	20 U	23 U
2,4-Dimethylphenol	-	-	105-67-9	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	450 U	390 U	470 U
2,4-Dinitrophenol	-	-	51-28-5	ug/kg	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	NA	NA	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	450 U	390 U	470 U
2,4-Dinitrotoluene	-	-	121-14-2	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	45 U	39 U	47 U
2,6-Dinitrotoluene	-	-	606-20-2	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	23 U	20 U	23 U
2-Chloronaphthalene	-	-	91-58-7	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	23 U	20 U	23 U
2-Chlorophenol	-	-	95-57-8	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	23 U	20 U	23 U
2-Methylnaphthalene	-	**20.2**	91-57-6	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	23 U	20 U	23 U
2-Methylphenol	-	-	95-48-7	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	23 U	20 U	23 U
2-Nitroaniline	-	-	88-74-4	ug/kg	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	NA	NA	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	23 U	20 U	23 U
2-Nitrophenol	-	-	88-75-5	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	23 U	20 U	23 U
3,3-Dichlorobenzidine	-	-	91-94-1	ug/kg	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	NA	NA	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	230 U	200 U	230 U
3,4-Methylphenol	-	-	108-39-4	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	23 U	20 U	23 U
3-Nitroaniline	-	-	99-09-2	ug/kg	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	NA	NA	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	45 U	39 U	47 U
4,6-Dinitro-2-methylphenol	-	-	534-52-1	ug/kg	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	NA	NA	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	90 U	78 U	93 U
4-Bromophenyl-phenylether	-	-	101-55-3	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	23 U	20 U	23 U
4-Chloroaniline	-	-	106-47-8	ug/kg	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	NA	NA	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	45 U	39 U	47 U
4-Chlorophenyl-phenylether	-	-	7005-72-3	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	23 U	20 U	23 U
4-Methylphenol	-	-	106-44-5	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	23 U	20 U	23 U
4-Nitroaniline	-	-	100-01-6	ug/kg	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	NA	NA	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	90 U	78 U	93 U
4-Nitrophenol	-	-	100-02-7	ug/kg	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	NA	NA	1700 U	1700 U	1700 U [#]	1700 U	1700 U	1700 U	1700 U	1700 U	1700 U	450 U	390 U	470 U
Acenaphthene	-	**6.71**	83-32-9	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	1320 U	1410 U	**11 J**	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	4.0 J	20 U	**8.1 J**
Acenaphthylene	-	**5.87**	208-96-8	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	2650 U	2820 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	23 U	20 U	5.6 J
Anthracene	-	**57.2**	120-12-7	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	1320 U	1410 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	NA	NA
Benz(a)anthracene	-	**108**	56-55-3	ug/kg	16 J	330 U	330 U	63 J	330 U	330 U	8 J	661 U	706 U	6.9 J	330 U	330 U	9.5 J	330 U	330 U	330 U	330 U	330 U	33	14 J	**87**
Benzidine	-	-	92-87-5	ug/kg	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	NA	NA	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	900 U	780 U	930 U
Benzo(a)pyrene	-	**150**	50-32-8	ug/kg	22 J	330 U	330 U	72 J	330 U	330 U	7.5 J	66.1 U	70.6 U	6.7 J	330 U	330 U	9.5 J	330 U	330 U	330 U	330 U	330 U	35	13 J	72
Benzo(b)fluoranthene	-	-	205-99-2	ug/kg	20 J	330 U	330 U	89 J	330 U	330 U	9.8 J	661 U	706 U	7.2 J	330 U	330 U	10 J	330 U	330 U	330 U	330 U	330 U	57	18 J	170
Benzo(g,h,i)perylene	-	**170**	191-24-2	ug/kg	15 J	330 U	330 U	330 U	330 U	330 U	6.3 J	1320 U	1410 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	24 J	9.3 J	64
Benzo(k)fluoranthene	-	**240**	207-08-9	ug/kg	21 J	330 U	330 U	74 J	330 U	330 U	8.4 J	1320 U	1410 U	7.5 J	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	20 J	12 J	63
Benzoic acid	-	-	65-85-0	ug/kg	98 J	8.1 J	11 J	3300 U	3300 U	3300 U	18 J	NA	NA	16 J	3300 U	320 J	35 J	3300 U	3300 U	110 J	3300 U	3300 U	450 U	390 U	470 U
Benzyl alcohol	-	-	100-51-6	ug/kg	1300 U	1300 U	1300 U	1300 U	1300 U	1300 U	1300 U	NA	NA	1300 U	1300 U	1300 U	1300 U	1300 U	1300 U	1300 U	1300 U	1300 U	23 U	20 U	23 U
bis(2-Chloroethoxy)methane	-	-	111-91-1	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	23 U	20 U	23 U
bis(2-Chloroethyl)ether	-	-	111-44-4	ug/kg	100 U	100 U	100 U	100 U	100 U	100 U	100 U	NA	NA	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	23 U	20 U	23 U
bis(2-Chloroisopropyl)ether	-	-	108-60-1	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	NA	NA
bis(2-Ethylhexyl)phthalate	-	**182**	117-81-7	ug/kg	38 J	19 J	17 J	110 J	71 J	330 U	43 J	NA	NA	36 J	90 J	56 J	16 J	9.1 J	9.5 J	13 J	15 J	16 J	52	14 J	25 J
Butyl benzyl phthalate	-	-	85-68-7	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	NA	330 U	330 U	330 U	330 U	4.7 J	330 U	330 U	330 U	330 U	45 U	15 J	7.8 J
Carbazole	-	-	86-74-8	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	450 U	390 U	470 U
Chrysene	-	**166**	218-01-9	ug/kg	22 J	330 U	330 U	65 J	330 U	330 U	9 J	1320 U	1410 U	6.7 J	330 U	330 U	12 J	330 U	330 U	330 U	330 U	330 U	32	13 J	98
Di-N-Butyl phthalate	-	-	84-74-2	ug/kg	85 J	35 J	32 J	81 J	330 U	59 J	51 J	NA	NA	330 U	88 J	330 U	21 J	20 J	20 J	26 J	47 J	35 J	190 J	150 J	72 J
Di-N-Octyl phthalate	-	-	117-84-0	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	19 U	20 U	23 U
Dibenz(a,h)anthracene	-	**33**	53-70-3	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	66.1 U	70.6 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	45 U	39 U	47 U
Dibenzofuran	-	-	132-64-9	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	23 U	20 U	23 U
Diethylphthalate	-	-	84-66-2	ug/kg	17 J	7.8 J	6.4 J	330 U	330 U	330 U	14 J	NA	NA	16 J	330 U	330 U	4.5 J	4.3 J	4.1 J	5.3 J	14 J	11 J	23 U	20 U	23 U
Dimethyl phthalate	-	-	131-11-3	ug/kg	3300 U	3300 U	3300 U	3300 U	3300 U	3300 U	3300 U	NA	NA	3300 U	3300 U	3300 U	3300 U	3300 U	3300 U	3300 U	3300 U	3300 U	23 U	20 U	23 U
Fluoranthene	-	**423**	206-44-0	ug/kg	45 J	330 U	330 U	210 J	330 U	330 U	18 J	1320 U	1410 U	21 J	330 U	330 U	17 J	330 U	330 U	330 U	330 U	330 U	70	28	240
Fluorene	-	77.4	86-73-7	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	1320 U	1410 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	23 U	20 U	23 U
Hexachlorobenzene	-	-	118-74-1	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	23 U	20 U	23 U
Hexachlorobutadiene	-	-	87-68-3	ug/kg	330 U, 610 U	290 U, 330 U	280 U, 330 U	330 U	330 U	330 U	280 U, 330 U	NA	NA	320 U, 330 U	330 U	330 U	330 U, 400 U	280 U, 330 U	290 U, 330 U	330 U, 380 U	330 U	270 U, 330 U	62 U	59 U	65 U
Hexachlorocyclopentadiene	-	-	77-47-4	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	23 U	20 U	23 U
Hexachloroethane	-	-	67-72-1	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	23 U	20 U	23 U
Indeno(1,2,3-cd)pyrene	-	**200**	193-39-5	ug/kg	14 J	330 U	330 U	330 U	330 U	330 U	5.3 J	661 U	706 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	38 U	8.1 J	59
Isophorone	-	-	78-59-1	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	23 U	20 U	23 U
N-Nitroso-di-N-propylamine	-	-	621-64-7	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	23 U	20 U	23 U
N-Nitrosodiphenylamine	-	-	86-30-6	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	23 U	20 U	23 U
Naphthalene	-	-	91-20-3	ug/kg	NA	NA	NA	330 U	330 U	330 U	NA	1320 U	1410 U	NA	330 U	330 U	NA	NA	NA	NA	NA	NA	310 U	290 U	330 U
Nitrobenzene	-	-	98-95-3	ug/kg	200 U	200 U	200 U	200 U	200 U	200 U	200 U	NA	NA	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	23 U	20 U	23 U
p-Chloro-m-cresol	-	-	59-50-7	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	23 U	20 U	23 U
Pentachlorophenol	-	-	87-86-5	ug/kg	800 U	800 U	800 U	800 U	800 U	800 U	800 U	NA	NA	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	230 U	200 U	230 U
Phenanthrene	-	**204**	85-01-8	ug/kg	15 J	330 U	330 U	67 J	330 U	330 U	9.3 J	1320 U	1410 U	4.7 J	330 U	330 U	6.5 J	330 U	330 U	330 U	330 U	330 U	34	9.7 J	170
Phenol	-	-	108-95-2	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	NA	NA	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	230 U	200 U	230 U
PNAs, Total	-	-	TPNA	ug/kg	NA	NA	NA	820	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	-	**195**	129-00-0	ug/kg	31 J	330 U	330 U	180 J	330 U	330 U	16 J	1320 U	1410 U	18 J	330 U	330 U	14 J	330 U	330 U	330 U	330 U	330 U	72	27	**270^**

TABLE 2
IN-CHANNEL SEDIMENT ANALYTICAL RESULTS - 2003 to 2009
FORMER STANLEY TOOLS FACILITY (MID 099 124 299)
Fowlerville, MI

				Location	SD-I3	SD-I3*	SD-I3*	SD-J1	SD-J1*	SD-J1*	SD-J2	SD-J2	SD-J2	SD-J2	SD-J3	SD-J3*	SD-K1	SD-K2*	SD-K2*	SD-K1	SD-K3	SD-K3*	SD-LU1*	SD-LU2*	SD-LU3*
				Field ID:	SDI3-0012-101503-01	SDI3-1231-101503-01	SDI3-1231-101503-02	SDJ1012-042203-01	SDJ11224-042203-01	SDJ11224-042203-02	SDJ2-0012-101503-01	SD-J2-001	SD-J2-001/FD	SDJ2-1224-101503-01	SDJ3012-042203-01	SDJ31224-042203-01	SDK1-0012-101503-01	SDK2-0012-101503-01	SDK2-1224-101503-01	SDK1-1224-101503-01	SDK3-0012-101503-01	SDK3-1224-101503-01	LU-09-SD-1A 0911479-02	LU-09-SD-2A 0911479-03	LU-09-SD-3A 0911479-01
				Date Sampled:	10/15/2003	10/15/2003	10/15/2003	4/22/2003	4/22/2003	4/22/2003	10/15/2003	7/24/2007	7/24/2007	10/15/2003	4/22/2003	4/22/2003	10/15/2003	10/15/2003	10/15/2003	10/15/2003	10/15/2003	10/15/2003	40140	40140	40140
				Data Type	Origional	Origional	Duplicate	Origional	Origional	Duplicate	Origional	Origional	Duplicate	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Origional	Origional
				Material Type	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
				Sample Event	2003	2003	2003	2003	2003	2003	2003	2007	2007	2003	2003	2003	2003	2003	2003	2003	2003	2003	2009	2009	2009
	Remedial Objectives	Op. Memo 4		Depth (inches):	0 - 12	12 - 31	12 - 31	0 - 12	12 - 24	12 - 24	0 - 12	0 - 12	0 - 12	12 - 24	0 - 12	12 - 24	0 - 12	0 - 12	12 - 0	12 - 24	0 - 12	12 - 24	0 - 12	0 - 10	0 - 13
Polychlorinated Biphenyls (PCBs):																								
PCB, Total	-	**59.8**	TPCB	ug/kg	NA	NA	NA	**126 J**	7 J	NA	NA	NA	NA	NA	22.4 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1016	-	**59.8**	12674-11-2	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	0.045 U	31.1 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	450 U	390 U	460 U
PCB-1221	-	**59.8**	11104-28-2	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	0.045 U	31.1 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	450 U	390 U	460 U
PCB-1232	-	**59.8**	11141-16-5	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	0.045 U	31.1 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	450 U	390 U	460 U
PCB-1242	-	**59.8**	53469-21-9	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	0.045 U	31.1 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	450 U	390 U	460 U
PCB-1248	-	**59.8**	12672-29-6	ug/kg	NA	NA	NA	**110 J**	7 J	330 U	NA	0.045 U	31.1 U	NA	13 J	330 U	NA	NA	NA	NA	NA	NA	370 U	23 J	27 J
PCB-1254	-	**59.8**	11097-69-1	ug/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	0.045 U	31.1 U	330 U	330 UJ	330 U	330 U	330 U	330 U	330 U	330 U	330 U	450 U	390 U	460 U
PCB-1260	-	**59.8**	11096-82-5	ug/kg	330 U	330 U	330 U	16 J	330 U	330 U	330 U	0.045 U	31.1 U	330 U	9.4 J	330 U	22 J	330 U	330 U	330 U	330 U	330 U	450 U	390 U	460 U
Total Metals:																								
Aluminum, Total	-	-	7429-90-5	mg/kg	NA	NA	NA	5260	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2300	2600	1900
Arsenic, Total	-	**9.79**	7440-38-2	mg/kg	**18***	3.4	4.6	8.7	1.7	2.8	8.4	5.04	6.28	7.2	7.8	**14***	**13***	2.3	1.4	9.6	2.1	1.5	3.2	3.2	4.5
Barium, Total	-	-	7440-39-3	mg/kg	128	18	18	74	10	8.2	48	NA	NA	29	47	62	114	6.1	5.4	73	8.8	6.3	6.0	**11**	33
Cadmium, Total	-	-	7440-43-9	mg/kg	0.42	0.069	0.081	0.72	0.24	0.23	0.23	0.757 U	0.706 U	0.1	0.45	0.53	0.4	0.031 J	0.041 J	0.25	0.039 J	0.042 J	0.10	0.058	0.094
Chromium, Total	**110**	**43.4**	7440-47-3	mg/kg	**102**	13	12	40	7.5	5.3	**74**	11.3	13.5	35	40	10	**109**	4.4	3.7	**23**	3.5	3.9	3.9 B	7.4 B	7.0 B
Copper, Total	**91**	**31.6**	7440-50-8	mg/kg	**82**	11	8	**47**	5.4	4.1	**64**	14.47	12.5	26	**34**	11	73	2.2	2.2	16	2.6	3.7	3.6	5.1	8.7
Lead, Total	**83**	**35.8**	7439-92-1	mg/kg	17	3.2	3.9	12	2.4	2.1	16	4.16	4.18	8.3	9.1	6.2	20	1.7	1.6	9.4	1.5	2.4	3.6	2.8	3.5
Mercury, Total	-	-	7439-97-6	mg/kg	0.12	0.021 J	0.019 J	0.04 J	0.1 U	0.011 J	0.038 J	NA	NA	0.024 J	0.031 J	0.028 J	0.1	0.1 U	0.1 U	0.082 J	0.1 U	0.1 U	0.050 U	0.036 J	0.050 U
Nickel, Total	**49**	**22.7**	7440-02-0	mg/kg	**39**	8.9	8.6	26	7.5	6.9	**34**	8.04	8.62	20	19	12	**29**	5.2	4.5	12	5.4	4.8	9.3	7.4	6.4
Selenium, Total	-	-	7782-49-2	mg/kg	0.65	0.15 J	1.9	0.48	0.43	0.24	0.33	NA	NA	0.18 J	0.43	0.58	0.61	0.11 J	0.091 J	0.51	0.11 J	0.11 J	0.18	0.13	0.19
Silver, Total	-	-	7440-22-4	mg/kg	0.13 J	0.045 J	0.058 J	0.092 J	0.049 J	0.028 J	0.12 J	NA	NA	0.037 J	0.087 J	0.073 J	0.077 J	0.025 J	0.02 J	0.078 J	0.024 J	0.031 J	0.057	0.037 J	0.038 J
Zinc, Total	**460**	**121**	7440-66-6	mg/kg	114	19	18	89	22	12	108	29.7	31.4	51	61	34	**139**	9.2	10	49	11	11	7.6	20	24
Chromium(VI)	-	-	18540-29-9	mg/kg	26	1.8 J	2 U	2.1 U	2 U	2 U	2 U			2 U	12 U	22 U	2 U	2 U	2 U	2 U	0.51 J	2 U	0.28 J	0.20 J	0.61 J
Miscellaneous Parameters:																									
Cyanide, Free	-	**0.1**	57-12-5	mg/kg	NA	NA	NA	0.5 U	0.5 U	0.5 U	NA	NA	NA	NA	0.5 U	0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide, Total	-	**0.1**	57-12-5	mg/kg	**1.5**	0.2 U	0.2 U	0.07 J	0.02 J	0.2 U	**0.32***	NA	NA	**0.16 J***	0.08 J	0.02 J	**0.18 J***	0.2 U	0.2 U	**0.74***	0.2 U	0.2 U	0.14 U	0.12 U	0.14 U
Fractional Organic Carbon	-	-	FOC	%	27	1.8	1.5	NA	NA	NA	2.7	NA	NA	2.7	NA	NA	48	0.4	0.2	10	0.3	0.7	NA	NA	NA
Percent moisture	-	-	MOIST	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Percent Solids	-	-	SOLID	%	NA	NA	NA	67	83	85	NA	NA	NA	NA	67	73	NA	NA	NA	NA	NA	NA	NA	NA	NA
Percent Solids	-	-	Solids	%	44	82	83	NA	NA	NA	79	66	70.9	79	NA	NA	64	89	84	62	85	85	NA	NA	NA
Total Organic Carbon	-	-	TOC	%	NA	NA	NA	3.3	0.5	0.5	NA	11900	1200	NA	3.8	4.4	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
NA - Indicates that the sample was not analyzed for that parameter.
U - Inidcates that the result was not detected above the Method Detection Limit (MDL).
J - Indicates an estimated value with the result detection above the Method Detection Limit (MDL)but below the Reporting Limit (RL).
B - Indicates that that compound was also detected in a Blank and qualified as a likely lab contaminant.
* - Indicates that the exceeded value is below the Site Specific Background Value.
Values that are Bold and Underlined Exceed the Op. Memo 4 criteria.
Values that are Highlighed indicate Remedial Objective Exceedance.

TABLE 2
IN-CHANNEL SEDIMENT ANALYTICAL RESULTS - 2003 to 2009
FORMER STANLEY TOOLS FACILITY (MID 099 124 299)
Fowlerville, MI

	Remedial Objectives	Op. Memo 4			Location	SD-L1 (2003 SD-L3)	SD-L1* (2003 SD-L3)	SD-L1 (2003 SD-L3)	SD-L2	SD-L2	SD-L3 (2003 SD-L1)	SD-L3 (2003 SD-L1)	SD-L3 (2003 SD-L1)	SD-L3 (2003 SD-L1)	SD-L3* (2003 SD-L1)	SD-LD1*	SD-LD2	SD-LD2	SD-LD3	SD-M1	SD-M1	SD-M2	SD-M2	SD-M3	SD-M3	SD-N1
					Field ID:	SDL3012 052003-01	L-09-SD-1A 0911479-04	SDL31224 052003-01	SDL2012 052003-01	L-09-SD-2A 0911425-22	SDL1012 052003-01	SDL1012 052003-02	L-09-SD-3A 0911479-05	SDL11224 052003-01	L-09-SD-3B 0911479-06	LD-09-SD-1A 0911425-18	LD-09-SD-2A 0911425-19	LD-09-SD-2B 0911425-20	LD-09-SD-3A 0911425-21	SDM1012 052003-01	SDM11224 052003-01	SDM2012 052003-01	SDM21224 052003-01	SDM3012 052003-01	SDM31224 052003-01	N-09-SD-1A 0911425-11
					Date Sampled:	5/20/2003	40140	5/20/2003	5/20/2003	40136	5/20/2003	5/20/2003	40140	5/20/2003	40140	40136	40136	40136	40136	5/20/2003	5/20/2003	5/20/2003	5/20/2003	5/20/2003	5/20/2003	40136
					Data Type	Original	Original	Original	Original	Original	Original	Duplicate	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original
					Material Type	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
					Sample Event	2003	2009	2003	2003	2009	2003	2003	2009	2003	2009	2009	2009	2009	2009	2003	2003	2003	2003	2003	2003	2009
					Depth (inches):	0 - 12	0 - 10	12 - 24	0 - 12	0 - 15	0 - 12	0 - 12	0 - 15	12 - 24	15 - 31	0 - 14	0 - 13	13 - 26	0 - 27	0 - 12	12 - 24	0 - 12	12 - 24	0 - 12	12 - 24	0 - 13
Volatile Organic Compounds																										
1,1,1,2-Tetrachloroethane	-	-	630-20-6	ug/kg	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	64 U	61 U	58 U	73 U	60 U	60 U	71 U	60 U	82 U	73 U	64 U
1,1,1-Trichloroethane	-	-	71-55-6	ug/kg	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	64 U	61 U	58 U	73 U	60 U	60 U	71 U	60 U	82 U	73 U	64 U
1,1,2,2-Tetrachloroethane	-	-	79-34-5	ug/kg	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	64 U	61 U	58 U	73 U	60 U	60 U	71 U	60 U	82 U	73 U	64 U
1,1,2-Trichloroethane	-	-	79-00-5	ug/kg	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	64 U	61 U	58 U	73 U	60 U	60 U	71 U	60 U	82 U	73 U	64 U
1,1-Dichloroethane	-	0.575	75-34-3	ug/kg	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	64 U	61 U	58 U	73 U	60 U	60 U	71 U	60 U	82 U	73 U	64 U
1,1-Dichloroethene	-	-	75-35-4	ug/kg	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	64 U	61 U	58 U	73 U	60 U	60 U	71 U	60 U	82 U	73 U	64 U
1,1-Dichloropropylene	-	-	563-58-6	ug/kg	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	64 U	61 U	58 U	73 U	60 U	60 U	71 U	60 U	82 U	73 U	64 U
1,2,3-Trichlorobenzene	-	-	87-61-6	ug/kg	290 U	56 U	300 U	290 U	58 U	410 U	400 U	65 U	340 U	67 U	64 U	61 U	58 U	73 U	300 U	300 U	350 U	300 U	410 U	360 U	64 U
1,2,3-Trichloropropane	-	-	96-18-4	ug/kg	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	64 U	61 U	58 U	73 U	60 U	60 U	71 U	60 U	82 U	73 U	64 U
1,2,4-Trichlorobenzene	-	-	120-82-1	ug/kg	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	64 U	61 U	58 U	73 U	60 U	60 U	71 U	60 U	82 U	73 U	64 U
1,2,4-Trimethylbenzene	-	-	95-63-6	ug/kg	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	64 U	61 U	58 U	73 U	60 U	60 U	71 U	60 U	82 U	73 U	64 U
1,2-Dibromo-3-chloropropane	-	-	96-12-8	ug/kg	57 U	280 U	60 U	58 U	290 U	82 U	81 U	330 U	68 U	330 U	320 U	310 U	290 U	360 U	60 U	60 U	71 U	60 U	82 U	73 U	320 U
1,2-Dichlorobenzene	-	-	95-50-1	ug/kg	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	64 U	61 U	58 U	73 U	60 U	60 U	71 U	60 U	82 U	73 U	64 U
1,2-Dichloroethane	-	-	107-06-2	ug/kg	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	64 U	61 U	58 U	73 U	60 U	60 U	71 U	60 U	82 U	73 U	64 U
1,2-Dichloroethene	-	-	540-59-0	ug/kg	NA	110 U	NA	NA	120 U	NA	NA	130 U	NA	130 U	130 U	120 U	120 U	150 U	NA	NA	NA	NA	NA	NA	130 U
1,2-Dichloropropane	-	-	78-87-5	ug/kg	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	64 U	61 U	58 U	73 U	60 U	60 U	71 U	60 U	82 U	73 U	64 U
1,3,5-Trimethylbenzene	-	-	108-67-8	ug/kg	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	64 U	61 U	58 U	73 U	60 U	60 U	71 U	60 U	82 U	73 U	64 U
1,3-Dichlorobenzene	-	-	541-73-1	ug/kg	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	64 U	61 U	58 U	73 U	60 U	60 U	71 U	60 U	82 U	73 U	64 U
1,3-Dichloropropane	-	-	142-28-9	ug/kg	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	64 U	61 U	58 U	73 U	60 U	60 U	71 U	60 U	82 U	73 U	64 U
1,4-Dichlorobenzene	-	-	106-46-7	ug/kg	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	64 U	61 U	58 U	73 U	60 U	60 U	71 U	60 U	82 U	73 U	64 U
2,2-Dichloropropane	-	-	594-20-7	ug/kg	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	64 U	61 U	58 U	73 U	60 U	60 U	71 U	60 U	82 U	73 U	64 U
2-Chlorotoluene	-	-	95-49-8	ug/kg	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	64 U	61 U	58 U	73 U	60 U	60 U	71 U	60 U	82 U	73 U	64 U
2-Hexanone	-	-	591-78-6	ug/kg	570 U	2800 U	600 U	580 U	2900 U	820 U	810 U	3300 U	680 U	3300 U	3200 U	3100 U	2900 U	3600 U	600 U	600 U	710 U	600 U	820 U	730 U	3200 U
4-Chlorotoluene	-	-	106-43-4	ug/kg	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	64 U	61 U	58 U	73 U	60 U	60 U	71 U	60 U	82 U	73 U	64 U
4-Isopropyltoluene	-	-	99-87-6	ug/kg	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	64 U	61 U	58 U	73 U	60 U	60 U	71 U	60 U	82 U	73 U	64 U
4-Methyl-2-pentanone	-	-	108-10-1	ug/kg	570 U	2800 U	600 U	580 U	2900 U	820 U	810 U	3300 U	680 U	3300 U	3200 U	3100 U	2900 U	3600 U	600 U	600 U	710 U	600 U	820 U	730 U	3200 U
Acetone	-	9.9	67-64-1	ug/kg	570 U	840 U	600 U	580 U	**240 J***	820 U	810 U	**170 J***	680 U	**130 J***	**310 J***	**370 J**	**320 J***	**320 J***	600 U	600 U	710 U	600 U	820 U	730 U	**270 J***
Acrolein	-	-	107-02-8	ug/kg	NA	280 U	NA	NA	290 U	NA	NA	330 U	NA	330 U	320 U	310 U	290 U	360 U	NA	NA	NA	NA	NA	NA	320 U
Benzene	-	-	71-43-2	ug/kg	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	64 U	61 U	58 U	73 U	60 U	60 U	71 U	60 U	82 U	73 U	64 U
Bromobenzene	-	-	108-86-1	ug/kg	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	64 U	61 U	58 U	73 U	60 U	60 U	71 U	60 U	82 U	73 U	64 U
Bromochloromethane	-	-	74-97-5	ug/kg	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	64 U	61 U	58 U	73 U	60 U	60 U	71 U	60 U	82 U	73 U	64 U
Bromoform	-	-	75-25-2	ug/kg	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	64 U	61 U	58 U	73 U	60 U	60 U	71 U	60 U	82 U	73 U	64 U
Bromomethane	-	-	74-83-9	ug/kg	57 U	56 U	60 U	58 U	58 U	130	81 U	65 U	61 J	67 U	64 U	61 U	58 U	73 U	60 U	60 U	71 U	60 U	69 J	73 U	64 U
Carbon disulfide	-	-	75-15-0	ug/kg	570 U	280 U	600 U	580 U	290 U	820 U	810 U	330 U	680 U	330 U	320 U	370	290 U	360 U	600 U	600 U	710 U	600 U	820 U	730 U	320 U
Carbon tetrachloride	-	-	56-23-5	ug/kg	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	64 U	61 U	58 U	73 U	60 U	60 U	71 U	60 U	82 U	73 U	64 U
Chlorobenzene	-	-	108-90-7	ug/kg	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	64 U	61 U	58 U	73 U	60 U	60 U	71 U	60 U	82 U	73 U	64 U
Chloroethane	-	-	75-00-3	ug/kg	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	64 U	61 U	58 U	73 U	60 U	60 U	71 U	60 U	82 U	73 U	64 U
Chloroform	-	-	67-66-3	ug/kg	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	64 U	61 U	58 U	73 U	60 U	60 U	71 U	60 U	82 U	73 U	64 U
Chloromethane	-	-	74-87-3	ug/kg	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	64 U	61 U	58 U	73 U	60 U	60 U	71 U	60 U	82 U	73 U	64 U
cis-1,2-Dichloroethene	-	-	156-59-2	ug/kg	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	64 U	61 U	58 U	73 U	60 U	60 U	71 U	60 U	82 U	73 U	64 U
cis-1,3-Dichloropropene	-	-	10061-01-5	ug/kg	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	64 U	61 U	58 U	73 U	60 U	60 U	71 U	60 U	82 U	73 U	64 U
Dibromochloromethane	-	-	124-48-1	ug/kg	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	64 U	61 U	58 U	73 U	60 U	60 U	71 U	60 U	82 U	73 U	64 U
Dibromomethane	-	-	74-95-3	ug/kg	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	64 U	61 U	58 U	73 U	60 U	60 U	71 U	60 U	82 U	73 U	64 U
Dichlorobromomethane	-	-	75-27-4	ug/kg	57 U	NA	60 U	58 U	NA	82 U	81 U	NA	68 U	NA	NA	NA	NA	NA	60 U	60 U	71 U	60 U	82 U	73 U	NA
Dichlorodifluoromethane	-	-	75-71-8	ug/kg	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	64 U	61 U	58 U	73 U	60 U	60 U	71 U	60 U	82 U	73 U	64 U
Ethylbenzene	-	-	100-41-4	ug/kg	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	64 U	61 U	58 U	73 U	60 U	60 U	71 U	60 U	82 U	73 U	64 U
Ethylene dibromide	-	-	106-93-4	ug/kg	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	64 U	61 U	58 U	73 U	60 U	60 U	71 U	60 U	82 U	73 U	64 U
Hexachlorobutadiene	-	26.5	87-68-3	ug/kg	570 U	56 U	600 U	580 U	58 U	820 U	810 U	65 U	680 U	67 U	64 U	61 U	58 U	73 U	600 U	600 U	710 U	600 U	820 U	730 U	64 U
Isopropylbenzene	-	-	98-82-8	ug/kg	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	64 U	61 U	58 U	73 U	60 U	60 U	71 U	60 U	82 U	73 U	64 U
Methyl ethyl ketone	-	42.4	78-93-3	ug/kg	570 U	**52 J***	600 U	580 U	2900 U	820 U	810 U	**78 J***	680 U	**70 J***	3200 U	3100 U	2900 U	3600 U	600 U	600 U	710 U	600 U	820 U	730 U	3200 U
Methyl tert butyl ether	-	-	1634-04-4	ug/kg	570 U	56 U	600 U	580 U	58 U	820 U	810 U	65 U	680 U	67 U	64 U	61 U	58 U	73 U	600 U	600 U	710 U	600 U	820 U	730 U	64 U
Methylene chloride	-	159	75-09-2	ug/kg	**390**	41 J	**400**	**370**	60 J	82 U	81 U	43 J	68 U	40 J	53 J	81 J	42 J	110 J	**510**	**380**	**530**	**430**	**580**	**470**	28 J
n-Butylbenzene	-	-	104-51-8	ug/kg	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	64 U	61 U	58 U	73 U	60 U	60 U	71 U	60 U	82 U	73 U	64 U
n-Propylbenzene	-	-	103-65-1	ug/kg	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	64 U	61 U	58 U	73 U	60 U	60 U	71 U	60 U	82 U	73 U	64 U
Naphthalene	-	176	91-20-3	ug/kg	140 U	280 U	150 U	140 U	290 U	210 U	200 U	330 U	170 U	330 U	320 U	310 U	3.3 J	24 U	150 U	150 U	180 U	150 U	200 U	180 U	320 U
o-Xylene	-	-	95-47-6	ug/kg	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	64 U	61 U	58 U	73 U	60 U	60 U	71 U	60 U	82 U	73 U	64 U
sec-Butylbenzene	-	-	135-98-8	ug/kg	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	64 U	61 U	58 U	73 U	60 U	60 U	71 U	60 U	82 U	73 U	64 U
Styrene	-	-	100-42-5	ug/kg	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	64 U	61 U	58 U	73 U	60 U	60 U	71 U	60 U	82 U	73 U	64 U
tert-Butylbenzene	-	-	98-06-6	ug/kg	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	64 U	61 U	58 U	73 U	60 U	60 U	71 U	60 U	82 U	73 U	64 U
Tetrachloroethene	-	-	127-18-4	ug/kg	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	64 U	61 U	58 U	73 U	60 U	60 U	71 U	60 U	82 U	73 U	64 U
Toluene	-	-	108-88-3	ug/kg	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	29 J	64 U	61 U	58 U	73 U	60 U	60 U	71 U	60 U	82 U	73 U	64 U
trans-1,2-Dichloroethylene	-	-	156-60-5	ug/kg	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	64 U	61 U	58 U	73 U	60 U	60 U	71 U	60 U	82 U	73 U	64 U
trans-1,3-Dichloropropene	-	-	10061-02-6	ug/kg	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	64 U	61 U	58 U	73 U	60 U	60 U	71 U	60 U	82 U	73 U	64 U
Trichloroethene	-	112	79-01-6	ug/kg	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	64 U	61 U	58 U	73 U	60 U	60 U	71 U	60 U	82 U	73 U	64 U
Trichlorofluoromethane	-	-	75-69-4	ug/kg	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	64 U	61 U	58 U	73 U	60 U	60 U	71 U	60 U	82 U	73 U	64 U
Vinyl chloride	-	-	75-01-4	ug/kg	57 U	56 U	60 U	58 U	58 U	82 U	81 U	65 U	68 U	67 U	64 U	61 U	58 U	73 U	60 U	60 U	71 U	60 U	82 U	73 U	64 U
Xylene, Meta + Para	-	-	Not Applicable	ug/kg	110 U	110 U	120 U	120 U	120 U	160 U	160 U	130 U	140 U	130 U	130 U	120 U	120 U	150 U	120 U	120 U	140 U	120 U	160 U	150 U	130 U

TABLE 2
IN-CHANNEL SEDIMENT ANALYTICAL RESULTS - 2003 to 2009
FORMER STANLEY TOOLS FACILITY (MID 099 124 299)
Fowlerville, MI

	Remedial Objectives	Op. Memo 4			Location	SD-L1 (2003 SD-L3)	SD-L1* (2003 SD-L3)	SD-L1 (2003 SD-L3)	SD-L2	SD-L2	SD-L3 (2003 SD-L1)	SD-L3 (2003 SD-L1)	SD-L3 (2003 SD-L1)	SD-L3 (2003 SD-L1)	SD-L3* (2003 SD-L1)	SD-LD1*	SD-LD2	SD-LD2	SD-LD3	SD-M1	SD-M1	SD-M2	SD-M2	SD-M3	SD-M3	SD-N1
					Field ID:	SDL3012 052003-01	L-09-SD-1A 0911479-04	SDL31224 052003-01	SDL2012 052003-01	L-09-SD-2A 0911425-22	SDL1012 052003-01	SDL1012 052003-02	L-09-SD-3A 0911479-05	SDL11224 052003-01	L-09-SD-3B 0911479-06	LD-09-SD-1A 0911425-18	LD-09-SD-2A 0911425-19	LD-09-SD-2B 0911425-20	LD-09-SD-3A 0911425-21	SDM1012 052003-01	SDM11224 052003-01	SDM2012 052003-01	SDM21224 052003-01	SDM3012 052003-01	SDM31224 052003-01	N-09-SD-1A 0911425-11
					Date Sampled:	5/20/2003	40140	5/20/2003	5/20/2003	40136	5/20/2003	5/20/2003	40140	5/20/2003	40140	40136	40136	40136	40136	5/20/2003	5/20/2003	5/20/2003	5/20/2003	5/20/2003	5/20/2003	40136
					Data Type	Original	Original	Original	Original	Original	Original	Duplicate	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original
					Material Type	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
					Sample Event	2003	2009	2003	2003	2009	2003	2003	2009	2003	2009	2009	2009	2009	2009	2003	2003	2003	2003	2003	2003	2009
					Depth (inches):	0 - 12	0 - 10	12 - 24	0 - 12	0 - 15	0 - 12	0 - 12	0 - 15	12 - 24	15 - 31	0 - 14	0 - 13	13 - 26	0 - 27	0 - 12	12 - 24	0 - 12	12 - 24	0 - 12	12 - 24	0 - 13
Semi-Volatile Organic Compounds																										
1,2,4-Trichlorobenzene	-	-	120-82-1	ug/kg	330 UJ	56 U	330 UJ	330 UJ	58 U	330 UJ	330 UJ	65 U	330 UJ	67 U	64 U	61 U	58 U	73 U	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	64 U
1,2-Benzphenanthracene	-	-	218-01-9	ug/kg	NA	19 U	NA	NA	72	NA	NA	83	NA	41	25	30	100	150	NA	NA	NA	NA	NA	NA	240
1,2-Dichlorobenzene	-	-	95-50-1	ug/kg	330 UJ	56 U	330 UJ	330 UJ	58 U	330 UJ	330 UJ	65 U	330 UJ	67 U	64 U	61 U	58 U	73 U	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	64 U
1,3-Dichlorobenzene	-	-	541-73-1	ug/kg	330 UJ	56 U	330 UJ	330 UJ	58 U	330 UJ	330 UJ	65 U	330 UJ	67 U	64 U	61 U	58 U	73 U	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	64 U
1,4-Dichlorobenzene	-	-	106-46-7	ug/kg	330 UJ	56 U	330 UJ	330 UJ	58 U	330 UJ	330 UJ	65 U	330 UJ	67 U	64 U	61 U	58 U	73 U	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	64 U
2,4,5-Trichlorophenol	-	-	95-95-4	ug/kg	330 UJ	19 U	330 UJ	330 UJ	20 U	330 UJ	330 UJ	23 U	330 UJ	22 U	21 U	22 U	21 U	24 U	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	21 U
2,4,6-Trichlorophenol	-	-	88-06-2	ug/kg	330 UJ	19 U	330 UJ	330 UJ	20 U	330 UJ	330 UJ	23 U	330 UJ	22 U	21 U	22 U	21 U	24 U	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	21 U
2,4-Dichlorophenol	-	-	120-83-2	ug/kg	330 UJ	19 U	330 UJ	330 UJ	20 U	330 UJ	330 UJ	23 U	330 UJ	22 U	21 U	22 U	21 U	24 U	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	21 U
2,4-Dimethylphenol	-	-	105-67-9	ug/kg	330 UJ	380 U	330 UJ	330 UJ	390 U	330 UJ	330 UJ	470 U	330 UJ	440 U	420 U	440 U	420 U	480 U	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	21 U
2,4-Dinitrophenol	-	-	51-28-5	ug/kg	1700 UJ	380 U	1700 UJ	1700 UJ	390 U	1700 UJ	1700 UJ	470 U	1700 UJ	440 U	420 U	440 U	420 U	480 U	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	420 U
2,4-Dinitrotoluene	-	-	121-14-2	ug/kg	330 UJ	38 U	330 UJ	330 UJ	39 U	330 UJ	330 UJ	47 U	330 UJ	44 U	42 U	44 U	42 U	48 U	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	42 U
2,6-Dinitrotoluene	-	-	606-20-2	ug/kg	330 UJ	19 U	330 UJ	330 UJ	20 U	330 UJ	330 UJ	23 U	330 UJ	22 U	21 U	22 U	21 U	24 U	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	21 U
2-Chloronaphthalene	-	-	91-58-7	ug/kg	330 UJ	19 U	330 UJ	330 UJ	20 U	330 UJ	330 UJ	23 U	330 UJ	22 U	21 U	22 U	21 U	24 U	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	21 U
2-Chlorophenol	-	-	95-57-8	ug/kg	330 UJ	19 U	330 UJ	330 UJ	20 U	330 UJ	330 UJ	23 U	330 UJ	22 U	21 U	22 U	21 U	24 U	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	21 U
2-Methylnaphthalene	-	**20.2**	91-57-6	ug/kg	330 UJ	19 U	330 UJ	330 UJ	20 U	330 UJ	330 UJ	23 U	330 UJ	1.8 J	21 U	22 U	1.7 J	24 U	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	21 U
2-Methylphenol	-	-	95-48-7	ug/kg	330 UJ	19 U	330 UJ	330 UJ	20 U	330 UJ	330 UJ	23 U	330 UJ	22 U	21 U	22 U	21 U	24 U	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	1.3 J
2-Nitroaniline	-	-	88-74-4	ug/kg	1700 UJ	19 U	1700 UJ	1700 UJ	20 U	1700 UJ	1700 UJ	23 U	1700 UJ	22 U	21 U	22 U	21 U	24 U	1700 UJ	1700 UJ	1700 UJ	1700 UJ	1700 UJ	1700 UJ	21 U
2-Nitrophenol	-	-	88-75-5	ug/kg	330 UJ	19 U	330 UJ	330 UJ	20 U	330 UJ	330 UJ	23 U	330 UJ	22 U	21 U	22 U	21 U	24 U	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	21 U
3,3-Dichlorobenzidine	-	-	91-94-1	ug/kg	2000 UJ	190 U	2000 UJ	2000 UJ	200 U	2000 UJ	2000 UJ	230 U	2000 UJ	220 U	210 U	220 U	210 U	240 U	2000 UJ	2000 UJ	2000 UJ	2000 UJ	2000 UJ	2000 UJ	210 U
3,4-Methylphenol	-	-	108-39-4	ug/kg	NA	19 U	NA	NA	20 U	NA	NA	23 U	NA	22 U	21 U	22 U	21 U	24 U	NA	NA	NA	NA	NA	NA	21 U
3-Nitroaniline	-	-	99-09-2	ug/kg	1700 UJ	38 U	1700 UJ	1700 UJ	39 U	1700 UJ	1700 UJ	47 U	1700 UJ	44 U	42 U	44 U	42 U	48 U	1700 UJ	1700 UJ	1700 UJ	1700 UJ	1700 UJ	1700 UJ	42 U
4,6-Dinitro-2-methylphenol	-	-	534-52-1	ug/kg	1700 UJ	75 U	1700 UJ	1700 UJ	78 U	1700 UJ	1700 UJ	93 U	1700 UJ	89 U	85 U	88 U	84 U	97 U	1700 UJ	1700 UJ	1700 UJ	1700 UJ	1700 UJ	1700 UJ	85 U
4-Bromophenyl-phenylether	-	-	101-55-3	ug/kg	330 UJ	19 U	330 UJ	330 UJ	20 U	330 UJ	330 UJ	23 U	330 UJ	22 U	21 U	22 U	21 U	24 U	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	21 U
4-Chloroaniline	-	-	106-47-8	ug/kg	1700 UJ	38 U	1700 UJ	1700 UJ	39 U	1700 UJ	1700 UJ	47 U	1700 UJ	44 U	42 U	44 U	42 U	48 U	1700 UJ	1700 UJ	1700 UJ	1700 UJ	1700 UJ	1700 UJ	42 U
4-Chlorophenyl-phenylether	-	-	7005-72-3	ug/kg	330 UJ	19 U	330 UJ	330 UJ	20 U	330 UJ	330 UJ	23 U	330 UJ	22 U	21 U	22 U	21 U	24 U	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	21 U
4-Methylphenol	-	-	106-44-5	ug/kg	330 UJ	19 U	330 UJ	330 UJ	20 U	330 UJ	330 UJ	23 U	330 UJ	22 U	21 U	22 U	21 U	24 U	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	21 U
4-Nitroaniline	-	-	100-01-6	ug/kg	1700 UJ	75 U	1700 UJ	1700 UJ	78 U	1700 UJ	1700 UJ	93 U	1700 UJ	89 U	85 U	88 U	84 U	97 U	1700 UJ	1700 UJ	1700 UJ	1700 UJ	1700 UJ	1700 UJ	85 U
4-Nitrophenol	-	-	100-02-7	ug/kg	1700 UJ	380 U	1700 UJ	1700 UJ	390 U	1700 UJ	1700 UJ	470 U	1700 UJ	440 U	420 U	440 U	420 U	480 U	1700 UJ	1700 UJ	1700 UJ	1700 UJ	1700 UJ	1700 UJ	420 U
Acenaphthene	-	**6.71**	83-32-9	ug/kg	330 UJ	19 U	330 UJ	330 UJ	2.8 J	330 UJ	330 UJ	**8.1 J**	330 UJ	2.2 J	2.5 J	5.3 J	**14 J**	**9.7 J**	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	**20 J**
Acenaphthylene	-	**5.87**	208-96-8	ug/kg	330 UJ	19 U	330 UJ	330 UJ	5.1 J	330 UJ	330 UJ	23 U	330 UJ	22 U	21 U	22 U	**15 J**	**13 J**	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	4.2 J
Anthracene	-	**57.2**	120-12-7	ug/kg	330 UJ	NA	330 UJ	330 UJ	NA	**93 J**	39 J	NA	330 UJ	NA	NA	NA	NA	NA	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	NA
Benz(a)anthracene	-	**108**	56-55-3	ug/kg	330 UJ	3.0 J	330 UJ	330 UJ	91 J	81	**370 J**	**190 J***	87	330 UJ	46	23	28	**250***	**270***	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	**330**
Benzidine	-	-	92-87-5	ug/kg	5000 UJ	750 U	5000 UJ	5000 UJ	780 U	5000 UJ	5000 UJ	930 U	5000 UJ	890 U	850 U	880 U	840 U	970 U	5000 UJ	5000 UJ	5000 UJ	5000 UJ	5000 UJ	5000 UJ	850 U
Benzo(a)pyrene	-	**150**	50-32-8	ug/kg	330 UJ	3.4 J	330 UJ	330 UJ	71	**300 J***	**170 J***	72	330 UJ	45	18 J	19 J	140	140	330 UJ	330 UJ	42 J	330 UJ	55 J	330 UJ	**190***
Benzo(b)fluoranthene	-	-	205-99-2	ug/kg	330 UJ	4.5 J	330 UJ	110 J	89	420 J	240 J	120	330 UJ	71	37	31	210	270	330 UJ	330 UJ	330 UJ	330 UJ	80 J	330 UJ	310
Benzo(g,h,i)perylene	-	**170**	191-24-2	ug/kg	330 UJ	1.5 J	330 UJ	49 J	25 J	**200 J**	74 J	51	330 UJ	26 J	13 J	12 J	63	43 J	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	86
Benzo(k)fluoranthene	-	**240**	207-08-9	ug/kg	330 UJ	19 U	330 UJ	69 J	67	190 J	110 J	41	330 UJ	18 J	14 J	16 J	68	81	330 UJ	330 UJ	36 J	330 UJ	62 J	330 UJ	150
Benzoic acid	-	-	65-85-0	ug/kg	3300 UJ	380 U	3300 UJ	3300 UJ	390 U	3300 UJ	3300 UJ	470 U	3300 UJ	440 U	420 U	440 U	420 U	480 U	3300 UJ	3300 UJ	3300 UJ	3300 UJ	3300 UJ	3300 UJ	420 U
Benzyl alcohol	-	-	100-51-6	ug/kg	1300 UJ	19 U	1300 UJ	1300 UJ	32	1300 UJ	1300 UJ	23 U	1300 UJ	22 U	21 U	66	40	95	1300 UJ	1300 UJ	1300 UJ	1300 UJ	1300 UJ	1300 UJ	21 U
bis(2-Chloroethoxy)methane	-	-	111-91-1	ug/kg	330 UJ	19 U	330 UJ	330 UJ	20 U	330 UJ	330 UJ	23 U	330 UJ	22 U	21 U	22 U	21 U	24 U	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	21 U
bis(2-Chloroethyl)ether	-	-	111-44-4	ug/kg	100 UJ	19 U	100 UJ	100 UJ	20 U	100 UJ	100 UJ	23 U	100 UJ	22 U	21 U	22 U	21 U	24 U	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	21 U
bis(2-Chloroisopropyl)ether	-	-	108-60-1	ug/kg	330 UJ	NA	330 UJ	330 UJ	NA	330 UJ	330 UJ	NA	330 UJ	NA					330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	NA
bis(2-Ethylhexyl)phthalate	-	**182**	117-81-7	ug/kg	330 UJ	52	330 UJ	330 UJ	15 J	330 UJ	82 J	25 J	330 UJ	12 J	13 J	13 J	15 J	34 J	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	**800**
Butyl benzyl phthalate	-	-	85-68-7	ug/kg	330 UJ	22 J	330 UJ	330 UJ	39 U	330 UJ	330 UJ	19 J	330 UJ	44 U	42 U	44 U	42 U	48 U	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	32 J
Carbazole	-	-	86-74-8	ug/kg	330 UJ	380 U	330 UJ	330 UJ	390 U	330 UJ	330 UJ	470 U	330 UJ	440 U	420 U	440 U	420 U	480 U	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	420 U
Chrysene	-	**166**	218-01-9	ug/kg	330 UJ	19 U	330 UJ	110 J	72	350 J	180 J	83	330 UJ	41	25	30	100	150	330 UJ	330 UJ	330 UJ	330 UJ	57 J	330 UJ	**240***
Di-N-Butyl phthalate	-	-	84-74-2	ug/kg	340 J	180 J	18 J	140 J	160 J	160 J	330 UJ	72 J	330 UJ	100 J	49 J	65 J	110 J	150 J	440 J	370 J	380 J	420 J	260 J	310 J	86 J
Di-N-Octyl phthalate	-	-	117-84-0	ug/kg	330 UJ	19 U	330 UJ	330 UJ	20 U	330 UJ	330 UJ	23 U	330 UJ	22 U	21 U	22 U	21 U	24 U	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	21 U
Dibenz(a,h)anthracene	-	**33**	53-70-3	ug/kg	330 UJ	38 U	330 UJ	330 UJ	39 U	330 UJ	330 UJ	47 U	330 UJ	44 U	42 U	44 U	42 U	48 U	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	23 J
Dibenzofuran	-	-	132-64-9	ug/kg	330 UJ	19 U	330 UJ	330 UJ	20 U	330 UJ	330 UJ	23 U	330 UJ	22 U	21 U	22 U	21 U	24 U	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	21 U
Diethylphthalate	-	-	84-66-2	ug/kg	330 UJ	19 U	330 UJ	330 UJ	4.4 J	330 UJ	330 UJ	23 U	330 UJ	22 U	4.6 J	6.2 J	5.4 J	5.4 J	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	21 U
Dimethyl phthalate	-	-	131-11-3	ug/kg	3300 UJ	19 U	3300 UJ	3300 UJ	20 U	3300 UJ	3300 UJ	23 U	3300 UJ	22 U	21 U	22 U	21 U	24 U	3300 UJ	3300 UJ	3300 UJ	3300 UJ	3300 UJ	3300 UJ	21 U
Fluoranthene	-	**423**	206-44-0	ug/kg	330 UJ	6.4 J	330 UJ	250 J	190	**1000 J**	**490 J***	190	330 UJ	79	68	94	**440***	**620***	330 UJ	330 UJ	85 J	330 UJ	130 J	330 UJ	**560***
Fluorene	-	**77.4**	86-73-7	ug/kg	330 UJ	19 U	330 UJ	330 UJ	20 U	57 J	330 UJ	23 U	330 UJ	22 U	21 U	22 U	16 J	14 J	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	23
Hexachlorobenzene	-	-	118-74-1	ug/kg	330 UJ	19 U	330 UJ	330 UJ	20 U	330 UJ	330 UJ	23 U	330 UJ	22 U	21 U	22 U	21 U	24 U	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	21 U
Hexachlorobutadiene	-	-	87-68-3	ug/kg	330 UJ	56 U	330 UJ	330 UJ	58 U	330 UJ	330 UJ	65 U	330 UJ	67 U	64 U	61 U	58 U	73 U	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	64 U
Hexachlorocyclopentadiene	-	-	77-47-4	ug/kg	330 UJ	19 U	330 UJ	330 UJ	20 U	330 UJ	330 UJ	23 U	330 UJ	22 U	21 U	22 U	21 U	24 U	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	21 U
Hexachloroethane	-	-	67-72-1	ug/kg	330 UJ	19 U	330 UJ	330 UJ	20 U	330 UJ	330 UJ	23 U	330 UJ	22 U	21 U	22 U	21 U	24 U	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	21 U
Indeno(1,2,3-cd)pyrene	-	**200**	193-39-5	ug/kg	330 UJ	38 U	330 UJ	41 J	22 J	160 J	75 J	41 J	330 UJ	26 J	10 J	9.8 J	46	63	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	73
Isophorone	-	-	78-59-1	ug/kg	330 UJ	19 U	330 UJ	330 UJ	20 U	330 UJ	330 UJ	23 U	330 UJ	22 U	21 U	22 U	21 U	24 U	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	21 U
N-Nitroso-di-N-propylamine	-	-	621-64-7	ug/kg	330 UJ	19 U	330 UJ	330 UJ	20 U	330 UJ	330 UJ	23 U	330 UJ	22 U	21 U	22 U	21 U	24 U	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	21 U
N-Nitrosodiphenylamine	-	-	86-30-6	ug/kg	330 UJ	19 U	330 UJ	330 UJ	20 U	330 UJ	330 UJ	23 U	330 UJ	22 U	21 U	22 U	21 U	24 U	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	21 U
Naphthalene	-	-	91-20-3	ug/kg	330 UJ	280 U	330 UJ	330 UJ	290 U	330 UJ	330 UJ	330 U	330 UJ	330 U	320 U	310 U	3.3 J	24 U	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	320 U
Nitrobenzene	-	-	98-95-3	ug/kg	200 UJ	19 U	200 UJ	200 UJ	20 U	200 UJ	200 UJ	23 U	200 UJ	22 U	21 U	22 U	21 U	24 U	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ	21 U
p-Chloro-m-cresol	-	-	59-50-7	ug/kg	330 UJ	19 U	330 UJ	330 UJ	20 U	330 UJ	330 UJ	23 U	330 UJ	22 U	21 U	22 U	21 U	24 U	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	21 U
Pentachlorophenol	-	-	87-86-5	ug/kg	800 UJ	190 U	800 UJ	800 UJ	200 U	800 UJ	800 UJ	230 U	800 UJ	220 U	210 U	220 U	210 U	240 U	800 UJ	800 UJ	800 UJ	800 UJ	800 UJ	800 UJ	210 U
Phenanthrene	-	**204**	85-01-8	ug/kg	330 UJ	2.2 J	330 UJ	90 J	76	**580 J**	**240 J***	110	330 UJ	44	22	19 J	180	190	330 UJ	330 UJ	30 J	330 UJ	47 J	330 UJ	**230***
Phenol	-	-	108-95-2	ug/kg	330 UJ	190 U	330 UJ	330 UJ	200 U	330 UJ	330 UJ	230 U	330 UJ	220 U	210 U	220 U	210 U	240 U	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	330 UJ	210 U
PNAs, Total	-	-	TPNA	ug/kg	NA	NA	NA	1010	NA	4450	2168	NA	NA	NA	NA	NA	NA	NA	NA	NA	253	NA	530	NA	NA
Pyrene	-	**195**	129-00-0	ug/kg	330 UJ	4.9 J	330 UJ	**200 J***	160	**730 J**	**360 J***	180	330 UJ	87	46	61	**320***	**420***	330 UJ	330 UJ	60 J	330 UJ	99 J	330 UJ	**640**

TABLE 2
IN-CHANNEL SEDIMENT ANALYTICAL RESULTS - 2003 to 2009
FORMER STANLEY TOOLS FACILITY (MID 099 124 299)
Fowlerville, MI

					Location	SD-L1 (2003 SD-L3)	SD-L1* (2003 SD-L3)	SD-L1 (2003 SD-L3)	SD-L2	SD-L2	SD-L3 (2003 SD-L1)	SD-L3 (2003 SD-L1)	SD-L3 (2003 SD-L1)	SD-L3 (2003 SD-L1)	SD-L3* (2003 SD-L1)	SD-LD1*	SD-LD2	SD-LD2	SD-LD3	SD-M1	SD-M1	SD-M2	SD-M2	SD-M3	SD-M3	SD-N1
					Field ID:	SDL3012 052003-01	L-09-SD-1A 0911479-04	SDL31224 052003-01	SDL2012 052003-01	L-09-SD-2A 0911425-22	SDL1012 052003-01	SDL1012 052003-02	L-09-SD-3A 0911479-05	SDL11224 052003-01	L-09-SD-3B 0911479-06	LD-09-SD-1A 0911425-18	LD-09-SD-2A 0911425-19	LD-09-SD-2B 0911425-20	LD-09-SD-3A 0911425-21	SDM1012 052003-01	SDM11224 052003-01	SDM2012 052003-01	SDM21224 052003-01	SDM3012 052003-01	SDM31224 052003-01	N-09-SD-1A 0911425-11
					Date Sampled:	5/20/2003	40140	5/20/2003	5/20/2003	40136	5/20/2003	5/20/2003	40140	5/20/2003	40140	40136	40136	40136	40136	5/20/2003	5/20/2003	5/20/2003	5/20/2003	5/20/2003	5/20/2003	40136
					Data Type	Original	Original	Original	Original	Original	Original	Duplicate	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original
					Material Type	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
					Sample Event	2003	2009	2003	2003	2009	2003	2003	2009	2003	2009	2009	2009	2009	2009	2003	2003	2003	2003	2003	2003	2009
	Remedial Objectives	Op. Memo 4			Depth (inches):	0 - 12	0 - 10	12 - 24	0 - 12	0 - 15	0 - 12	0 - 12	0 - 15	12 - 24	15 - 31	0 - 14	0 - 13	13 - 26	0 - 27	0 - 12	12 - 24	0 - 12	12 - 24	0 - 12	12 - 24	0 - 13
Polychlorinated Biphenyls (PCBs):																										
PCB, Total	-	**59.8**	TPCB	ug/kg	NA	NA	NA	52 J	NA	38 J	33 J	NA	NA	NA	NA	NA	NA	NA	NA	**66 J**	NA	NA	NA	NA	NA
PCB-1016	-	**59.8**	12674-11-2	ug/kg	330 U	370 U	330 U	330 U	390 U	330 U	330 U	460 U	330 U	440 U	420 U	440 U	420 U	480 U	330 U	330 U	330 U	330 U	330 U	330 U	420 U
PCB-1221	-	**59.8**	11104-28-2	ug/kg	330 U	370 U	330 U	330 U	390 U	330 U	330 U	460 U	330 U	440 U	420 U	440 U	420 U	480 U	330 U	330 U	330 U	330 U	330 U	330 U	420 U
PCB-1232	-	**59.8**	11141-16-5	ug/kg	330 U	370 U	330 U	330 U	390 U	330 U	330 U	460 U	330 U	440 U	420 U	440 U	420 U	480 U	330 U	330 U	330 U	330 U	330 U	330 U	420 U
PCB-1242	-	**59.8**	53469-21-9	ug/kg	330 U	370 U	330 U	330 U	390 U	330 U	330 U	460 U	330 U	440 U	420 U	440 U	420 U	480 U	330 U	330 U	330 U	330 U	330 U	330 U	420 U
PCB-1248	-	**59.8**	12672-29-6	ug/kg	330 U	370 U	330 U	52 J	32 J	38 J	33 J	27 J	330 U	440 U	13 J	32 J	55 J	28 J	330 U	330 U	**66 J**	330 U	330 U	330 U	54 J
PCB-1254	-	**59.8**	11097-69-1	ug/kg	330 U	370 U	330 U	330 U	390 U	330 U	330 U	460 U	330 U	440 U	420 U	440 U	420 U	480 U	330 U	330 U	330 U	330 U	330 U	330 U	420 U
PCB-1260	-	**59.8**	11096-82-5	ug/kg	330 U	370 U	330 U	330 U	390 U	330 U	330 U	460 U	330 U	440 U	420 U	440 U	34 J	480 U	330 U	330 U	330 U	330 U	330 U	330 U	420 U
Total Metals:																										
Aluminum, Total	-	-	7429-90-5	mg/kg	NA	1600	NA	NA	2000	NA	NA	1900	NA	2900	2600	2000	2100	2000	NA	NA	NA	NA	NA	NA	2000
Arsenic, Total	-	**9.79**	7440-38-2	mg/kg	2.3	2.0	0.84	7.4	6.6	6.3	7	4.5	4.2	4.9	7.3	4.0	7.4	5.3	**44**	2.6	7.3	8.1	7.1	**11***	4.0
Barium, Total	-	-	7440-39-3	mg/kg	7.8	6.0	5.3	29	19	50	45	33	13	29	29	28	18	30	31	6.8	30	13	18	17	17
Cadmium, Total	-	-	7440-43-9	mg/kg	0.22	0.037 J	0.18	0.49	0.11	0.43	0.4	0.094	0.21	0.20	0.097	0.088	0.083	0.076	0.5	0.22	0.21	0.27	0.3	0.3	0.10
Chromium, Total	**110**	**43.4**	7440-47-3	mg/kg	4.6	3.9 B	4.3	20	18	13	9.7	13 B	5.1	5.3 B	20	15	32	13	17	4.2	15	13	8.8	5.3	21
Copper, Total	**91**	**31.6**	7440-50-8	mg/kg	3.8	3.6	3.3	13	12	11	8.7	8.7	4.3	5.4	9.5 B	6.0 B	7.0 B	8.0	12	5.4	9.7	8	6.7	4.9	15 B
Lead, Total	**83**	**35.8**	7439-92-1	mg/kg	2.2	1.4	1.5	7.9	4.0	7.6	**97**	3.5	3.7	7.8	4.0	22	**330**	11	5.9	5.6	5	2.7	4.9	2.9	7.8
Mercury, Total	-	-	7439-97-6	mg/kg	0.1 U	0.050 U	0.1 U	0.26	0.045 J	0.1	0.072 J	0.016 J	0.1 U	0.049 J	0.016 J	0.0083 J	0.015 J	0.050 U	0.016 J	0.1 U	0.1 U	0.01 J	0.1 U	0.1 U	0.0084 J
Nickel, Total	**49**	**22.7**	7440-02-0	mg/kg	6.9	4.9	4.6	13	13	6.7	6.9	6.4	5.8	5.2	7.9	7.0	7.0	7.4	14	5.9	8.9	9.7	8.7	6	9.9
Selenium, Total	-	-	7782-49-2	mg/kg	0.073 J	0.099 J	0.052 J	0.26	0.18	0.2 J	0.26 J	0.19	0.073 J	0.28	0.22	0.25	0.14	0.19	0.23 J	0.13 J	0.2 J	0.16 J	0.34	0.15 J	0.11
Silver, Total	-	-	7440-22-4	mg/kg	0.023 J	0.027 J	0.59 U	0.066 J	0.050	0.043 J	0.033 J	0.028 J	0.027 J	0.054	0.035 J	0.032 J	0.036 J	0.039 J	0.06 J	0.021 J	0.66 U	0.02 J	0.029 J	0.039 J	0.028 J
Zinc, Total	**460**	**121**	7440-66-6	mg/kg	13	7.6	9.5	44	35 B	43	34	24	17	27	28	19	29	35 B	37	14	33	22	27	17	39
Chromium(VI)	-	-	18540-29-9	mg/kg	2.1 U	0.28 J	2 U	2 U	2.3 U	2.6 U	3 U	0.61 J	2 U	1.1 J	0.25 J	2.6 U	0.27 J	0.66 J	2.1 U	2 U	2 U	2.4 U	1.3 J	2.1 U	0.35 J
Miscellaneous Parameters:																										
Cyanide, Free	-	**0.1**	57-12-5	mg/kg	0.5 U	NA	0.5 U	0.5 U	**1.8**	0.5 U	0.5 U	NA	0.5 U	NA	NA	NA	NA	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA
Cyanide, Total	-	**0.1**	57-12-5	mg/kg	0.2 U	0.11 U	0.2 U	0.04 J	**1.4**	0.02 U	0.013 J	0.14 U	0.2 U	0.13 U	0.13 U	0.13 U	0.13 U	0.15 U	0.2 U	0.2 U	0.02 J	0.2 U	0.012 J	0.2 U	0.13 U
Fractional Organic Carbon	-	-	FOC	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Percent moisture	-	-	MOIST	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Percent Solids	-	-	SOLID	%	88	NA	86	83	NA	67	64	NA	81	NA	NA	NA	NA	NA	85	88	76	82	68	74	NA
Percent Solids	-	-	Solids	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	-	-	TOC	%	0.3	NA	7.2	1.3	NA	6.2	5.7	NA	1	NA	NA	NA	NA	NA	1	0.3	2.3	1.6	2.9	2.5	NA

Notes:
NA - Indicates that the sample was not analyzed for that parameter.
U - Inidcates that the result was not detected above the Method Detection Limit (MDL).
J - Indicates an estimated value with the result detection above the Method Detection Limit (MDL)but below the Reporting Limit (RL).
B - Indicates that that compound was also detected in a Blank and qualified as a likely lab contaminant.
* - Indicates that the exceeded value is below the Site Specific Background Value.
Values that are Bold and Underlined Exceed the Op. Memo 4 criteria.
Values that are Highlighed indicate Remedial Objective Exceedance.

TABLE 2
IN-CHANNEL SEDIMENT ANALYTICAL RESULTS - 2003 to 2009
FORMER STANLEY TOOLS FACILITY (MID 099 124 299)
Fowlerville, MI

				Location	SD-N1	SD-N2*	SD-N2*	SD-N2*	SD-N3	SD-N3*	SD-O1	SD-O1*	SD-O2	SD-O3*	SD-P1	SD-P1*	SD-P2*	SD-P2*	SD-P3
				Field ID:	N-09-SD-1B 0911425-12	N-09-SD-2A 0911425-14	N-09-SD-2B 0911425-15	DUP-SD-1	N-09-SD-3A 0911425-16	N-09-SD-3B 0911425-17	O-09-SD-1A 0911425-06	O-09-SD-1B 0911425-07	O-09-SD-2A 0911425-08	O-09-SD-3A 0911425-10	P-09-SD-1A 0911425-01	P-09-SD-1B 0911425-02	P-09-SD-2A 0911425-03	P-09-SD-2B 0911425-04	P-09-SD-3A 0911425-05
				Date Sampled:	40136	40136	40136	40136	40136	40136	40136	40136	40136	40136	40135	40135	40135	40135	40136
				Data Type	Original	Original	Original	Duplicate	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original
				Material Type	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
				Sample Event	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009
	Remedial Objectives	Op. Memo 4		Depth (inches):	13 - 26	0 - 12	12 - 24	12 - 24	0 - 15	15 - 30	0 - 12	12 - 24	0 - 15	0 - 14	0 - 24	24 - 48	0 - 18	0 - 36	0 - 10
Volatile Organic Compounds																			
1,1,1,2-Tetrachloroethane	-	-	630-20-6	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	120 U
1,1,1-Trichloroethane	-	-	71-55-6	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	120 U
1,1,2,2-Tetrachloroethane	-	-	79-34-5	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	120 U
1,1,2-Trichloroethane	-	-	79-00-5	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	120 U
1,1-Dichloroethane	-	0.575	75-34-3	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	120 U
1,1-Dichloroethene	-	-	75-35-4	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	120 U
1,1-Dichloropropylene	-	-	563-58-6	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	120 U
1,2,3-Trichlorobenzene	-	-	87-61-6	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	120 U
1,2,3-Trichloropropane	-	-	96-18-4	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	120 U
1,2,4-Trichlorobenzene	-	-	120-82-1	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	39 U
1,2,4-Trimethylbenzene	-	-	95-63-6	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	120 U
1,2-Dibromo-3-chloropropane	-	-	96-12-8	ug/kg	370 U	300 U	360 U	350 U	350 U	330 U	300 U	320 U	330 U	350 U	300 U	320 U	400 U	310 U	580 U
1,2-Dichlorobenzene	-	-	95-50-1	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	39 U
1,2-Dichloroethane	-	-	107-06-2	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	120 U
1,2-Dichloroethene	-	-	540-59-0	ug/kg	150 U	120 U	140 U	140 U	140 U	130 U	120 U	130 U	130 U	140 U	120 U	130 U	160 U	120 U	230 U
1,2-Dichloropropane	-	-	78-87-5	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	120 U
1,3,5-Trimethylbenzene	-	-	108-67-8	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	120 U
1,3-Dichlorobenzene	-	-	541-73-1	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	39 U
1,3-Dichloropropane	-	-	142-28-9	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	120 U
1,4-Dichlorobenzene	-	-	106-46-7	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	39 U
2,2-Dichloropropane	-	-	594-20-7	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	120 U
2-Chlorotoluene	-	-	95-49-8	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	120 U
2-Hexanone	-	-	591-78-6	ug/kg	3700 U	3000 U	3600 U	3500 U	3500 U	3300 U	3000 U	3200 U	3300 U	3500 U	3000 U	3200 U	4000 U	3100 U	5800 U
4-Chlorotoluene	-	-	106-43-4	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	120 U
4-Isopropyltoluene	-	-	99-87-6	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	120 U
4-Methyl-2-pentanone	-	-	108-10-1	ug/kg	3700 U	3000 U	3600 U	3500 U	3500 U	3300 U	3000 U	3200 U	3300 U	3500 U	3000 U	3200 U	4000 U	3100 U	5800 U
Acetone	-	9.9	67-64-1	ug/kg	**310 J***	**240 J***	**340 J***	**320 J***	**290 J***	**300 J***	**240 J***	**330 J***	**310 J***	**230 J***	**320 J***	**300 J***	**340 J***	**290 J***	**550 J***
Acrolein	-	-	107-02-8	ug/kg	370 U	300 U	360 U	350 U	350 U	330 U	300 U	320 U	330 U	350 U	300 U	320 U	400 U	310 U	580 U
Benzene	-	-	71-43-2	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	120 U
Bromobenzene	-	-	108-86-1	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	120 U
Bromochloromethane	-	-	74-97-5	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	120 U
Bromoform	-	-	75-25-2	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	120 U
Bromomethane	-	-	74-83-9	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	120 U
Carbon disulfide	-	-	75-15-0	ug/kg	370 U	300 U	360 U	350 U	350 U	330 U	300 U	320 U	330 U	350 U	300 U	320 U	400 U	310 U	580 U
Carbon tetrachloride	-	-	56-23-5	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	120 U
Chlorobenzene	-	-	108-90-7	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	120 U
Chloroethane	-	-	75-00-3	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	120 U
Chloroform	-	-	67-66-3	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	120 U
Chloromethane	-	-	74-87-3	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	120 U
cis-1,2-Dichloroethene	-	-	156-59-2	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	120 U
cis-1,3-Dichloropropene	-	-	10061-01-5	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	120 U
Dibromochloromethane	-	-	124-48-1	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	120 U
Dibromomethane	-	-	74-95-3	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	120 U
Dichlorobromomethane	-	-	75-27-4	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	-	-	75-71-8	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	120 U
Ethylbenzene	-	-	100-41-4	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	120 U
Ethylene dibromide	-	-	106-93-4	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	120 U
Hexachlorobutadiene	-	26.5	87-68-3	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	39 U
Isopropylbenzene	-	-	98-82-8	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	120 U
Methyl ethyl ketone	-	42.4	78-93-3	ug/kg	3700 U	3000 U	3600 U	3500 U	3500 U	3300 U	3000 U	3200 U	3300 U	3500 U	3000 U	3200 U	4000 U	3100 U	5800 U
Methyl tert butyl ether	-	-	1634-04-4	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	120 U
Methylene chloride	-	159	75-09-2	ug/kg	34 J	34 J	42 J	45 J	54 J	45 J	27 J	26 J	31 J	33 J	31 J	26 J	48 J	30 J	49 J
n-Butylbenzene	-	-	104-51-8	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	120 U
n-Propylbenzene	-	-	103-65-1	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	120 U
Naphthalene	-	176	91-20-3	ug/kg	370 U	20 U	360 U	350 U	**200 J**	330 U	20 U	320 U	330 U	350 U	300 U	320 U	400 U	310 U	580 U
o-Xylene	-	-	95-47-6	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	120 U
sec-Butylbenzene	-	-	135-98-8	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	120 U
Styrene	-	-	100-42-5	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	120 U
tert-Butylbenzene	-	-	98-06-6	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	120 U
Tetrachloroethene	-	-	127-18-4	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	120 U
Toluene	-	-	108-88-3	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	120 U
trans-1,2-Dichloroethylene	-	-	156-60-5	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	120 U
trans-1,3-Dichloropropene	-	-	10061-02-6	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	120 U
Trichloroethene	-	112	79-01-6	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	120 U
Trichlorofluoromethane	-	-	75-69-4	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	120 U
Vinyl chloride	-	-	75-01-4	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	120 U
Xylene, Meta + Para	-	-	Not Applicable	ug/kg	150 U	120 U	140 U	140 U	140 U	130 U	120 U	130 U	130 U	140 U	120 U	130 U	160 U	120 U	230 U

TABLE 2
IN-CHANNEL SEDIMENT ANALYTICAL RESULTS - 2003 to 2009
FORMER STANLEY TOOLS FACILITY (MID 099 124 299)
Fowlerville, MI

			Location		SD-N1	SD-N2*	SD-N2*	SD-N2*	SD-N3	SD-N3*	SD-O1	SD-O1*	SD-O2	SD-O3*	SD-P1	SD-P1*	SD-P2*	SD-P2*	SD-P3
			Field ID:		N-09-SD-1B 0911425-12	N-09-SD-2A 0911425-14	N-09-SD-2B 0911425-15	DUP-SD-1	N-09-SD-3A 0911425-16	N-09-SD-3B 0911425-17	O-09-SD-1A 0911425-06	O-09-SD-1B 0911425-07	O-09-SD-2A 0911425-08	O-09-SD-3A 0911425-10	P-09-SD-1A 0911425-01	P-09-SD-1B 0911425-02	P-09-SD-2A 0911425-03	P-09-SD-2B 0911425-04	P-09-SD-3A 0911425-05
			Date Sampled:		40136	40136	40136	40136	40136	40136	40136	40136	40136	40136	40135	40135	40135	40135	40136
			Data Type		Original	Original	Original	Duplicate	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original
			Material Type		Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
			Sample Event		2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009
	Remedial Objectives	Op. Memo 4	Depth (inches):		13 - 26	0 - 12	12 - 24	12 - 24	0 - 15	15 - 30	0 - 12	12 - 24	0 - 15	0 - 14	0 - 24	24 - 48	0 - 18	0 - 36	0 - 10
Semi-Volatile Organic Compounds																			
1,2,4-Trichlorobenzene	-	-	120-82-1	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	39 U
1,2-Benzphenanthracene	-	-	218-01-9	ug/kg	37	25	19 J	23 U	830	8.3 J	130	19 J	780	120	180	21 U	54	21 U	11 J
1,2-Dichlorobenzene	-	-	95-50-1	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	39 U
1,3-Dichlorobenzene	-	-	541-73-1	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	39 U
1,4-Dichlorobenzene	-	-	106-46-7	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	39 U
2,4,5-Trichlorophenol	-	-	95-95-4	ug/kg	26 U	20 U	24 U	23 U	120 U	22 U	20 U	21 U	240 U	26 U	20 U	21 U	26 U	21 U	39 U
2,4,6-Trichlorophenol	-	-	88-06-2	ug/kg	26 U	20 U	24 U	23 U	120 U	22 U	20 U	21 U	240 U	26 U	20 U	21 U	26 U	21 U	39 U
2,4-Dichlorophenol	-	-	120-83-2	ug/kg	26 U	20 U	24 U	23 U	120 U	22 U	20 U	21 U	240 U	26 U	20 U	21 U	26 U	21 U	39 U
2,4-Dimethylphenol	-	-	105-67-9	ug/kg	520 U	390 U	480 U	470 U	2300 U	440 U	400 U	420 U	4700 U	520 U	400 U	420 U	530 U	410 U	770 U
2,4-Dinitrophenol	-	-	51-28-5	ug/kg	520 U	390 U	480 U	470 U	2300 U	440 U	400 U	420 U	4700 U	520 U	400 U	420 U	530 U	410 U	770 U
2,4-Dinitrotoluene	-	-	121-14-2	ug/kg	52 U	39 U	48 U	47 U	230 U	44 U	40 U	42 U	470 U	52 U	40 U	42 U	53 U	41 U	77 U
2,6-Dinitrotoluene	-	-	606-20-2	ug/kg	26 U	20 U	24 U	23 U	120 U	22 U	20 U	21 U	240 U	26 U	20 U	21 U	26 U	21 U	39 U
2-Chloronaphthalene	-	-	91-58-7	ug/kg	26 U	20 U	24 U	23 U	120 U	22 U	20 U	21 U	240 U	26 U	20 U	21 U	26 U	21 U	39 U
2-Chlorophenol	-	-	95-57-8	ug/kg	26 U	20 U	24 U	23 U	120 U	22 U	20 U	21 U	240 U	26 U	20 U	21 U	26 U	21 U	39 U
2-Methylnaphthalene	-	**20.2**	91-57-6	ug/kg	26 U	1.2 J	24 U	23 U	6.9 J	22 U	20 U	21 U	19 J	3.0 J	2.0 J	21 U	26 U	21 U	39 U
2-Methylphenol	-	-	95-48-7	ug/kg	26 U	20 U	24 U	23 U	120 U	22 U	20 U	21 U	240 U	26 U	20 U	21 U	26 U	21 U	39 U
2-Nitroaniline	-	-	88-74-4	ug/kg	26 U	20 U	24 U	23 U	120 U	22 U	20 U	21 U	240 U	26 U	20 U	21 U	26 U	21 U	39 U
2-Nitrophenol	-	-	88-75-5	ug/kg	26 U	20 U	24 U	23 U	120 U	22 U	20 U	21 U	240 U	26 U	20 U	21 U	26 U	21 U	39 U
3,3-Dichlorobenzidine	-	-	91-94-1	ug/kg	260 U	200 U	240 U	230 U	1200 U	220 U	200 U	210 U	2400 U	260 U	200 U	210 U	260 U	210 U	390 U
3,4-Methylphenol	-	-	108-39-4	ug/kg	26 U	20 U	24 U	23 U	120 U	22 U	20 U	21 U	240 U	26 U	20 U	21 U	26 U	21 U	39 U
3-Nitroaniline	-	-	99-09-2	ug/kg	52 U	39 U	48 U	47 U	230 U	44 U	40 U	42 U	470 U	52 U	40 U	42 U	53 U	41 U	77 U
4,6-Dinitro-2-methylphenol	-	-	534-52-1	ug/kg	100 U	79 U	96 U	93 U	470 U	88 U	80 U	84 U	940 U	100 U	80 U	85 U	110 U	82 U	150 U
4-Bromophenyl-phenylether	-	-	101-55-3	ug/kg	26 U	20 U	24 U	23 U	120 U	22 U	20 U	21 U	240 U	26 U	20 U	21 U	26 U	21 U	39 U
4-Chloroaniline	-	-	106-47-8	ug/kg	52 U	39 U	48 U	47 U	230 U	44 U	40 U	42 U	470 U	52 U	40 U	42 U	53 U	41 U	77 U
4-Chlorophenyl-phenylether	-	-	7005-72-3	ug/kg	26 U	20 U	24 U	23 U	120 U	22 U	20 U	21 U	240 U	26 U	20 U	21 U	26 U	21 U	39 U
4-Methylphenol	-	-	106-44-5	ug/kg	26 U	20 U	24 U	23 U	120 U	22 U	20 U	21 U	240 U	26 U	20 U	21 U	26 U	21 U	39 U
4-Nitroaniline	-	-	100-01-6	ug/kg	100 U	79 U	96 U	93 U	470 U	88 U	80 U	84 U	940 U	100 U	80 U	85 U	110 U	82 U	150 U
4-Nitrophenol	-	-	100-02-7	ug/kg	520 U	390 U	480 U	470 U	2300 U	440 U	400 U	420 U	4700 U	520 U	400 U	420 U [a]	530 U	410 U	770 U
Acenaphthene	-	**6.71**	83-32-9	ug/kg	2.6 J	2.0 J	1.9 J	23 U	**93 J**	22 U	**9.6 J**	1.7 J	**160 J**	2.0 J	**11 J**	21 U	3.7 J	21 U	39 U
Acenaphthylene	-	**5.87**	208-96-8	ug/kg	26 U	20 U	24 U	23 U	**21 J**	22 U	**9.2 J**	21 U	240 U	26 U	**11 J**	21 U	26 U	21 U	39 U
Anthracene	-	**57.2**	120-12-7	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benz(a)anthracene	-	**108**	56-55-3	ug/kg	58	36	38	3.8 J	**1000**	11 J	**190***	22	**770**	**200***	**370**	2.2 J	67	2.5 J	8.5 J
Benzidine	-	-	92-87-5	ug/kg	1000 U	790 U	960 U	930 U	4700 U	880 U	800 U	840 U	9400 U	1000 U	800 U	850 U	1100 U	820 U	1500 U
Benzo(a)pyrene	-	**150**	50-32-8	ug/kg	38	23	20 J	5.2 J	**710**	7.4 J	140	16 J	**630**	110	150	21 U	46	21 U	9.3 J
Benzo(b)fluoranthene	-	-	205-99-2	ug/kg	68	43	45	7.6 J	1300	14 J	210	15 J	860	180	320	21 U	67	21 U	9.3 J
Benzo(g,h,i)perylene	-	**170**	191-24-2	ug/kg	13 J	**21 J**	**15 J**	**47 U**	**410**	3.5 J	59	8.1 J	**370 J**	59	74	42 U	19 J	41 U	3.1 J
Benzo(k)fluoranthene	-	**240**	207-08-9	ug/kg	17 J	12 J	12 J	2.4 J	**480**	4.8 J	94	6.4 J	**360**	94	84	21 U	38	21 U	12 J
Benzoic acid	-	-	65-85-0	ug/kg	520 U	390 U	480 U	470 U	2300 U	440 U	400 U	420 U	4700 U	520 U	400 U	420 U	530 U	410 U	770 U
Benzyl alcohol	-	-	100-51-6	ug/kg	26 U	35	85	57	120 U	67	20 U	21 U	240 U	26 U	59	160	26 U	78	39 U
bis(2-Chloroethoxy)methane	-	-	111-91-1	ug/kg	26 U	20 U	24 U	23 U	120 U	22 U	20 U	21 U	240 U	26 U	20 U	21 U	26 U	21 U	39 U
bis(2-Chloroethyl)ether	-	-	111-44-4	ug/kg	26 U	20 U	24 U	23 U	120 U	22 U	20 U	21 U	240 U	26 U	20 U	21 U	26 U	21 U	39 U
bis(2-Chloroisopropyl)ether	-	-	108-60-1	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	-	**182**	117-81-7	ug/kg	**280**	54	11 J	29 J	69 J	44 U	9.6 J	7.2 J	470 U	100	99	58	56	53	13 J
Butyl benzyl phthalate	-	-	85-68-7	ug/kg	32 J	12 J	11 J	47 U	230 U	44 U	40 U	42 U	470 U	34 J	40 U	42 U	53 U	41 U	14 J
Carbazole	-	-	86-74-8	ug/kg	520 U	390 U	480 U	470 U	2300 U	440 U	400 U	420 U	4700 U	520 U	400 U	420 U	530 U	410 U	770 U
Chrysene	-	**166**	218-01-9	ug/kg	37	25	19 J	23 U	**830**	8.3 J	130	19 J	**780**	120	**180***	21 U	54	21 U	11 J
Di-N-Butyl phthalate	-	-	84-74-2	ug/kg	270	360	360	230 U	340 J	220 U	170 J	210 U	2400 U	180 J	200 U	210 U	260 U	210 U	310 J
Di-N-Octyl phthalate	-	-	117-84-0	ug/kg	26 U	20 U	24 U	23 U	120 U	22 U	20 U	21 U	240 U	26 U	20 U	21 U	26 U	21 U	39 U
Dibenz(a,h)anthracene	-	**33**	53-70-3	ug/kg	52 U	39 U	48 U	47 U	**100 J**	44 U	21 J	42 U	470 U	21 J	21 J	42 U	53 U	41 U	77 U
Dibenzofuran	-	-	132-64-9	ug/kg	26 U	20 U	24 U	23 U	120 U	22 U	20 U	21 U	240 U	26 U	20 U	21 U	26 U	21 U	39 U
Diethylphthalate	-	-	84-66-2	ug/kg	26 U	4.7 J	24 U	5.2 J	120 U	22 U	20 U	21 U	240 U	26 U	20 U	21 U	26 U	21 U	39 U
Dimethyl phthalate	-	-	131-11-3	ug/kg	26 U	20 U	24 U	23 U	120 U	22 U	20 U	21 U	240 U	26 U	20 U	21 U	26 U	21 U	39 U
Fluoranthene	-	**423**	206-44-0	ug/kg	100	67	68	11 J	**2800**	29	340	25	**2500**	260	350	1.3 J	140	2.1 J	17 J
Fluorene	-	**77.4**	86-73-7	ug/kg	26 U	20 U	24 U	23 U	150	22 U	18 J	21 U	190 J	26 U	31	21 U	26 U	21 U	39 U
Hexachlorobenzene	-	-	118-74-1	ug/kg	26 U	20 U	24 U	23 U	120 U	22 U	20 U	21 U	240 U	26 U	20 U	21 U	26 U	21 U	39 U
Hexachlorobutadiene	-	-	87-68-3	ug/kg	73 U	59 U	72 U	70 U	70 U	66 U	60 U	63 U	66 U	71 U	60 U	64 U	79 U	62 U	39 U
Hexachlorocyclopentadiene	-	-	77-47-4	ug/kg	26 U	20 U	24 U	23 U	120 U	22 U	20 U	21 U	240 U	26 U	20 U	21 U	26 U	21 U	39 U
Hexachloroethane	-	-	67-72-1	ug/kg	26 U	20 U	24 U	23 U	120 U	22 U	20 U	21 U	240 U	26 U	20 U	21 U	26 U	21 U	39 U
Indeno(1,2,3-cd)pyrene	-	**200**	193-39-5	ug/kg	7.4 J	25 J	11 J	47 U	**450**	44 U	46	8.9 J	**410 J**	43 J	70	42 U	20 J	41 U	77 U
Isophorone	-	-	78-59-1	ug/kg	26 U	20 U	24 U	23 U	120 U	22 U	20 U	21 U	240 U	26 U	20 U	21 U	26 U	21 U	39 U
N-Nitroso-di-N-propylamine	-	-	621-64-7	ug/kg	26 U	20 U	24 U	23 U	120 U	22 U	20 U	21 U	240 U	26 U	20 U	21 U	26 U	21 U	39 U
N-Nitrosodiphenylamine	-	-	86-30-6	ug/kg	26 U	20 U	24 U	23 U	120 U	22 U	20 U	21 U	240 U	26 U	20 U	21 U	26 U	21 U	39 U
Naphthalene	-	-	91-20-3	ug/kg	370 U	20 U	360 U	350 U	200 J	330 U	20 U	320 U	330 U	350 U	300 U	320 U	400 U	310 U	580 U
Nitrobenzene	-	-	98-95-3	ug/kg	26 U	20 U	24 U	23 U	120 U	22 U	20 U	21 U	240 U	26 U	20 U	21 U	26 U	21 U	39 U
p-Chloro-m-cresol	-	-	59-50-7	ug/kg	26 U	20 U	24 U	23 U	120 U	22 U	20 U	21 U	240 U	26 U	20 U	21 U	26 U	21 U	39 U
Pentachlorophenol	-	-	87-86-5	ug/kg	260 U	200 U	240 U	230 U	1200 U	220 U	200 U	210 U	2400 U	260 U	200 U	210 U	260 U	210 U	390 U
Phenanthrene	-	**204**	85-01-8	ug/kg	32	30	36	3.3 J	**1500**	12 J	180	17 J	**2000**	68	330	21 U	61	21 U	5.4 J
Phenol	-	-	108-95-2	ug/kg	260 U	200 U	240 U	230 U	1200 U	220 U	200 U	210 U	2400 U	260 U	200 U	210 U	260 U	210 U	390 U
PNAs, Total	-	-	TPNA	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	-	**195**	129-00-0	ug/kg	95	58	59	11 J	**2300**	20 J	**350***	42	**2000**	**280***	**600**	1.7 J	120	3.3 J	16 J

TABLE 2
IN-CHANNEL SEDIMENT ANALYTICAL RESULTS - 2003 to 2009
FORMER STANLEY TOOLS FACILITY (MID 099 124 299)
Fowlerville, MI

					Location	SD-N1	SD-N2*	SD-N2*	SD-N2*	SD-N3	SD-N3*	SD-O1	SD-O1*	SD-O2	SD-O3*	SD-P1	SD-P1*	SD-P2*	SD-P2*	SD-P3
					Field ID:	N-09-SD-1B 0911425-12	N-09-SD-2A 0911425-14	N-09-SD-2B 0911425-15	DUP-SD-1	N-09-SD-3A 0911425-16	N-09-SD-3B 0911425-17	O-09-SD-1A 0911425-06	O-09-SD-1B 0911425-07	O-09-SD-2A 0911425-08	O-09-SD-3A 0911425-10	P-09-SD-1A 0911425-01	P-09-SD-1B 0911425-02	P-09-SD-2A 0911425-03	P-09-SD-2B 0911425-04	P-09-SD-3A 0911425-05
					Date Sampled:	40136	40136	40136	40136	40136	40136	40136	40136	40136	40136	40135	40135	40135	40135	40136
					Data Type	Original	Original	Original	Duplicate	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original
					Material Type	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
					Sample Event	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009
	Remedial Objectives	Op. Memo 4			Depth (inches):	13 - 26	0 - 12	12 - 24	12 - 24	0 - 15	15 - 30	0 - 12	12 - 24	0 - 15	0 - 14	0 - 24	24 - 48	0 - 18	0 - 36	0 - 10
Polychlorinated Biphenyls (PCBs):																				
PCB, Total	-	**59.8**	TPCB	ug/kg		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1016	-	**59.8**	12674-11-2	ug/kg		520 U	390 U	470 U	460 U	460 U	430 U	400 U	420 U	470 U	510 U	400 U	420 U	520 U	410 U	760 U
PCB-1221	-	**59.8**	11104-28-2	ug/kg		520 U	390 U	470 U	460 U	460 U	430 U	400 U	420 U	470 U	510 U	400 U	420 U	520 U	410 U	760 U
PCB-1232	-	**59.8**	11141-16-5	ug/kg		520 U	390 U	470 U	460 U	460 U	430 U	400 U	420 U	470 U	510 U	400 U	420 U	520 U	410 U	760 U
PCB-1242	-	**59.8**	53469-21-9	ug/kg		520 U	390 U	470 U	460 U	460 U	430 U	400 U	420 U	470 U	510 U	400 U	420 U	520 U	410 U	760 U
PCB-1248	-	**59.8**	12672-29-6	ug/kg		520 U	8.5 J	470 U	460 U	37 J	430 U	400 U	420 U	12 J	510 U	400 U	420 U	520 U	410 U	760 U
PCB-1254	-	**59.8**	11097-69-1	ug/kg		520 U	390 U	470 U	460 U	460 U	430 U	400 U	420 U	470 U	510 U	400 U	420 U	520 U	410 U	760 U
PCB-1260	-	**59.8**	11096-82-5	ug/kg		520 U	390 U	470 U	460 U	460 U	430 U	400 U	420 U	470 U	510 U	400 U	420 U	520 U	410 U	760 U
Total Metals:																				
Aluminum, Total	-	-	7429-90-5	mg/kg		2100	2100	2100	1600	2200	2000	2100	1900	2500	4400	1600	1800	3200	6300	3400
Arsenic, Total	-	**9.79**	7440-38-2	mg/kg		3.9	5.4	5.3	6.8	6.3	7.4	4.2	3.4	4.6	6.6	3.9	4.4	**11***	**11***	**170**
Barium, Total	-	-	7440-39-3	mg/kg		16	12	18	18	23	13	13	17	27	37	14	17	25	51	38
Cadmium, Total	-	-	7440-43-9	mg/kg		0.090	0.067	0.060	0.059	0.13	0.044 J	0.073	0.063	0.086	0.14	0.053	0.059	0.086	0.16	0.13
Chromium, Total	**110**	**43.4**	7440-47-3	mg/kg		4.9	23	4.9	7.6	15	4.3	8.5	6.2	8.8	14	3.9	3.6	7.0	12	8.0
Copper, Total	**91**	**31.6**	7440-50-8	mg/kg		3.3 B	11 B	3.3 B	7.1	11 B	3.2 B	3.4 B	3.7 B	5.7 B	9.8 B	2.3 B	2.6 B	5.9 B	10 B	5.0 B
Lead, Total	**83**	**35.8**	7439-92-1	mg/kg		3.2	11	2.4	4.2	7.9	1.8	48	4.5	9.7	6.6	7.9	1.8	22	6.3	4.3
Mercury, Total	-	-	7439-97-6	mg/kg		0.047	0.0084 J	0.050 U	0.050 U	0.014 J	0.047 U	0.014 J	0.046 U	0.050 U	0.050 U	0.046 U	0.050 U	0.050 U	0.046 U	0.046 U
Nickel, Total	**49**	**22.7**	7440-02-0	mg/kg		4.9	10	5.6	9.0	8.5	4.8	6.1	5.6	6.0	10	3.9	3.7	6.6	13	7.1
Selenium, Total	-	-	7782-49-2	mg/kg		0.093 U	0.093 J	0.13	0.22	0.058 J	0.086 J	0.11	0.093 J	0.14	0.12	0.070 J	0.10	0.10 U	0.19	0.26
Silver, Total	-	-	7440-22-4	mg/kg		0.022 J	0.021 J	0.020 J	0.046	0.031 J	0.027 J	0.032 J	0.027 J	0.033 J	0.056	0.042 J	0.043 J	0.049 J	0.086	0.060
Zinc, Total	**460**	**121**	7440-66-6	mg/kg		16	25	13	15 B	30	10	15	15	20	27	12	11	18	33	23
Chromium(VI)	-	-	18540-29-9	mg/kg		0.35 J	2.2 U	0.50 J	0.38 J	2.4 U	0.30 J	0.25 J	2.5 U	0.36 J	3.1 U	2.2 U	2.6 U	3.2 U	2.5 U	0.53 J
Miscellaneous Parameters:																				
Cyanide, Free	-	**0.1**	57-12-5	mg/kg		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide, Total	-	**0.1**	57-12-5	mg/kg		0.16 U	0.12 U	0.14 U	0.14 U	0.14 U	0.13 U	0.12 U	0.13 U	0.14 U	0.16 U	0.12 U	0.13 U	0.16 U	0.12 U	0.23 U
Fractional Organic Carbon	-	-	FOC	%		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Percent moisture	-	-	MOIST	%		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Percent Solids	-	-	SOLID	%		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Percent Solids	-	-	Solids	%		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	-	-	TOC	%		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
NA - Indicates that the sample was not analyzed for that parameter.
U - Indicates that the result was not detected above the Method Detection Limit (MDL).
J - Indicates an estimated value with the result detection above the Method Detection Limit (MDL)but below the Reporting Limit (RL).
B - Indicates that that compound was also detected in a Blank and qualified as a likely lab contaminant.
* - Indicates that the exceeded value is below the Site Specific Background Value.
Values that are Bold and Underlined Exceed the Op. Memo 4 criteria.
Values that are Highlighed indicate Remedial Objective Exceedance.

TABLE 3
BANK AND OVERBANK ANALYTICAL RESULTS - 2003 to 2009
FORMER STANLEY TOOLS FACILITY (MID 099 124 299)
Fowlerville, MI

					Location	A West Bank	B West Bank	C West Bank	D West Bank	E West Bank	F West Bank	G West Bank	H West Bank	I West Bank	J West Bank	K West Bank	L West Bank	M West Bank	M West Bank	N West Bank	O West Bank	P West Bank	A West Overban	B West Overban	C West Overban	D West Overban	E West Overban	F West Overban	G West Overban
					Field ID:	A-09-WB	B-09-WB	C-09-WB	D-09-WB	E-09-WB	F-09-WB	G-09-WB	H-09-WB	I-09-WB	J-09-WB	K-09-WB	L-09-WB	M-09-WB	M-09-WB-DUP	N-09-WB	O-09-WB	P-09-WB	A-09-WO	B-09-WO	C-09-WO	D-09-WO	E-09-WO	F-09-WO	G-09-WO
					Date Sampled:	40129	40129	40129	40130	40129	40129	40129	40129	40130	40130	40130	40130	40130	40130	10/16/2003	10/15/2003	10/15/2003	40129	40129	40129	40130	40129	40129	40129
					Data Type	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Duplicate	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original
					Material Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
					Sample Event	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009
	CAS	Part 201 Residential Direct Contact	Site Specific Background	Units																								
Volatile Organic Compounds																												
1,1,1,2-Tetrachloroethane	630-20-6	1E+24	-	ug/kg	120 U	65 U	82 U	71 U	91 U	99 U	130 U	75 U	67 U	54 U	65 U	65 U	100 U	100 U	100 U	120 U	120 U	53 U	70 U	72 U	170 U	72 U	74 U	83 U
1,1,1-Trichloroethane	71-55-6	460000	-	ug/kg	120 U	65 U	82 U	71 U	91 U	99 U	130 U	75 U	67 U	54 U	65 U	65 U	100 U	100 U	100 U	120 U	120 U	53 U	70 U	72 U	170 U	72 U	74 U	83 U
1,1,2,2-Tetrachloroethane	79-34-5	1E+24	-	ug/kg	120 U	65 U	82 U	71 U	91 U	99 U	130 U	75 U	67 U	54 U	65 U	65 U	100 U	100 U	100 U	120 U	120 U	53 U	70 U	72 U	170 U	72 U	74 U	83 U
1,1,2-Trichloroethane	79-00-5	180000	-	ug/kg	120 U	65 U	82 U	71 U	91 U	99 U	130 U	75 U	67 U	54 U	65 U	65 U	100 U	100 U	100 U	120 U	120 U	53 U	70 U	72 U	170 U	72 U	74 U	83 U
1,1-Dichloroethane	75-34-3	890000	5.8	ug/kg	120 U	65 U	82 U	71 U	91 U	99 U	130 U	75 U	67 U	54 U	65 U	65 U	100 U	100 U	100 U	120 U	120 U	53 U	70 U	72 U	170 U	72 U	74 U	83 U
1,1-Dichloroethene	75-35-4	200000	-	ug/kg	120 U	65 U	82 U	71 U	91 U	99 U	130 U	75 U	67 U	54 U	65 U	65 U	100 U	100 U	100 U	120 U	120 U	53 U	70 U	72 U	170 U	72 U	74 U	83 U
1,1-Dichloropropene	563-58-6	1E+24	-	ug/kg	120 U	65 U	82 U	71 U	91 U	99 U	130 U	75 U	67 U	54 U	65 U	65 U	100 U	100 U	100 U	120 U	120 U	53 U	70 U	72 U	170 U	72 U	74 U	83 U
1,2,3-Trichlorobenzene	87-61-6	1E+24	-	ug/kg	120 U	65 U	82 U	71 U	91 U	99 U	130 U	75 U	67 U	54 U	65 U	65 U	100 U	100 U	100 U	120 U	120 U	53 U	70 U	72 U	170 U	72 U	74 U	83 U
1,2,3-Trichloropropane	96-18-4	1E+24	-	ug/kg	120 U	65 U	82 U	71 U	91 U	99 U	130 U	75 U	67 U	54 U	65 U	65 U	100 U	100 U	100 U	120 U	120 U	53 U	70 U	72 U	170 U	72 U	74 U	83 U
1,2,4-Trichlorobenzene	120-82-1	990000	-	ug/kg	41 U	65 U	82 U	71 U	91 U	99 U	44 U	75 U	67 U	54 U	65 U	65 U	100 U	100 U	100 U	120 U	120 U	53 U	70 U	72 U	170 U	72 U	74 U	83 U
1,2,4-Trimethylbenzene	95-63-6	110000	24	ug/kg	120 U	65 U	82 U	71 U	91 U	99 U	130 U	75 U	67 U	54 U	65 U	65 U	100 U	100 U	34 U	39 U	43 U	53 U	70 U	72 U	58 U	72 U	74 U	83 U
1,2-Dibromo-3-chloropropane	96-12-8	1200	-	ug/kg	620 U	330 U	410 U	350 U	450 U	490 U	650 U	370 U	330 U	270 U	320 U	330 U	510 U	510 U	510 U	580 U	600 U	270 U	350 U	360 U	860 U	360 U	370 U	420 U
1,2-Dichlorobenzene	95-50-1	210000	-	ug/kg	41 U	65 U	82 U	71 U	91 U	99 U	44 U	75 U	67 U	54 U	65 U	65 U	34 U	34 U	34 U	39 U	43 U	53 U	70 U	72 U	58 U	72 U	74 U	83 U
1,2-Dichloroethane	107-06-2	91000	-	ug/kg	120 U	65 U	82 U	71 U	91 U	99 U	130 U	75 U	67 U	54 U	65 U	65 U	100 U	100 U	100 U	120 U	120 U	53 U	70 U	72 U	170 U	72 U	74 U	83 U
1,2-Dichloroethene (Total)	540-59-0	1E+24	81	ug/kg	250 U	130 U	160 U	140 U	180 U	200 U	260 U	150 U	130 U	110 U	130 U	130 U	200 U	200 U	200 U	230 U	240 U	110 U	140 U	140 U	340 U	140 U	150 U	170 U
1,2-Dichloropropane	78-87-5	140000	-	ug/kg	120 U	65 U	82 U	71 U	91 U	99 U	130 U	75 U	67 U	54 U	65 U	65 U	100 U	100 U	100 U	120 U	120 U	53 U	70 U	72 U	170 U	72 U	74 U	83 U
1,3,5-Trimethylbenzene	108-67-8	94000	-	ug/kg	120 U	65 U	82 U	71 U	91 U	99 U	130 U	75 U	67 U	54 U	65 U	65 U	100 U	100 U	100 U	120 U	120 U	53 U	70 U	72 U	170 U	72 U	74 U	83 U
1,3-Dichlorobenzene	541-73-1	170000	-	ug/kg	41 U	65 U	82 U	71 U	91 U	99 U	44 U	75 U	67 U	54 U	65 U	65 U	34 U	34 U	34 U	39 U	43 U	53 U	70 U	72 U	58 U	72 U	74 U	83 U
1,3-Dichloropropane	142-28-9	1E+24	-	ug/kg	120 U	65 U	82 U	71 U	91 U	99 U	130 U	75 U	67 U	54 U	65 U	65 U	100 U	100 U	100 U	120 U	120 U	53 U	70 U	72 U	170 U	72 U	74 U	83 U
1,4-Dichlorobenzene	106-46-7	400000	-	ug/kg	41 U	65 U	82 U	71 U	91 U	99 U	44 U	75 U	67 U	54 U	65 U	65 U	34 U	34 U	34 U	39 U	43 U	53 U	70 U	72 U	58 U	72 U	74 U	83 U
2,2-Dichloropropane	594-20-7	1E+24	-	ug/kg	120 U	65 U	82 U	71 U	91 U	99 U	130 U	75 U	67 U	54 U	65 U	65 U	100 U	100 U	100 U	120 U	120 U	53 U	70 U	72 U	170 U	72 U	74 U	83 U
2-Chlorotoluene	95-49-8	500000	-	ug/kg	120 U	65 U	82 U	71 U	91 U	99 U	130 U	75 U	67 U	54 U	65 U	65 U	100 U	100 U	100 U	120 U	120 U	53 U	70 U	72 U	170 U	72 U	74 U	83 U
2-Hexanone	591-78-6	2500000	-	ug/kg	6200 U	3300 U	4100 U	3500 U	4500 U	4900 U	6500 U	3700 U	3300 U	2700 U	3200 U	3300 U	5100 U	5100 U	5100 U	5800 U	6000 U	2700 U	3500 U	3600 U	8600 U	3600 U	3700 U	4200 U
4-Chlorotoluene	106-43-4	500000	-	ug/kg	120 U	65 U	82 U	71 U	91 U	99 U	130 U	75 U	67 U	54 U	65 U	65 U	100 U	100 U	100 U	120 U	120 U	53 U	70 U	72 U	170 U	72 U	74 U	83 U
4-Isopropyltoluene	99-87-6	1E+24	23	ug/kg	120 U	65 U	82 U	71 U	91 U	99 U	130 U	75 U	67 U	54 U	65 U	65 U	100 U	100 U	100 U	120 U	120 U	53 U	70 U	72 U	170 U	72 U	74 U	83 U
4-Methyl-2-pentanone (MIBK)	108-10-1	2700000	-	ug/kg	6200 U	3300 U	4100 U	3500 U	4500 U	4900 U	6500 U	3700 U	3300 U	2700 U	3200 U	3300 U	5100 U	5100 U	5100 U	5800 U	6000 U	2700 U	3500 U	3600 U	8600 U	3600 U	3700 U	4200 U
Acetone	67-64-1	23000000	761	ug/kg	1800 U	980 U	1200 U	130 J	1400 U	220 J	270 J	170 J	150 J	160 J	220 J	190 J	300 J	280 J	210 J	230 J	210 J	800 U	180 J	1100 U	450 J	130 J	1100 U	210 J
Acrolein	107-02-8	3600000	-	ug/kg	620 U	330 U	410 U	350 U	450 U	490 U	650 U	370 U	330 U	270 U	320 U	330 U	510 U	510 U	510 U	580 U	600 U	270 U	350 U	360 U	860 U	360 U	370 U	420 U
Benzene	71-43-2	180000	-	ug/kg	120 U	65 U	82 U	71 U	91 U	99 U	130 U	75 U	67 U	54 U	65 U	65 U	100 U	100 U	100 U	120 U	120 U	53 U	70 U	72 U	170 U	72 U	74 U	83 U
Bromobenzene	108-86-1	540000	-	ug/kg	120 U	65 U	82 U	71 U	91 U	99 U	130 U	75 U	67 U	54 U	65 U	65 U	100 U	100 U	100 U	120 U	120 U	53 U	70 U	72 U	170 U	72 U	74 U	83 U
Bromochloromethane	74-97-5	1E+24	-	ug/kg	120 U	65 U	82 U	71 U	91 U	99 U	130 U	75 U	67 U	54 U	65 U	65 U	100 U	100 U	100 U	120 U	120 U	53 U	70 U	72 U	170 U	72 U	74 U	83 U
Bromoform	75-25-2	820000	-	ug/kg	120 U	65 U	82 U	71 U	91 U	99 U	130 U	75 U	67 U	54 U	65 U	65 U	100 U	100 U	100 U	120 U	120 U	53 U	70 U	72 U	170 U	72 U	74 U	83 U
Bromomethane	74-83-9	320000	-	ug/kg	120 U	65 U	82 U	71 U	91 U	99 U	130 U	75 U	67 U	54 U	65 U	65 U	100 U	100 U	100 U	120 U	120 U	53 U	70 U	72 U	170 U	72 U	74 U	83 U
Carbon Disulfide	75-15-0	280000	-	ug/kg	620 U	330 U	410 U	350 U	450 U	490 U	650 U	370 U	330 U	270 U	320 U	330 U	510 U	510 U	510 U	580 U	600 U	270 U	350 U	360 U	860 U	360 U	370 U	420 U
Carbon Tetrachloride	56-23-5	96000	-	ug/kg	120 U	65 U	82 U	71 U	91 U	99 U	130 U	75 U	67 U	54 U	65 U	65 U	100 U	100 U	100 U	120 U	120 U	53 U	70 U	72 U	170 U	72 U	74 U	83 U
Chlorobenzene	108-90-7	260000	-	ug/kg	120 U	65 U	82 U	71 U	91 U	99 U	130 U	75 U	67 U	54 U	65 U	65 U	100 U	100 U	100 U	120 U	120 U	53 U	70 U	72 U	170 U	72 U	74 U	83 U
Chloroethane	75-00-3	950000	-	ug/kg	120 U	65 U	82 U	71 U	91 U	99 U	130 U	75 U	67 U	54 U	65 U	65 U	100 U	100 U	100 U	120 U	120 U	53 U	70 U	72 U	170 U	72 U	74 U	83 U
Chloroform	67-66-3	1200000	22	ug/kg	120 U	65 U	82 U	71 U	91 U	99 U	130 U	75 U	67 U	54 U	65 U	65 U	100 U	100 U	100 U	120 U	120 U	53 U	70 U	72 U	170 U	72 U	74 U	83 U
Chloromethane	74-87-3	1100000	49.5	ug/kg	120 U	65 U	82 U	71 U	91 U	99 U	130 U	75 U	67 U	54 U	65 U	65 U	100 U	100 U	100 U	120 U	120 U	53 U	70 U	72 U	170 U	72 U	74 U	83 U
cis-1,2-Dichloroethene	156-59-2	640000	-	ug/kg	120 U	65 U	82 U	71 U	91 U	99 U	130 U	75 U	67 U	54 U	65 U	65 U	100 U	100 U	100 U	120 U	120 U	53 U	70 U	72 U	170 U	72 U	74 U	83 U
cis-1,3-Dichloropropene	10061-01-5	1E+24	-	ug/kg	120 U	65 U	82 U	71 U	91 U	99 U	130 U	75 U	67 U	54 U	65 U	65 U	100 U	100 U	100 U	120 U	120 U	53 U	70 U	72 U	170 U	72 U	74 U	83 U
Dibromochloromethane	124-48-1	110000	-	ug/kg	120 U	65 U	82 U	71 U	91 U	99 U	130 U	75 U	67 U	54 U	65 U	65 U	100 U	100 U	100 U	120 U	120 U	53 U	70 U	72 U	170 U	72 U	74 U	83 U
Dibromomethane	74-95-3	2000000	-	ug/kg	120 U	65 U	82 U	71 U	91 U	99 U	130 U	75 U	67 U	54 U	65 U	65 U	100 U	100 U	100 U	120 U	120 U	53 U	70 U	72 U	170 U	72 U	74 U	83 U
Dichlorobromomethane	75-27-4	110000	-	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	75-71-8	1000000	-	ug/kg	120 U	65 U	82 U	71 U	91 U	99 U	130 U	75 U	67 U	54 U	65 U	65 U	100 U	100 U	100 U	120 U	120 U	53 U	70 U	72 U	170 U	72 U	74 U	83 U
Ethylbenzene	100-41-4	140000	-	ug/kg	120 U	65 U	82 U	71 U	91 U	99 U	130 U	75 U	67 U	54 U	65 U	65 U	100 U	100 U	100 U	120 U	120 U	53 U	70 U	72 U	170 U	72 U	74 U	83 U
Ethylene dibromide	106-93-4	92	-	ug/kg	120 U	65 U	82 U	71 U	91 U	99 U	130 U	75 U	67 U	54 U	65 U	65 U	100 U	100 U	100 U	120 U	120 U	53 U	70 U	72 U	170 U	72 U	74 U	83 U
Hexachlorobutadiene	87-68-3	100000	-	ug/kg	120 U	65 U	82 U	71 U	91 U	99 U	130 U	75 U	67 U	54 U	65 U	65 U	100 U	100 U	100 U	120 U	120 U	53 U	70 U	72 U	170 U	72 U	74 U	83 U
Isopropylbenzene	98-82-8	390000	-	ug/kg	120 U	65 U	82 U	71 U	91 U	99 U	44 U	75 U	67 U	54 U	65 U	65 U	34 U	34 U	34 U	39 U	43 U	53 U	70 U	72 U	58 U	72 U	74 U	83 U
2-Butanone (MEK)	78-93-3	27000000	517	ug/kg	96 J	61 J	75 J	88 J	77 J	82 J	120 J	81 J	73 J	69 J	77 J	70 J	100 J	81 J	85 J	120 J	100 J	68 J	70 J	69 J	160 J	73 J	72 J	96 J
Methyl tert-Butyl Ether	1634-04-4	1500000	-	ug/kg	120 U	65 U	82 U	71 U	91 U	99 U	130 U	75 U	67 U	54 U	65 U	65 U	100 U	100 U	100 U	120 U	120 U	53 U	70 U	72 U	170 U	72 U	74 U	83 U
Methylene Chloride	75-09-2	1300000	-	ug/kg	66 J	31 J	38 J	100 J	46 J	45 J	77 J	47 J	42 J	40 J	34 J	44 J	56 J	58 J	77 J	64 J	72 J	31 J	31 J	42 J	130 J	43 J	49 J	
n-Butylbenzene	104-51-8	2500000	27	ug/kg	120 U	65 U	82 U	71 U	91 U	99 U	130 U	75 U	67 U	54 U	65 U	65 U	100 U	100 U	100 U	120 U	120 U	53 U	70 U	72 U	170 U	72 U	74 U	83 U
n-Propylbenzene	103-65-1	2500000	-	ug/kg	120 U	65 U	82 U	71 U	91 U	99 U	130 U	75 U	67 U	54 U	65 U	65 U	100 U	100 U	100 U	120 U	120 U	53 U	70 U	72 U	170 U	72 U	74 U	83 U
Naphthalene	91-20-3	16000000	78.7	ug/kg	620 U	6.1 J	410 U	5.8 J	450 U	490 U	650 U	370 U	330 U	270 U	320 U	330 U	34 U	510 U	510 U	580 U	600 U	5.3 J	4.2 J	360 U	860 U	360 U	370 U	420 U
Xylene, Ortho	95-47-6	1E+24	-	ug/kg	120 U	65 U	82 U	71 U	91 U	99 U	130 U	75 U	67 U	54 U	65 U	65 U	100 U	100 U	100 U	120 U	120 U	61	70 U	72 U	170 U	72 U	74 U	83 U
sec-Butylbenzene	135-98-8	2500000	-	ug/kg	120 U	65 U	82 U	71 U	91 U	99 U	130 U	75 U	67 U	54 U	65 U	65 U	100 U	100 U	100 U	120 U	120 U	53 U	70 U	72 U	170 U	72 U	74 U	83 U
Styrene	100-42-5	400000	13	ug/kg	120 U	65 U	82 U	71 U	91 U	99 U	130 U	75 U	67 U	54 U	65 U	65 U	100 U	100 U	100 U	120 U	120 U	53 U	70 U	72 U	170 U	72 U	74 U	83 U
tert-Butylbenzene	98-06-6	2500000	-	ug/kg	120 U	65 U	82 U	71 U	91 U	99 U	130 U	75 U	67 U	54 U	65 U	65 U	100 U	100 U	100 U	120 U	120 U	53 U	70 U	72 U	170 U	72 U	74 U	83 U
Tetrachloroethene	127-18-4	88000	-	ug/kg	120 U	65 U	82 U	71 U	91 U	99 U	130 U	75 U	67 U	54 U	65 U	65 U	100 U	100 U	100 U	120 U	120 U	53 U	70 U	72 U	170 U	72 U	74 U	83 U
Toluene	108-88-3	250000	3.2	ug/kg	120 U	65 U	82 U	71 U	91 U	99 U	130 U	75 U	67 U	54 U	65 U	65 U	100 U	100 U	100 U	120 U	120 U	50 J	70 U	72 U	170 U	72 U	74 U	83 U
trans-1,2-Dichloroethene	156-60-5	1400000	-	ug/kg	120 U	65 U	82 U	71 U	91 U	99 U	130 U	75 U	67 U	54 U	65 U	65 U	100 U	100 U	100 U	120 U	120 U	53 U	70 U	72 U	170 U	72 U	74 U	83 U
trans-1,3-Dichloropropene	10061-02-6	10000	-	ug/kg	120 U	65 U	82 U	71 U	91 U	99 U	130 U	75 U	67 U	54 U	65 U	65 U	100 U	100 U	100 U	120 U	120 U	53 U	70 U	72 U	170 U	72 U	74 U	83 U
Trichloroethene	79-01-6	500000	11	ug/kg	120 U	65 U	82 U	71 U	91 U	99 U	130 U	75 U	67 U	54 U	65 U	65 U	100 U	100 U	100 U	120 U	120 U	28 J	70 U	72 U	170 U	72 U	74 U	83 U
Trichlorofluoromethane	75-69-4	560000	-	ug/kg	120 U	65 U	82 U	71 U	91 U	99 U	130 U	75 U	67 U	54 U	65 U	65 U	100 U	100 U	100 U	120 U	120 U	53 U	70 U	72 U	170 U	72 U	74 U	83 U
Vinyl Chloride	75-01-4	3800	-	ug/kg	120 U	65 U	82 U	71 U	91 U	99 U	130 U	75 U	67 U	54 U	65 U	65 U	100 U	100 U	100 U	120 U	120 U	53 U	70 U	72 U	170 U	72 U	74 U	83 U
Xylene, Meta + Para	Not Applicable	1E+24	-	ug/kg	250 U	130 U	160 U	140 U	180 U	200 U	260 U	150 U	130 U	110 U	130 U	130 U	200 U	200 U	200 U	230 U	240 U	34 J	140 U	140 U	340 U	140 U	150 U	170 U

TABLE 3
BANK AND OVERBANK ANALYTICAL RESULTS - 2003 to 2009
FORMER STANLEY TOOLS FACILITY (MID 099 124 299)
Fowlerville, MI

					Location	A West Bank	B West Bank	C West Bank	D West Bank	E West Bank	F West Bank	G West Bank	H West Bank	I West Bank	J West Bank	K West Bank	L West Bank	M West Bank	M West Bank	N West Bank	O West Bank	P West Bank	A West Overban	B West Overban	C West Overban	D West Overban	E West Overban	F West Overban	G West Overban
					Field ID:	A-09-WB	B-09-WB	C-09-WB	D-09-WB	E-09-WB	F-09-WB	G-09-WB	H-09-WB	I-09-WB	J-09-WB	K-09-WB	L-09-WB	M-09-WB	M-09-WB-DUP	N-09-WB	O-09-WB	P-09-WB	A-09-WO	B-09-WO	C-09-WO	D-09-WO	E-09-WO	F-09-WO	G-09-WO
					Date Sampled:	40129	40129	40129	40130	40129	40129	40129	40129	40130	40130	40130	40130	40130	40130	10/16/2003	10/15/2003	10/15/2003	40129	40129	40129	40130	40129	40129	40129
					Data Type	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Duplicate	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original
					Material Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
					Sample Event	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009
	CAS	Part 201 Residential Direct Contact	Site Specific Background	Units																								
Semi-Volatile Organic Compounds																												
1,2,4-Trichlorobenzene	120-82-1	990000	-	ug/kg	41 U	65 U	82 U	71 U	91 U	99 U	44 U	75 U	67 U	54 U	65 U	65 U	34 U	34 U	34 U	39 U	43 U	53 U	70 U	72 U	58 U	72 U	74 U	83 U
1,2-Benzphenanthracene	218-01-9	2000000	-	ug/kg	63	54	210	240	270	140	300	170	24	5.5 J	14 J	50	86	95	110	150	120	65	150	320	350	82	58	17 J
1,2-Dichlorobenzene	95-50-1	210000	-	ug/kg	41 U	65 U	82 U	71 U	91 U	99 U	44 U	75 U	67 U	54 U	65 U	65 U	34 U	34 U	34 U	39 U	43 U	53 U	70 U	72 U	58 U	72 U	74 U	83 U
1,3-Dichlorobenzene	541-73-1	170000	-	ug/kg	41 U	65 U	82 U	71 U	91 U	99 U	44 U	75 U	67 U	54 U	65 U	65 U	34 U	34 U	34 U	39 U	43 U	53 U	70 U	72 U	58 U	72 U	74 U	83 U
1,4-Dichlorobenzene	106-46-7	400000	-	ug/kg	41 U	65 U	82 U	71 U	91 U	99 U	44 U	75 U	67 U	54 U	65 U	65 U	34 U	34 U	34 U	39 U	43 U	53 U	70 U	72 U	58 U	72 U	74 U	83 U
2,4,5-Trichlorophenol	95-95-4	23000000	-	ug/kg	41 U	22 U	30 U	24 U	30 U	33 U	44 U	25 U	22 U	18 U	22 U	22 U	34 U	34 U	34 U	39 U	43 U	19 U	24 U	24 U	58 U	26 U	27 U	28 U
2,4,6-Trichlorophenol	88-06-2	710000	-	ug/kg	41 U	22 U	30 U	24 U	30 U	33 U	44 U	25 U	22 U	18 U	22 U	22 U	34 U	34 U	34 U	39 U	43 U	19 U	24 U	24 U	58 U	26 U	27 U	28 U
2,4-Dichlorophenol	120-83-2	660000	-	ug/kg	41 U	22 U	30 U	24 U	30 U	33 U	44 U	25 U	22 U	18 U	22 U	22 U	34 U	34 U	34 U	39 U	43 U	19 U	24 U	24 U	58 U	26 U	27 U	28 U
2,4-Dimethylphenol	105-67-9	11000000	-	ug/kg	820 U	430 U	590 U	470 U	600 U	660 U	870 U	500 U	440 U	360 U	430 U	430 U	680 U	680 U	680 U	770 U	860 U	390 U	470 U	480 U	1100 U	520 U	540 U	550 U
2,4-Dinitrophenol	51-28-5	1E+24	-	ug/kg	820 U	430 U	590 U	470 U	600 U	660 U	870 U	500 U	440 U	360 U	430 U	430 U	680 U	680 U	680 U	770 U	860 U	390 U	470 U	480 U	1100 U	520 U	540 U	550 U
2,4-Dinitrotoluene	121-14-2	48000	-	ug/kg	82 U	43 U	59 U	47 U	60 U	66 U	87 U	50 U	44 U	36 U	43 U	43 U	68 U	68 U	68 U	77 U	86 U	39 U	47 U	48 U	110 U	52 U	54 U	55 U
2,6-Dinitrotoluene	606-20-2	1E+24	-	ug/kg	41 U	22 U	30 U	24 U	30 U	33 U	44 U	25 U	22 U	18 U	22 U	22 U	34 U	34 U	34 U	39 U	43 U	19 U	24 U	24 U	58 U	26 U	27 U	28 U
2-Chloronaphthalene	91-58-7	56000000	-	ug/kg	41 U	22 U	30 U	24 U	30 U	33 U	44 U	25 U	22 U	18 U	22 U	22 U	34 U	34 U	34 U	39 U	43 U	19 U	24 U	24 U	58 U	26 U	27 U	28 U
2-Chlorophenol	95-57-8	1400000	-	ug/kg	41 U	22 U	30 U	24 U	30 U	33 U	44 U	25 U	22 U	18 U	22 U	22 U	34 U	34 U	34 U	39 U	43 U	19 U	24 U	24 U	58 U	26 U	27 U	28 U
2-Methylnaphthalene	91-57-6	8100000	-	ug/kg	41 U	2.6 J	30 U	3.8 J	2.4 J	33 U	44 U	25 U	22 U	18 U	22 U	22 U	34 U	34 U	34 U	39 U	43 U	7.2 J	4.2 J	12 J	58 U	26 U	27 U	28 U
2-Methylphenol	95-48-7	11000000	-	ug/kg	41 U	22 U	30 U	24 U	30 U	33 U	44 U	25 U	22 U	18 U	22 U	22 U	34 U	34 U	34 U	39 U	43 U	19 U	24 U	24 U	58 U	26 U	27 U	28 U
2-Nitroaniline	88-74-4	1E+24	-	ug/kg	41 U	22 U	30 U	24 U	30 U	33 U	44 U	25 U	22 U	18 U	22 U	22 U	34 U	34 U	34 U	39 U	43 U	19 U	24 U	24 U	58 U	26 U	27 U	28 U
2-Nitrophenol	88-75-5	630000	-	ug/kg	41 U	22 U	30 U	24 U	30 U	33 U	44 U	25 U	22 U	18 U	22 U	22 U	34 U	34 U	34 U	39 U	43 U	19 U	24 U	24 U	58 U	26 U	27 U	28 U
3,3'-Dichlorobenzidine	91-94-1	6600	-	ug/kg	410 U	220 U	300 U	240 U	300 U	330 U	440 U	250 U	220 U	180 U	220 U	220 U	340 U	340 U	340 U	390 U	430 U	190 U	240 U	240 U	580 U	260 U	270 U	280 U
3+4-Methylphenol	108-39-4	11000000	-	ug/kg	41 U	22 U	30 U	24 U	30 U	33 U	44 U	25 U	22 U	18 U	22 U	22 U	34 U	34 U	34 U	39 U	43 U	19 U	24 U	24 U	58 U	26 U	27 U	28 U
3-Nitroaniline	99-09-2	1E+24	-	ug/kg	82 U	43 U	59 U	47 U	60 U	66 U	87 U	50 U	44 U	36 U	43 U	43 U	68 U	68 U	68 U	77 U	86 U	39 U	47 U	48 U	110 U	52 U	54 U	55 U
4,6-Dinitro-2-methylphenol	534-52-1	79000	-	ug/kg	160 U	87 U	120 U	94 U	120 U	130 U	170 U	100 U	89 U	72 U	87 U	87 U	140 U	140 U	140 U	160 U	170 U	78 U	94 U	96 U	230 U	100 U	110 U	110 U
4-Bromophenyl Phenyl Ether	101-55-3	1E+24	-	ug/kg	41 U	22 U	30 U	24 U	30 U	33 U	44 U	25 U	22 U	18 U	22 U	22 U	34 U	34 U	34 U	39 U	43 U	19 U	24 U	24 U	58 U	26 U	27 U	28 U
4-Chloroaniline	106-47-8	1E+24	-	ug/kg	82 U	43 U	59 U	47 U	60 U	66 U	87 U	50 U	44 U	36 U	43 U	43 U	68 U	68 U	68 U	77 U	86 U	39 U	47 U	48 U	110 U	52 U	54 U	55 U
4-Chlorophenyl Phenyl Ether	7005-72-3	1E+24	-	ug/kg	41 U	22 U	30 U	24 U	30 U	33 U	44 U	25 U	22 U	18 U	22 U	22 U	34 U	34 U	34 U	39 U	43 U	19 U	24 U	24 U	58 U	26 U	27 U	28 U
4-Methylphenol	106-44-5	11000000	-	ug/kg	41 U	22 U	30 U	24 U	30 U	33 U	44 U	25 U	22 U	18 U	22 U	22 U	34 U	34 U	34 U	39 U	43 U	19 U	24 U	24 U	58 U	26 U	27 U	28 U
4-Nitroaniline	100-01-6	1E+24	-	ug/kg	160 U	87 U	120 U	94 U	120 U	130 U	170 U	100 U	89 U	72 U	87 U	87 U	140 U	140 U	140 U	160 U	170 U	78 U	94 U	96 U	230 U	100 U	110 U	110 U
4-Nitrophenol	100-02-7	1E+24	-	ug/kg	820 U	430 U	590 U	470 U	600 U	660 U	870 U	500 U	440 U	360 U	430 U	430 U	680 U	680 U	680 U	770 U	860 U	390 U	470 U	480 U	1100 U	520 U	540 U	550 U
Acenaphthene	83-32-9	41000000	-	ug/kg	3.3 J	5.3 J	18 J	33	37	12 J	22 J	13 J	22 U	18 U	22 U	2.8 J	3.4 J	2.8 J	6.9 J	10 J	4.3 J	19 U	4.7 J	12 J	28 J	2.6 J	3.3 J	28 U
Acenaphthylene	208-96-8	1600000	-	ug/kg	4.9 J	22 U	7.1 J	4.3 J	13 J	3.9 J	14 J	7.9 J	22 U	18 U	22 U	5.2 J	34 U	4.8 J	6.9 J	10 J	4.3 J	16 J	19 J	49	10 J	5.8 J	3.8 J	28 U
Anthracene	120-12-7	230000000	-	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	56-55-3	20000	303	ug/kg	110	64	350	510	520	210	360	230	13 J	3.3 J	13 J	58	58	87	90	150	85	240	280	510	500	120	77	23 J
Benzidine	92-87-5	1000	-	ug/kg	1600 U	870 U	1200 U	940 U	1200 U	1300 U	1700 U	1000 U	890 U	720 U	870 U	870 U	1400 U	1400 U	1400 U	1600 U	1700 U	780 U	940 U	960 U	2300 U	1000 U	1100 U	1100 U
Benzo(a)pyrene	50-32-8	2000	332	ug/kg	63	45	190	180	240	120	260	110	21 J	18 U	13 J	49	82	63	92	140	110	74	110	280	260	60	54	21 J
Benzo(b)fluoranthene	205-99-2	20000	307	ug/kg	160	110	550	420	600	270	410	240	22	18 U	13 J	76	100	98	110	220	170	210	340	820	620	150	93	25 J
Benzo(g,h,i)perylene	191-24-2	2500000	160	ug/kg	77 J	34 J	200	150	120	110	150	73	44 U	36 U	11 J	40 J	64 J	61 J	61 J	71 J	81 J	40	59	220	190	56	41 J	2.2 J
Benzo(k)fluoranthene	207-08-9	200000	270	ug/kg	89	39	170	110	220	110	180	89	17 J	18 U	6.0 J	43	57	50	92	89	82	84	94	200	200	64	52	12 J
Benzoic Acid	65-85-0	990000000	320	ug/kg	820 U	430 U	590 U	470 U	600 U	660 U	870 U	500 U	440 U	360 U	430 U	430 U	680 U	680 U	680 U	770 U	860 U	390 U	470 U	480 U	1100 U	520 U	540 U	550 U
Benzyl Alcohol	100-51-6	5800000	-	ug/kg	41 U	22 U	30 U	24 U	30 U	33 U	44 U	25 U	22 U	18 U	180	230	340	190	250	260	240	19 U	24 U	24 U	58 U	26 U	27 U	28 U
Bis(2-chloroethoxy)methane	111-91-1	1E+24	-	ug/kg	41 U	22 U	30 U	24 U	30 U	33 U	44 U	25 U	22 U	18 U	22 U	22 U	34 U	34 U	34 U	39 U	43 U	19 U	24 U	24 U	58 U	26 U	27 U	28 U
Bis(2-chloroethyl) Ether	111-44-4	13000	-	ug/kg	41 U	22 U	30 U	24 U	30 U	33 U	44 U	25 U	22 U	18 U	22 U	22 U	34 U	34 U	34 U	39 U	43 U	19 U	24 U	24 U	58 U	26 U	27 U	28 U
bis(2-Chloroisopropyl)ether	108-60-1	1E+24	-	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl) Phthalate	117-81-7	2800000	110	ug/kg	53 J	21 J	69	36 J	45 J	32 J	36 J	56	21 J	23 J	280 B	45 B	55 JB	73 B	64 JB	67 JB	65 JB	25 J	30 J	18 J	240	67	28 J	39 J
Butyl Benzyl Phthalate	85-68-7	310000	-	ug/kg	26 J	43 U	59 U	47 U	60 U	66 U	87 U	50 U	6.7 J	36 U	16 J	16 J	28 J	68 U	68 U	19 J	23 J	39 U	47 U	48 U	110 U	13 J	54 U	10 J
Carbazole	86-74-8	530000	-	ug/kg	820 U	430 U	590 U	470 U	600 U	660 U	870 U	500 U	440 U	360 U	430 U	430 U	680 U	680 U	680 U	770 U	860 U	390 U	470 U	480 U	1100 U	520 U	540 U	550 U
Chrysene	218-01-9	2000000	350	ug/kg	63	54	210	240	270	140	300	170	24	5.5 J	14 J	50	86	95	110	150	120	65	150	320	350	82	58	17 J
Di-n-butyl Phthalate	84-74-2	760000	220	ug/kg	410 U	220 U	300 U	240 U	300 U	330 U	440 U	250 U	220 U	180 U	40 J	56 J	95 J	71 J	340 U	94 J	430 U	190 U	40 J	240 U	580 U	260 U	270 U	280 U
Di-n-octyl Phthalate	117-84-0	6900000	-	ug/kg	41 U	22 U	27 J	24 U	30 U	33 U	44 U	25 U	22 U	18 U	22 U	22 U	34 U	34 U	34 U	39 U	43 U	19 U	24 U	24 U	58 U	26 U	27 U	28 U
Dibenz(a,h)anthracene	53-70-3	2000	-	ug/kg	26 J	20 J	37 J	40 J	50 J	21 J	70 J	50 U	44 U	36 U	43 U	43 U	23 J	68 U	30 J	55 J	86 U	23 J	33 J	100	96 J	39 J	54 U	55 U
Dibenzofuran	132-64-9	1E+24	-	ug/kg	41 U	22 U	30 U	15 J	30 U	33 U	44 U	25 U	22 U	18 U	22 U	22 U	34 U	34 U	34 U	39 U	43 U	19 U	24 U	24 U	58 U	26 U	27 U	28 U
Diethyl Phthalate	84-66-2	740000	-	ug/kg	41 U	22 U	30 U	24 U	30 U	33 U	44 U	25 U	22 U	18 U	22 U	22 U	34 U	34 U	34 U	39 U	43 U	19 U	24 U	24 U	58 U	26 U	27 U	28 U
Dimethyl Phthalate	131-11-3	790000	-	ug/kg	41 U	22 U	30 U	24 U	30 U	33 U	44 U	25 U	22 U	18 U	22 U	22 U	34 U	34 U	34 U	39 U	43 U	19 U	2.3 J	24 U	58 U	26 U	27 U	28 U
Fluoranthene	206-44-0	46000000	631	ug/kg	170	120	1200	720	740	320	670	430	38	5.1 J	19 J	86	100	130	170	300	190	250	350	1100	750	170	110	34
Fluorene	86-73-7	27000000	-	ug/kg	41 U	22 U	25 J	37	38	33 U	23 J	13 J	22 U	18 U	22 U	22 U	34 U	34 U	34 U	39 U	43 U	19 U	24 U	31	35 J	26 U	27 U	28 U
Hexachlorobenzene	118-74-1	8900	-	ug/kg	41 U	22 U	30 U	24 U	30 U	33 U	44 U	25 U	22 U	18 U	22 U	22 U	34 U	34 U	34 U	39 U	43 U	19 U	24 U	24 U	58 U	26 U	27 U	28 U
Hexachlorobutadiene	87-68-3	100000	-	ug/kg	41 U	65 U	82 U	71 U	91 U	99 U	44 U	75 U	67 U	54 U	65 U	65 U	34 U	34 U	34 U	39 U	43 U	53 U	70 U	72 U	58 U	72 U	74 U	83 U
Hexachlorocyclopentadiene	77-47-4	720000	-	ug/kg	41 U	22 U	30 U	24 U	30 U	33 U	44 U	25 U	22 U	18 U	22 U	22 U	34 U	34 U	34 U	39 U	43 U	19 U	24 U	24 U	58 U	26 U	27 U	28 U
Hexachloroethane	67-72-1	230000	-	ug/kg	41 U	22 U	30 U	24 U	30 U	33 U	44 U	25 U	22 U	18 U	22 U	22 U	34 U	34 U	34 U	39 U	43 U	19 U	24 U	24 U	58 U	26 U	27 U	28 U
Indeno(1,2,3-cd)pyrene	193-39-5	20000	160	ug/kg	53 J	58	160	110	190	87	140	70	44 U	36 U	6.0 J	32 J	63 J	49 J	51 J	81	68 J	69	86	220	210	41 J	26 J	11 J
Isophorone	78-59-1	2400000	-	ug/kg	41 U	22 U	30 U	24 U	30 U	33 U	44 U	25 U	22 U	18 U	22 U	22 U	34 U	34 U	34 U	39 U	43 U	19 U	24 U	24 U	58 U	26 U	27 U	28 U
N-Nitroso-di-n-propylamine	621-64-7	1200	-	ug/kg	41 U	22 U	30 U	24 U	30 U	33 U	44 U	25 U	22 U	18 U	22 U	22 U	34 U	34 U	34 U	39 U	43 U	19 U	24 U	24 U	58 U	26 U	27 U	28 U
N-Nitroso-diphenylamine	86-30-6	1700000	-	ug/kg	41 U	22 U	30 U	24 U	30 U	33 U	44 U	25 U	22 U	18 U	22 U	22 U	34 U	34 U	34 U	39 U	43 U	19 U	24 U	24 U	58 U	26 U	27 U	28 U
Naphthalene	91-20-3	16000000	-	ug/kg	620 U	6.1 J	410 U	5.8 J	450 U	490 U	650 U	370 U	330 U	270 U	320 U	330 U	34 U	510 U	510 U	580 U	600 U	5.3 J	4.2 J	360 U	860 U	360 U	370 U	420 U
Nitrobenzene	98-95-3	100000	-	ug/kg	41 U	22 U	30 U	24 U	30 U	33 U	44 U	25 U	22 U	18 U	22 U	22 U	34 U	34 U	34 U	39 U	43 U	19 U	24 U	24 U	58 U	26 U	27 U	28 U
p-Chloro-m-cresol	59-50-7	4500000	-	ug/kg	41 U	22 U	30 U	24 U	30 U	33 U	44 U	25 U	22 U	18 U	22 U	22 U	34 U	34 U	34 U	39 U	43 U	19 U	24 U	24 U	58 U	26 U	27 U	28 U
Pentachlorophenol	87-86-5	90000	-	ug/kg	410 U	220 U	300 U	240 U	300 U	330 U	440 U	250 U	220 U	180 U	220 U	220 U	340 U	340 U	340 U	390 U	430 U	190 U	240 U	240 U	580 U	260 U	270 U	280 U
Phenanthrene	85-01-8	1600000	240	ug/kg	60	59	340	490	410	180	310	200	12 J	3.7 J	9.1 J	68	48	49	100	170	89	42	69	260	430	72	56	13 J
Phenol	108-95-2	12000000	-	ug/kg	410 U	220 U	300 U	240 U	300 U	330 U	440 U	250 U	220 U	180 U	220 U	220 U	340 U	340 U	340 U	390 U	430 U	190 U	240 U	240 U	580 U	260 U	270 U	280 U
Pyrene	129-00-0	29000000	518	ug/kg	170	140	1100	760	780	410	670	480	40	5.8 J	25	110	130	200	220	300	180	270	410	1100	850	180	140	38

TABLE 3
BANK AND OVERBANK ANALYTICAL RESULTS - 2003 to 2009
FORMER STANLEY TOOLS FACILITY (MID 099 124 299)
Fowlerville, MI

					Location	A West Bank	B West Bank	C West Bank	D West Bank	E West Bank	F West Bank	G West Bank	H West Bank	I West Bank	J West Bank	K West Bank	L West Bank	M West Bank	M West Bank	N West Bank	O West Bank	P West Bank	A West Overban	B West Overban	C West Overban	D West Overban	E West Overban	F West Overban	G West Overban
					Field ID:	A-09-WB	B-09-WB	C-09-WB	D-09-WB	E-09-WB	F-09-WB	G-09-WB	H-09-WB	I-09-WB	J-09-WB	K-09-WB	L-09-WB	M-09-WB	M-09-WB-DUP	N-09-WB	O-09-WB	P-09-WB	A-09-WO	B-09-WO	C-09-WO	D-09-WO	E-09-WO	F-09-WO	G-09-WO
					Date Sampled:	40129	40129	40129	40130	40129	40129	40129	40129	40130	40130	40130	40130	40130	40130	10/16/2003	10/15/2003	10/15/2003	40129	40129	40129	40130	40129	40129	40129
					Data Type	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Duplicate	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original
					Material Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
					Sample Event	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009
	CAS	Part 201 Residential Direct Contact	Site Specific Background	Units																								
PCBs																												
PCB Total	TPCB	1200	-	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1016	12674-11-2	1200	-	ug/kg	810 U	430 U	590 U	470 U	600 U	650 U	860 U	490 U	440 U	360 U	430 U	430 U	670 U	680 U	680 U	770 U	850 U	20 J	460 U	470 U	1100 U	520 U	540 U	550 U
PCB-1221	11104-28-2	1200	-	ug/kg	810 U	430 U	590 U	470 U	600 U	650 U	860 U	490 U	440 U	360 U	430 U	430 U	670 U	680 U	680 U	770 U	850 U	380 U	460 U	470 U	1100 U	520 U	540 U	550 U
PCB-1232	11141-16-5	1200	-	ug/kg	810 U	430 U	590 U	470 U	600 U	650 U	860 U	490 U	440 U	360 U	430 U	430 U	670 U	680 U	680 U	770 U	850 U	380 U	460 U	470 U	1100 U	520 U	540 U	550 U
PCB-1242	53469-21-9	1200	-	ug/kg	810 U	430 U	590 U	470 U	600 U	650 U	860 U	490 U	440 U	360 U	430 U	430 U	670 U	680 U	680 U	770 U	850 U	380 U	460 U	470 U	1100 U	520 U	540 U	550 U
PCB-1248	12672-29-6	1200	-	ug/kg	810 U	430 U	590 U	470 U	600 U	650 U	860 U	31 J	440 U	360 U	430 U	430 U	670 U	18 J	670 U	14 J	21 J	24 J	850 U	20 J	18 J	48 J	1100 U	41 J	23 J	550 U
PCB-1254	11097-69-1	1200	-	ug/kg	810 U	430 U	590 U	470 U	600 U	650 U	860 U	490 U	440 U	360 U	430 U	430 U	670 U	680 U	680 U	580 U	770 U	850 U	380 U	460 U	470 U	1100 U	520 U	540 U	550 U
PCB-1260	11096-82-5	1200	-	ug/kg	810 U	430 U	590 U	470 U	600 U	650 U	860 U	17 J	440 U	360 U	430 U	430 U	670 U	680 U	680 U	580 U	770 U	850 U	8.0 J	14 J	21 J	1100 U	30 J	31 J	550 U
Total Metals																												
Aluminum, Total	7429-90-5	50000	5810	mg/kg	11000	5900	4600	2700	3900	5900	8600	5500	5800	1800	6500	4000	9100	9300	6300	7100	9600	4800	6500	6300	4600	9500	11000	5000
Arsenic, Total	7440-38-2	9.79	36.6	mg/kg	**37***	**12***	**16***	**10***	**21***	**22***	**28***	**15***	9.7	2.8	7.3	**9.9***	**33***	**33***	**20***	**19***	**33***	6.7	**15***	**19***	**15***	**21***	**25***	**13***
Barium, Total	7440-39-3	37000	163	mg/kg	290	61	95	73	120	150	200	94	48	14	69	65	280	270	150	170	240	43	87	130	78	170	150	75
Cadmium, Total	7440-43-9	550	1.85	mg/kg	0.81	0.23	0.32	0.20	0.40	0.47	0.63	0.34	0.24	0.080	0.38	0.36	0.85	0.87	0.57	0.68	0.75	0.16	0.47	0.52	0.27	0.73	0.78	0.33
Chromium, Total	7440-47-3	790000	15.4	mg/kg	21	12	8.1	7.1	12	13	18	60	19	4.6	30	150	46	46	150	110	46	61	55	68	10	180	330	55
Copper, Total	7440-50-8	20000	25.9	mg/kg	25	11	9.4	7.9	14	15	21	45	14	6.4	21	92	45	46	120	92	38	86	56	72	11	100	150	29
Lead, Total	7439-92-1	400	21.6	mg/kg	20	9.5	7.6	6.8	11	11	15	16	10	3.0	10	20	24	24	30	29	24	16	23	24	7.4	31	35	13
Mercury, Total	7439-97-6	160	0.147	mg/kg	0.093	0.037 J	0.046 J	0.031 J	0.061	0.077	0.10	0.13	0.039 J	0.050 U	0.071	0.093	0.12	0.12	0.10	0.11	0.10	0.045 J	0.14	0.13	0.076	0.25	0.24	0.075
Nickel, Total	7440-02-0	40000	15.5	mg/kg	21	14	8.2	7.1	11	13	18	25	12	5.6	13	37	42	44	75	47	27	59	32	43	9.5	53	69	18
Selenium, Total	7782-49-2	2600	2.32	mg/kg	1.2	0.29	0.57	0.32	0.73	0.70	0.95	0.54	0.35	0.24	0.64	0.45	1.2	1.2	0.85	0.90	1.1	0.31	0.67	0.76	0.47	0.87	0.94	0.46
Silver, Total	7440-22-4	2500	1	mg/kg	0.10	0.059	0.045 J	0.027 J	0.049 J	0.059	0.077	0.054	0.044 J	0.028 J	0.077	0.063	0.099	0.10	0.080	0.097	0.095	0.052	0.071	0.065	0.036 J	0.078	0.091	0.042 J
Zinc, Total	7440-66-6	170000	110	mg/kg	140	63	58	49	68	77	100	130	59	17	44	170	180	190	240	180	130	160	440	210	52	340	570	110
Chromium, Hexavalent	18540-29-9	2500	-	mg/kg	9.9 U	2.6 U	3.3 U	2.6 U	3.6 U	3.7 U	5.2 U	3.0 U	2.7 U	2.2 U	2.6 U	0.33 J	3.7 U	4.1 U	4.1 U	4.6 U	4.5 U	2.3 U	2.8 U	2.9 U	6.9 U	3.1 U	3.3 U	3.1 U
Misc																												
Cyanide, Available	57-12-5	NA		mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.70	2.5	2.4	NA	NA	3.3	NA	1.4	NA	NA	1.1	1.2	NA
Cyanide, Total	57-12-5	12	0.87	mg/kg	0.25 U	0.13 U	0.18 U	0.14 U	0.18 U	0.20 U	0.23 J	0.15 U	0.13 U	0.11 U	0.13 U	0.15	0.44	0.39	0.18 J	0.23 U	0.36	0.12 U	0.16	0.12 J	0.34 U	0.60	0.89	0.13 J

Notes:

NA - Indicates that the sample was not analyzed for that parameter.
U - Inidcates that the result was not detected above the Method Detection Limit (MDL).
J - Indicates an estimated value with the result detection above the Method Detection Limit (MDL)but below the Reporting Limit (RL).
B - Indicates that that compound was also detected in a Blank.
* - Indicates that the exceeded value is at or below Site Specific Background Values
Values that are Bold and Underlined Exceed the Part 201 Residential Direct Contact Screeening Levels.

TABLE 3
BANK AND OVERBANK ANALYTICAL RESULTS - 2003 to 2009
FORMER STANLEY TOOLS FACILITY (MID 099 124 299)
Fowlerville, MI

				Location	I West Overbank	J West Overbank	K West Overbank	L West Overbank	M West Overbank	N West Overbank	O West Overbank	P West Overbank	MS12	MD87	MD86	MD85	MD84	MD83	MD82	MD81	MD38	MD50	MD53	MD26	MD24	MD23
				Field ID:	H-09-WO	I-09-WO	J-09-WO	K-09-WO	L-09-WO	M-09-WO	N-09-WO	O-09-WO	P-09-WO	MS12-0202-101903-01	MD87-0405-091203-01	MD86-0405-091203-01	MD85-0405-091203-01	MD84-0405-091203-01	MD83-0405-091203-01	MD82-0405-091203-01	MD81-0304-091203-02	MD38-0102-090903-01	MD50-0202-091003-01	MD53-0202-091003-02	MD26-0203-081903-01	MD24-0102-081903-01	MD23-0304-081903-01
				Date Sampled:	10/17/2003	40130	40130	40130	40130	40130	40130	40130	40130	37913	37876	37876	37876	37876	37876	37876	37876	37873	37874	37874	37852	37852	37852
				Data Type	Original	Original	Original	Original	Original	Original	Original	Duplicate	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original
				Material Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
				Sample Event	2009	2009	2009	2009	2009	2009	2009	2009	2009	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003
	CAS	Part 201 Residential Direct Contact	Site Specific Background	Units																							
Volatile Organic Compounds																											
1,1,1,2-Tetrachloroethane	630-20-6	1E+24	-	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.075 U	0.076 U	0.091 U	0.053 U	0.051 U	0.057 U
1,1,1-Trichloroethane	71-55-6	460000	-	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.075 U	0.076 U	0.091 U	0.053 U	0.051 U	0.057 U
1,1,2,2-Tetrachloroethane	79-34-5	1E+24	-	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.075 U	0.076 U	0.091 U	0.053 U	0.051 U	0.057 U
1,1,2-Trichloroethane	79-00-5	180000	-	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.075 U	0.076 U	0.091 U	0.053 U	0.051 U	0.057 U
1,1-Dichloroethane	75-34-3	890000	5.8	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.075 U	0.076 U	0.091 U	0.053 U	0.051 U	0.057 U
1,1-Dichloroethene	75-35-4	200000	-	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.075 U	0.076 U	0.091 U	0.053 U	0.051 U	0.057 U
1,1-Dichloropropene	563-58-6	1E+24	-	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.075 U	0.076 U	0.091 U	0.053 U	0.051 U	0.057 U
1,2,3-Trichlorobenzene	87-61-6	1E+24	-	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.28 U	0.27 U	0.27 U	0.25 U	0.27 U	0.28 U	0.31 U	0.28 U	0.38 U	0.38 U	0.45 U	0.26 U	0.26 U	0.28 U
1,2,3-Trichloropropane	96-18-4	1E+24	-	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.075 U	0.076 U	0.091 U	0.053 U	0.051 U	0.057 U
1,2,4-Trichlorobenzene	120-82-1	990000	-	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.075 U	0.076 U	0.091 U	0.053 U	0.051 U	0.057 U
1,2,4-Trimethylbenzene	95-63-6	110000	24	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.075 U	0.076 U	0.091 U	0.053 U	0.051 U	0.057 U
1,2-Dibromo-3-chloropropane	96-12-8	1200	-	ug/kg	310 U	470 U	290 U	370 U	280 U	250 U	310 U	480 U	420 U	420 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.075 U	0.076 U	0.091 U	0.053 U	0.051 U	0.057 U
1,2-Dichlorobenzene	95-50-1	210000	-	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.075 U	0.076 U	0.091 U	0.053 U	0.051 U	0.057 U
1,2-Dichloroethane	107-06-2	91000	-	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.075 U	0.076 U	0.091 U	0.053 U	0.051 U	0.057 U
1,2-Dichloroethene (Total)	540-59-0	1E+24	81	ug/kg	130 U	190 U	120 U	150 U	110 U	100 U	120 U	190 U	170 U	170 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	78-87-5	140000	-	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.075 U	0.076 U	0.091 U	0.053 U	0.051 U	0.057 U
1,3,5-Trimethylbenzene	108-67-8	94000	-	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.075 U	0.076 U	0.091 U	0.053 U	0.051 U	0.057 U
1,3-Dichlorobenzene	541-73-1	170000	-	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.075 U	0.076 U	0.091 U	0.053 U	0.051 U	0.057 U
1,3-Dichloropropane	142-28-9	1E+24	-	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.075 U	0.076 U	0.091 U	0.053 U	0.051 U	0.057 U
1,4-Dichlorobenzene	106-46-7	400000	-	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.075 U	0.076 U	0.091 U	0.053 U	0.051 U	0.057 U
2,2-Dichloropropane	594-20-7	1E+24	-	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.075 U	0.076 U	0.091 U	0.053 U	0.051 U	0.057 U
2-Chlorotoluene	95-49-8	500000	-	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.075 U	0.076 U	0.091 U	0.053 U	0.051 U	0.057 U
2-Hexanone	591-78-6	2500000	-	ug/kg	3100 U	4700 U	2900 U	3700 U	2800 U	2500 U	3100 U	4800 U	4200 U	4200 U	0.56 U	0.54 U	0.55 U	0.5 U	0.54 U	0.56 U	0.62 U	0.56 U	0.75 U	0.76 U	0.91 U	0.53 U	0.51 U	0.57 U
4-Chlorotoluene	106-43-4	500000	-	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.075 U	0.076 U	0.091 U	0.053 U	0.051 U	0.057 U
4-Isopropyltoluene	99-87-6	1E+24	23	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.075 U	0.076 U	0.091 U	0.053 U	0.051 U	0.057 U
4-Methyl-2-pentanone (MIBK)	108-10-1	2700000	-	ug/kg	3100 U	4700 U	2900 U	3700 U	2800 U	2500 U	3100 U	4800 U	4200 U	4200 U	0.56 U	0.54 U	0.55 U	0.5 U	0.54 U	0.56 U	0.62 U	0.56 U	0.75 U	0.76 U	0.91 U	0.53 U	0.51 U	0.57 U
Acetone	67-64-1	23000000	761	ug/kg	140 J	250 J	180 J	270 J	830 U	140 J	200 J	1400 U	150 J	1300 U	0.56 U	0.54 U	0.55 U	0.5 U	0.54 U	0.56 U	0.62 U	0.56 U	0.75 U	0.76 U	0.91 U	0.53 U	0.51 U	0.57 U
Acrolein	107-02-8	3600000	-	ug/kg	310 U	470 U	290 U	370 U	280 U	250 U	310 U	480 U	420 U	420 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	71-43-2	180000	-	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.075 U	0.076 U	0.091 U	0.053 U	0.051 U	0.057 U
Bromobenzene	108-86-1	540000	-	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.075 U	0.076 U	0.091 U	0.053 U	0.051 U	0.057 U
Bromochloromethane	74-97-5	1E+24	-	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.075 U	0.076 U	0.091 U	0.053 U	0.051 U	0.057 U
Bromoform	75-25-2	820000	-	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.075 U	0.076 U	0.091 U	0.053 U	0.051 U	0.057 U
Bromomethane	74-83-9	320000	-	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.075 U	0.076 U	0.091 U	0.053 U	0.051 U	0.057 U
Carbon Disulfide	75-15-0	280000	-	ug/kg	310 U	470 U	290 U	370 U	280 U	250 U	310 U	480 U	420 U	420 U	0.56 U	0.54 U	0.55 U	0.5 U	0.54 U	0.56 U	0.62 U	0.56 U	0.75 U	0.76 U	0.91 U	0.53 U	0.51 U	0.57 U
Carbon Tetrachloride	56-23-5	96000	-	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.075 U	0.076 U	0.091 U	0.053 U	0.051 U	0.057 U
Chlorobenzene	108-90-7	260000	-	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.075 U	0.076 U	0.091 U	0.053 U	0.051 U	0.057 U
Chloroethane	75-00-3	950000	-	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.075 U	0.076 U	0.091 U	0.053 U	0.051 U	0.057 U
Chloroform	67-66-3	1200000	22	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.075 U	0.076 U	0.091 U	0.053 U	0.051 U	0.057 U
Chloromethane	74-87-3	1100000	49.5	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.075 U	0.076 U	0.091 U	0.053 U	0.051 U	0.057 U
cis-1,2-Dichloroethene	156-59-2	640000	-	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.056 U	0.054 U	0.026 J	0.096	0.054 U	0.056 U	0.062 U	0.056 U	0.075 U	0.076 U	0.091 U	0.053 U	0.051 U	0.057 U
cis-1,3-Dichloropropene	10061-01-5	1E+24	-	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.075 U	0.076 U	0.091 U	0.053 U	0.051 U	0.057 U
Dibromochloromethane	124-48-1	110000	-	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.075 U	0.076 U	0.091 U	0.053 U	0.051 U	0.057 U
Dibromomethane	74-95-3	2000000	-	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.075 U	0.076 U	0.091 U	0.053 U	0.051 U	0.057 U
Dichlorobromomethane	75-27-4	110000	-	ug/kg	NA	NA	NA	NA	NA	NA	NA		NA	NA	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.075 U	0.076 U	0.091 U	0.053 U	0.051 U	0.057 U
Dichlorodifluoromethane	75-71-8	1000000	-	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.075 U	0.076 U	0.091 U	0.053 U	0.051 U	0.057 U
Ethylbenzene	100-41-4	140000	-	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.075 U	0.076 U	0.091 U	0.053 U	0.051 U	0.11 U
Ethylene dibromide	106-93-4	92	-	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.075 U	0.076 U	0.091 U	0.053 U	0.051 U	0.057 U
Hexachlorobutadiene	87-68-3	100000	-	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.28 U	0.27 U	0.27 U	0.25 U	0.27 U	0.28 U	0.31 U	0.28 U	0.38 U	0.38 U	0.45 U	0.26 U	0.26 U	0.28 U
Isopropylbenzene	98-82-8	390000	-	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.075 U	0.076 U	0.091 U	0.053 U	0.051 U	0.057 U
2-Butanone (MEK)	78-93-3	27000000	517	ug/kg	66 J	97 J	70 J	78 J	59 J	57 J	70 J	93 J	83 J	86 J	0.13 J	0.54 U	0.55 U	0.5 U	0.54 U	0.56 U	0.62 U	0.56 U	0.75 U	0.76 U	0.91 U	0.53 U	0.51 U	0.57 U
Methyl tert-Butyl Ether	1634-04-4	1500000	-	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.56 U	0.54 U	0.55 U	0.5 U	0.54 U	0.56 U	0.62 U	0.56 U	0.75 U	0.76 U	0.91 U	0.53 U	0.51 U	0.57 U
Methylene Chloride	75-09-2	1300000	-	ug/kg	40 J	59 J	32 J	37 J	38 J	40 J	50 J	110 J	42 J	54 J	0.014 J	0.034 U	0.067	0.081	0.054 U	0.056 U	0.062 U	0.056 U	0.38 U	0.15 U	0.18 U	0.26 U	0.26 U	0.28 U
n-Butylbenzene	104-51-8	2500000	27	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.075 U	0.076 U	0.091 U	0.053 U	0.051 U	0.057 U
n-Propylbenzene	103-65-1	2500000	-	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.075 U	0.076 U	0.091 U	0.053 U	0.051 U	0.057 U
Naphthalene	91-20-3	16000000	78.7	ug/kg	310 U	470 U	290 U	370 U	280 U	250 U	4.9 J	480 U	420 U	420 U	0.28 U	0.27 U	0.27 U	0.25 U	0.27 U	0.28 U	0.31 U	0.28 U	0.38 U	0.38 U	0.45 U	0.26 U	0.26 U	0.28 U
Xylene, Ortho	95-47-6	1E+24	-	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.075 U	0.076 U	0.091 U	0.053 U	0.051 U	0.057 U
sec-Butylbenzene	135-98-8	2500000	-	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.075 U	0.076 U	0.091 U	0.053 U	0.051 U	0.057 U
Styrene	100-42-5	400000	13	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.075 U	0.076 U	0.091 U	0.053 U	0.051 U	0.057 U
tert-Butylbenzene	98-06-6	2500000	-	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.075 U	0.076 U	0.091 U	0.053 U	0.051 U	0.057 U
Tetrachloroethene	127-18-4	88000	-	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.075 U	0.076 U	0.091 U	0.053 U	0.051 U	0.057 U
Toluene	108-88-3	2500000	3.2	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.049 J	NA	NA	0.053 U	0.051 U	0.057 U
trans-1,2-Dichloroethene	156-60-5	1400000	-	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.075 U	0.076 U	0.091 U	0.053 U	0.051 U	0.057 U
trans-1,3-Dichloropropene	10061-02-6	10000	-	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.075 U	0.076 U	0.091 U	0.053 U	0.051 U	0.057 U
Trichloroethene	79-01-6	500000	11	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.056 U	0.054 U	0.13	0.029 J	0.054 U	0.056 U	0.062 U	0.056 U	0.075 U	0.076 U	0.091 U	0.053 U	0.051 U	0.057 U
Trichlorofluoromethane	75-69-4	560000	-	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.075 U	0.076 U	0.091 U	0.053 U	0.051 U	0.057 U
Vinyl Chloride	75-01-4	3800	-	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.075 U	0.076 U	0.091 U	0.053 U	0.051 U	0.057 U
Xylene, Meta + Para	Not Applicable	1E+24	-	ug/kg	130 U	190 U	120 U	150 U	110 U	100 U	120 U	190 U	170 U	170 U	0.11 U	0.11 U	0.11 U	0.1 U	0.11 U	0.11 U	0.12 U	0.11 U	0.15 U	0.15 U	0.18 U	0.11 U	0.1 U	0.057 U

TABLE 3
BANK AND OVERBANK ANALYTICAL RESULTS - 2003 to 2009
FORMER STANLEY TOOLS FACILITY (MID 099 124 299)
Fowlerville, MI

					Location	A West Overbank	B West Overbank	C West Overbank	K West Overbank	L West Overbank	M West Overbank	N West Overbank	N West Overbank	D West Overbank	P West Overbank	MS12	MD87	MD86	MD85	MD84	MD83	MD82	MD81	MD38	MD50	MD53	MD26	MD24	MD23
					Field ID:	H-09-WO	I-09-WO	J-09-WO	K-09-WO	L-09-WO	M-09-WO	N-09-WO	M-09-WB-DUP	O-09-WO	P-09-WO	MS12-0202-101903-01	MD87-0405-091203-01	MD86-0405-091203-01	MD85-0405-091203-01	MD84-0405-091203-01	MD83-0405-091203-01	MD82-0405-091203-01	MD81-0304-091203-02	MD38-0102-090903-01	MD50-0202-091003-01	MD53-0202-091003-02	MD26-0203-081903-01	MD24-0102-081903-01	MD23-0304-081903-01
					Date Sampled:	10/17/2003	40130	40130	40130	40130	40130	40130	40130	40130	40130	37913	37876	37876	37876	37876	37876	37876	37876	37873	37874	37874	37852	37852	37852
					Data Type	Original	Original	Original	Original	Original	Original	Original	Duplicate	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original
					Material Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
					Sample Event	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003
	CAS	Part 201 Residential Direct Contact	Site Specific Background	Units																									
Semi-Volatile Organic Compounds																													
1,2,4-Trichlorobenzene	120-82-1	990000	-	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Benzphenanthracene	218-01-9	2000000	-	ug/kg	49	26 J	8.9 J	14 J	19	26	190	160	140	95	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.059 J	0.33 U	0.33 U	
1,2-Dichlorobenzene	95-50-1	210000	-	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.008 J	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	
1,3-Dichlorobenzene	541-73-1	170000	-	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	
1,4-Dichlorobenzene	106-46-7	400000	-	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	
2,4,5-Trichlorophenol	95-95-4	23000000	-	ug/kg	21 U	31 U	19 U	25 U	19 U	18 U	22 U	35 U	28 U	28 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	
2,4,6-Trichlorophenol	88-06-2	710000	-	ug/kg	21 U	31 U	19 U	25 U	19 U	18 U	22 U	35 U	28 U	28 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	
2,4-Dichlorophenol	120-83-2	660000	-	ug/kg	21 U	31 U	19 U	25 U	19 U	18 U	22 U	35 U	28 U	28 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	
2,4-Dimethylphenol	105-67-9	11000000	-	ug/kg	420 U	630 U	390 U	490 U	370 U	360 U	440 U	690 U	560 U	560 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	
2,4-Dinitrophenol	51-28-5	1E+24	-	ug/kg	420 U	630 U	390 U	490 U	370 U	360 U	440 U	690 U	560 U	560 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	
2,4-Dinitrotoluene	121-14-2	48000	-	ug/kg	42 U	63 U	39 U	49 U	37 U	36 U	44 U	69 U	56 U	56 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
2,6-Dinitrotoluene	606-20-2	1E+24	-	ug/kg	21 U	31 U	19 U	25 U	19 U	18 U	22 U	35 U	28 U	28 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	
2-Chloronaphthalene	91-58-7	56000000	-	ug/kg	21 U	31 U	19 U	25 U	19 U	18 U	22 U	35 U	28 U	28 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	
2-Chlorophenol	95-57-8	1400000	-	ug/kg	21 U	31 U	19 U	25 U	19 U	18 U	22 U	35 U	28 U	28 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	
2-Methylnaphthalene	91-57-6	8100000	-	ug/kg	2.9 J	3.2 J	19 U	25 U	19 U	18 U	4.0 J	35 U	28 U	28 U	0.33 U	0.33 U	0.004 J	0.006 J	0.016 J	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.0043 J	0.33 U	0.0038 J	
2-Methylphenol	95-48-7	11000000	-	ug/kg	21 U	31 U	19 U	25 U	19 U	18 U	22 U	35 U	28 U	28 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	
2-Nitroaniline	88-74-4	1E+24	-	ug/kg	21 U	31 U	19 U	25 U	19 U	18 U	22 U	35 U	28 U	28 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	
2-Nitrophenol	88-75-5	630000	-	ug/kg	21 U	31 U	19 U	25 U	19 U	18 U	22 U	35 U	28 U	28 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	
3,3'-Dichlorobenzidine	91-94-1	6600	-	ug/kg	210 U	310 U	190 U	250 U	190 U	180 U	220 U	350 U	280 U	280 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	
3+4-Methylphenol	108-39-4	11000000	-	ug/kg	21 U	31 U	19 U	25 U	19 U	18 U	22 U	35 U	28 U	28 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
3-Nitroaniline	99-09-2	1E+24	-	ug/kg	42 U	63 U	39 U	49 U	37 U	36 U	44 U	69 U	56 U	56 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	
4,6-Dinitro-2-methylphenol	534-52-1	79000	-	ug/kg	84 U	130 U	78 U	98 U	74 U	72 U	88 U	140 U	110 U	110 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	
4-Bromophenyl Phenyl Ether	101-55-3	1E+24	-	ug/kg	21 U	31 U	19 U	25 U	19 U	18 U	22 U	35 U	28 U	28 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	
4-Chloroaniline	106-47-8	1E+24	-	ug/kg	42 U	63 U	39 U	49 U	37 U	36 U	44 U	69 U	56 U	56 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	
4-Chlorophenyl Phenyl Ether	7005-72-3	1E+24	-	ug/kg	21 U	31 U	19 U	25 U	19 U	18 U	22 U	35 U	28 U	28 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	
4-Methylphenol	106-44-5	11000000	-	ug/kg	21 U	31 U	19 U	25 U	19 U	18 U	22 U	35 U	28 U	28 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	
4-Nitroaniline	100-01-6	1E+24	-	ug/kg	84 U	130 U	78 U	98 U	74 U	72 U	88 U	140 U	110 U	110 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	
4-Nitrophenol	100-02-7	1E+24	-	ug/kg	420 U	630 U	390 U	490 U	370 U	360 U	440 U	690 U	560 U	560 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	
Acenaphthene	83-32-9	41000000	-	ug/kg	2.5 J	31 U	19 U	25 U	19 U	18 U	13 J	6.3 J	12 J	6.2 J	0.33 U	0.33 U	0.003 J	0.004 J	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.0041 J	0.33 U	0.33 U	
Acenaphthylene	208-96-8	1600000	-	ug/kg	3.3 J	31 U	19 U	25 U	19 U	18 U	12 J	4.2 J	8.9 J	5.6 J	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.0046 J	0.33 U	0.33 U	
Anthracene	120-12-7	230000000	-	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.032 J	0.33 U	0.33 U	
Benzo(a)anthracene	56-55-3	20000	303	ug/kg	69	31	8.1 J	23 J	29	25	250	140	210	100	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.094 J	0.038 J	0.038 J	
Benzidine	92-87-5	1000	-	ug/kg	840 U	1300 U	780 U	980 U	740 U	720 U	880 U	1400 U	1100 U	1100 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	
Benzo(a)pyrene	50-32-8	2000	332	ug/kg	41	28 J	7.3 J	17 J	20	19	140	130	130	81	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.096 J	0.043 J	0.33 U	
Benzo(b)fluoranthene	205-99-2	20000	307	ug/kg	87	35	18 J	26	34	28	280	210	190	110	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.14 J	0.33 U	0.33 U	
Benzo(g,h,i)perylene	191-24-2	2500000	160	ug/kg	9.5 J	63 U	39 U	13 J	18 J	21 J	90	91	86	43 J	0.33 U	0.33 U	0.01 J	0.33 U	0.33 U	0.015 J	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.04 J	0.016 J	0.33 U	
Benzo(k)fluoranthene	207-08-9	200000	270	ug/kg	29	16 J	5.4 J	17 J	16 J	18	88	93	100	52	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.03 J	0.33 U	0.33 U	
Benzoic Acid	65-85-0	990000000	320	ug/kg	420 U	630 U	390 U	490 U	370 U	360 U	440 U	690 U	560 U	560 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	
Benzyl Alcohol	100-51-6	5800000	-	ug/kg	21 U	31 U	19 U	47	180	94	140	130	210	300	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	
Bis(2-chloroethoxy)methane	111-91-1	1E+24	-	ug/kg	21 U	31 U	19 U	25 U	19 U	18 U	22 U	35 U	28 U	28 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	
Bis(2-chloroethyl) Ether	111-44-4	13000	-	ug/kg	21 U	31 U	19 U	25 U	19 U	18 U	22 U	35 U	28 U	28 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	
bis(2-Chloroisopropyl)ether	108-60-1	1E+24	-	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	
Bis(2-ethylhexyl) Phthalate	117-81-7	2800000	110	ug/kg	45	35 J	17 J	34 JB	99 B	180 B	35 JB	66 JB	63 B	51 JB	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Butyl Benzyl Phthalate	85-68-7	310000	-	ug/kg	42 U	63 U	39 U	9.9 J	51	36 U	7.2 J	21 J	45 J	56 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	
Carbazole	86-74-8	530000	-	ug/kg	420 U	630 U	390 U	490 U	370 U	360 U	440 U	690 U	560 U	560 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	
Chrysene	218-01-9	2000000	350	ug/kg	49	26 J	8.9 J	14 J	19	26	190	160	140	95	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.059 J	0.33 U	0.33 U	
Di-n-butyl Phthalate	84-74-2	760000	220	ug/kg	210 U	310 U	190 U	38 J	47 J	33 J	220 U	350 U	42 J	280 U	0.083 J	0.053 J	0.05 J	0.052 J	0.048 J	0.05 J	0.089 J	0.063 J	0.038 J	0.27 J	0.092 J	0.049 J	0.044 J	0.057 J	
Di-n-octyl Phthalate	117-84-0	6900000	-	ug/kg	21 U	31 U	19 U	25 U	19 U	18 U	22 U	35 U	28 U	28 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	
Dibenz(a,h)anthracene	53-70-3	2000	-	ug/kg	42 U	63 U	39 U	49 U	9.6 J	36 U	22 J	31 J	39 J	56 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.061 J	0.33 U	0.33 U	
Dibenzofuran	132-64-9	1E+24	-	ug/kg	21 U	31 U	19 U	25 U	19 U	18 U	22 U	35 U	28 U	28 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.004 J	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	
Diethyl Phthalate	84-66-2	740000	-	ug/kg	21 U	31 U	19 U	25 U	19 U	18 U	22 U	35 U	28 U	28 U	0.0058 J	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.005 J	0.005 J	0.33 U	0.004 J	0.006 J	0.0031 J	0.0026 J	0.0032 J
Dimethyl Phthalate	131-11-3	790000	-	ug/kg	21 U	31 U	19 U	25 U	19 U	18 U	22 U	35 U	7.2 J	28 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	
Fluoranthene	206-44-0	46000000	631	ug/kg	100	44	15 J	17 J	32	33	470	270	340	160	0.33 U	0.33 U	0.004 J	0.004 J	0.33 U	0.008 J	0.33 U	0.016 J	0.33 U	0.005 J	0.01 J	0.21 J	0.024 J	0.01 J	
Fluorene	86-73-7	27000000	-	ug/kg	21 U	31 U	19 U	25 U	19 U	18 U	25	35 U	17 J	28 U	0.33 U	0.33 U	0.002 J	0.003 J	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.0094 J	0.33 U	0.33 U	
Hexachlorobenzene	118-74-1	8900	-	ug/kg	21 U	31 U	19 U	25 U	19 U	18 U	22 U	35 U	28 U	28 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	
Hexachlorobutadiene	87-68-3	100000	-	ug/kg	63 U	94 U	58 U	73 U	56 U	50 U	62 U	97 U	83 U	85 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	
Hexachlorocyclopentadiene	77-47-4	720000	-	ug/kg	21 U	31 U	19 U	25 U	19 U	18 U	22 U	35 U	28 U	28 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	
Hexachloroethane	67-72-1	230000	-	ug/kg	21 U	31 U	19 U	25 U	19 U	18 U	22 U	35 U	28 U	28 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	
Indeno(1,2,3-cd)pyrene	193-39-5	20000	160	ug/kg	27 J	63 U	39 U	14 J	20 J	7.9 J	70	91	72	51 J	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.069 J	0.048 J	0.33 U	
Isophorone	78-59-1	2400000	-	ug/kg	21 U	31 U	19 U	25 U	19 U	18 U	22 U	35 U	28 U	28 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	
N-Nitroso-di-n-propylamine	621-64-7	1200	-	ug/kg	21 U	31 U	19 U	25 U	19 U	18 U	22 U	35 U	28 U	28 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	
N-Nitroso-diphenylamine	86-30-6	1700000	-	ug/kg	21 U	31 U	19 U	25 U	19 U	18 U	22 U	35 U	28 U	28 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	
Naphthalene	91-20-3	16000000	-	ug/kg	310 U	470 U	290 U	370 U	280 U	250 U	4.9 J	480 U	420 U	420 U	0.33 U	0.33 U	0.33 U	0.004 J	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.0042 J	0.33 U	0.33 U	
Nitrobenzene	98-95-3	100000	-	ug/kg	21 U	31 U	19 U	25 U	19 U	18 U	22 U	35 U	28 U	28 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	
p-Chloro-m-cresol	59-50-7	4500000	-	ug/kg	21 U	31 U	19 U	25 U	19 U	18 U	22 U	35 U	28 U	28 U	0.33 U	0.02 J	0.029 J	0.03 J	0.33 U	0.026 J	0.045 J	0.015 J	0.011 J	0.04 J	0.051 J	0.018 J	0.012 J	0.017 J	
Pentachlorophenol	87-86-5	90000	-	ug/kg	210 U	310 U	190 U	250 U	190 U	180 U	220 U	350 U	280 U	280 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	
Phenanthrene	85-01-8	1600000	240	ug/kg	40	22 J	8.9 J	16 J	21	15 J	360	150	240	130	0.33 U	0.33 U	0.004 J	0.006 J	0.008 J	0.01 J	0.33 U	0.008 J	0.33 U	0.003 J	0.33 U	0.11 J	0.012 J	0.0034 J	
Phenol	108-95-2	12000000	-	ug/kg	210 U	310 U	190 U	250 U	190 U	180 U	220 U	350 U	280 U	280 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	
Pyrene	129-00-0	29000000	518	ug/kg	120	51	20	26	36	40	510	320	380	180	0.33 U	0.33 U	0.007 J	0.007 J	0.005 J	0.017 J	0.003 J	0.012 J	0.33 U	0.006 J	0.33 U	0.16 J	0.019 J	0.009 J	

TABLE 3
BANK AND OVERBANK ANALYTICAL RESULTS - 2003 to 2009
FORMER STANLEY TOOLS FACILITY (MID 099 124 299)
Fowlerville, MI

					Location	H West Overbank	I West Overbank	J West Overbank	K West Overbank	L West Overbank	M West Overbank	N West Overbank	N West Overbank	O West Overbank	P West Overbank	MS12	MD87	MD86	MD85	MD84	MD83	MD82	MD81	MD38	MD50	MD53	MD26	MD24	MD23
					Field ID:	H-09-WO	I-09-WO	J-09-WO	K-09-WO	L-09-WO	M-09-WO	N-09-WO	M-09-WB-DUP	O-09-WO	P-09-WO	MS12-0202-101903-01	MD87-0405-091203-01	MD86-0405-091203-01	MD85-0405-091203-01	MD84-0405-091203-01	MD83-0405-091203-01	MD82-0405-091203-01	MD81-0304-091203-02	MD38-0102-090903-01	MD50-0202-091003-01	MD53-0202-091003-02	MD26-0203-081903-01	MD24-0102-081903-01	MD23-0304-081903-01
					Date Sampled:	10/17/2003	40130	40130	40130	40130	40130	40130	40130	40130	40130	37913	37876	37876	37876	37876	37876	37876	37876	37873	37874	37874	37852	37852	37852
					Data Type	Original	Original	Original	Original	Original	Original	Original	Duplicate	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original
					Material Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
					Sample Event	2009	2009	2009	2009	2009	2009	2009	2009	2009	2009	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003
	CAS	Part 201 Residential Direct Contact	Site Specific Background	Units																									
PCBs																													
PCB Total	TPCB	1200	-	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1016	12674-11-2	1200	-	ug/kg	410 U	620 U	380 U	480 U	370 U	360 U	440 U	690 U	550 U	560 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
PCB-1221	11104-28-2	1200	-	ug/kg	410 U	620 U	380 U	480 U	370 U	360 U	440 U	690 U	550 U	560 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
PCB-1232	11141-16-5	1200	-	ug/kg	410 U	620 U	380 U	480 U	370 U	360 U	440 U	690 U	550 U	560 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
PCB-1242	53469-21-9	1200	-	ug/kg	410 U	620 U	380 U	480 U	370 U	360 U	440 U	690 U	550 U	560 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
PCB-1248	12672-29-6	1200	-	ug/kg	25 J	620 U	380 U	480 U	22 J	360 U	110 J	26 J	120 J	34 J	0.33 U	0.33 U	0.0086 J	0.0081 J	0.019 J	0.0081 J	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.018 J	0.19 J	0.0088 J	0.33 U
PCB-1254	11097-69-1	1200	-	ug/kg	410 U	620 U	380 U	480 U	370 U	360 U	440 U	690 U	550 U	560 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
PCB-1260	11096-82-5	1200	-	ug/kg	20 J	620 U	380 U	480 U	29 J	360 U	70 J	690 U	87 J	10 J	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.027 J	0.33 U	0.33 U
Total Metals																													
Aluminum, Total	7429-90-5	50000	5810	mg/kg	4800	5800	3400	7200	4300	3100	4100	6800	8000	6300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic, Total	7440-38-2	9.79	36.6	mg/kg	**11***	**9.8***	4.5	8.3	6.0	6.5	**12***	**21***	**21***	**17***	3.5	4.9	**11***	5.6	**14***	**10***	**18***	1.9	3.6	**26***	**26***	5.5	**18***	**15***	**74**
Barium, Total	7440-39-3	37000	163	mg/kg	58	79	35	86	30	31	73	160	160	120	15	6.5	37	26	18	30	11	6	26	104	230	27	17	74	
Cadmium, Total	7440-43-9	550	1.85	mg/kg	0.36	0.40	0.23	0.45	0.22	0.20	0.39	0.61	0.76	0.44	0.058	0.022 J	0.074	0.1	0.079	0.065	0.088	0.036 J	0.039 J	0.18	0.54	0.11	0.082	0.24	
Chromium, Total	7440-47-3	790000	15.4	mg/kg	45	35	14	39	26	42	190	110	830	260	32	5.5	12	11	7.5	14	5.1	5.6	3.8	10	71	38	10	13	
Copper, Total	7440-50-8	20000	25.9	mg/kg	35	25	12	22	17	27	120	92	610	150	40	4.6	13	8.1	7.2	17	9.2	12	1.7	8.4	69	37	5.9	8.8	
Lead, Total	7439-92-1	400	21.6	mg/kg	14	18	5.7	16	24	24	32	28	63	24	6.5	3.1	5.4	4.7	4.2	5	3.9	1.8	0.85 J	6.3	19	6.3	7.5	4.5	
Mercury, Total	7439-97-6	160	0.147	mg/kg	0.084	0.060	0.021 J	0.085	0.021 J	0.034 J	0.15	0.091	0.26	0.12	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.027 J	0.075 J	0.0082 J	0.1 U	0.041 J	
Nickel, Total	7440-02-0	40000	15.5	mg/kg	21	18	9.4	13	13	16	48	52	160	62	68	26	13	13	11	21	12	5.1	3.8	10	40	26	7.6	8.8	
Selenium, Total	7782-49-2	2600	2.32	mg/kg	0.53	0.64	0.35	0.66	0.24	0.27	0.46	0.90	0.91	0.68	0.81	0.14 J	0.26	0.23	0.24	0.31	0.28	0.12 J	0.2 J	0.27 U	0.38 U	0.22 U	0.22	0.25 U	
Silver, Total	7440-22-4	2500	1	mg/kg	0.055	0.058	0.035 J	0.10	0.044 J	0.048 J	0.079	0.087	0.14	0.081	0.045 J	0.016 J	0.067 J	0.057 J	0.049 J	0.078 J	0.03 J	0.023 J	0.018 J	0.055 J	0.11 J	0.039 J	0.045 J	0.048 J	
Zinc, Total	7440-66-6	170000	110	mg/kg	100	87	33	69	62	81	190	190	510	190	41	147	26	28	22	31	20	14	9.4	28	341	126	25	37	
Chromium, Hexavalent	18540-29-9	2500	-	mg/kg	2.5 U	3.8 U	2.2 U	2.9 U	2.1 U	2.0 U	2.6 U	0.50 J	2.9 U	3.1 U	0.55 J	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2.7 J	27 U	1.3 J	2 U	0.87 J
Misc																													
Cyanide, Available	57-12-5	NA		mg/kg	NA	NA	NA	NA	1.4	NA	NA	NA	NA	0.59	1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide, Total	57-12-5	12	0.87	mg/kg	0.12 J	0.19 U	0.12 U	0.17	0.11 U	0.11 U	0.10 J	0.15 J	0.61	0.30	0.2 U	0.04 J	0.2 U	0.05 J	0.04 J	0.12 J	0.93	1.9	0.2 U	0.24	0.23	0.13 J	0.1 J	0.2 U	

Notes:

NA - Indicates that the sample was not analyzed for that parameter.
U - Inidcates that the result was not detected above the Method Detection Limit (MDL).
J - Indicates an estimated value with the result detection above the Method Detection Limit (MDL)but below the Reporting Limit (RL).
B - Indicates that that compound was also detected in a Blank.
* - Indicates that the exceeded value is at or below Site Specific Background Values
Values that are Bold and Underlined Exceed the Part 201 Residential Direct Contact Screening Levels.

TABLE 3
BANK AND OVERBANK ANALYTICAL RESULTS - 2003 to 2009
FORMER STANLEY TOOLS FACILITY (MID 099 124 299)
Fowlerville, MI

					Location	MD53	MD21	MD58	LU East Bank	LD East Bank	N East Bank	O East Bank	P East Bank	MS12	MD87	MD86	MD85	MD84	MD83	MD82	MD81	MD48	MD39	MD37	MD36	MD51	MD26	MD24	MD23
					Field ID:	MD53-0202-091003-02	MD21-0001-081903-02	MD58-0405-091103-01	LU-09-EB	LD-09-EB	N-09-EB	O-09-EB	P-09-EB	MS12-0202-101903-01	MD87-0405-091203-01	MD86-0405-091203-01	MD85-0405-091203-01	MD84-0405-091203-01	MD83-0405-091203-01	MD82-0405-091203-01	MD81-0304-091203-02	MD48-0202-091003-01	MD39-0102-090903-01	MD37-0203-090903-01	MD36-0304-090903-01	MD51-0202-091003-01	MD26-0203-081903-01	MD24-0102-081903-01	MD23-0304-081903-01
					Date Sampled:	37874	37852	37875	40130	40130	40130	40130	40130	37913	37876	37876	37876	37876	37876	37876	37876	37874	37873	37873	37873	37874	37852	37852	37852
					Data Type	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original
					Material Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
					Sample Event	2003	2003	2003	2009	2009	2009	2009	2009	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003
	CAS	Part 201 Residential Direct Contact	Site Specific Background	Units																									
Volatile Organic Compounds																													
1,1,1,2-Tetrachloroethane	630-20-6	1E+24	-	ug/kg	0.091 U	0.061 U	0.059 U	87 U	92 U	94 U	73 U	84 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.06 U	0.091 U	0.056 U	0.058 U	0.058 U	0.053 U	0.051 U	0.057 U
1,1,1-Trichloroethane	71-55-6	460000	-	ug/kg	0.091 U	0.061 U	0.059 U	87 U	92 U	94 U	73 U	84 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.06 U	0.091 U	0.056 U	0.058 U	0.058 U	0.053 U	0.051 U	0.057 U
1,1,2,2-Tetrachloroethane	79-34-5	1E+24	-	ug/kg	0.091 U	0.061 U	0.059 U	87 U	92 U	94 U	73 U	84 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.06 U	0.091 U	0.056 U	0.058 U	0.058 U	0.053 U	0.051 U	0.057 U
1,1,2-Trichloroethane	79-00-5	180000	-	ug/kg	0.091 U	0.061 U	0.059 U	87 U	92 U	94 U	73 U	84 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.06 U	0.091 U	0.056 U	0.058 U	0.058 U	0.053 U	0.051 U	0.057 U
1,1-Dichloroethane	75-34-3	890000	5.8	ug/kg	0.091 U	0.061 U	0.059 U	87 U	92 U	94 U	73 U	84 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.06 U	0.091 U	0.056 U	0.058 U	0.058 U	0.053 U	0.051 U	0.057 U
1,1-Dichloroethene	75-35-4	200000	-	ug/kg	0.091 U	0.061 U	0.059 U	87 U	92 U	94 U	73 U	84 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.06 U	0.091 U	0.056 U	0.058 U	0.058 U	0.053 U	0.051 U	0.057 U
1,1-Dichloropropene	563-58-6	1E+24	-	ug/kg	0.091 U	0.061 U	0.059 U	87 U	92 U	94 U	73 U	84 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.06 U	0.091 U	0.056 U	0.058 U	0.058 U	0.053 U	0.051 U	0.057 U
1,2,3-Trichlorobenzene	87-61-6	1E+24	-	ug/kg	0.45 U	0.3 U	0.29 U	87 U	92 U	94 U	73 U	84 U	0.28 U	0.27 U	0.27 U	0.25 U	0.27 U	0.28 U	0.31 U	0.28 U	0.3 U	0.46 U	0.28 U	0.29 U	0.29 U	0.26 U	0.26 U	0.28 U
1,2,3-Trichloropropane	96-18-4	1E+24	-	ug/kg	0.091 U	0.061 U	0.059 U	87 U	92 U	94 U	73 U	84 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.06 U	0.091 U	0.056 U	0.058 U	0.058 U	0.053 U	0.051 U	0.057 U
1,2,4-Trichlorobenzene	120-82-1	990000	-	ug/kg	0.091 U	0.061 U	0.059 U	87 U	92 U	94 U	73 U	84 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.06 U	0.091 U	0.056 U	0.058 U	0.058 U	0.053 U	0.051 U	0.057 U
1,2,4-Trimethylbenzene	95-63-6	110000	24	ug/kg	0.091 U	0.061 U	0.059 U	87 U	92 U	94 U	73 U	84 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.06 U	0.091 U	0.056 U	0.058 U	0.058 U	0.053 U	0.051 U	0.057 U
1,2-Dibromo-3-chloropropane	96-12-8	1200	-	ug/kg	0.091 U	0.061 U	0.059 U	430 U	460 U	470 U	370 U	420 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.06 U	0.091 U	0.056 U	0.058 U	0.058 U	0.053 U	0.051 U	0.057 U
1,2-Dichlorobenzene	95-50-1	210000	-	ug/kg	0.091 U	0.061 U	0.059 U	87 U	92 U	94 U	73 U	84 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.06 U	0.091 U	0.056 U	0.058 U	0.058 U	0.053 U	0.051 U	0.057 U
1,2-Dichloroethane	107-06-2	91000	-	ug/kg	0.091 U	0.061 U	0.059 U	87 U	92 U	94 U	73 U	84 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.06 U	0.091 U	0.056 U	0.058 U	0.058 U	0.053 U	0.051 U	0.057 U
1,2-Dichloroethene (Total)	540-59-0	1E+24	81	ug/kg	NA	NA	NA	170 U	180 U	190 U	150 U	170 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	78-87-5	140000	-	ug/kg	0.091 U	0.061 U	0.059 U	87 U	92 U	94 U	73 U	84 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.06 U	0.091 U	0.056 U	0.058 U	0.058 U	0.053 U	0.051 U	0.057 U
1,3,5-Trimethylbenzene	108-67-8	94000	-	ug/kg	0.091 U	0.061 U	0.059 U	87 U	92 U	94 U	73 U	84 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.06 U	0.091 U	0.056 U	0.058 U	0.058 U	0.053 U	0.051 U	0.057 U
1,3-Dichlorobenzene	541-73-1	170000	-	ug/kg	0.091 U	0.061 U	0.059 U	87 U	92 U	94 U	73 U	84 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.06 U	0.091 U	0.056 U	0.058 U	0.058 U	0.053 U	0.051 U	0.057 U
1,3-Dichloropropane	142-28-9	1E+24	-	ug/kg	0.091 U	0.061 U	0.059 U	87 U	92 U	94 U	73 U	84 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.06 U	0.091 U	0.056 U	0.058 U	0.058 U	0.053 U	0.051 U	0.057 U
1,4-Dichlorobenzene	106-46-7	400000	-	ug/kg	0.091 U	0.061 U	0.059 U	87 U	92 U	94 U	73 U	84 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.06 U	0.091 U	0.056 U	0.058 U	0.058 U	0.053 U	0.051 U	0.057 U
2,2-Dichloropropane	594-20-7	1E+24	-	ug/kg	0.091 U	0.061 U	0.059 U	87 U	92 U	94 U	73 U	84 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.06 U	0.091 U	0.056 U	0.058 U	0.058 U	0.053 U	0.051 U	0.057 U
2-Chlorotoluene	95-49-8	500000	-	ug/kg	0.091 U	0.061 U	0.059 U	87 U	92 U	94 U	73 U	84 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.06 U	0.091 U	0.056 U	0.058 U	0.058 U	0.053 U	0.051 U	0.057 U
2-Hexanone	591-78-6	2500000	-	ug/kg	0.91 U	0.61 U	0.59 U	4300 U	4600 U	4700 U	3700 U	4200 U	0.56 U	0.54 U	0.55 U	0.5 U	0.54 U	0.56 U	0.62 U	0.56 U	0.6 U	0.91 U	0.56 U	0.58 U	0.58 U	0.53 U	0.51 U	0.57 U
4-Chlorotoluene	106-43-4	500000	-	ug/kg	0.091 U	0.061 U	0.059 U	87 U	92 U	94 U	73 U	84 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.06 U	0.091 U	0.056 U	0.058 U	0.058 U	0.053 U	0.051 U	0.057 U
4-Isopropyltoluene	99-87-6	1E+24	23	ug/kg	0.091 U	0.061 U	0.059 U	87 U	92 U	94 U	73 U	84 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.06 U	0.091 U	0.056 U	0.058 U	0.058 U	0.053 U	0.051 U	0.057 U
4-Methyl-2-pentanone (MIBK)	108-10-1	2700000	-	ug/kg	0.91 U	0.61 U	0.59 U	4300 U	4600 U	4700 U	3700 U	4200 U	0.56 U	0.54 U	0.55 U	0.5 U	0.54 U	0.56 U	0.62 U	0.56 U	0.6 U	0.91 U	0.56 U	0.58 U	0.58 U	0.53 U	0.51 U	0.57 U
Acetone	67-64-1	23000000	761	ug/kg	0.91 U	0.61 U	0.59 U	230 J	230 J	1400 U	1100 U	1300 U	0.56 U	0.54 U	0.55 U	0.5 U	0.54 U	0.56 U	0.62 U	0.56 U	0.6 U	0.91 U	0.56 U	0.58 U	0.58 U	0.53 U	0.51 U	0.57 U
Acrolein	107-02-8	3600000	-	ug/kg	NA	NA	NA	430 U	460 U	470 U	370 U	420 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	71-43-2	180000	-	ug/kg	0.091 U	0.061 U	0.059 U	87 U	92 U	94 U	73 U	84 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.06 U	0.091 U	0.056 U	0.058 U	0.058 U	0.053 U	0.051 U	0.057 U
Bromobenzene	108-86-1	540000	-	ug/kg	0.091 U	0.061 U	0.059 U	87 U	92 U	94 U	73 U	84 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.06 U	0.091 U	0.056 U	0.058 U	0.058 U	0.053 U	0.051 U	0.057 U
Bromochloromethane	74-97-5	1E+24	-	ug/kg	0.091 U	0.061 U	0.059 U	87 U	92 U	94 U	73 U	84 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.06 U	0.091 U	0.056 U	0.058 U	0.058 U	0.053 U	0.051 U	0.057 U
Bromoform	75-25-2	820000	-	ug/kg	0.091 U	0.061 U	0.059 U	87 U	92 U	94 U	73 U	84 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.06 U	0.091 U	0.056 U	0.058 U	0.058 U	0.053 U	0.051 U	0.057 U
Bromomethane	74-83-9	320000	-	ug/kg	0.091 U	0.061 U	0.059 U	87 U	92 U	94 U	73 U	84 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.06 U	0.091 U	0.056 U	0.058 U	0.058 U	0.053 U	0.051 U	0.057 U
Carbon Disulfide	75-15-0	280000	-	ug/kg	0.91 U	0.61 U	0.59 U	430 U	460 U	470 U	370 U	420 U	0.56 U	0.54 U	0.55 U	0.5 U	0.54 U	0.56 U	0.62 U	0.56 U	0.6 U	0.91 U	0.56 U	0.58 U	0.58 U	0.53 U	0.51 U	0.57 U
Carbon Tetrachloride	56-23-5	96000	-	ug/kg	0.091 U	0.061 U	0.059 U	87 U	92 U	94 U	73 U	84 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.06 U	0.091 U	0.056 U	0.058 U	0.058 U	0.053 U	0.051 U	0.057 U
Chlorobenzene	108-90-7	260000	-	ug/kg	0.091 U	0.061 U	0.059 U	87 U	92 U	94 U	73 U	84 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.06 U	0.091 U	0.056 U	0.058 U	0.058 U	0.053 U	0.051 U	0.057 U
Chloroethane	75-00-3	950000	-	ug/kg	0.091 U	0.061 U	0.059 U	87 U	92 U	94 U	73 U	84 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.06 U	0.091 U	0.056 U	0.058 U	0.058 U	0.053 U	0.051 U	0.057 U
Chloroform	67-66-3	1200000	22	ug/kg	0.091 U	0.061 U	0.059 U	87 U	92 U	94 U	73 U	84 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.06 U	0.091 U	0.056 U	0.058 U	0.058 U	0.053 U	0.051 U	0.057 U
Chloromethane	74-87-3	1100000	49.5	ug/kg	0.091 U	0.061 U	0.059 U	87 U	92 U	94 U	73 U	84 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.06 U	0.091 U	0.056 U	0.058 U	0.058 U	0.053 U	0.051 U	0.057 U
cis-1,2-Dichloroethene	156-59-2	640000	-	ug/kg	0.091 U	0.061 U	0.059 U	87 U	92 U	94 U	73 U	84 U	0.056 U	0.054 U	0.026 J	0.096	0.054 U	0.056 U	0.062 U	0.056 U	0.06 U	0.091 U	0.056 U	0.058 U	0.058 U	0.053 U	0.051 U	0.057 U
cis-1,3-Dichloropropene	10061-01-5	1E+24	-	ug/kg	0.091 U	0.061 U	0.059 U	87 U	92 U	94 U	73 U	84 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.06 U	0.091 U	0.056 U	0.058 U	0.058 U	0.053 U	0.051 U	0.057 U
Dibromochloromethane	124-48-1	110000	-	ug/kg	0.091 U	0.061 U	0.059 U	87 U	92 U	94 U	73 U	84 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.06 U	0.091 U	0.056 U	0.058 U	0.058 U	0.053 U	0.051 U	0.057 U
Dibromomethane	74-95-3	2600000	-	ug/kg	0.091 U	0.061 U	0.059 U	87 U	92 U	94 U	73 U	84 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.06 U	0.091 U	0.056 U	0.058 U	0.058 U	0.053 U	0.051 U	0.057 U
Dichlorobromomethane	75-27-4	110000	-	ug/kg	0.091 U	0.061 U	0.059 U	NA	NA	NA	NA	NA	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.06 U	0.091 U	0.056 U	0.058 U	0.058 U	0.053 U	0.051 U	0.057 U
Dichlorodifluoromethane	75-71-8	1000000	-	ug/kg	0.091 U	0.061 U	0.059 U	87 U	92 U	94 U	73 U	84 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.06 U	0.091 U	0.056 U	0.058 U	0.058 U	0.053 U	0.051 U	0.057 U
Ethylbenzene	100-41-4	140000	-	ug/kg	0.091 U	0.061 U	0.059 U	87 U	92 U	94 U	73 U	84 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.06 U	0.091 U	0.056 U	0.058 U	0.058 U	0.053 U	0.051 U	0.11 U
Ethylene dibromide	106-93-4	92	-	ug/kg	0.091 U	0.061 U	0.059 U	87 U	92 U	94 U	73 U	84 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.06 U	0.091 U	0.056 U	0.058 U	0.058 U	0.053 U	0.051 U	0.057 U
Hexachlorobutadiene	87-68-3	100000	-	ug/kg	0.45 U	0.3 U	0.29 U	87 U	92 U	94 U	73 U	84 U	0.28 U	0.27 U	0.27 U	0.25 U	0.27 U	0.28 U	0.31 U	0.28 U	0.3 U	0.46 U	0.28 U	0.29 U	0.29 U	0.26 U	0.26 U	0.28 U
Isopropylbenzene	98-82-8	390000	-	ug/kg	0.091 U	0.061 U	0.059 U	87 U	92 U	94 U	73 U	84 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.06 U	0.091 U	0.056 U	0.058 U	0.058 U	0.053 U	0.051 U	0.057 U
2-Butanone (MEK)	78-93-3	27000000	517	ug/kg	0.91 U	0.61 U	0.59 U	87 J	77 J	83 J	66 J	93 J	0.13 J	0.54 U	0.55 U	0.5 U	0.54 U	0.56 U	0.62 U	0.56 U	0.6 U	0.91 U	0.56 U	0.58 U	0.58 U	0.53 U	0.51 U	0.57 U
Methyl tert-Butyl Ether	1634-04-4	1500000	-	ug/kg	0.91 U	0.61 U	0.59 U	87 U	92 U	94 U	73 U	84 U	0.56 U	0.54 U	0.55 U	0.5 U	0.54 U	0.56 U	0.62 U	0.56 U	0.6 U	0.91 U	0.56 U	0.58 U	0.58 U	0.53 U	0.51 U	0.57 U
Methylene Chloride	75-09-2	1300000	-	ug/kg	0.18 U	0.3 U	0.059 U	61 J	55 J	54 J	88 J	44 J	0.014 J	0.034 U	0.067	0.061	0.054 U	0.056 U	0.062 U	0.056 U	0.12 U	0.46 U	0.28 U	0.29 U	0.12 U	0.26 U	0.26 U	0.28 U
n-Butylbenzene	104-51-8	2500000	27	ug/kg	0.091 U	0.061 U	0.059 U	87 U	92 U	94 U	73 U	84 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.06 U	0.091 U	0.056 U	0.058 U	0.058 U	0.053 U	0.051 U	0.057 U
n-Propylbenzene	103-65-1	2500000	-	ug/kg	0.091 U	0.061 U	0.059 U	87 U	92 U	94 U	73 U	84 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.06 U	0.091 U	0.056 U	0.058 U	0.058 U	0.053 U	0.051 U	0.057 U
Naphthalene	91-20-3	16000000	78.7	ug/kg	0.45 U	0.3 U	0.29 U	430 U	460 U	470 U	370 U	420 U	0.28 U	0.27 U	0.27 U	0.25 U	0.27 U	0.28 U	0.31 U	0.28 U	0.3 U	0.46 U	0.28 U	0.29 U	0.29 U	0.26 U	0.26 U	0.28 U
Xylene, Ortho	95-47-6	1E+24	-	ug/kg	0.091 U	0.061 U	0.059 U	87 U	92 U	94 U	73 U	84 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.06 U	0.091 U	0.056 U	0.058 U	0.058 U	0.053 U	0.051 U	0.057 U
sec-Butylbenzene	135-98-8	2500000	-	ug/kg	0.091 U	0.061 U	0.059 U	87 U	92 U	94 U	73 U	84 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.06 U	0.091 U	0.056 U	0.058 U	0.058 U	0.053 U	0.051 U	0.057 U
Styrene	100-42-5	4000000	13	ug/kg	0.091 U	0.061 U	0.059 U	87 U	92 U	94 U	73 U	84 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.06 U	0.091 U	0.056 U	0.058 U	0.058 U	0.053 U	0.051 U	0.057 U
tert-Butylbenzene	98-06-6	2500000	-	ug/kg	0.091 U	0.061 U	0.059 U	87 U	92 U	94 U	73 U	84 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.06 U	0.091 U	0.056 U	0.058 U	0.058 U	0.053 U	0.051 U	0.057 U
Tetrachloroethene	127-18-4	88000	-	ug/kg	0.091 U	0.061 U	0.059 U	87 U	92 U	94 U	73 U	84 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.06 U	0.091 U	0.056 U	0.058 U	0.058 U	0.053 U	0.051 U	0.057 U
Toluene	108-88-3	2500000	3.2	ug/kg	NA	0.061 U	0.032 J	87 U	92 U	94 U	73 U	84 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	NA	0.064 J	0.032 J	0.033 J	NA	0.053 U	0.051 U	0.057 U
trans-1,2-Dichloroethene	156-60-5	1400000	-	ug/kg	0.091 U	0.061 U	0.059 U	87 U	92 U	94 U	73 U	84 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.06 U	0.091 U	0.056 U	0.058 U	0.058 U	0.053 U	0.051 U	0.057 U
trans-1,3-Dichloropropene	10061-02-6	10000	-	ug/kg	0.091 U	0.061 U	0.059 U	87 U	92 U	94 U	73 U	84 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.06 U	0.091 U	0.056 U	0.058 U	0.058 U	0.053 U	0.051 U	0.057 U
Trichloroethene	79-01-6	500000	11	ug/kg	0.091 U	0.061 U	0.059 U	87 U	92 U	94 U	73 U	84 U	0.056 U	0.054 U	0.13	0.029 J	0.054 U	0.056 U	0.062 U	0.056 U	0.06 U	0.091 U	0.056 U	0.058 U	0.058 U	0.053 U	0.051 U	0.057 U
Trichlorofluoromethane	75-69-4	560000	-	ug/kg	0.091 U	0.061 U	0.059 U	87 U	92 U	94 U	73 U	84 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.06 U	0.091 U	0.056 U	0.058 U	0.058 U	0.053 U	0.051 U	0.057 U
Vinyl Chloride	75-01-4	3800	-	ug/kg	0.091 U	0.061 U	0.059 U	87 U	92 U	94 U	73 U	84 U	0.056 U	0.054 U	0.055 U	0.05 U	0.054 U	0.056 U	0.062 U	0.056 U	0.06 U	0.091 U	0.056 U	0.058 U	0.058 U	0.053 U	0.051 U	0.057 U
Xylene, Meta + Para	Not Applicable	1E+24	-	ug/kg	0.18 U	0.12 U	0.12 U	170 U	180 U	190 U	150 U	170 U	0.11 U	0.11 U	0.11 U	0.1 U	0.11 U	0.11 U	0.12 U	0.11 U	0.12 U	0.18 U	0.11 U	0.12 U	0.12 U	0.11 U	0.1 U	0.057 U

TABLE 3
BANK AND OVERBANK ANALYTICAL RESULTS - 2003 to 2009
FORMER STANLEY TOOLS FACILITY (MID 099 124 299)
Fowlerville, MI

					Location	MD53	MD21	MD58	LU East Bank	LD East Bank	N East Bank	O East Bank	P East Bank	MS12	MD87	MD86	MD85	MD84	MD83	MD82	MD81	MD48	MD39	MD37	MD36	MD51	MD26	MD24	MD23
					Field ID:	MD53-0202-091003-02	MD21-0001-081903-02	MD58-0405-091103-01	LU-09-EB	LD-09-EB	N-09-EB	O-09-EB	P-09-EB	MS12-0202-101903-01	MD87-0405-091203-01	MD86-0405-091203-01	MD85-0405-091203-01	MD84-0405-091203-01	MD83-0405-091203-01	MD82-0405-091203-01	MD81-0304-091203-02	MD48-0202-091003-01	MD39-0102-090903-01	MD37-0203-090903-01	MD36-0304-090903-01	MD51-0202-091003-01	MD26-0203-081903-01	MD24-0102-081903-01	MD23-0304-081903-01
					Date Sampled:	37874	37852	37875	40130	40130	40130	40130	40130	37913	37876	37876	37876	37876	37876	37876	37876	37874	37873	37873	37873	37874	37852	37852	37852
					Data Type	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original
					Material Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
					Sample Event	2003	2003	2003	2009	2009	2009	2009	2009	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003
	CAS	Part 201 Residential Direct Contact	Site Specific Background	Units																									
Semi-Volatile Organic Compounds																													
1,2,4-Trichlorobenzene	120-82-1	990000	-	ug/kg	NA	NA	NA	87 U	92 U	94 U	73 U	84 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Benzphenanthracene	218-01-9	2000000	-	ug/kg	0.33 U	0.013 J	0.33 U	190	73	170	210	230	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.059 J	0.33 U	0.33 U
1,2-Dichlorobenzene	95-50-1	210000	-	ug/kg	0.33 U	0.33 U	0.33 U	87 U	92 U	94 U	73 U	84 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.008 J	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
1,3-Dichlorobenzene	541-73-1	170000	-	ug/kg	0.33 U	0.33 U	0.33 U	87 U	92 U	94 U	73 U	84 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
1,4-Dichlorobenzene	106-46-7	400000	-	ug/kg	0.33 U	0.33 U	0.33 U	87 U	92 U	94 U	73 U	84 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
2,4,5-Trichlorophenol	95-95-4	23000000	-	ug/kg	0.33 U	0.33 U	0.33 U	29 U	31 U	31 U	24 U	28 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
2,4,6-Trichlorophenol	88-06-2	710000	-	ug/kg	0.33 U	0.33 U	0.33 U	29 U	31 U	31 U	24 U	28 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
2,4-Dichlorophenol	120-83-2	660000	-	ug/kg	0.33 U	0.33 U	0.33 U	29 U	31 U	31 U	24 U	28 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
2,4-Dimethylphenol	105-67-9	11000000	-	ug/kg	0.33 U	0.33 U	0.33 U	580 U	610 U	620 U	490 U	560 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
2,4-Dinitrophenol	51-28-5	1E+24	-	ug/kg	0.33 U	0.33 U	0.33 U	580 U	610 U	620 U	490 U	560 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
2,4-Dinitrotoluene	121-14-2	48000	-	ug/kg	NA	NA	NA	58 U	61 U	62 U	49 U	56 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	606-20-2	1E+24	-	ug/kg	0.33 U	0.33 U	0.33 U	29 U	31 U	31 U	24 U	28 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
2-Chloronaphthalene	91-58-7	56000000	-	ug/kg	0.33 U	0.33 U	0.33 U	29 U	31 U	31 U	24 U	28 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
2-Chlorophenol	95-57-8	1400000	-	ug/kg	0.33 U	0.33 U	0.33 U	29 U	31 U	31 U	24 U	28 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
2-Methylnaphthalene	91-57-6	8100000	-	ug/kg	0.33 U	0.33 U	0.33 U	29 U	31 U	31 U	2.9 J	1.1 J	0.33 U	0.33 U	0.004 J	0.006 J	0.016 J	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.0043 J	0.33 U	0.0038 J
2-Methylphenol	95-48-7	11000000	-	ug/kg	0.33 U	0.33 U	0.33 U	29 U	31 U	31 U	24 U	28 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
2-Nitroaniline	88-74-4	1E+24	-	ug/kg	1.7 U	1.7 U	1.7 U	29 U	31 U	31 U	24 U	28 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
2-Nitrophenol	88-75-5	630000	-	ug/kg	0.33 U	0.33 U	0.33 U	29 U	31 U	31 U	24 U	28 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
3,3'-Dichlorobenzidine	91-94-1	6600	-	ug/kg	2 U	2 U	2 U	290 U	310 U	310 U	240 U	280 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
3+4-Methylphenol	108-39-4	11000000	-	ug/kg	NA	NA	NA	29 U	31 U	31 U	24 U	28 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	99-09-2	1E+24	-	ug/kg	1.7 U	1.7 U	1.7 U	58 U	61 U	62 U	49 U	56 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
4,6-Dinitro-2-methylphenol	534-52-1	79000	-	ug/kg	1.7 U	1.7 U	1.7 U	120 U	120 U	120 U	98 U	110 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
4-Bromophenyl Phenyl Ether	101-55-3	1E+24	-	ug/kg	0.33 U	0.33 U	0.33 U	29 U	31 U	31 U	24 U	28 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
4-Chloroaniline	106-47-8	1E+24	-	ug/kg	1.7 U	1.7 U	1.7 U	58 U	61 U	62 U	49 U	56 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
4-Chlorophenyl Phenyl Ether	7005-72-3	1E+24	-	ug/kg	0.33 U	0.33 U	0.33 U	29 U	31 U	31 U	24 U	28 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
4-Methylphenol	106-44-5	11000000	-	ug/kg	0.33 U	0.33 U	0.33 U	29 U	31 U	31 U	24 U	28 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
4-Nitroaniline	100-01-6	1E+24	-	ug/kg	1.7 U	1.7 U	1.7 U	120 U	120 U	120 U	98 U	110 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
4-Nitrophenol	100-02-7	1E+24	-	ug/kg	1.7 U	1.7 U	1.7 U	580 U	610 U	620 U	490 U	560 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
Acenaphthene	83-32-9	41000000	-	ug/kg	0.33 U	0.33 U	0.33 U	7.5 J	31 U	7.5 J	7.4 J	9.0 J	0.33 U	0.33 U	0.003 J	0.004 J	0.33 U	0.38 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.0041 J	0.33 U	0.33 U
Acenaphthylene	208-96-8	1600000	-	ug/kg	0.33 U	0.33 U	0.33 U	5.2 J	31 U	5.0 J	24 U	3.4 J	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.0046 J	0.33 U	0.33 U
Anthracene	120-12-7	230000000	-	ug/kg	0.33 U	0.33 U	0.33 U	NA	NA	NA	NA	NA	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.032 J	0.33 U	0.33 U
Benzo(a)anthracene	56-55-3	20000	303	ug/kg	0.33 U	0.043 J	0.33 U	190	69	160	230	210	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.094 J	0.038 J	0.038 J
Benzidine	92-87-5	1000	-	ug/kg	5 U	5 U	5 U	1200 U	1200 U	1200 U	980 U	1100 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzo(a)pyrene	50-32-8	2000	332	ug/kg	0.33 U	0.052 J	0.33 U	130	68	180	210	200	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.096 J	0.043 J	0.33 U
Benzo(b)fluoranthene	205-99-2	20000	307	ug/kg	0.33 U	0.084 J	0.33 U	250	93	290	330	340	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.14 J	0.33 U	0.33 U
Benzo(g,h,i)perylene	191-24-2	2500000	160	ug/kg	0.33 U	0.02 J	0.33 U	87	41 J	100	120	120	0.33 U	0.33 U	0.01 J	0.33 U	0.33 U	0.015 J	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.04 J	0.016 J	0.33 U
Benzo(k)fluoranthene	207-08-9	200000	270	ug/kg	0.33 U	0.33 U	0.33 U	110	42	97	120	100	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.03 J	0.33 U	0.33 U
Benzoic Acid	65-85-0	990000000	320	ug/kg	3.3 U	3.3 U	3.3 U	580 U	610 U	620 U	490 U	560 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	0.21 J	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U
Benzyl Alcohol	100-51-6	5800000	-	ug/kg	1.3 U	1.3 U	1.3 U	170	360	130	140	120	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Bis(2-chloroethoxy)methane	111-91-1	1E+24	-	ug/kg	0.33 U	0.33 U	0.33 U	29 U	31 U	31 U	24 U	28 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Bis(2-chloroethyl) Ether	111-44-4	13000	-	ug/kg	0.1 U	0.1 U	0.1 U	29 U	31 U	31 U	24 U	28 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
bis(2-Chloroisopropyl)ether	108-60-1	1E+24	-	ug/kg	0.33 U	0.33 U	0.33 U	NA	NA	NA	NA	NA	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Bis(2-ethylhexyl) Phthalate	117-81-7	2800000	110	ug/kg	NA	NA		47 JB	57 JB	63	45 J	66 B	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butyl Benzyl Phthalate	85-68-7	310000	-	ug/kg	0.33 U	0.33 U	0.33 U	17 J	10 J	16 J	14 J	9.6 J	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Carbazole	86-74-8	530000	-	ug/kg	0.33 U	0.33 U	0.33 U	580 U	610 U	620 U	490 U	560 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Chrysene	218-01-9	2000000	350	ug/kg	0.33 U	0.013 J	0.33 U	190	73	170	210	230	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.059 J	0.33 U	0.33 U
Di-n-butyl Phthalate	84-74-2	760000	220	ug/kg	0.092 J	0.065 J	0.033 J	94 J	310 U	310 U	240 U	280 U	0.083 J	0.053 J	0.05 J	0.052 J	0.048 J	0.05 J	0.089 J	0.063 J	0.38	0.049 J	0.036 J	0.036 J	0.22 J	0.049 J	0.044 J	0.057 J
Di-n-octyl Phthalate	117-84-0	6900000	-	ug/kg	0.33 U	0.33 U	0.33 U	29 U	31 U	31 U	24 U	28 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Dibenz(a,h)anthracene	53-70-3	2000	-	ug/kg	0.33 U	0.33 U	0.33 U	45 J	61 U	29 J	28 J	30 J	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.061 J	0.33 U	0.33 U
Dibenzofuran	132-64-9	1E+24	-	ug/kg	0.33 U	0.33 U	0.33 U	29 U	31 U	31 U	24 U	28 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.004 J	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Diethyl Phthalate	84-66-2	740000	-	ug/kg	0.006 J	0.0029 J	0.003 J	29 U	31 U	31 U	24 U	28 U	0.0058 J	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.005 J	0.005 J	0.004 J	0.003 J	0.003 J	0.33 U	0.004 J	0.0051 J	0.0026 J	0.0052 J
Dimethyl Phthalate	131-11-3	790000	-	ug/kg	3.3 U	3.3 U	3.3 U	29 U	31 U	31 U	24 U	28 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U
Fluoranthene	206-44-0	46000000	631	ug/kg	0.01 J	0.035 J	0.005 J	360	88	350	370	420	0.33 U	0.33 U	0.004 J	0.004 J	0.33 U	0.008 J	0.33 U	0.016 J	0.003 J	0.33 U	0.33 U	0.33 U	0.33 U	0.21 J	0.024 J	0.01 J
Fluorene	86-73-7	27000000	-	ug/kg	0.33 U	0.33 U	0.33 U	29 U	31 U	31 U	17 J	15 J	0.33 U	0.33 U	0.002 J	0.003 J	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.0094 J	0.33 U	0.33 U
Hexachlorobenzene	118-74-1	8900	-	ug/kg	0.33 U	0.33 U	0.33 U	29 U	31 U	31 U	24 U	28 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Hexachlorobutadiene	87-68-3	100000	-	ug/kg	0.33 U	0.33 U	0.33 U	87 U	92 U	94 U	73 U	84 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Hexachlorocyclopentadiene	77-47-4	720000	-	ug/kg	0.33 U	0.33 U	0.33 U	29 U	31 U	31 U	24 U	28 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Hexachloroethane	67-72-1	230000	-	ug/kg	0.33 U	0.33 U	0.33 U	29 U	31 U	31 U	24 U	28 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Indeno(1,2,3-cd)pyrene	193-39-5	20000	160	ug/kg	0.33 U	0.054 J	0.33 U	74	38 J	98	110	110	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.069 J	0.048 J	0.33 U
Isophorone	78-59-1	2400000	-	ug/kg	0.33 U	0.33 U	0.33 U	29 U	31 U	31 U	24 U	28 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
N-Nitroso-di-n-propylamine	621-64-7	1200	-	ug/kg	0.33 U	0.33 U	0.33 U	29 U	31 U	31 U	24 U	28 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
N-Nitroso-diphenylamine	86-30-6	1700000	-	ug/kg	0.33 U	0.33 U	0.33 U	29 U	31 U	31 U	24 U	28 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Naphthalene	91-20-3	16000000	-	ug/kg	0.33 U	0.33 U	0.33 U	430 U	460 U	470 U	370 U	420 U	0.33 U	0.33 U	0.33 U	0.004 J	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.0042 J	0.33 U	0.33 U
Nitrobenzene	98-95-3	100000	-	ug/kg	0.2 U	0.2 U	0.2 U	29 U	31 U	31 U	24 U	28 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
p-Chloro-m-cresol	59-50-7	4500000	-	ug/kg	0.051 J	0.01 J	0.016 J	29 U	31 U	31 U	24 U	28 U	0.33 U	0.02 J	0.029 J	0.03 J	0.33 U	0.026 J	0.045 J	0.015 J	0.041 J	0.016 J	0.011 J	0.01 J	0.038 J	0.018 J	0.012 J	0.017 J
Pentachlorophenol	87-86-5	90000	-	ug/kg	0.8 U	0.8 U	0.8 U	290 U	310 U	310 U	240 U	280 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U
Phenanthrene	85-01-8	1600000	240	ug/kg	0.33 U	0.011 J	0.33 U	180	52	200	250	280	0.33 U	0.33 U	0.004 J	0.006 J	0.008 J	0.01 J	0.33 U	0.008 J	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.11 J	0.012 J	0.0034 J
Phenol	108-95-2	12000000	-	ug/kg	0.33 U	0.33 U	0.33 U	290 U	310 U	310 U	240 U	280 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Pyrene	129-00-0	29000000	518	ug/kg	0.33 U	0.028 J	0.004 J	310	130	340	450	460	0.33 U	0.33 U	0.007 J	0.007 J	0.005 J	0.017 J	0.003 J	0.012 J	0.004 J	0.33 U	0.33 U	0.33 U	0.16 J	0.019 J	0.009 J

TABLE 3
BANK AND OVERBANK ANALYTICAL RESULTS - 2003 to 2009
FORMER STANLEY TOOLS FACILITY (MID 099 124 299)
Fowlerville, MI

					Location	MD53	MD21	MD58	LU East Bank	LD East Bank	N East Bank	O East Bank	P East Bank	MS12	MD87	MD86	MD85	MD84	MD83	MD82	MD81	MD48	MD39	MD37	MD36	MD51	MD26	MD24	MD23
					Field ID:	MD53-0202-091003-02	MD21-0001-081903-02	MD58-0405-091103-01	LU-09-EB	LD-09-EB	N-09-EB	O-09-EB	P-09-EB	MS12-0202-101903-01	MD87-0405-091203-01	MD86-0405-091203-01	MD85-0405-091203-01	MD84-0405-091203-01	MD83-0405-091203-01	MD82-0405-091203-01	MD81-0304-091203-02	MD48-0202-091003-01	MD39-0102-090903-01	MD37-0203-090903-01	MD36-0304-090903-01	MD51-0202-091003-01	MD26-0203-081903-01	MD24-0102-081903-01	MD23-0304-081903-01
					Date Sampled:	37874	37852	37875	40130	40130	40130	40130	40130	37913	37876	37876	37876	37876	37876	37876	37876	37874	37873	37873	37873	37874	37852	37852	37852
					Data Type	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original	Original
					Material Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
					Sample Event	2003	2003	2003	2009	2009	2009	2009	2009	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003
	CAS	Part 201 Residential Direct Contact	Site Specific Background	Units																									
PCBs																													
PCB Total	TPCB	1200	-	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1016	12674-11-2	1200	-	ug/kg	0.33 U	0.33 U	0.33 U	570 U	600 U	620 U	480 U	550 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
PCB-1221	11104-28-2	1200	-	ug/kg	0.33 U	0.33 U	0.33 U	570 U	600 U	620 U	480 U	550 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
PCB-1232	11141-16-5	1200	-	ug/kg	0.33 U	0.33 U	0.33 U	570 U	600 U	620 U	480 U	550 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
PCB-1242	53469-21-9	1200	-	ug/kg	0.33 U	0.33 U	0.33 U	570 U	600 U	620 U	480 U	550 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
PCB-1248	12672-29-6	1200	-	ug/kg	0.018 J	0.33 U	0.33 U	21 J	34 J	31 J	38 J	12 J	0.33 U	0.33 U	0.0086 J	0.0081 J	0.019 J	0.0081 J	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.0093 J	0.33 U	0.33 U	0.19 J	0.0088 J	0.33 U
PCB-1254	11097-69-1	1200	-	ug/kg	0.33 U	0.33 U	0.33 U	570 U	600 U	620 U	480 U	550 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
PCB-1260	11096-82-5	1200	-	ug/kg	0.33 U	0.33 U	0.33 U	570 U	22 J	620 U	8.1 J	550 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.027 J	0.33 U	0.33 U
Total Metals																													
Aluminum, Total	7429-90-5	50000	5810	mg/kg	NA	NA	NA	7900	9900	7500	6500	5700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic, Total	7440-38-2	9.79	36.6	mg/kg	**26***	9	5.4	**26***	**30***	**26***	**14***	**22***	3.5	4.9	**11***	5.6	**14***	**10***	**18***	1.9	**10***	**16***	**21***	**35***	3	5.5	**18***	**15***
Barium, Total	7440-39-3	37000	163	mg/kg	230	20	23	170	210	180	96	84	15	6.5	37	26	18	30	11	6	76	29	10	11	14	27	17	74
Cadmium, Total	7440-43-9	550	1.85	mg/kg	0.54	0.091	0.068	0.63	0.70	0.83	0.47	0.37	0.058	0.022 J	0.074	0.1	0.079	0.065	0.088	0.036 J	0.24	0.083	0.041 J	0.043 J	0.038 J	0.11	0.082	0.24
Chromium, Total	7440-47-3	790000	15.4	mg/kg	71	12	11	82	210	370	210	100	32	5.5	12	11	7.5	14	5.1	5.6	8.4	7.5	6.3	19	10	38	10	13
Copper, Total	7440-50-8	20000	25.9	mg/kg	69	7.7	5	48	220	160	110	62	40	4.6	13	8.1	7.2	17	9.2	12	6.8	4.5	3.3	2.2	3.2	37	5.9	8.8
Lead, Total	7439-92-1	400	21.6	mg/kg	19	4.3	3.2	19	33	61	31	20	6.5	3.1	5.4	4.7	4.2	5	3.9	1.8	4.3	2	1.8	2.4	1.4	6.3	7.5	4.5
Mercury, Total	7439-97-6	160	0.147	mg/kg	0.075 J	0.014 J	0.01 J	0.12	0.15	0.18	0.15	0.073	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.037 J	0.1 U	0.1 U	0.1 U	0.1 U	0.0082 J	0.1 U	0.041 J
Nickel, Total	7440-02-0	40000	15.5	mg/kg	40	7.8	8.7	26	130	70	41	27	66	26	13	13	11	21	12	5.1	7.3	7.8	6.2	14	8.6	26	7.6	8.8
Selenium, Total	7782-49-2	2600	2.32	mg/kg	0.38 U	0.22 J	0.24 U	0.92	1.2	0.97	0.59	0.54	0.81	0.14 J	0.26	0.23	0.24	0.31	0.28	0.12 J	0.25 U	0.22 J	0.097 J	0.19 J	0.13 J	0.22 U	0.22	0.25 U
Silver, Total	7440-22-4	2500	1	mg/kg	0.11 J	0.033 J	0.05 J	0.081	0.11	0.13	0.094	0.067	0.045 J	0.016 J	0.087 J	0.057 J	0.049 J	0.078 J	0.03 J	0.023 J	0.053 J	0.041 J	0.092 J	0.11 J	0.025 J	0.039 J	0.045 J	0.048 J
Zinc, Total	7440-66-6	170000	110	mg/kg	341	33	15	140	420	260	180	110	41	147	26	28	22	31	20	14	30	19	14	8.8	13	126	25	37
Chromium, Hexavalent	18540-29-9	2500	-	mg/kg	27 U	0.29 J	31 U	3.5 U	3.3 U	3.4 U	2.9 U	0.90 J	0.55 J	2 U	2 U	2 U	2 U	2 U	2 U	2 U	1.3 J	2 U	2 U	2 U	1.3 J	1.3 J	2 U	0.87 J
Misc																													
Cyanide, Available	57-12-5	NA		mg/kg	NA	NA	NA	2.6	1.2	1.4	0.67	1.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide, Total	57-12-5	12	0.87	mg/kg	0.23	0.2 U	0.2 U	0.22	0.36	0.64	0.19	0.35	0.2 U	0.04 J	0.2 U	0.05 J	0.04 J	0.12 J	0.93	1.9	0.12 J	0.033 J	0.2 U	0.2 U	0.036 J	0.13 J	0.1 J	0.2 U

Notes:
NA - Indicates that the sample was not analyzed for that parameter.
U - Inidcates that the result was not detected above the Method Detection Limit (MDL).
J - Indicates an estimated value with the result detection above the Method Detection Limit (MDL)but below the Reporting Limit (RL).
B - Indicates that that compound was also detected in a Blank.
* - Indicates that the exceeded value is at or below Site Specific Background Values
Values that are Bold and Underlined Exceed the Part 201 Residential Direct Contact Screening Levels.

TABLE 3
BANK AND OVERBANK ANALYTICAL RESULTS - 2003 to 2009
FORMER STANLEY TOOLS FACILITY (MID 099 124 299)
Fowlerville, MI

				Location	MD53	MD21	MD58	U East Overbank	D East Overbank	N East Overbank	O East Overbank	P East Overbank
				Field ID:	MD53-0202-091003-02	MD21-0001-081903-02	MD58-0405-091103-01	LU-09-EO	LD-09-EO	N-09-EO	O-09-EO	P-09-EO
				Date Sampled:	37874	37852	37875	40130	40130	40130	40130	40130
				Data Type	Original	Original	Original	Original	Original	Original	Original	Original
				Material Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
				Sample Event	2003	2003	2003	2009	2009	2009	2009	2009
	CAS	Part 201 Residential Direct Contact	Site Specific Background	Units								
Volatile Organic Compounds												
1,1,1,2-Tetrachloroethane	630-20-6	1E+24	-	ug/kg	0.091 U	0.061 U	0.059 U	77 U	61 U	99 U	80 U	72 U
1,1,1-Trichloroethane	71-55-6	460000	-	ug/kg	0.091 U	0.061 U	0.059 U	77 U	61 U	99 U	80 U	72 U
1,1,2,2-Tetrachloroethane	79-34-5	1E+24	-	ug/kg	0.091 U	0.061 U	0.059 U	77 U	61 U	99 U	80 U	72 U
1,1,2-Trichloroethane	79-00-5	180000	-	ug/kg	0.091 U	0.061 U	0.059 U	77 U	61 U	99 U	80 U	72 U
1,1-Dichloroethane	75-34-3	890000	5.8	ug/kg	0.091 U	0.061 U	0.059 U	77 U	61 U	99 U	80 U	72 U
1,1-Dichloroethene	75-35-4	200000	-	ug/kg	0.091 U	0.061 U	0.059 U	77 U	61 U	99 U	80 U	72 U
1,1-Dichloropropene	563-58-6	1E+24	-	ug/kg	0.091 U	0.061 U	0.059 U	77 U	61 U	99 U	80 U	72 U
1,2,3-Trichlorobenzene	87-61-6	1E+24	-	ug/kg	0.45 U	0.3 U	0.29 U	77 U	61 U	99 U	80 U	72 U
1,2,3-Trichloropropane	96-18-4	1E+24	-	ug/kg	0.091 U	0.061 U	0.059 U	77 U	61 U	99 U	80 U	72 U
1,2,4-Trichlorobenzene	120-82-1	990000	-	ug/kg	0.091 U	0.061 U	0.059 U	77 U	61 U	99 U	80 U	72 U
1,2,4-Trimethylbenzene	95-63-6	110000	24	ug/kg	0.091 U	0.061 U	0.059 U	77 U	61 U	99 U	80 U	72 U
1,2-Dibromo-3-chloropropane	96-12-8	1200	-	ug/kg	0.091 U	0.061 U	0.059 U	380 U	310 U	490 U	400 U	360 U
1,2-Dichlorobenzene	95-50-1	210000	-	ug/kg	0.091 U	0.061 U	0.059 U	77 U	61 U	99 U	80 U	72 U
1,2-Dichloroethane	107-06-2	91000	-	ug/kg	0.091 U	0.061 U	0.059 U	77 U	61 U	99 U	80 U	72 U
1,2-Dichloroethene (Total)	540-59-0	1E+24	81	ug/kg	NA	NA	NA	150 U	120 U	200 U	160 U	140 U
1,2-Dichloropropane	78-87-5	140000	-	ug/kg	0.091 U	0.061 U	0.059 U	77 U	61 U	99 U	80 U	72 U
1,3,5-Trimethylbenzene	108-67-8	94000	-	ug/kg	0.091 U	0.061 U	0.059 U	77 U	61 U	99 U	80 U	72 U
1,3-Dichlorobenzene	541-73-1	170000	-	ug/kg	0.091 U	0.061 U	0.059 U	77 U	61 U	99 U	80 U	72 U
1,3-Dichloropropane	142-28-9	1E+24	-	ug/kg	0.091 U	0.061 U	0.059 U	77 U	61 U	99 U	80 U	72 U
1,4-Dichlorobenzene	106-46-7	400000	-	ug/kg	0.091 U	0.061 U	0.059 U	77 U	61 U	99 U	80 U	72 U
2,2-Dichloropropane	594-20-7	1E+24	-	ug/kg	0.091 U	0.061 U	0.059 U	77 U	61 U	99 U	80 U	72 U
2-Chlorotoluene	95-49-8	500000	-	ug/kg	0.091 U	0.061 U	0.059 U	77 U	61 U	99 U	80 U	72 U
2-Hexanone	591-78-6	2500000	-	ug/kg	0.91 U	0.61 U	0.59 U	3800 U	3100 U	4900 U	4000 U	3600 U
4-Chlorotoluene	106-43-4	500000	-	ug/kg	0.091 U	0.061 U	0.059 U	77 U	61 U	99 U	80 U	72 U
4-Isopropyltoluene	99-87-6	1E+24	23	ug/kg	0.091 U	0.061 U	0.059 U	77 U	61 U	99 U	80 U	72 U
4-Methyl-2-pentanone (MIBK)	108-10-1	2700000	-	ug/kg	0.91 U	0.61 U	0.59 U	3800 U	3100 U	4900 U	4000 U	3600 U
Acetone	67-64-1	23000000	761	ug/kg	0.91 U	0.61 U	0.59 U	170 J	160 J	1500 U	1200 U	1100 U
Acrolein	107-02-8	3600000	-	ug/kg	NA	NA	NA	380 U	310 U	490 U	400 U	360 U
Benzene	71-43-2	180000	-	ug/kg	0.091 U	0.061 U	0.059 U	77 U	61 U	99 U	80 U	72 U
Bromobenzene	108-86-1	540000	-	ug/kg	0.091 U	0.061 U	0.059 U	77 U	61 U	99 U	80 U	72 U
Bromochloromethane	74-97-5	1E+24	-	ug/kg	0.091 U	0.061 U	0.059 U	77 U	61 U	99 U	80 U	72 U
Bromoform	75-25-2	820000	-	ug/kg	0.091 U	0.061 U	0.059 U	77 U	61 U	99 U	80 U	72 U
Bromomethane	74-83-9	320000	-	ug/kg	0.091 U	0.061 U	0.059 U	77 U	61 U	99 U	80 U	72 U
Carbon Disulfide	75-15-0	280000	-	ug/kg	0.91 U	0.61 U	0.59 U	380 U	310 U	490 U	400 U	360 U
Carbon Tetrachloride	56-23-5	96000	-	ug/kg	0.091 U	0.061 U	0.059 U	77 U	61 U	99 U	80 U	72 U
Chlorobenzene	108-90-7	260000	-	ug/kg	0.091 U	0.061 U	0.059 U	77 U	61 U	99 U	80 U	72 U
Chloroethane	75-00-3	950000	-	ug/kg	0.091 U	0.061 U	0.059 U	77 U	61 U	99 U	80 U	72 U
Chloroform	67-66-3	1200000	22	ug/kg	0.091 U	0.061 U	0.059 U	77 U	61 U	99 U	80 U	72 U
Chloromethane	74-87-3	1100000	49.5	ug/kg	0.091 U	0.061 U	0.059 U	77 U	61 U	99 U	80 U	72 U
cis-1,2-Dichloroethene	156-59-2	640000	-	ug/kg	0.091 U	0.061 U	0.059 U	77 U	61 U	99 U	80 U	72 U
cis-1,3-Dichloropropene	10061-01-5	1E+24	-	ug/kg	0.091 U	0.061 U	0.059 U	77 U	61 U	99 U	80 U	72 U
Dibromochloromethane	124-48-1	110000	-	ug/kg	0.091 U	0.061 U	0.059 U	77 U	61 U	99 U	80 U	72 U
Dibromomethane	74-95-3	2000000	-	ug/kg	0.091 U	0.061 U	0.059 U	77 U	61 U	99 U	80 U	72 U
Dichlorobromomethane	75-27-4	110000	-	ug/kg	0.091 U	0.061 U	0.059 U	NA	NA	NA	NA	NA
Dichlorodifluoromethane	75-71-8	1000000	-	ug/kg	0.091 U	0.061 U	0.059 U	77 U	61 U	99 U	80 U	72 U
Ethylbenzene	100-41-4	140000	-	ug/kg	0.091 U	0.061 U	0.059 U	77 U	61 U	99 U	80 U	72 U
Ethylene dibromide	106-93-4	92	-	ug/kg	0.091 U	0.061 U	0.059 U	77 U	61 U	99 U	80 U	72 U
Hexachlorobutadiene	87-68-3	100000	-	ug/kg	0.45 U	0.3 U	0.29 U	77 U	61 U	99 U	80 U	72 U
Isopropylbenzene	98-82-8	390000	-	ug/kg	0.091 U	0.061 U	0.059 U	77 U	61 U	99 U	80 U	72 U
2-Butanone (MEK)	78-93-3	27000000	517	ug/kg	0.91 U	0.61 U	0.59 U	76 J	75 J	88 J	78 J	60 J
Methyl tert-Butyl Ether	1634-04-4	1500000	-	ug/kg	0.91 U	0.61 U	0.59 U	77 U	61 U	99 U	80 U	72 U
Methylene Chloride	75-09-2	1300000	-	ug/kg	0.18 U	0.3 U	0.059 U	48 J	46 J	59 J	55 J	85 J
n-Butylbenzene	104-51-8	2500000	27	ug/kg	0.091 U	0.061 U	0.059 U	77 U	61 U	99 U	80 U	72 U
n-Propylbenzene	103-65-1	2500000	-	ug/kg	0.091 U	0.061 U	0.059 U	77 U	61 U	99 U	80 U	72 U
Naphthalene	91-20-3	16000000	78.7	ug/kg	0.45 U	0.3 U	0.29 U	380 U	310 U	490 U	400 U	360 U
Xylene, Ortho	95-47-6	1E+24	-	ug/kg	0.091 U	0.061 U	0.059 U	77 U	61 U	99 U	80 U	72 U
sec-Butylbenzene	135-98-8	2500000	-	ug/kg	0.091 U	0.061 U	0.059 U	77 U	61 U	99 U	80 U	72 U
Styrene	100-42-5	400000	13	ug/kg	0.091 U	0.061 U	0.059 U	77 U	61 U	99 U	80 U	72 U
tert-Butylbenzene	98-06-6	2500000	-	ug/kg	0.091 U	0.061 U	0.059 U	77 U	61 U	99 U	80 U	72 U
Tetrachloroethene	127-18-4	88000	-	ug/kg	0.091 U	0.061 U	0.059 U	77 U	61 U	99 U	80 U	72 U
Toluene	108-88-3	250000	3.2	ug/kg		0.061 U	0.032 J	77 U	61 U	99 U	80 U	72 U
trans-1,2-Dichloroethene	156-60-5	1400000	-	ug/kg	0.091 U	0.061 U	0.059 U	77 U	61 U	99 U	80 U	72 U
trans-1,3-Dichloropropene	10061-02-6	10000	-	ug/kg	0.091 U	0.061 U	0.059 U	77 U	61 U	99 U	80 U	72 U
Trichloroethene	79-01-6	500000	11	ug/kg	0.091 U	0.061 U	0.059 U	77 U	61 U	99 U	80 U	72 U
Trichlorofluoromethane	75-69-4	560000	-	ug/kg	0.091 U	0.061 U	0.059 U	77 U	61 U	99 U	80 U	72 U
Vinyl Chloride	75-01-4	3800	-	ug/kg	0.091 U	0.061 U	0.059 U	77 U	61 U	99 U	80 U	72 U
Xylene, Meta + Para	Not Applicable	1E+24	-	ug/kg	0.18 U	0.12 U	0.12 U	150 U	120 U	200 U	160 U	140 U

TABLE 3
BANK AND OVERBANK ANALYTICAL RESULTS - 2003 to 2009
FORMER STANLEY TOOLS FACILITY (MID 099 124 299)
Fowlerville, MI

					Location	MD53	MD21	MD58	U East Overbank	D East Overbank	N East Overbank	O East Overbank	P East Overbank
					Field ID:	MD53-0202-091003-02	MD21-0001-081903-02	MD58-0405-091103-01	LU-09-EO	LD-09-EO	N-09-EO	O-09-EO	P-09-EO
					Date Sampled:	37874	37852	37875	40130	40130	40130	40130	40130
					Data Type	Original	Original	Original	Original	Original	Original	Original	Original
					Material Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
					Sample Event	2003	2003	2003	2009	2009	2009	2009	2009
	CAS	Part 201 Residential Direct Contact	Site Specific Background	Units									
Semi-Volatile Organic Compounds													
1,2,4-Trichlorobenzene	120-82-1	990000	-	ug/kg	NA	NA	NA	77 U	61 U	99 U	80 U	72 U
1,2-Benzphenanthracene	218-01-9	2000000	-	ug/kg	0.33 U	0.013 J	0.33 U	99	22	230	190	170
1,2-Dichlorobenzene	95-50-1	210000	-	ug/kg	0.33 U	0.33 U	0.33 U	77 U	61 U	99 U	80 U	72 U
1,3-Dichlorobenzene	541-73-1	170000	-	ug/kg	0.33 U	0.33 U	0.33 U	77 U	61 U	99 U	80 U	72 U
1,4-Dichlorobenzene	106-46-7	400000	-	ug/kg	0.33 U	0.33 U	0.33 U	77 U	61 U	99 U	80 U	72 U
2,4,5-Trichlorophenol	95-95-4	23000000	-	ug/kg	0.33 U	0.33 U	0.33 U	28 U	20 U	33 U	28 U	24 U
2,4,6-Trichlorophenol	88-06-2	710000	-	ug/kg	0.33 U	0.33 U	0.33 U	28 U	20 U	33 U	28 U	24 U
2,4-Dichlorophenol	120-83-2	660000	-	ug/kg	0.33 U	0.33 U	0.33 U	28 U	20 U	33 U	28 U	24 U
2,4-Dimethylphenol	105-67-9	11000000	-	ug/kg	0.33 U	0.33 U	0.33 U	550 U	410 U	660 U	570 U	480 U
2,4-Dinitrophenol	51-28-5	1E+24	-	ug/kg	0.33 U	0.33 U	0.33 U	550 U	410 U	660 U	570 U	480 U
2,4-Dinitrotoluene	121-14-2	48000	-	ug/kg	NA	NA	NA	55 U	41 U	66 U	57 U	48 U
2,6-Dinitrotoluene	606-20-2	1E+24	-	ug/kg	0.33 U	0.33 U	0.33 U	28 U	20 U	33 U	28 U	24 U
2-Chloronaphthalene	91-58-7	56000000	-	ug/kg	0.33 U	0.33 U	0.33 U	28 U	20 U	33 U	28 U	24 U
2-Chlorophenol	95-57-8	1400000	-	ug/kg	0.33 U	0.33 U	0.33 U	28 U	20 U	33 U	28 U	24 U
2-Methylnaphthalene	91-57-6	8100000	-	ug/kg	0.33 U	0.33 U	0.33 U	28 U	20 U	3.3 J	2.9 J	2.4 J
2-Methylphenol	95-48-7	11000000	-	ug/kg	0.33 U	0.33 U	0.33 U	28 U	20 U	33 U	28 U	24 U
2-Nitroaniline	88-74-4	1E+24	-	ug/kg	1.7 U	1.7 U	1.7 U	28 U	20 U	33 U	28 U	24 U
2-Nitrophenol	88-75-5	630000	-	ug/kg	0.33 U	0.33 U	0.33 U	28 U	20 U	33 U	28 U	24 U
3,3'-Dichlorobenzidine	91-94-1	6600	-	ug/kg	2 U	2 U	2 U	280 U	200 U	330 U	280 U	240 U
3+4-Methylphenol	108-39-4	11000000	-	ug/kg	NA	NA	NA	28 U	20 U	33 U	28 U	24 U
3-Nitroaniline	99-09-2	1E+24	-	ug/kg	1.7 U	1.7 U	1.7 U	55 U	41 U	66 U	57 U	48 U
4,6-Dinitro-2-methylphenol	534-52-1	79000	-	ug/kg	1.7 U	1.7 U	1.7 U	110 U	81 U	130 U	110 U	96 U
4-Bromophenyl Phenyl Ether	101-55-3	1E+24	-	ug/kg	0.33 U	0.33 U	0.33 U	28 U	20 U	33 U	28 U	24 U
4-Chloroaniline	106-47-8	1E+24	-	ug/kg	1.7 U	1.7 U	1.7 U	55 U	41 U	66 U	57 U	48 U
4-Chlorophenyl Phenyl Ether	7005-72-3	1E+24	-	ug/kg	0.33 U	0.33 U	0.33 U	28 U	20 U	33 U	28 U	24 U
4-Methylphenol	106-44-5	11000000	-	ug/kg	0.33 U	0.33 U	0.33 U	28 U	20 U	33 U	28 U	24 U
4-Nitroaniline	100-01-6	1E+24	-	ug/kg	1.7 U	1.7 U	1.7 U	110 U	81 U	130 U	110 U	96 U
4-Nitrophenol	100-02-7	1E+24	-	ug/kg	1.7 U	1.7 U	1.7 U	550 U	410 U	660 U	570 U	480 U
Acenaphthene	83-32-9	41000000	-	ug/kg	0.33 U	0.33 U	0.33 U	3.3 J	20 U	9.3 J	8.0 J	7.1 J
Acenaphthylene	208-96-8	1600000	-	ug/kg	0.33 U	0.33 U	0.33 U	4.4 J	20 U	9.9 J	8.0 J	6.6 J
Anthracene	120-12-7	230000000	-	ug/kg	0.33 U	0.33 U	0.33 U	NA	NA	NA	NA	NA
Benzo(a)anthracene	56-55-3	20000	303	ug/kg	0.33 U	0.043 J	0.33 U	91	19 J	250	200	180
Benzidine	92-87-5	1000	-	ug/kg	5 U	5 U	5 U	1100 U	810 U	1300 U	1100 U	960 U
Benzo(a)pyrene	50-32-8	2000	332	ug/kg	0.33 U	0.052 J	0.33 U	69	23	220	210	170
Benzo(b)fluoranthene	205-99-2	20000	307	ug/kg	0.33 U	0.084 J	0.33 U	86	22	350	350	250
Benzo(g,h,i)perylene	191-24-2	2500000	160	ug/kg	0.33 U	0.02 J	0.33 U	51 J	41 U	120	110	93
Benzo(k)fluoranthene	207-08-9	200000	270	ug/kg	0.33 U	0.33 U	0.33 U	54	17 J	120	130	98
Benzoic Acid	65-85-0	990000000	320	ug/kg	3.3 U	3.3 U	3.3 U	550 U	410 U	660 U	570 U	480 U
Benzyl Alcohol	100-51-6	5800000	-	ug/kg	1.3 U	1.3 U	1.3 U	280	74	200	150	59
Bis(2-chloroethoxy)methane	111-91-1	1E+24	-	ug/kg	0.33 U	0.33 U	0.33 U	28 U	20 U	33 U	28 U	24 U
Bis(2-chloroethyl) Ether	111-44-4	13000	-	ug/kg	0.1 U	0.1 U	0.1 U	28 U	20 U	33 U	28 U	24 U
bis(2-Chloroisopropyl)ether	108-60-1	1E+24	-	ug/kg	0.33 U	0.33 U	0.33 U	NA	NA	NA	NA	NA
Bis(2-ethylhexyl) Phthalate	117-81-7	2800000	110	ug/kg	NA	NA	NA	47 JB	28 JB	71	52 J	42 JB
Butyl Benzyl Phthalate	85-68-7	310000	-	ug/kg	0.33 U	0.33 U	0.33 U	12 J	41 U	14 J	15 J	48 U
Carbazole	86-74-8	530000	-	ug/kg	0.33 U	0.33 U	0.33 U	550 U	410 U	660 U	570 U	480 U
Chrysene	218-01-9	2000000	350	ug/kg	0.33 U	0.013 J	0.33 U	99	22	230	190	170
Di-n-butyl Phthalate	84-74-2	760000	220	ug/kg	0.092 J	0.065 J	0.033 J	96 J	55 J	330 U	280 U	240 U
Di-n-octyl Phthalate	117-84-0	6900000	-	ug/kg	0.33 U	0.33 U	0.33 U	28 U	20 U	33 U	28 U	24 U
Dibenz(a,h)anthracene	53-70-3	2000	-	ug/kg	0.33 U	0.33 U	0.33 U	19 J	41 U	32 J	33 J	24 J
Dibenzofuran	132-64-9	1E+24	-	ug/kg	0.33 U	0.33 U	0.33 U	28 U	20 U	33 U	28 U	24 U
Diethyl Phthalate	84-66-2	740000	-	ug/kg	0.006 J	0.0029 J	0.003 J	28 U	20 U	33 U	28 U	24 U
Dimethyl Phthalate	131-11-3	790000	-	ug/kg	3.3 U	3.3 U	3.3 U	28 U	20 U	33 U	28 U	24 U
Fluoranthene	206-44-0	46000000	631	ug/kg	0.01 J	0.035 J	0.005 J	150	30	510	340	330
Fluorene	86-73-7	27000000	-	ug/kg	0.33 U	0.33 U	0.33 U	28 U	20 U	29 J	18 J	15 J
Hexachlorobenzene	118-74-1	8900	-	ug/kg	0.33 U	0.33 U	0.33 U	28 U	20 U	33 U	28 U	24 U
Hexachlorobutadiene	87-68-3	100000	-	ug/kg	0.33 U	0.33 U	0.33 U	77 U	61 U	99 U	80 U	72 U
Hexachlorocyclopentadiene	77-47-4	720000	-	ug/kg	0.33 U	0.33 U	0.33 U	28 U	20 U	33 U	28 U	24 U
Hexachloroethane	67-72-1	230000	-	ug/kg	0.33 U	0.33 U	0.33 U	28 U	20 U	33 U	28 U	24 U
Indeno(1,2,3-cd)pyrene	193-39-5	20000	160	ug/kg	0.33 U	0.054 J	0.33 U	40 J	6.2 J	110	120	83
Isophorone	78-59-1	2400000	-	ug/kg	0.33 U	0.33 U	0.33 U	28 U	20 U	33 U	28 U	24 U
N-Nitroso-di-n-propylamine	621-64-7	1200	-	ug/kg	0.33 U	0.33 U	0.33 U	28 U	20 U	33 U	28 U	24 U
N-Nitroso-diphenylamine	86-30-6	1700000	-	ug/kg	0.33 U	0.33 U	0.33 U	28 U	20 U	33 U	28 U	24 U
Naphthalene	91-20-3	16000000	-	ug/kg	0.33 U	0.33 U	0.33 U	380 U	310 U	490 U	400 U	360 U
Nitrobenzene	98-95-3	100000	-	ug/kg	0.2 U	0.2 U	0.2 U	28 U	20 U	33 U	28 U	24 U
p-Chloro-m-cresol	59-50-7	4500000	-	ug/kg	0.051 J	0.01 J	0.016 J	28 U	20 U	33 U	28 U	24 U
Pentachlorophenol	87-86-5	90000	-	ug/kg	0.8 U	0.8 U	0.8 U	280 U	200 U	330 U	280 U	240 U
Phenanthrene	85-01-8	1600000	240	ug/kg	0.33 U	0.011 J	0.33 U	120	16 J	340	250	240
Phenol	108-95-2	12000000	-	ug/kg	0.33 U	0.33 U	0.33 U	280 U	200 U	330 U	280 U	240 U
Pyrene	129-00-0	29000000	518	ug/kg	0.33 U	0.028 J	0.004 J	170	39	500	380	350

TABLE 3
BANK AND OVERBANK ANALYTICAL RESULTS - 2003 to 2009
FORMER STANLEY TOOLS FACILITY (MID 099 124 299)
Fowlerville, MI

					Location	MD53	MD21	MD58	U East Overbank	D East Overbank	N East Overbank	O East Overbank	P East Overbank
					Field ID:	MD53-0202-091003-02	MD21-0001-081903-02	MD58-0405-091103-01	LU-09-EO	LD-09-EO	N-09-EO	O-09-EO	P-09-EO
					Date Sampled:	37874	37852	37875	40130	40130	40130	40130	40130
					Data Type	Original	Original	Original	Original	Original	Original	Original	Original
					Material Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
					Sample Event	2003	2003	2003	2009	2009	2009	2009	2009
	CAS	Part 201 Residential Direct Contact	Site Specific Background	Units									
PCBs													
PCB Total	TPCB	1200	-	ug/kg	NA	NA	NA	NA	NA	NA	NA	NA	
PCB-1016	12674-11-2	1200	-	ug/kg	0.33 U	0.33 U	0.33 U	540 U	400 U	650 U	560 U	480 U	
PCB-1221	11104-28-2	1200	-	ug/kg	0.33 U	0.33 U	0.33 U	540 U	400 U	650 U	560 U	480 U	
PCB-1232	11141-16-5	1200	-	ug/kg	0.33 U	0.33 U	0.33 U	540 U	400 U	650 U	560 U	480 U	
PCB-1242	53469-21-9	1200	-	ug/kg	0.33 U	0.33 U	0.33 U	540 U	400 U	650 U	560 U	480 U	
PCB-1248	12672-29-6	1200	-	ug/kg	0.018 J	0.33 U	0.33 U	13 J	400 U	33 J	27 J	40 J	
PCB-1254	11097-69-1	1200	-	ug/kg	0.33 U	0.33 U	0.33 U	540 U	400 U	650 U	560 U	480 U	
PCB-1260	11096-82-5	1200	-	ug/kg	0.33 U	0.33 U	0.33 U	540 U	400 U	650 U	560 U	480 U	
Total Metals													
Aluminum, Total	7429-90-5	50000	5810	mg/kg	NA	NA	NA	13000	5000	4600	8400	5400	
Arsenic, Total	7440-38-2	9.79	36.6	mg/kg	**26***	9	5.4	**35***	5.0	**13***	**18***	**20***	
Barium, Total	7440-39-3	37000	163	mg/kg	230	20	23	220	29	78	120	69	
Cadmium, Total	7440-43-9	550	1.85	mg/kg	0.54	0.091	0.068	0.93	0.17	0.52	0.60	0.39	
Chromium, Total	7440-47-3	790000	15.4	mg/kg	71	12	11	540	33	160	220	120	
Copper, Total	7440-50-8	20000	25.9	mg/kg	69	7.7	5	150	20	95	110	72	
Lead, Total	7439-92-1	400	21.6	mg/kg	19	4.3	3.2	43	8.0	48	38	25	
Mercury, Total	7439-97-6	160	0.147	mg/kg	0.075 J	0.014 J	0.01 J	0.27	0.024 J	0.15	0.16	0.095	
Nickel, Total	7440-02-0	40000	15.5	mg/kg	40	7.8	8.7	73	12	40	40	31	
Selenium, Total	7782-49-2	2600	2.32	mg/kg	0.38 U	0.22 J	0.24 U	0.98	0.27	0.54	0.78	0.55	
Silver, Total	7440-22-4	2500	1	mg/kg	0.11 J	0.033 J	0.05 J	0.15	0.038 J	0.094	0.12	0.076	
Zinc, Total	7440-66-6	170000	110	mg/kg	341	33	15	310	45	170	230	120	
Chromium, Hexavalent	18540-29-9	2500	-	mg/kg	27 U	0.29 J	31 U	3.0 U	0.64 J	0.41 J	3.2 U	2.9 U	
Misc													
Cyanide, Available	57-12-5	NA		mg/kg	NA	NA	NA	0.99		1.2	1.5	1.1	
Cyanide, Total	57-12-5	12	0.87	mg/kg	0.23	0.2 U	0.2 U	0.45	0.12 U	0.39	0.42	0.26	

Notes:
NA - Indicates that the sample was not analyzed for that parameter.
U - Inidcates that the result was not detected above the Method Detection Limit (MDL).
J - Indicates an estimated value with the result detection above the Method Detection Limit (MDL)but below the Reporting Limit (RL).
B - Indicates that that compound was also detected in a Blank.
* - Indicates that the exceeded value is at or below Site Specific Background Values
Values that are Bold and Underlined Exceed the Part 201 Residential Direct Contact Screening Levels.

TABLE 4
EXCEEDENCE SUMMARY
FORMER STANLEY TOOLS FACILITY (MID 099 124 299)
Fowlerville, MI

	EPA RO Exceedance					Op. Memo 4 Criteria Exceedence over Site Specific Background Value																												
	Metals					VOCs						SVOCs																PCBs	Metals							
Location	Chromium, Total	Copper, Total	Lead, Total	Nickel, Total	Zinc, Total	1,1-Dichloroethane	Acetone	Methyl ethyl ketone	Methylene chloride	Naphthalene	Trichloroethene	2-Methylnaphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	bis(2-Ethylhexyl)phthalate	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Phenanthrene	Pyrene	PCB, Total	Arsenic, Total	Chromium, Total	Copper, Total	Lead, Total	Nickel, Total	Zinc, Total	Cyanide, Free	Cyanide, Total
SD-A1	X	X		X	X															X										X	X		X	X		
SD-A2						X							X			X											X					X			
SD-A3						X							X																						
SDB1						X		X					X																						
SDB2						X				X		X	X	X	X							X				X		X		X	X		X			
SDB3						X	X	X										X				X													X
SD-C1		X		X	X	X					X																			X	X		X	X		
SDC2								X					X	X	X							X	X			X									
SD-C3																															X		X			
SD-D1						X		X																												
SD-D2						X		X					X	X																						X
SD-D3								X					X																							
SD-E1	X	X		X											X	X	X	X	X	X	X		X		X	X	X			X	X	X	X	X		
SD-E2	X	X	X	X	X							X			X	X	X		X	X	X		X		X	X	X	X		X	X	X	X	X	X	X
SD-E3																												X								
SD-F1								X																												
SD-F2								X																				X								
SD-F3								X																						X	X		X			X
SD-G1								X																					X							
SD-G2							X	X					X	X	X							X				X										
SD-G3								X																												
SD-H1	X	X		X	X		X	X																						X	X		X	X		X
SD-H2								X												X								X		X	X			X		X
SD-H3								X																						X	X		X	X		
SD-I3								X																						X	X		X			X
SD-J1																												X			X					
SD-J2													X																	X	X		X			
SD-J3																															X					
SD-K1								X																						X			X	X		
SD-K3								X																												
SD-L1 (2003 SD-L3)									X																											
SD-L2									X																										X	X
SD-L3 (2003 SD-L1)			X										X		X	X		X					X			X	X				X				
SD-LD2			X				X						X	X																	X				
SD-LD3													X	X																						
SD-M1									X																				X							
SD-M2									X																			X								
SD-M3									X																											
SD-N1													X			X				X							X									
SD-N3										X			X	X		X	X	X	X		X	X	X		X	X	X									
SD-O1													X	X																						
SD-O2													X			X	X	X	X		X		X		X	X	X									
SD-P1													X	X		X											X									
SD-P3																													X							

TABLE 5
IN-CHANNEL AND COMBINED SWAC ANALYSIS SUMMARY
FORMER STANLEY TOOLS FACILITY (MID 099 124 299)
Fowlerville, MI

						TRANSECTS A - P					
						IN-CHANNEL			COMBINED - IN-CHANNEL, BANK & OVERBANK		
			RO Criteria	Op. Memo 4	Site Specific Background Value	SWAC VALUES	SWAC Value Exceeds RO	SWAC Value Exceeds Op. Memo4	SWAC VALUES	SWAC Value Exceeds RO	SWAC Value Exceeds Op. Memo4
Volatile Organic Compounds											
1,1-Dichloroethane	75-34-3	ug/kg		0.575	5.8	15.66	NA	Yes	7.45	NA	Yes
Acetone	67-64-1	ug/kg		9.9	761*	355.23	NA	Yes	145.90	NA	Yes
Hexachlorobutadiene	87-68-3	ug/kg		26.5		10.38	NA	No	5.65	NA	No
2-Butanone (MEK)	78-93-3	ug/kg		42.4	517*	260.54	NA	Yes	100.31	NA	Yes
Methylene Chloride	75-09-2	ug/kg		159		103.21	NA	No	41.85	NA	No
Naphthalene	91-20-3	ug/kg		176	78.7	34.76	NA	No	15.44	NA	No
Trichloroethene	79-01-6	ug/kg		112	11	24.60	NA	No	11.31	NA	No
Semi-Volatile Organic Compounds											
2-Methylnaphthalene	91-57-6	ug/kg		20.2		9.85	NA	No	3.55	NA	No
Acenaphthene	83-32-9	ug/kg		6.71		17.34	NA	Yes	6.68	NA	No
Acenaphthylene	208-96-8	ug/kg		5.87		10.52	NA	Yes	4.24	NA	No
Anthracene	120-12-7	ug/kg		57.2		37.60	NA	No	13.04	NA	No
Benzo(a)anthracene	56-55-3	ug/kg		108	303*	169.10	NA	Yes	71.36	NA	No
Benzo(a)pyrene	50-32-8	ug/kg		150	332	126.69	NA	No	53.57	NA	No
Benzo(g,h,i)perylene	191-24-2	ug/kg		170	160	67.52	NA	No	29.41	NA	No
Benzo(k)fluoranthene	207-08-9	ug/kg		240	270	84.74	NA	No	36.04	NA	No
Bis(2-ethylhexyl) Phthalate	117-81-7	ug/kg		182	110	125.07	NA	No	49.51	NA	No
Chrysene	218-01-9	ug/kg		166	350	144.13	NA	No	61.01	NA	No
Dibenz(a,h)anthracene	53-70-3	ug/kg		33		44.82	NA	Yes	18.21	NA	No
Fluoranthene	206-44-0	ug/kg		423	631	401.62	NA	No	162.36	NA	No
Fluorene	86-73-7	ug/kg		77.4		52.52	NA	No	19.72	NA	No
Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg		200	160	77.07	NA	No	32.73	NA	No
Phenanthrene	85-01-8	ug/kg		204	240*	220.94	NA	Yes	89.41	NA	No
Pyrene	129-00-0	ug/kg		195	518*	351.96	NA	Yes	146.95	NA	No
PCBs											
PCB Total	TPCB	ug/kg		59.8		217.89	NA	Yes	79.06	NA	Yes
Total Metals											
Arsenic, Total	7440-38-2	mg/kg		9.79	36.6*	15.23	NA	Yes	7.49	NA	No
Chromium, Total	7440-47-3	mg/kg	110	43.4	15.4	57.43	No	Yes	32.62	No	No
Copper, Total	7440-50-8	mg/kg	91	31.6	25.9	44.82	No	Yes	23.75	No	No
Lead, Total	7439-92-1	mg/kg	83	35.8	21.6	20.36	No	No	9.70	No	No
Nickel, Total	7440-02-0	mg/kg	49	22.7	15.5	22.14	No	No	12.16	No	No
Zinc, Total	7440-66-6	mg/kg	460	121	110	88.81	No	No	48.66	No	No
Misc											
Cyanide, Available	57-12-5	mg/kg		0.1		0.02	NA	No	0.08	NA	No
Cyanide, Total	57-12-5	mg/kg		0.1	0.87*	0.59	NA	Yes	0.24	NA	Yes

Op. Memo 4 - Ecological Screening Levels; MDEQ (now MDNRE) RRD Operational Memorandum No. 4; Attachment 3 - Sediments; Interim Final - August 2, 2006

RO Criteria - Site Remedial Objectives; USEPA letter dated June 11, 2009 regarding corrective measure implementation for sediment

Site Specific Background Value - Table 1: Summary of Cleanup Criteria for Sediments: Final Corrective Measures Proposal (FCMP) submitted in February 2004

* - Indicates that the Site Specific Background Value is greater than the Op. Memo 4 Screening Levels

TABLE 6
BANK AND OVERBANK SWAC ANALYSIS SUMMARY
FORMER STANLEY TOOLS FACILITY (MID 099 124 299)
Fowlerville, MI

						TRANSECTS A - P								
						Bank & Overbank			Bank			Overbank		
			RO Criteria	Op. Memo 4	Site Specific Background Value	SWAC VALUES	SWAC Value Exceeds RO	SWAC Value Exceeds Op. Memo4	SWAC VALUES	SWAC Value Exceeds RO	SWAC Value Exceeds Op. Memo4	SWAC VALUES	SWAC Value Exceeds RO	SWAC Value Exceeds Op. Memo4
Volatile Organic Compounds														
1,1-Dichloroethane	75-34-3	ug/kg		0.575	5.8	3.09	NA	Yes	7.10	NA	Yes	1.25	NA	Yes
Acetone	67-64-1	ug/kg		9.9	761*	34.80	NA	Yes	79.25	NA	Yes	14.51	NA	Yes
Hexachlorobutadiene	87-68-3	ug/kg		26.5		3.14	NA	No	7.37	NA	No	1.21	NA	No
2-Butanone (MEK)	78-93-3	ug/kg		42.4	517	15.28	NA	No	33.74	NA	No	6.85	NA	No
Methylene Chloride	75-09-2	ug/kg		159		9.29	NA	No	19.91	NA	No	4.44	NA	No
Naphthalene	91-20-3	ug/kg		176	78.7	5.18	NA	No	11.92	NA	No	2.10	NA	No
Trichloroethene	79-01-6	ug/kg		112	11	4.26	NA	No	9.74	NA	No	1.76	NA	No
Semi-Volatile Organic Compounds														
2-Methylnaphthalene	91-57-6	ug/kg		20.2		0.21	NA	No	0.33	NA	No	0.15	NA	No
Acenaphthene	83-32-9	ug/kg		6.71		1.02	NA	No	2.34	NA	No	0.42	NA	No
Acenaphthylene	208-96-8	ug/kg		5.87		0.91	NA	No	1.74	NA	No	0.53	NA	No
Anthracene	120-12-7	ug/kg		57.2		0.00	NA	No	0.00	NA	No	0.00	NA	No
Benzo(a)anthracene	56-55-3	ug/kg		108	303	19.48	NA	No	40.91	NA	No	9.70	NA	No
Benzo(a)pyrene	50-32-8	ug/kg		150	332	14.76	NA	No	32.15	NA	No	6.83	NA	No
Benzo(g,h,i)perylene	191-24-2	ug/kg		170	160	9.18	NA	No	20.42	NA	No	4.06	NA	No
Benzo(k)fluoranthene	207-08-9	ug/kg		240	270	10.19	NA	No	22.37	NA	No	4.64	NA	No
Bis(2-ethylhexyl) Phthalate	117-81-7	ug/kg		182	110	9.40	NA	No	19.27	NA	No	4.89	NA	No
Chrysene	218-01-9	ug/kg		166	350	16.89	NA	No	36.76	NA	No	7.82	NA	No
Dibenz(a,h)anthracene	53-70-3	ug/kg		33		4.08	NA	No	8.90	NA	No	1.88	NA	No
Fluoranthene	206-44-0	ug/kg		423	631	35.38	NA	No	76.07	NA	No	16.81	NA	No
Fluorene	86-73-7	ug/kg		77.4		2.32	NA	No	4.87	NA	No	1.15	NA	No
Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg		200	160	9.19	NA	No	20.20	NA	No	4.17	NA	No
Phenanthrene	85-01-8	ug/kg		204	240	19.60	NA	No	40.07	NA	No	10.26	NA	No
Pyrene	129-00-0	ug/kg		195	518	38.15	NA	No	82.03	NA	No	18.12	NA	No
PCBs														
PCB Total	TPCB	ug/kg		59.8		5.39	NA	No	8.69	NA	No	3.88	NA	No
Total Metals														
Arsenic, Total	7440-38-2	mg/kg		9.79	36.6	3.38	NA	No	7.96	NA	No	1.29	NA	No
Chromium, Total	7440-47-3	mg/kg	110	43.4	15.4	19.45	No	No	38.31	No	No	10.85	No	No
Copper, Total	7440-50-8	mg/kg	91	31.6	25.9	12.56	No	No	25.02	No	No	6.88	No	No
Lead, Total	7439-92-1	mg/kg	83	35.8	21.6	4.04	No	No	8.45	No	No	2.02	No	No
Nickel, Total	7440-02-0	mg/kg	49	22.7	15.5	6.86	No	No	15.11	No	No	3.10	No	No
Zinc, Total	7440-66-6	mg/kg	460	121	110	27.35	No	No	58.89	No	No	12.96	No	No
Misc														
Cyanide, Available	57-12-5	mg/kg		0.1		0.10	NA	Yes	0.26	NA	Yes	0.03	NA	No
Cyanide, Total	57-12-5	mg/kg		0.1	0.87	0.06	NA	No	0.15	NA	Yes	0.02	NA	No

Op. Memo 4 - Ecological Screening Levels; MDEQ (now MDNRE) RRD Operational Memorandum No. 4; Attachment 3 - Sediments; Interim Final - August 2, 2006

RO Criteria - Site Remedial Objectives; USEPA letter dated June 11, 2009 regarding corrective measure implementation for sediment

Site Specific Background Value - Table 1: Summary of Cleanup Criteria for Sediments: Final Corrective Measures Proposal (FCMP) submitted in February 2004

* - Indicates that the Site Specific Background Value is greater than the Op. Memo 4 Screening Levels

TABLE 7
IN-CHANNEL SEDIMENT VOLUME
FORMER STANLEY TOOLS FACILITY (MID 099 124 299)
Fowlerville, MI

Location	Area (SF)	Total Depth Most Recent Measurement(inches)	Total Fine Sediment Volume (CY)	Remedial Objective Removal Only Volume (CY)	Proposed Removal Volume (CY)
SD-A1	**319.**	26	25.6	25.6	25.6
SD-A2	**504.**	24	37.3		37.3
SD-A3	**385.**	24	28.5		28.5
SDB1	**282.**	16	13.9		13.9
SDB2	**497.**	16	24.5		24.5
SDB3	**430.**	28	37.2		37.2
SD-C1	**391.**	14	16.9	16.9	16.9
SDC2	**592.**	13	23.8		23.8
SD-C3	**879.**	24	65.1		65.1
SDD1	**741.**	6	13.7		13.7
SDD2	**912.**	30	84.4		84.4
SDD3	**707.**	12	26.2		26.2
SD-E1	**965.**	9	26.8	26.8	26.8
SD-E2	**377.**	25	29.1	29.1	29.1
SD-E3	**264.**	24	19.6		19.6
SDF1	**302.**	24	22.4		22.4
SDF2	**165.**	26	13.2		13.2
SDF3	**306.**	22	20.8		20.8
SD-G1	**433.**	28	37.4		37.4
SD-G2	**586.**	27	48.8		48.8
SD-G3	**514.**	14	22.2		22.2
SD-H1	**983.**	33	100.1	100.1	100.1
SD-H2	**1,758.**	24	130.2		130.2
SD-H3	**848.**	21	55		55
SD-I1	**2,274.**	24	168.4		
SD-I2	**1,844.**	36	204.9		
SD-I3	**1,069.**	31	102.3		
SD-J1	**349.**	24	25.9		
SD-J2	**3,348.**	24	248		
SD-J3	**1,820.**	24	134.8		
SD-K1	**1,452.**	12	53.8		
SD-K2	**940.**	24	69.6		
SD-K3	**417.**	24	30.9		
SD-LU3	**843.**	12	31.2		
SD-LU2	**703.**	10	21.7		
SD-LU1	**728.**	13	29.2		
SD-L1	**510.**	24	37.8		
SD-L2	**404.**	15	18.7		
SD-L3	**484.**	31	46.3		
SD-LD3	**441.**	27	36.8		36.8
SD-LD2	**432.**	26	34.7	34.7	34.7
SD-LD1	**578.**	14	25		25
SD-M1	**4,943.**	24	366.1		
SD-M2	**657.**	24	48.7		
SD-M3	**295.**	24	21.9		
SD-N3	**3240**	30	300		
SD-N2	**3280**	24	243		
SD-N1	**2760**	26	221.5		
SD-O3	**1298**	14	56.1		
SD-O2	**1136**	15	52.6		
SD-O1	**1781**	24	131.9		
SD-P3	**966**	10	29.8		
SD-P2	**950**	36	105.6		
SD-P1	**1136**	48	168.3		
		Totals:	**3988.2**	**233.2**	**1019.2**
			Percent of Total	6%	26%

TABLE 8
OPTION 1 - IN-CHANNEL SPOT REMOVAL SWAC ANALYSIS SUMMARY
FORMER STANLEY TOOLS FACILITY (MID 099 124 299)
Fowlerville, MI

TRANSECTS A - P

						IN-CHANNEL			COMBINED: IN-CHANNEL, BANK & OVERBANK		
			RO Criteria	Op. Memo 4	Site Specific Background Value	SWAC VALUES	SWAC Value Exceeds RO	SWAC Value Exceeds Op. Memo4	SWAC VALUES	SWAC Value Exceeds RO	SWAC Value Exceeds Op. Memo4
Volatile Organic Compounds											
1,1-Dichloroethane	75-34-3	ug/kg		0.575	5.8	15.55	NA	Yes	7.41	NA	Yes
Acetone	67-64-1	ug/kg		9.9	761*	331.53	NA	Yes	137.68	NA	Yes
Hexachlorobutadiene	87-68-3	ug/kg		26.5		10.45	NA	No	5.68	NA	No
2-Butanone (MEK)	78-93-3	ug/kg		42.4	517*	242.17	NA	Yes	93.94	NA	Yes
Methylene Chloride	75-09-2	ug/kg		159		100.88	NA	No	41.04	NA	No
Naphthalene	91-20-3	ug/kg		176	78.7	34.91	NA	No	15.49	NA	No
Trichloroethene	79-01-6	ug/kg		112	11	19.28	NA	No	9.47	NA	No
Semi-Volatile Organic Compounds											
2-Methylnaphthalene	91-57-6	ug/kg		20.2		3.47	NA	No	1.34	NA	No
Acenaphthene	83-32-9	ug/kg		6.71		17.27	NA	Yes	6.66	NA	No
Acenaphthylene	208-96-8	ug/kg		5.87		10.50	NA	Yes	4.24	NA	No
Anthracene	120-12-7	ug/kg		57.2		28.30	NA	No	9.81	NA	No
Benzo(a)anthracene	56-55-3	ug/kg		108	303*	144.16	NA	Yes	62.71	NA	No
Benzo(a)pyrene	50-32-8	ug/kg		150	332	108.66	NA	No	47.32	NA	No
Benzo(g,h,i)perylene	191-24-2	ug/kg		170	160	59.29	NA	No	26.56	NA	No
Benzo(k)fluoranthene	207-08-9	ug/kg		240	270	72.09	NA	No	31.65	NA	No
Bis(2-ethylhexyl) Phthalate	117-81-7	ug/kg		182	110	85.89	NA	No	35.92	NA	No
Chrysene	218-01-9	ug/kg		166	350	125.74	NA	No	54.63	NA	No
Dibenz(a,h)anthracene	53-70-3	ug/kg		33		45.21	NA	Yes	18.34	NA	No
Fluoranthene	206-44-0	ug/kg		423	631	348.01	NA	No	143.78	NA	No
Fluorene	86-73-7	ug/kg		77.4		47.65	NA	No	18.03	NA	No
Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg		200	160	69.38	NA	No	30.06	NA	No
Phenanthrene	85-01-8	ug/kg		204	240	192.93	NA	No	79.70	NA	No
Pyrene	129-00-0	ug/kg		195	518*	305.52	NA	Yes	130.85	NA	No
PCBs											
PCB Total	TPCB	ug/kg		59.8		22.21	NA	No	11.22	NA	No
Total Metals											
Arsenic, Total	7440-38-2	mg/kg		9.79	36.6*	14.42	NA	Yes	7.21	NA	No
Chromium, Total	7440-47-3	mg/kg	110	43.4	15.4	26.97	No	No	22.06	No	No
Copper, Total	7440-50-8	mg/kg	91	31.6	25.9	20.13	No	No	15.19	No	No
Lead, Total	7439-92-1	mg/kg	83	35.8	21.6	10.94	No	No	6.43	No	No
Nickel, Total	7440-02-0	mg/kg	49	22.7	15.5	14.31	No	No	9.44	No	No
Zinc, Total	7440-66-6	mg/kg	460	121	110	48.59	No	No	34.71	No	No
Misc											
Cyanide, Available	57-12-5	mg/kg		0.1		0.02	NA	No	0.07	NA	No
Cyanide, Total	57-12-5	mg/kg		0.1	0.87*	0.23	NA	Yes	0.12	NA	Yes

Op. Memo 4 - Ecological Screening Levels; MDEQ (now MDNRE) RRD Operational Memorandum No. 4; Attachment 3 - Sediments; Interim Final - August 2, 2006

RO Criteria - Site Remedial Objectives; USEPA letter dated June 11, 2009 regarding corrective measure implementation for sediment

Site Specific Background Value - Table 1: Summary of Cleanup Criteria for Sediments: Final Corrective Measures Proposal (FCMP) submitted in February 2004

* - Indicates that the Site Specific Background Value is greater than the Op. Memo 4 Screening Levels

TABLE 9
OPTION 2 - IN-CHANNEL TRANSECT INFLUENCE AREAS REMOVAL - A through H, and LD
FORMER STANLEY TOOLS FACILITY (MID 099 124 299)
Fowlerville, MI

						TRANSECTS A - P					
						IN-CHANNEL			COMBINED: IN-CHANNEL, BANK & OVERBANK		
			RO Criteria	Op. Memo 4	Site Specific Background Value	SWAC VALUES	SWAC Value Exceeds RO	SWAC Value Exceeds Op. Memo4	SWAC VALUES	SWAC Value Exceeds RO	SWAC Value Exceeds Op. Memo4
Volatile Organic Compounds											
1,1-Dichloroethane	75-34-3	ug/kg		0.575	5.8	12.17	NA	Yes	6.24	NA	Yes
Acetone	67-64-1	ug/kg		9.9	761*	235.46	NA	Yes	104.37	NA	Yes
Hexachlorobutadiene	87-68-3	ug/kg		26.5		10.86	NA	No	5.82	NA	No
2-Butanone (MEK)	78-93-3	ug/kg		42.4	517*	133.19	NA	Yes	56.16	NA	Yes
Methylene Chloride	75-09-2	ug/kg		159		90.81	NA	No	37.55	NA	No
Naphthalene	91-20-3	ug/kg		176	78.7	31.45	NA	No	14.29	NA	No
Trichloroethene	79-01-6	ug/kg		112	11	18.73	NA	No	9.28	NA	No
Semi-Volatile Organic Compounds											
2-Methylnaphthalene	91-57-6	ug/kg		20.2		3.19	NA	No	1.24	NA	No
Acenaphthene	83-32-9	ug/kg		6.71		14.69	NA	Yes	5.76	NA	No
Acenaphthylene	208-96-8	ug/kg		5.87		10.39	NA	Yes	4.20	NA	No
Anthracene	120-12-7	ug/kg		57.2		17.57	NA	No	6.09	NA	No
Benzo(a)anthracene	56-55-3	ug/kg		108	303*	125.39	NA	Yes	56.20	NA	No
Benzo(a)pyrene	50-32-8	ug/kg		150	332	93.91	NA	No	42.21	NA	No
Benzo(g,h,i)perylene	191-24-2	ug/kg		170	160	50.62	NA	No	23.55	NA	No
Benzo(k)fluoranthene	207-08-9	ug/kg		240	270	62.45	NA	No	28.31	NA	No
Bis(2-ethylhexyl) Phthalate	117-81-7	ug/kg		182	110	78.61	NA	No	33.40	NA	No
Chrysene	218-01-9	ug/kg		166	350	111.47	NA	No	49.68	NA	No
Dibenz(a,h)anthracene	53-70-3	ug/kg		33		46.79	NA	Yes	18.89	NA	No
Fluoranthene	206-44-0	ug/kg		423	631	300.46	NA	No	127.29	NA	No
Fluorene	86-73-7	ug/kg		77.4		47.96	NA	No	18.14	NA	No
Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg		200	160	63.85	NA	No	28.14	NA	No
Phenanthrene	85-01-8	ug/kg		204	240	173.36	NA	No	72.91	NA	No
Pyrene	129-00-0	ug/kg		195	518*	267.69	NA	Yes	117.74	NA	No
PCBs											
PCB Total	TPCB	ug/kg		59.8		12.98	NA	No	8.02	NA	No
Total Metals											
Arsenic, Total	7440-38-2	mg/kg		9.79	36.6*	12.08	NA	Yes	6.39	NA	No
Chromium, Total	7440-47-3	mg/kg	110	43.4	15.4	19.23	No	No	19.38	No	No
Copper, Total	7440-50-8	mg/kg	91	31.6	25.9	14.20	No	No	13.13	No	No
Lead, Total	7439-92-1	mg/kg	83	35.8	21.6	8.57	No	No	5.61	No	No
Nickel, Total	7440-02-0	mg/kg	49	22.7	15.5	9.68	No	No	7.84	No	No
Zinc, Total	7440-66-6	mg/kg	460	121	110	31.34	No	No	28.73	No	No
Chromium, Hexavalent	18540-29-9	mg/kg				0.85	NA	NA	0.34	NA	NA
Misc											
Cyanide, Available	57-12-5	mg/kg		0.1		0.02	NA	No	0.07	NA	No
Cyanide, Total	57-12-5	mg/kg		0.1	0.87*	0.14	NA	Yes	0.09	NA	No

Op. Memo 4 - Ecological Screening Levels; MDEQ (now MDNRE) RRD Operational Memorandum No. 4; Attachment 3 - Sediments; Interim Final - August 2, 2006

RO Criteria - Site Remedial Objectives; USEPA letter dated June 11, 2009 regarding corrective measure implementation for sediment

Site Specific Background Value - Table 1: Summary of Cleanup Criteria for Sediments: Final Corrective Measures Proposal (FCMP) submitted in February 2004

* - Indicates that the Site Specific Background Value is greater than the Op. Memo 4 Screening Levels

TABLE 10
EXCEEDENCE SUMMARY
FORMER STANLEY TOOLS FACILITY (MID 099 124 299)
Fowlerville, MI

	EPA RO Exceedance					Op. Memo 4 Screening Level Exceedence over Site Specific Background Value																														
	Metals					VOCs						SVOCs																PCBs	Metals							
Location	Chromium, Total	Copper, Total	Lead, Total	Nickel, Total	Zinc, Total	1,1-Dichloroethane	Acetone	Methyl ethyl ketone	Methylene chloride	Naphthalene	Trichloroethene	2-Methylnaphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	bis(2-Ethylhexyl)phthalate	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Phenanthrene	Pyrene	PCB, Total	Arsenic, Total	Chromium, Total	Copper, Total	Lead, Total	Nickel, Total	Zinc, Total	Cyanide, Free	Cyanide, Total
SD-I3								X																						X	X		X			X
SD-J1																											X			X					
SD-J2													X																X	X		X			
SD-J3																														X					
SD-K1								X																					X			X	X		
SD-K3								X																											
SD-L2																																		X	X
SD-L3													X																						
SD-M1									X																			X							
SD-M2									X																		X								
SD-M3									X																										
SD-N1													X			X				X							X								
SD-N3										X			X	X		X	X	X	X		X	X	X		X	X	X								
SD-O1													X	X																					
SD-O2													X			X	X	X	X		X		X		X	X	X								
SD-P1													X	X		X											X								
SD-P3																													X						

Note: Only points with exceedances are shown in this table.

TABLE 11
POST REMOVAL SWAC SUMMARY
FORMER STANLEY TOOLS FACILITY (MID 099 124 299)

Fowlerville, MI

					IN-CHANNEL			COMBINED: IN-CHANNEL, BANK & OVERBANK		
			RO Criteria	Op. Memo 4	Baseline	Option 1 Spot Removals	Option 2 Transect Removals	Baseline	Option 1 Spot Removals	Option 2 Transect Removals
Volatile Organic Compounds										
1,1-Dichloroethane	75-34-3	ug/kg		0.575	15.66	15.55	12.17	7.45	7.41	6.24
Semi-Volatile Organic Compounds										
Acenaphthene	83-32-9	ug/kg		6.71	17.34	17.27	14.69	6.68	6.66	5.76
Acenaphthylene	208-96-8	ug/kg		5.87	10.52	10.50	10.39	4.24	4.24	4.20
Polychlorinated Biphenyls (PCBs):										
PCB, Total	TPCB	ug/kg		59.8	217.89	22.21	12.98	79.06	11.22	8.02
Total Metals:										
Chromium, Total	7440-47-3	mg/kg	110	43.4	57.43	26.97	19.23	32.62	22.06	19.38
Copper, Total	7440-50-8	mg/kg	91	31.6	44.82	20.13	14.20	23.75	15.19	13.13
Lead, Total	7439-92-1	mg/kg	83	35.8	20.36	10.94	8.57	9.70	6.43	5.61
Nickel, Total	7440-02-0	mg/kg	49	22.7	22.14	14.31	9.68	12.16	9.44	7.84
Zinc, Total	7440-66-6	mg/kg	460	121	88.81	48.59	31.34	48.66	34.71	28.73

APPENDICES

APPENDIX B

Cleanup Criteria, Screening Levels, and Background Levels

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:
LU-9J

June 11, 2009

CERTIFIED MAIL
RETURNED RECEIPT REQUESTED

Mr. Michael L. Stoelton
Johnson Controls, Inc.
Automotive Experience
49200 Halyard Drive
Plymouth, Michigan 48170

Re: Final Corrective Measures Implementation
(Sediments)

Dear Mr. Stoelton:

The United States Environmental Protection Agency (U.S.EPA) has completed its review of Johnson Controls, Inc. (JCI), Baseline Ecological Risk Assessment (BERA), dated March 2008. This document was submitted as a component of JCI's Technical Report dated April 2008. JCI completed the BERA in response to the U.S.EPA Region 5, December 1, 2006 Final Decision and Response to Comments, Selection of Remedial Alternative for Johnson Controls, Inc. (Former Stanley Tools Facility) Fowlerville, Michigan (FD&RTC). The Final Decision and Response to Comments Document presented among other remedial measures, excavation of the Red Cedar River Sediments as a remedial measure. An outcome of the BERA was the establishment of site-specific cleanup levels that are to be implemented as target cleanup goals of the river sediments. EPA did not agree with all of JCI's proposed remedial objectives (ROs). As such, this letter summarizes EPA's proposed remedial cleanup objectives to be implemented as part of the JCI Final Corrective Measures of the Red Cedar River Sediments, as determined from our review of JCI's Baseline Ecological Risk Assessment Report, JCI Final Corrective Measures Proposal and EPA Final Decision and Response to Comments Selection of Remedial Alternatives for Johnson Controls, Inc.

U.S.EPA Region 5 has established that the degree of cleanup in the river sediments is based on the goal of protecting the animals that live part or all of their lives in the sediment (benthic organisms). They are important in the food chain of the river's ecosystem. Areas of river sediments that are contaminated at levels considered unsafe for aquatic animals would be removed from the river. EPA's proposed remedial cleanup objectives have been developed by

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Work Plan. The Triad uses these three lines of evidence, as summarized in the Work Plan. The three lines of evidence used to analyze sediment toxicity are as follows:

A. Comparing observed effects in the benthic macroinvertebrate communities associated with the site with benthic macroinvertebrate communities at a reference area (i.e., community surveys)

B. Comparing estimated or measured exposure levels for a particular chemical against screening levels that are known from the literature to be toxic, i.e., MacDonald Ingersoll consensus-based values ("toxicity benchmarks")

C. Comparing laboratory test (bioassays) results using sediment from the site and from a reference site.

Based upon EPA's review of JCI's BERA, JCI did not equally weigh consideration of all three lines of evidence in its development of proposed remedial objectives. Hence, EPA has modified JCI proposed sediment remedial cleanup objectives as illustrated in Table 1.

Table 1. EPA's Remedial Objectives for Red River Sediments

Constituent	Chromium	Nickel	Zinc	Copper	**Lead**
Remedial Objective mg/kg	110	49	460	91	**83**
PEC mg/kg	110	49	460	150	**130**
MEC mg/kg	76.5	36	290	91	**83**

PECs and MECs from Wisconsin Department of Natural Resources, 2003.
PECs – probable effect concentration
MECs - median effects concentration

References

Wisconsin Department of Natural Resources, December 2003. *Consensus-Based Sediment Quality Guidelines, Recommendations for Use and Application Interim Guidance.* WT-732 2003.

JCI in its approved CMP Work Plan indicated that three lines of evidence would be used to develop ROs for individual constituents, i.e., bulk sediment toxicity tests, sediment chemistry compared to screening levels, and benthic community surveys. However, JCI proposed ROs are based predominantly on the results of one set of toxicity tests. EPA cleanup objectives are modified from JCI's proposed remedial cleanup objectives and are based more broadly on the available lines of evidence, are more conservative, and are therefore considered to be more protective of the environment. Implementation of these proposed cleanup objectives, hence excavation of Red Cedar River Sediments, will be based upon sampling data from 2003 and

2007. It should be noted here that JCI will contact the U.S.EPA Project Manager to discuss the RO for lead at any downstream locations where there could be possible confounding sources of lead contamination. ROs for theses locations may be modified from the EPA proposed RO on a case by case basis.

JCI is now required to develop a *Remedial Design Plan* which will describe areas subject to excavation. EPA expects that areas planned for excavation will be of such volume that contamination will be removed from and between targeted sampling points such that they are below remedial objectives to be established by verification sampling. It is recommended that JCI allow U.S.EPA Region 5 collaborative input into its planned *Remedial Design Plan* such that JCI can maintain its proposed schedule for sediment corrective measures implementation. It is also expected that remediation will occur this summer or early fall.

Upon completion of the sediment excavation, JCI is required in accordance with the December 2002, 3008(h) Administrative Order on Consent, to complete a *Final Remedy Construction Completion Report* documenting all work that it has performed. *The Final Remedy Construction Completion Report* will be submitted by JCI within sixty days after sediment remediation is completed.

U.S.EPA looks forward to your continued cooperation. Please feel free to contact me at 312-886-6010 at your discretion.

Sincerely,

Juan Thomas, Project Manager,
Environmental Scientist

Cc. Jennifer Bolger, Gonzalez Saggio & Harlan LLP (electronic copy)
Lou Pieh, Saggio & Harlan LLP (electronic copy)
Andrew Lonergan, CTI & Associates (electronic copy)
Patricia A. Thomson, Entact & Associates (electronic copy)
David Slayton, MDEQ (electronic copy)
Tom Williams, U.S.EPA, ORC (electronic copy)
Carolyn Bury, U.S.EPA, RRB (electronic copy)

Table 1
Summary of Cleanup Criteria for Sediments

JCI-Flowerville
(mg/kg)

Chemicals	Background	Direct Contact and Ingestion	Ambient Air Protection	Threshold Effect Concentration	Probable Effect Concentration
1,1-Dichloroethane	5.8	18,279.250	2,100	NL	NL
1,2,4-Trimethylbenzene	24	9,139.623	21,000	NL	NL
1,2-Benzphenanthracene	-	8,707.334	-	166	1,290
1,2-Dichloroethene	81	3,655.849	-	NL	NL
4-Isopropyl toluene	23	-	-	NL	NL
Acetone	761	18,279.250	17,000,000	NL	NL
Acrolein	5.2	3,655.849	0	NL	NL
Aluminum, Total	5810	1,750,432.000	-	NL	NL
Anthracene	-	200,549.500	1,400,000	57.2	845
Arsenic, Total	36.6	70.748	720	9.79	33
Barium, Total	163	122,530.200	330,000	NL	NL
Benz(a)anthracene	303	87.073	-	108	1,050
Benzo(a)pyrene	332	8.707	1,500	150	1,450
Benzo(b)fluoranthene	307	87.073	ID	NL	NL
Benzo(g,h,I)perylene	160	-	800,000	NL	NL
Benzo(k)fluoranthene	270	870.733	-	NL	NL
Benzoic acid	320	2,673,993.000	-	NL	NL
bis(2-Ethylhexyl)phthalate	110	5,161.199	700,000	NL	NL
Cadmium, Total	1.85	940.663	1,700	0.99	4.98
Chloroform	22	1,827.925	45	NL	NL
Chloromethane	49.5	984.267	40	NL	NL
Chromium (IV)	-	5,251.295	260	NL	NL
Chromium, Total	15.4	2,625,647.000	-	43.4	111
Chrysene	350	8,707.334	ID	166	1,290
cis-1,2-Dichloroethene	-	1,827.925	-	NL	NL
Copper, Total	25.9	70,017.260	130,000	31.6	149
Cyanide, Total	0.87	18,970.890	-	NL	NL
Cyanide, Free	-	18,970.890	250	NL	NL
Dibenz(a,h)anthroacene	-	-	-	33	NL
Dimethyl phthalate	-	6,684,982.000	3,000,000	NL	NL
Di-N-Butyl phthalate	220	66,849.820	3,000,000	NL	NL
Fluoranthene	631	41,289.590	740,000	423	2,230
Fluorene	-	26,739.930	130,000	77.4	536
Indeno(1,2,3-cd)pyrene	160	87.073	-	NL	NL
Lead, Total	21.6	-	100,000	35.8	128
Mean PEC Quotient	-	-	-	NL	0.5
Mean TEC Quotient	-	-	-	0.5	NL
Mercury, Total	0.147	525.130	52	0.18	1.06
Methyl ethyl ketone	517	109,675.500	-	NL	NL
Naphthalene	-	3,655.849	300	176	561
Naphthalene	78.7	3,655.849	300	176	561
n-Butylbenzene	27	7,311.699	ID	NL	NL
Nickel, Total	15.5	35,008.630	13,000	22.7	48.6
PCB, Total	-	-	-	59.8	676

Table 1
Summary of Cleanup Criteria for Sediments

JCI-Flowerville
(mg/kg)

Chemicals	Background	Direct Contact and Ingestion	Ambient Air Protection	Threshold Effect Concentration	Probable Effect Concentration
Phenanthrene	240	-	160	204	1,170
PNAs, Total	-	-	-	1,610	1,520
Pyrene	518	30,967.190	650,000	195	1,520
sec-Butylbenzene	-	7,311.699	ID	NL	NL
Selenium, Total	2.32	8,752.158	130,000	NL	NL
Silver, Total	1	8,752.158	6,700	NL	NL
Styrene	13	36,558.490	970	NL	NL
Toluene	3.2	36,558.490	2,800	NL	NL
trans-1,2-Dichloroethylene	-	3,655.849		NL	NL
Trichloroethene	11	31.989	78	NL	NL
Zinc, Total	110	525,129.500	-	121	459

- means that the criteria was not available
1. See Appendix B
2. See Appendix C
3. Part 201, Rule 299.5746
4. Part 201, Rule 299.5746

5. Development and evaluation of Consensus-Board Sediment Quality Guidelines for Freshwater ecosystems. D.D. MacDonald, C.G. Inersoll, and T.A. Berger. Archives of Environmental Contamination and Toxicology 39, 2-31. 2000

Chemical	CAS No.	Air mg/m^3	Water ug/l	Sediment[s] ug/kg	Soil[v] ug/kg
Dichloroethylene [trans-1,2-]	156-60-5	29.1	**970[d]**	**654**	784
Dichlorophenol [2,4-]	120-83-2		**11[d, z]**	**81.7[z]**	8.75 e+4
Dichlorophenol [2,6-]	87-65-0			-----	1170
Dichloropropane [1,2-]	78-87-5	70.6	**360[a, z]**	**333[z]**	3.27 e+4
Dichloropropene [cis-1,3-]	10061-1-5	5.89	-----	-----	398
Dichloropropene [trans-1,3-]	10061-2-6	5.89	-----	-----	398
Dieldrin	60-57-1		**7.1 e-5[a]**	**1.9[u, z]**	2.38
Diethyl O-2-pyrazinyl phosphorothioate [O,O-]	297-97-2			-----	799
Diethyl phthalate	84-66-2		**110[a]**	**295**	2.48 e+4
Dimethoate	60-51-5		-----	-----	218
Dimethyl phthalate	131-11-3		-----	-----	7.34 e+5
Dimethylbenzidine [3,3'-]	119-93-7			-----	104
Dimethylbenz[a]anthracene [7,12-]	57-97-6		0.548[b]	6.64 e+4	1.63 e+4
Dimethylphenethylamine [alpha,alpha-]	122-9-8			-----	300
Dimethylphenol [2,4-]	105-67-9		100[b]	304	10[x]
Dinitrobenzene [m-]	99-65-0		**22[d]**	**8.61**	655
Dinitrophenol [2,4-]	51-28-5		**19[a]**	**6.21**	60.9
Dinitrotoluene [2,4-]	121-14-2		**44[d, z]**	**14.4[z]**	1280
Dinitrotoluene [2,6-]	606-20-2		**81[d]**	**39.8**	32.8

Chemical	CAS No.	Air mg/m^3	Water ug/l	Sediment[s] ug/kg	Soil[v] ug/kg
Dinoseb	88-85-7		**0.48**[a]	**14.5**	21.8
Dioxane [1,4-]	123-91-1	367	**22 e+3**[a]	**119**	2050[w]
Diphenylamine	122-39-4		412[b]	34.6	1010
Disulfoton	298-4-4		4.02 e-2[c]	324	19.9
D [2,4-]	94-75-7		**220**[a]	**1273**	27.2
Endosulfan I	959-98-8		**0.056**[j]	**3.26**	119
Endosulfan II	33213-65-9		**0.056**[j]	**1.94**	119
Endosulfan sulfate	1031-7-8		2.22[b]	34.6	35.8
Endrin	72-20-8		**0.036**[a]	**2.22**[u, z]	10.1
Endrin aldehyde	7421-93-4		0.15[b]	**480**[z]	10.5
Ethyl methacrylate	97-63-2	356		-----	3 e+4
Ethyl methane sulfonate	62-50-0			-----	
Ethylbenzene	100-41-4	304	**14**[o, z]	**175**	5160
Famphur	52-85-7			-----	49.7
Fluoranthene	206-44-0		**1.9**[f, z]	**423**[u]	1.22 e+5
Fluorene	86-73-7		**19**[d]	**77.4**[u]	1.22 e+5
Heptachlor	76-44-8		**3.8 e-3**[j]	0.6[r]	5.98
Heptachlor epoxide	1024-57-3		**3.8 e-3**[j]	**2.47**[u]	152
Hexachlorobenzene	118-74-1		**3 e-4**[a]	20[t]	199
Hexachlorobutadiene	87-68-3		**0.053**[a, z]	**26.5**[z]	39.8

Chemical	CAS No.	Air mg/m^3	Water ug/l	Sediment[s] ug/kg	Soil[v] ug/kg
Hexachlorocyclopentadiene	77-47-4		77[b]	901	755
Hexachloroethane	67-72-1		**8**[a, z]	**584**[z]	596
Hexachlorophene	70-30-4		0.228[e]	2.31 e+5	199
Hexachloropropene	1888-71-7		-----	-----	
Hexanone [2-]	591-78-6	105	**99**[h, z]	**58.2**[z]	1.26 e+4
Indeno (1,2,3-cd) pyrene	193-39-5		4.31[b]	200[t]	1.09 e+5
Isobutyl alcohol	78-83-1	32.8	-----	-----	2.08 e+4[w]
Isodrin	465-73-6		3.09 e-2[e]	55.2	3.32[x]
Isophorone	78-59-1		**920**[d]	**432**	1.39 e+5
Isosafrole	120-58-1			-----	9940
Kepone	143-50-0		0.132[e]	3.31	32.7
Lead (Total)	7439-92-1		**1.17**[j, k, z]	**3.58 e+4**[u]	53.7
Mercury (Total)	7439-97-6		1.3 e-3[a]	174[r]	100[y]
Methacrylonitrile	126-98-7	3.38		-----	57[w]
Methane [bis(2-chloroethoxy)]	111-91-1		-----	-----	302[w]
Methapyrilene	91-80-5			-----	2780[w]
Methoxychlor	72-43-5		**0.019**[h]	**13.6**	19.9
Methyl bromide	74-83-9	26.5	**16**[d]	**1.37**	235[w]
Methyl chloride	74-87-3	2.63		-----	1.04 e+4[w]
Methyl ethyl ketone	78-93-3	642	**2200**[a, z]	**42.4**[z]	8.96 e+4[w]

Chemical	CAS No.	Air mg/m^3	Water ug/l	Sediment[s] ug/kg	Soil[v] ug/kg
Hexachlorocyclopentadiene	77-47-4		77[b]	901	755
Hexachloroethane	67-72-1		**8**[a, z]	**584**[z]	596
Hexachlorophene	70-30-4		0.228[e]	2.31 e+5	199
Hexachloropropene	1888-71-7		-----	-----	
Hexanone [2-]	591-78-6	105	**99**[h, z]	**58.2**[z]	1.26 e+4
Indeno (1,2,3-cd) pyrene	193-39-5		4.31[b]	200[t]	1.09 e+5
Isobutyl alcohol	78-83-1	32.8	-----	-----	2.08 e+4[w]
Isodrin	465-73-6		3.09 e-2[e]	55.2	3.32[x]
Isophorone	78-59-1		**920**[d]	**432**	1.39 e+5
Isosafrole	120-58-1			-----	9940
Kepone	143-50-0		0.132[e]	3.31	32.7
Lead (Total)	7439-92-1		**1.17**[j, k, z]	**3.58 e+4**[u]	53.7
Mercury (Total)	7439-97-6		1.3 e-3[a]	174[r]	100[y]
Methacrylonitrile	126-98-7	3.38		-----	57[w]
Methane [bis(2-chloroethoxy)]	111-91-1		-----	-----	302[w]
Methapyrilene	91-80-5			-----	2780[w]
Methoxychlor	72-43-5		**0.019**[h]	**13.6**	19.9
Methyl bromide	74-83-9	26.5	**16**[d]	**1.37**	235[w]
Methyl chloride	74-87-3	2.63		-----	1.04 e+4[w]
Methyl ethyl ketone	78-93-3	642	**2200**[a, z]	**42.4**[z]	8.96 e+4[w]

Chemical	CAS No.	Air mg/m³	Water ug/l	Sediment[s] ug/kg	Soil[v] ug/kg
Methyl iodide	74-88-4	11.7		-----	1230
Methyl mercury	22967-92-6		2.46 e-3[e]	0.01	1.58
Methyl methacrylate	80-62-6	87.1	2800[g]	168	9.84 e+5[w]
Methyl methanesulfanate	66-27-3			-----	315[w]
Methyl parathion	298-0-0			-----	0.292
Methyl-2-pentanone [4-]	108-10-1	45.9	**170[h, z]**	**25.1[z]**	4.43 e+5
Methylcholanthrene [3-]	56-49-5		8.91 e-2[b]	8.19 e+6	77.9
Methylene bromide	74-95-3	344		-----	6.5 e+4[w]
Methylene chloride	75-9-2	4780	**940[a]**	**159[z]**	4050[w]
Methylnaphthalene [2-]	91-57-6		330[b]	20.2[r]	3240
Naphthalene	91-20-3	80.1	**13[a, z]**	**176[u]**	99.4
Naphthoquinone [1,4-]	130-15-4		-----	-----	1670
Naphthylamine [1-]	134-32-7		-----	-----	9340
Naphthylamine [2-]	91-59-8			-----	3030
Nickel (Total)	7440-2-0		**28.9[j, k, z]**	**2.27 e+4[u]**	1.36 e+4
Nitroaniline [m-]	99-9-2			-----	3160
Nitroaniline [o-]	88-74-4			-----	7.41 e+4
Nitroaniline [p-]	100-1-6			-----	2.19 e+4
Nitrobenzene	98-95-3		**220[a, z]**	**145[z]**	1310
Nitrophenol [o-]	88-75-5		-----	-----	1600

Chemical	CAS No.	Air mg/m^3	Water ug/l	Sediment[s] ug/kg	Soil[v] ug/kg
Nitrophenol [p-]	100-2-7		**60[a]**	**13.3**	5120
Nitroquinoline-1-oxide [4-]	56-57-5			-----	122
Nitrosodiethylamine [N-]	55-18-5		768[g]	22.8	69.3[w]
Nitrosodimethylamine [N-]	62-75-9			-----	0.0321[w]
Nitrosodiphenylamine [N-]	86-30-6		-----	-----	545
Nitrosomethylethylamine [N-]	10595-95-6			-----	1.66[w]
Nitrosomorpholine [N-]	59-89-2			-----	70.6[w]
Nitrosopiperidine [N-]	100-75-4			-----	6.65[w]
Nitrosopyrrolidine [N-]	930-55-2			-----	12.6[w]
Parathion	56-38-2		**0.013[a, d]**	**0.757**	0.34[y]
Pentachlorobenzene	608-93-5		**0.019[a, z]**	**24[z]**	497
Pentachloroethane	76-1-7	0.68	56.4[g]	689	1.07 e+4
Pentachloronitrobenzene	82-68-8		-----	-----	7090
Pentachlorophenol	87-86-5		**4.0[j, p, z]**	**2.3 e+4[z]**	119
Phenacetin	62-44-2		-----	-----	1.17 e+4
Phenanthrene	85-1-8		**3.6[f]**	**204[u]**	4.57 e+4
Phenol	108-95-2	4.31	**180[c]**	**49.1**	1.2 e+5
Phenylenediamine [p-]	106-50-3			-----	6160[w]
Phorate	298-02-2		3.62[g]	0.861	0.496
Phthalate [bis(2-ethylhexyl)]	117-81-7		**0.3[q, z]**	182[r]	925

Chemical	CAS No.	Air mg/m^3	Water ug/l	Sediment[s] ug/kg	Soil[v] ug/kg
Picoline [2-]	109-6-8	140	-----	-----	9900[w]
Polychlorinated biphenyls	1336-36-3		**1.2 e-4**[a,z]	**59.8**[u]	0.332
Polychlorinated dibenzo-p-dioxins	PCDD-S		2.78 e-7[b]	**0.011**	1.99 e-4
Polychlorinated dibenzofurans	51207-31-9		-----	-----	0.0386
Pronamide	23950-58-5		-----	-----	13.6[x]
Propionitrile	107-12-0	1.87	-----	-----	49.8[w]
Propylamine [N-nitrosodi-n-]	621-64-7			-----	544
Pyrene	129-0-0		0.3[g]	**195**[u]	7.85 e+4
Pyridine	110-86-1	13.7	2380[g]	106	1030[w]
Safrole	94-59-7		-----	-----	404
Selenium (Total)	7782-49-2		5[j]		27.6
Silver (Total)	7440-22-4		**0.12**[f,z]	500[t]	4040
Silvex	93-72-1		**30**[a,z]	**675**[z]	109[x]
Styrene	100-42-5	0.946	**32**[d,z]	**254**[z]	4690
Sulfide	18496-25-8				3.58
Tetrachlorobenzene [1,2,4,5-]	95-94-3		**3**[a,z]	**1252**[z]	2020
Tetrachlorodibenzo-p-dioxin [2,3,7,8-]	1746-1-6		**3 e-9**[a,z]	**1.2 e-4**[z]	1.99 e-4
Tetrachloroethane [1,1,1,2-]	630-20-6	22.5	-----	-----	2.25 e+5
Tetrachloroethane [1,1,2,2-]	79-34-5	353	**380**[a]	**850**	127
Tetrachloroethene	127-18-4	69	**45**[a]	**990**	9920

Chemical	CAS No.	Air mg/m^3	Water ug/l	Sediment[s] ug/kg	Soil[v] ug/kg
Tetrachlorophenol [2,3,4,6-]	58-90-2		**1.2**[a,z]	**129**[z]	199
Tetraethyl dithiopyrophosphate	3689-24-5		13.9[b]	560	596
Thallium (Total)	7440-28-0		**10**[a]		56.9
Tin (Total)	7440-31-5		**180**[d]		7620
Toluene	108-88-3	1040	253[f]	**1220**[z]	5450
Toluidine [5-nitro-o-]	99-55-8			-----	8730
Toluidine [o-]	95-53-4			-----	2970[w]
Toxaphene	8001-35-2		**1.4 e-4**[a,z]	**0.077**[z]	119
Trichlorobenzene [1,2,4-]	120-82-1		**30**[a,z]	**5062**[z]	1.11 e+4
Trichloroethane [1,1,1-]	71-55-6	4170	**76**[d,z]	**213**[z]	2.98 e+4
Trichloroethane [1,1,2-]	79-0-5	11.6	**500**[a,z]	**518**[z]	2.86 e+4
Trichloroethylene	79-1-6	1220	**47**[h,z]	**112**[z]	1.24 e+4
Trichlorofluoromethane	75-69-4	5150		-----	1.64 e+4
Trichlorophenol [2,4,5-]	95-95-4			-----	1.41 e+4
Trichlorophenol [2,4,6-]	88-6-2		**4.9**[d]	**208**	9940
Trichloropropane [1,2,3-]	96-18-4	3.32	-----	-----	3360
Trichlorphenoxyacetic acid [2,4,5-]	93-76-5		686[g]	5.87 e+4	596
Triethyl phosphorothioate [O,O,O-]	126-68-1		58.2[b]	189	818
Trinitrobenzene [Sym-]	99-35-4			-----	376[w]
Vanadium (Total)	7440-62-2		**12**[a,z]		1590

Chemical	CAS No.	Air mg/m³	Water ug/l	Sediment[s] ug/kg	Soil[v] ug/kg
Vinyl acetate	108-5-4	359	248[g]	13	1.27 e+4[w]
Vinyl chloride	75-1-4	0.221	**930**[a]	**202**	646
Xylenes (total)	1330-20-7	135	**27**[d, z]	**433**[z]	1 e+4[x]
Zinc (Total)	7440-66-6		**65.7**[j, k, z]	**1.21 e+5**[u]	6620[y]

[a] = Michigan water quality standards, Rule 57 water quality values, July 23, 2003. Available at: http://www.michigan.gov/deq/0,1607,7-135-3313_3686_3728-11383--,00.html. The water ESL data for acenaphthene, BHC (gamma), cyanide and parathion are Michigan (final chronic value or FCV) Tier I criteria. Likewise, water ESL data for dieldrin, dioxin, DDT, endrin, hexachlorobenzene, hexachlorobutadiene, mercury, PCB's and toxaphene represent wildlife values (see Notes at end of these footnotes for dioxin, DDT, mercury and PCB's). All of the remaining data are Tier II values.

[b] = Water Ecological Screening Level (ESL) based on exposure to a mink (*Mustela vison*).

[c] = Indiana water quality standards, Title 327, Article 2, of the Indiana Administrative Code, Feb. 4, 2002. Available at: http://www.ai.org/legislative/iac/t03270/a00020.pdf The water ESL for toxaphene is from the Indiana chronic aquatic criterion for all waters outside of mixing zones (see Table 1 under Rule 1 of 327 IAC 2-1-6 Minimum Surface Water Quality Standards at the above Internet site). The remaining water ESL data are either wildlife values (for dioxin, DDT, mercury and PCB's) or Tier II values for the Indiana Great Lakes Basin (see Great Lakes Basin Criteria and Values Table as developed under Rule 1.5 of 327 IAC Article 2 as referenced above).

[d] = Ohio water quality standards, Chapter 3745-1 of the Ohio Administrative Code, Dec. 30, 2002. Available at: http://www.epa.state.oh.us/dsw/rules/3745-1.html The water ESL data for endrin and parathion are Ohio aquatic life Tier I criteria from the Outside Mixing Zone Average (OMZA). Wildlife values are available for dioxin, DDT, mercury and PCB's. All of the remaining data are Ohio aquatic life Tier II values from the OMZA. See Ohio summary tables for water quality criteria and values along with reference on the development of Tier I criteria and Tier II values.

[e] = Water ESL based on exposure to a belted kingfisher (*Ceryle alcyon*).

[f] = Minnesota water quality standards, Rule 7052.0100, Subpart 2 (water ESL data for arsenic & benzene represents aquatic life chronic standards and dioxin, DDT, mercury and PCB's represents wildlife values), April 13, 2000. Rule 7050.0222, Subpart 2, Feb. 12, 2003. Available at: http://www.revisor.leg.state.mn.us/arule/7050/0100.html and http://www.revisor.leg.state.mn.us/arule/7052/0222.html

[g] = Region 5, RCRA Interim Criteria, based on Aquire database with acceptable review codes and endpoints (life cycle). Must have eight or more acceptable studies (i.e., chronic and/or acute).

[h] = GLWQI Tier II value as presented in: Suter, G.W. II and Tsao, C.L. 1996. Toxicological benchmarks for screening potential contaminants of concern for effects on aquatic biota, 1996 Revision. ES/ER/TM-96/R2. Available at: http://www.esd.ornl.gov/programs/ecorisk/ecorisk.html

[i] = U.S. EPA 2001 Update of Ambient Water Quality Criteria for Cadmium (EPA 822-R-01-001).

[j] = U.S. EPA National Recommended Water Quality Criteria: 2002 (EPA 822-R-02-047)

[k] = For hardness-dependent metals (beryllium, cadmium, chromium^{+3}, copper, lead, nickel and zinc), freshwater chronic criteria are based on soft water with a total hardness of 50 mg/L as $CaCO_3$. Soft water is common within Region 5 and this water ESL may be recalculated when site specific water hardness is less than 50 mg/L.

[l] = U.S. EPA Ambient Water Quality for Chloroalkyl Ethers (EPA 440/5-80-030). No definitive data available concerning chronic toxicity. The water ESL is based on no adverse effects for a chronic toxicity embryo-larval test of the fathead minnow.

[m] = U.S. EPA Ambient Water Quality for Nitrophenols (EPA 440/5-80-063). The acute value of 230 ug/l was adjusted with an uncertainty factor of ten for 2,4-dinitrophenol and 4,6-dinitro-o-cresol since no chronic criteria are available.

[n] = Wisconsin Surface Water Quality Criteria and Secondary Values for Toxic Substances, NR 105.07(1)(b), Sept.1, 1997. Available at: http://www.legis.state.wi.us/rsb/code/nr/nr100.html

[o] = Illinois water quality standards, Title 35, Part 302.208, Dec. 20, 2002. Available at: http://www.ipcb.state.il.us/SLR/IPCBandIEPAEnvironmentalRegulations-Title35.asp

[p] = The criterion for pentachlorophenol is pH dependent and is based on a pH of 6.5.

[q] = U.S. EPA Ambient Water Quality for Phthalate Esters (EPA 440/5-80-067). A chronic value of 3 ug/L that resulted in significant reproductive impairment was adjusted with an uncertainity factor of ten.

[r] = Environment Canada. September 1994. Interim Sediment Quality Assessment Values. Ecosystem Conservation Directorate. Evaluation and Interpretation Branch.

[s] = Unless noted otherwise, all Sediment ESLs were derived using equilibrium partitioning (EqP) equation and the corresponding water ESL. Note: Sediment ESL = K_{oc} x Water ESL x 0.01.

[t] = Ontario Ministry of the Environment. August 1993. Guidelines for the Protection and Management of Aquatic Sediment Quality in Ontario.

[u] = Consensus based threshold effect concentrations (TEC) as presented in MacDonald et. al. 2000. Development and evaluation of consensus-based sediment quality guidelines for freshwater ecosystems. Arch Environ Contam Toxicol 39:20-31 (see Table 2). The TEC for mercury had a high incidence of toxicity and was not used. These values do not consider bioaccumulation nor biomagnification.

[v] = Unless noted otherwise, all Soil ESLs are based on exposure to a masked shrew (*Sorex cinerus*).

[w] = Soil ESL is based on exposure to a meadow vole (*Microtus pennsylvanicus*).

[x] = Soil ESL is based on exposure to a plant.

[y] = Soil ESL is based on exposure to soil invertebrates (e.g., earthworms).

[z] = New ESL data is lower than the previous table.

Notes: New ESL data are displayed in bold font and a dashed line (e.g., -----) is used to show when data was deleted from the previous table (i.e., supporting data was inadequate). All six states in EPA Region 5 have the same water ESL's for dioxin, DDT, mercury and PCB's which are based on a wildlife value. A summary report will be created on the development of soil benchmarks including equations, criteria and references. Likewise, a report will be prepared on the development of water benchmarks that are based on mink and belted kingfisher exposure.

TABLE 2. SOIL: RESIDENTIAL AND COMMERCIAL I
PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS;
PART 213 TIER 1 RISK-BASED SCREENING LEVELS (RBSLs)

All criteria, unless otherwise noted, are expressed in units of parts per billion (ppb). One ppb is equivalent to one microgram per kilogram (ug/kg). Criteria with six or more digits are expressed in scientific notation. For example, 200,000 ppb is presented as 2.0E+5. The lowest generic soil criterion for a given hazardous substance is presented in a bold box. A footnote is designated by a letter in parentheses and is explained in the footnote pages that follow the criteria tables. When the risk-based criterion is less than the target detection limit (TDL), the TDL is listed as the criterion (R 299.5707). In these cases, two numbers are presented in the cell. The first number is the criterion (i.e., TDL), and the second number is the risk-based value. Criteria were promulgated December 21, 2002 within the Administrative Rules for Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. These tables reflect modifications to the TDLs and new criteria consistent with the provisions of R299.5103(l) and R299.5706a, respectively.

			Groundwater Protection			Indoor Air	Ambient Air (Y)				Direct Contact	
Guidesheet Number →		#10	#11	#12	#13	#14	#15	#16	#17	#18	#19	#20
Hazardous Substance	Chemical Abstract Service Number	Statewide Default Background Levels	Drinking Water Protection Criteria & RBSLs	Groundwater Surface Water Interface Protection Criteria & RBSLs	Groundwater Contact Protection Criteria & RBSLs	Soil Volatilization to Indoor Air Inhalation Criteria & RBSLs	Infinite Source Volatile Soil Inhalation Criteria (VSIC) & RBSLs	Finite VSIC for 5 Meter Source Thickness	Finite VSIC for 2 Meter Source Thickness	Particulate Soil Inhalation Criteria & RBSLs	Direct Contact Criteria & RBSLs	Soil Saturation Concentration Screening Levels
Acenaphthene	83329	NA	3.0E+5	4,400	9.7E+5	1.9E+8	8.1E+7	8.1E+7	8.1E+7	1.4E+10	4.1E+7	NA
Acenaphthylene	208968	NA	5,900	ID	4.4E+5	1.6E+6	2.2E+6	2.2E+6	2.2E+6	2.3E+9	1.6E+6	NA
Acetaldehyde (I)	75070	NA	19,000	2,600	1.1E+8 (C)	2.2E+5	1.7E+5	1.7E+5	2.8E+5	6.0E+8	2.9E+7	1.1E+8
Acetate	71501	NA	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID
Acetic acid	64197	NA	84,000	3.6E+5	6.5E+8 (C)	NLV	NLV	NLV	NLV	1.7E+10	1.3E+8	6.5E+8
Acetone (I)	67641	NA	15,000	34,000	1.1E+8 (C)	1.1E+8 (C)	1.3E+8	1.3E+8	1.9E+8	3.9E+11	2.3E+7	1.1E+8
Acetonitrile	75058	NA	2,800	NA	2.2E+7 (C)	4.8E+6	1.6E+6	1.6E+6	2.1E+6	4.0E+9	4.3E+6	2.2E+7
Acetophenone	98862	NA	30,000	NA	1.1E+6 (C)	1.1E+6 (C)	4.4E+7	4.4E+7	4.4E+7	3.3E+10	1.1E+6 (C)	1.1E+6
Acrolein (I)	107028	NA	2,400	NA	2.3E+7 (C)	410	310	310	610	1.3E+6	3.6E+6	2.3E+7
Acrylamide	79061	NA	10	NA	2.6E+5	NLV	NLV	NLV	NLV	2.4E+6	1,900	NA
Acrylic acid	79107	NA	78,000	NA	1.1E+8 (C)	2.4E+6	1.9E+5	2.3E+5	2.3E+5	6.7E+7	3.5E+7 (DD)	1.1E+8
Acrylonitrile (I)	107131	NA	100 (M); 52	100 (M,X); 98	2.8E+5	6,600	5,000	5,100	10,000	4.6E+7	16,000	8.3E+6
Alachlor	15972608	NA	52	290 (X)	44,000	NLV	NLV	NLV	NLV	ID	93,000	NA
Aldicarb	116063	NA	60	NA	2.4E+6	NLV	NLV	NLV	NLV	ID	2.3E+5	NA
Aldicarb sulfoxide	1646873	NA	200 (M)	NA	5.4E+7	NLV	NLV	NLV	NLV	ID	2.9E+5	NA
Aldicarb sulfone	1646884	NA	200 (M); 40	NA	4.2E+7	NLV	NLV	NLV	NLV	ID	2.5E+5	NA
Aldrin	309002	NA	NLL	NLL	NLL	1.3E+6	58,000	58,000	58,000	6.4E+5	1,000	NA
Aluminum (B)	7429905	6.9E+6	1,000	NA	1.0E+9 (D)	NLV	NLV	NLV	NLV	ID	5.0E+7 (DD)	NA
Ammonia	7664417	NA	ID	(CC)	ID	ID	ID	ID	ID	6.7E+9	ID	1.0E+7

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PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS;
PART 213 TIER 1 RISK-BASED SCREENING LEVELS (RBSLs)

			Groundwater Protection			Indoor Air	Ambient Air (Y)				Direct Contact	
Guidesheet Number→		#10	#11	#12	#13	#14	#15	#16	#17	#18	#19	#20
Hazardous Substance	Chemical Abstract Service Number	Statewide Default Background Levels	Drinking Water Protection Criteria & RBSLs	Groundwater Surface Water Interface Protection Criteria & RBSLs	Groundwater Contact Protection Criteria & RBSLs	Soil Volatilization to Indoor Air Inhalation Criteria & RBSLs	Infinite Source Volatile Soil Inhalation Criteria (VSIC) & RBSLs	Finite VSIC for 5 Meter Source Thickness	Finite VSIC for 2 Meter Source Thickness	Particulate Soil Inhalation Criteria & RBSLs	Direct Contact Criteria & RBSLs	Soil Saturation Concentration Screening Levels
t-Amyl methyl ether (TAME)	994058	NA	3,900	NA	4.4E+5 (C)	58,000	3.4E+5	7.6E+5	1.8E+6	4.1E+9	4.4E+5 (C)	4.4E+5
Aniline	62533	NA	1,100	330 (M); 80	2.8E+6	NLV	NLV	NLV	NLV	6.7E+7	3.3E+5	4.5E+6
Anthracene	120127	NA	41,000	ID	41,000	1.0E+9 (D)	1.4E+9	1.4E+9	1.4E+9	6.7E+10	2.3E+8	NA
Antimony	7440360	NA	4,300	94,000	4.9E+7	NLV	NLV	NLV	NLV	1.3E+7	1.8E+5	NA
Arsenic	7440382	5,800	4,600	70,000 (X)	2.0E+6	NLV	NLV	NLV	NLV	7.2E+5	7,600	NA
Asbestos (BB)	1332214	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	1.0E+7 (M); 68,000	ID	NA
Atrazine	1912249	NA	60	150 (X)	1.1E+5	NLV	NLV	NLV	NLV	ID	71,000 (DD)	NA
Azobenzene	103333	NA	4,200	NA	3.0E+5	6.1E+6	6.3E+5	ID	ID	1.0E+8	1.4E+5	NA
Barium (B)	7440393	75,000	1.3E+6	(G,X)	1.0E+9 (D)	NLV	NLV	NLV	NLV	3.3E+8	3.7E+7	NA
Benzene (I)	71432	NA	100	4,000 (X)	2.2E+5	1,600	13,000	34,000	79,000	3.8E+8	1.8E+5	4.0E+5
Benzidine	92875	NA	1,000 (M); 6.0	ID	1,000 (M); 140	NLV	NLV	NLV	NLV	46,000	1,000 (M); 23	NA
Benzo(a)anthracene (Q)	56553	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	ID	20,000	NA
Benzo(b)fluoranthene (Q)	205992	NA	NLL	NLL	NLL	ID	ID	ID	ID	ID	20,000	NA
Benzo(k)fluoranthene (Q)	207089	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	ID	2.0E+5	NA
Benzo(g,h,i)perylene	191242	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	8.0E+8	2.5E+6	NA
Benzo(a)pyrene (Q)	50328	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	1.5E+6	2,000	NA
Benzoic acid	65850	NA	6.4E+5	NA	7.0E+7	NLV	NLV	NLV	NLV	ID	9.9E+8	NA
Benzyl alcohol	100516	NA	2.0E+5	NA	5.8E+6 (C)	NLV	NLV	NLV	NLV	3.3E+11	5.8E+6 (C)	5.8E+6
Benzyl chloride	100447	NA	150	NA	72,000	6,300	14,000	14,000	17,000	6.2E+7	48,000	2.3E+5
Beryllium	7440417	NA	51,000	(G)	1.0E+9 (D)	NLV	NLV	NLV	NLV	1.3E+6	4.1E+5	NA
bis(2-Chloroethoxy)ethane	112265	NA	ID	ID	ID	NLV	NLV	NLV	NLV	ID	ID	2.7E+6
bis(2-Chloroethyl)ether (I)	111444	NA	100	300	1.1E+5	8,300	3,800	3,800	3,800	9.4E+6	13,000	2.2E+6
bis(2-Ethylhexyl)phthalate	117817	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	7.0E+8	2.8E+6	1.0E+7
Boron (B)	7440428	NA	10,000	38,000	1.0E+9 (D)	NLV	NLV	NLV	NLV	ID	4.8E+7 (DD)	NA

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PART 213 TIER 1 RISK-BASED SCREENING LEVELS (RBSLs)

			Groundwater Protection			Indoor Air	Ambient Air (Y)				Direct Contact	
Guidesheet Number →		#10	#11	#12	#13	#14	#15	#16	#17	#18	#19	#20
Hazardous Substance	Chemical Abstract Service Number	Statewide Default Background Levels	Drinking Water Protection Criteria & RBSLs	Groundwater Surface Water Interface Protection Criteria & RBSLs	Groundwater Contact Protection Criteria & RBSLs	Soil Volatilization to Indoor Air Inhalation Criteria & RBSLs	Infinite Source Volatile Soil Inhalation Criteria (VSIC) & RBSLs	Finite VSIC for 5 Meter Source Thickness	Finite VSIC for 2 Meter Source Thickness	Particulate Soil Inhalation Criteria & RBSLs	Direct Contact Criteria & RBSLs	Soil Saturation Concentration Screening Levels
Bromate	15541454	NA	200	800	96,000	NLV	NLV	NLV	NLV	ID	17,000	NA
Bromobenzene (I)	108861	NA	550	NA	3.6E+5	3.1E+5	4.5E+5	4.5E+5	4.5E+5	5.3E+8	5.4E+5	7.6E+5
Bromodichloromethane	75274	NA	1,600 (W)	ID	2.8E+5	1,200	9,100	9,700	19,000	8.4E+7	1.1E+5	1.5E+6
Bromoform	75252	NA	1,600 (W)	ID	8.7E+5 (C)	1.5E+5	9.0E+5	9.0E+5	9.0E+5	2.8E+9	8.2E+5	8.7E+5
Bromomethane	74839	NA	200	700	1.4E+6	860	11,000	57,000	1.4E+5	3.3E+8	3.2E+5	2.2E+6
n-Butanol (I)	71363	NA	19,000	NA	8.7E+6 (C)	NLV	NLV	NLV	NLV	2.3E+10	8.7E+6 (C)	8.7E+6
2-Butanone (MEK) (I)	78933	NA	2.6E+5	44,000	2.7E+7 (C)	2.7E+7 (C)	2.9E+7	2.9E+7	3.5E+7	6.7E+10	2.7E+7 (C,DD)	2.7E+7
n-Butyl acetate	123864	NA	11,000	NA	1.1E+6 (C)	1.1E+6 (C)	1.1E+8	2.6E+8	3.2E+8	4.7E+11	1.1E+6 (C)	1.1E+6
t-Butyl alcohol	75650	NA	78,000	NA	1.1E+8 (C)	1.1E+8 (C)	9.7E+7	2.0E+8	2.0E+8	1.3E+11	1.1E+8 (C)	1.1E+8
Butyl benzyl phthalate	85687	NA	3.1E+5 (C)	26,000 (X)	3.1E+5 (C)	NLV	NLV	NLV	NLV	4.7E+10	3.1E+5 (C)	3.1E+5
n-Butylbenzene	104518	NA	1,600	ID	1.2E+5	ID	ID	ID	ID	ID	2.5E+6	1.0E+7
sec-Butylbenzene	135988	NA	1,600	ID	88,000	ID	ID	ID	ID	ID	2.5E+6	1.0E+7
t-Butylbenzene (I)	98066	NA	1,600	NA	1.8E+5	ID	ID	ID	ID	ID	2.5E+6	1.0E+7
Cadmium (B)	7440439	1,200	6,000	(G,X)	2.3E+8	NLV	NLV	NLV	NLV	1.7E+6	5.5E+5	NA
Camphene (I)	79925	NA	ID	NA	ID	ID	ID	ID	ID	ID	ID	NA
Caprolactam	105602	NA	1.2E+5	NA	1.0E+9 (D)	NLV	NLV	NLV	NLV	6.7E+8	5.3E+7 (DD)	NA
Carbaryl	63252	NA	14,000	NA	2.6E+6	ID	ID	ID	ID	ID	2.2E+7	NA
Carbazole	86748	NA	9,400	1,100	8.2E+5	NLV	NLV	NLV	NLV	ID	5.3E+5	NA
Carbofuran	1563662	NA	800	NA	6.8E+6	NLV	NLV	NLV	NLV	ID	1.1E+6	NA
Carbon disulfide (I,R)	75150	NA	16,000	ID	2.8E+5 (C)	76,000	1.3E+6	7.9E+6	1.9E+7	4.7E+10	2.8E+5 (C,DD)	2.8E+5
Carbon tetrachloride	56235	NA	100	900 (X)	92,000	190	3,500	12,000	28,000	1.3E+8	96,000	3.9E+5
Chlordane (J)	57749	NA	NLL	NLL	NLL	1.1E+7	1.2E+6	1.2E+6	1.2E+6	3.1E+7	31,000	NA
Chloride	16887006	NA	5.0E+6	2.5E+6 (X)	ID	NLV	NLV	NLV	NLV	ID	5.0E+5 (F)	NA
Chlorobenzene (I)	108907	NA	2,000	940	2.6E+5 (C)	1.2E+5	7.7E+5	9.9E+5	2.1E+6	4.7E+9	2.6E+5 (C)	2.6E+5

TABLE 2. SOIL: RESIDENTIAL AND COMMERCIAL I
PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS;
PART 213 TIER 1 RISK-BASED SCREENING LEVELS (RBSLs)

			Groundwater Protection			Indoor Air	Ambient Air (Y)				Direct Contact	
Guidesheet Number→		#10	#11	#12	#13	#14	#15	#16	#17	#18	#19	#20
Hazardous Substance	Chemical Abstract Service Number	Statewide Default Background Levels	Drinking Water Protection Criteria & RBSLs	Groundwater Surface Water Interface Protection Criteria & RBSLs	Groundwater Contact Protection Criteria & RBSLs	Soil Volatilization to Indoor Air Inhalation Criteria & RBSLs	Infinite Source Volatile Soil Inhalation Criteria (VSIC) & RBSLs	Finite VSIC for 5 Meter Source Thickness	Finite VSIC for 2 Meter Source Thickness	Particulate Soil Inhalation Criteria & RBSLs	Direct Contact Criteria & RBSLs	Soil Saturation Concentration Screening Levels
para-Chlorobenzenesulfonic acid	98668	NA	1.5E+05	NA	NA	ID	ID	ID	ID	ID	2.3E+8	ID
1-Chloro-1,1-difluoroethane	75683	NA	3.0E+5	NA	9.6E+5 (C)	9.6E+5 (C)	7.9E+7	5.6E+8	1.4E+9	3.3E+12	9.6E+5 (C)	9.6E+5
Chloroethane	75003	NA	8,600	ID	9.5E+5 (C)	9.5E+5 (C)	3.0E+7	1.2E+8	2.8E+8	6.7E+11	9.5E+5 (C)	9.5E+5
2-Chloroethyl vinyl ether	110758	NA	ID	NA	ID	ID	ID	ID	ID	ID	ID	1.9E+6
Chloroform	67663	NA	1,600 (W)	3,400 (X)	1.5E+6 (C)	7,200	45,000	1.2E+5	2.7E+5	1.3E+9	1.2E+6	1.5E+6
Chloromethane (I)	74873	NA	5,200	ID	1.1E+6 (C)	2,300	40,000	4.1E+5	1.0E+6	4.9E+9	1.1E+6 (C)	1.1E+6
4-Chloro-3-methylphenol	59507	NA	5,800	280	3.0E+6	NLV	NLV	NLV	NLV	ID	4.5E+6	NA
beta-Chloronaphthalene	91587	NA	6.2E+5	NA	2.3E+6	ID	ID	ID	ID	ID	5.6E+7	NA
2-Chlorophenol	95578	NA	900	440	1.9E+6	ID	ID	ID	ID	ID	1.4E+6	1.9E+7
o-Chlorotoluene (I)	95498	NA	3,300	NA	5.0E+5 (C)	2.7E+5	1.2E+6	2.9E+6	6.3E+6	4.7E+9	5.0E+5 (C)	5.0E+5
Chlorpyrifos	2921882	NA	17,000	1,500	8.4E+5	130	4,600	23,000	55,000	1.3E+8	1.1E+7	NA
Chromium (III) (B,H)	16065831	18,000 (total)	1.0E+9 (D)	(G,X)	1.0E+9 (D)	NLV	NLV	NLV	NLV	3.3E+8	7.9E+8	NA
Chromium (VI)	18540299	NA	30,000	3,300	1.4E+8	NLV	NLV	NLV	NLV	2.6E+5	2.5E+6	NA
Chrysene (Q)	218019	NA	NLL	NLL	NLL	ID	ID	ID	ID	ID	2.0E+6	NA
Cobalt	7440484	6,800	800	2,000	4.8E+7	NLV	NLV	NLV	NLV	1.3E+7	2.6E+6	NA
Copper (B)	7440508	32,000	5.8E+6	(G)	1.0E+9 (D)	NLV	NLV	NLV	NLV	1.3E+8	2.0E+7	NA
Cyanazine	21725462	NA	200	1,100 (X)	56,000	NLV	NLV	NLV	NLV	ID	14,000	NA
Cyanide (P,R)	57125	390 (total)	4,000	100	2.5E+5	NLV	NLV	NLV	NLV	2.5E+5	12,000	NA
Cyclohexanone	108941	NA	5.2E+6	NA	2.2E+8 (C)	17,000	1.0E+6	1.1E+7	2.7E+7	6.7E+10	2.2E+8 (C)	2.2E+8
Dacthal	1861321	NA	50,000	NA	3.4E+5	NLV	NLV	NLV	NLV	ID	2.3E+6	NA
Dalapon	75990	NA	4,000	NA	5.9E+7 (C)	NLV	NLV	NLV	NLV	ID	1.9E+7	5.9E+7
4-4'-DDD	72548	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	4.4E+7	95,000	NA
4-4'-DDE	72559	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	3.2E+7	45,000	NA
4-4'-DDT	50293	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	3.2E+7	57,000	NA

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			Groundwater Protection			Indoor Air	Ambient Air (Y)				Direct Contact	
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Decabromodiphenyl ether	1163195	NA	1.4E+5	NA	1.4E+5	1.0E+9 (D)	8.6E+7	8.6E+7	8.6E+7	2.3E+9	3.8E+6	NA
Di-n-butyl phthalate	84742	NA	7.6E+5 (C)	11,000	7.6E+5 (C)	NLV	NLV	NLV	NLV	3.3E+9	7.6E+5 (C)	7.6E+5
Di(2-ethylhexyl) adipate	103231	NA	9.6E+5 (C)	NA	9.6E+5 (C)	NLV	NLV	NLV	NLV	9.2E+9	9.6E+5 (C,DD)	9.6E+5
Di-n-octyl phthalate	117840	NA	1.0E+8	ID	1.4E+8 (C)	NLV	NLV	NLV	NLV	ID	6.9E+6	1.4E+8
Diacetone alcohol (I)	123422	NA	ID	NA	ID	NLV	NLV	NLV	NLV	1.6E+11	ID	1.1E+8
Diazinon	333415	NA	95	NA	95,000	NLV	NLV	NLV	NLV	ID	12,000 (DD)	3.1E+5
Dibenzo(a,h)anthracene (Q)	53703	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	ID	2,000	NA
Dibenzofuran	132649	NA	ID	1,700	ID	ID	ID	ID	ID	ID	ID	NA
Dibromochloromethane	124481	NA	1,600 (W)	ID	3.6E+5	3,900	24,000	24,000	33,000	1.3E+8	1.1E+5	6.1E+5
Dibromochloropropane	96128	NA	10 (M); 4.0	NA	1,200 (C)	1,200 (C)	13,000	13,000	13,000	1.3E+7	1,200 (C)	1,200
Dibromomethane	74953	NA	1,600	NA	2.0E+6 (C)	ID	ID	ID	ID	ID	2.0E+6 (C)	2.0E+6
Dicamba	1918009	NA	4,400	NA	1.2E+7	NA	NLV	NLV	NLV	ID	3.4E+6	NA
1,2-Dichlorobenzene	95501	NA	14,000	360	2.1E+5 (C)	2.1E+5 (C)	3.9E+7	3.9E+7	5.2E+7	1.0E+11	2.1E+5 (C)	2.1E+5
1,3-Dichlorobenzene	541731	NA	170	1,100	51,000	ID	ID	ID	ID	ID	1.7E+5 (C)	1.7E+5
1,4-Dichlorobenzene	106467	NA	1,700	290	1.4E+5	19,000	77,000	77,000	1.1E+5	4.5E+8	4.0E+5	NA
3,3'-Dichlorobenzidine	91941	NA	2,000 (M); 28	2,000 (M,X); 510	4,600	NLV	NLV	NLV	NLV	6.5E+6	6,600	NA
Dichlorodifluoromethane	75718	NA	95,000	ID	1.0E+6 (C)	9.0E+5	5.3E+7	5.5E+8	1.4E+9	3.3E+12	1.0E+6 (C)	1.0E+6
1,1-Dichloroethane	75343	NA	18,000	15,000	8.9E+5 (C)	2.3E+5	2.1E+6	5.9E+6	1.4E+7	3.3E+10	8.9E+5 (C)	8.9E+5
1,2-Dichloroethane (I)	107062	NA	100	7,200 (X)	3.8E+5	2,100	6,200	11,000	26,000	1.2E+8	91,000	1.2E+6
1,1-Dichloroethylene (I)	75354	NA	140	1,300 (X)	2.2E+5	62	1,100	5,300	13,000	6.2E+7	2.0E+5	5.7E+5
cis-1,2-Dichloroethylene	156592	NA	1,400	12,000	6.4E+5 (C)	22,000	1.8E+5	4.2E+5	9.9E+5	2.3E+9	6.4E+5 (C)	6.4E+5
trans-1,2-Dichloroethylene	156605	NA	2,000	30,000	1.4E+6 (C)	23,000	2.8E+5	8.3E+5	2.0E+6	4.7E+9	1.4E+6 (C)	1.4E+6
2,6-Dichloro-4-nitroaniline	99309	NA	44,000	NA	1.4E+5	NLV	NLV	NLV	NLV	ID	6.8E+7	NA
2,4-Dichlorophenol	120832	NA	1,500	380	9.6E+5	NLV	NLV	NLV	NLV	5.1E+9	6.6E+5 (DD)	1.8E+6

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			Groundwater Protection			Indoor Air	Ambient Air (Y)				Direct Contact	
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2,4-Dichlorophenoxyacetic acid	94757	NA	1,400	4,400	2.4E+6	NLV	NLV	NLV	NLV	6.7E+9	2.5E+6	NA
1,2-Dichloropropane (I)	78875	NA	100	5,800 (X)	3.2E+5	4,000	25,000	50,000	1.1E+5	2.7E+8	1.4E+5	5.5E+5
1,3-Dichloropropene	542756	NA	170	NA	1.1E+5	1,000	18,000	68,000	1.6E+5	7.8E+8	10,000	6.2E+5
Dichlorovos	62737	NA	50 (M); 32	NA	1.2E+5	NLV	NLV	NLV	NLV	3.3E+7	10,000	2.2E+6
Dicyclohexyl phthalate	84617	NA	ID	NA	ID	ID	ID	ID	ID	ID	ID	NA
Dieldrin	60571	NA	NLL	NLL	NLL	1.4E+5	19,000	19,000	19,000	6.8E+5	1,100	NA
Diethyl ether	60297	NA	200	ID	7.4E+6 (C)	7.4E+6 (C)	8.5E+7	1.5E+8	3.4E+8	8.0E+11	7.4E+6 (C)	7.4E+6
Diethyl phthalate	84662	NA	1.1E+5	2,200	7.4E+5 (C)	NLV	NLV	NLV	NLV	3.3E+9	7.4E+5 (C)	7.4E+5
Diethylene glycol monobutyl ether	112345	NA	1,800	NA	8.0E+7	NLV	NLV	NLV	NLV	1.3E+9	2.7E+6	1.1E+8
Diisopropyl ether	108203	NA	600	ID	1,300 (C)	1,300 (C)	3.4E+5	7.6E+5	1.8E+6	4.1E+9	1,300 (C)	1,300
Diisopropylamine (I)	108189	NA	110	NA	4.2E+5	ID	ID	ID	ID	ID	1.7E+5	6.7E+6
Dimethyl phthalate	131113	NA	7.9E+5 (C)	NA	7.9E+5 (C)	NLV	NLV	NLV	NLV	3.3E+9	7.9E+5 (C)	7.9E+5
N,N-Dimethylacetamide	127195	NA	3,600	82,000 (X)	1.1E+8 (C)	NLV	NLV	NLV	NLV	ID	5.6E+6	1.1E+8
N,N-Dimethylaniline	121697	NA	320	NA	4.0E+5	1.7E+5	1.5E+5	1.5E+5	1.5E+5	2.6E+8	5.0E+5	8.0E+5
Dimethylformamide (I)	68122	NA	14,000	NA	1.1E+8 (C)	NLV	NLV	NLV	NLV	2.0E+9	2.2E+7	1.1E+8
2,4-Dimethylphenol	105679	NA	7,400	7,600	1.0E+7	NLV	NLV	NLV	NLV	4.7E+9	1.1E+7	NA
2,6-Dimethylphenol	576261	NA	330 (M); 88	NA	1.3E+5	NLV	NLV	NLV	NLV	ID	1.4E+5	NA
3,4-Dimethylphenol	95658	NA	330 (M); 200	NA	3.6E+5	NLV	NLV	NLV	NLV	ID	3.2E+5	NA
Dimethylsulfoxide	67685	NA	4.4E+6	3.8E+6	1.8E+7 (C)	NLV	NLV	NLV	NLV	ID	1.8E+7 (C)	1.8E+7
2,4-Dinitrotoluene	121142	NA	430	NA	1.7E+5	NLV	NLV	NLV	NLV	1.6E+7	48,000	NA
Dinoseb	88857	NA	300	200 (M); 43	1.4E+5 (C)	NLV	NLV	NLV	NLV	ID	66,000 (DD)	1.4E+5
1,4-Dioxane (I)	123911	NA	1,700	56,000	3.4E+7	NLV	NLV	NLV	NLV	5.7E+8	5.3E+5	9.7E+7
Diquat	85007	NA	400	NA	1.4E+7	NLV	NLV	NLV	NLV	ID	5.0E+5	NA
Diuron	330541	NA	620	NA	7.4E+5	NLV	NLV	NLV	NLV	4.7E+8	9.7E+5	NA

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			Groundwater Protection			Indoor Air	Ambient Air (Y)				Direct Contact	
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Endosulfan (J)	115297	NA	NLL	NLL	NLL	ID	ID	ID	ID	ID	1.4E+6	NA
Endothall	145733	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	2.3E+9	3.8E+6	NA
Endrin	72208	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	ID	65,000	NA
Epichlorohydrin (I)	106898	NA	100	NA	2.2E+5	64,000	31,000	31,000	35,000	6.7E+7	8,900	7.3E+6
Ethanol (I)	64175	NA	3.8E+7	NA	1.1E+8 (C)	NLV	NLV	NLV	NLV	1.3E+12	1.1E+8 (C,DD)	1.1E+8
Ethyl acetate (I)	141786	NA	1.3E+5	NA	7.5E+6 (C)	7.5E+6 (C)	4.9E+7	4.9E+7	9.8E+7	2.1E+11	7.5E+6 (C)	7.5E+6
Ethyl-tert-butyl ether (ETBE)	637923	NA	980	ID	ID	5.4E+5	1.9E+6	4.5E+6	1.1E+7	2.5E+10	ID	6.5E+5
Ethylbenzene (I)	100414	NA	1,500	360	1.4E+5 (C)	87,000	7.2E+5	1.0E+6	2.2E+6	1.0E+10	1.4E+5 (C)	1.4E+5
Ethylene dibromide	106934	NA	20 (M); 1.0	20 (M); 4.0	500	670	1,700	1,700	3,300	1.4E+7	92	8.9E+5
Ethylene glycol	107211	NA	3.0E+5	NA	1.1E+8 (C)	NLV	NLV	NLV	NLV	6.7E+10	1.1E+8 (C)	1.1E+8
Ethylene glycol monobutyl ether	111762	NA	74,000	NA	4.1E+7 (C)	7.4E+5	1.8E+7	1.5E+8	3.6E+8	8.7E+11	4.1E+7 (C)	4.1E+7
Fluoranthene	206440	NA	7.3E+5	5,500	7.3E+5	1.0E+9 (D)	7.4E+8	7.4E+8	7.4E+8	9.3E+9	4.6E+7	NA
Fluorene	86737	NA	3.9E+5	5,300	8.9E+5	5.8E+8	1.3E+8	1.3E+8	1.3E+8	9.3E+9	2.7E+7	NA
Fluorine (soluble fluoride) (8)	7782414	NA	40,000	NA	2.4E+8	NLV	NLV	NLV	NLV	ID	9.0E+6 (DD)	NA
Formaldehyde	50000	NA	26,000	2,400	6.0E+7 (C)	12,000	13,000	23,000	52,000	2.4E+8	4.1E+7	6.0E+7
Formic acid (I,U)	64186	NA	2.0E+5	ID	1.1E+8 (C)	1.5E+6	2.1E+5	1.4E+5	1.4E+5	1.3E+8	1.1E+8 (C)	1.1E+8
1-Formylpiperidine	2591868	NA	1,600	NA	ID	ID	ID	ID	ID	ID	2.5E+6	1.0E+7
Gentian violet	548629	NA	300	NA	2.0E+7	NLV	NLV	NLV	NLV	ID	96,000	NA
Glyphosate	1071836	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	ID	1.1E+7 (DD)	NA
Heptachlor	76448	NA	NLL	NLL	NLL	3.5E+5	62,000	62,000	62,000	2.4E+6	5,600	NA
Heptachlor epoxide	1024573	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	1.2E+6	3,100	NA
n-Heptane	142825	NA	2.4E+5 (C)	NA	2.4E+5 (C)	2.4E+5 (C)	2.1E+7	4.4E+7	1.0E+8	2.3E+11	2.4E+5 (C)	2.4E+5
Hexabromobenzene	87821	NA	5,400	ID	5,400	ID	ID	ID	ID	ID	1.1E+6	NA
Hexachlorobenzene (C-66)	118741	NA	1,800	350	8,200	41,000	17,000	17,000	17,000	6.8E+6	8,900	NA

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			Groundwater Protection			Indoor Air	Ambient Air (Y)				Direct Contact	
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Hazardous Substance	Chemical Abstract Service Number	Statewide Default Background Levels	Drinking Water Protection Criteria & RBSLs	Groundwater Surface Water Interface Protection Criteria & RBSLs	Groundwater Contact Protection Criteria & RBSLs	Soil Volatilization to Indoor Air Inhalation Criteria & RBSLs	Infinite Source Volatile Soil Inhalation Criteria (VSIC) & RBSLs	Finite VSIC for 5 Meter Source Thickness	Finite VSIC for 2 Meter Source Thickness	Particulate Soil Inhalation Criteria & RBSLs	Direct Contact Criteria & RBSLs	Soil Saturation Concentration Screening Levels
Hexachlorobutadiene (C-46)	87683	NA	26,000	91	3.5E+5 (C)	1.3E+5	1.3E+5	1.3E+5	1.3E+5	1.4E+8	1.0E+5	3.5E+5
alpha-Hexachlorocyclohexane	319846	NA	18	NA	2,500	30,000	12,000	22,000	25,000	1.7E+6	2,600	NA
beta-Hexachlorocyclohexane	319857	NA	37	ID	5,100	NLV	NLV	NLV	NLV	5.9E+6	5,400	NA
Hexachlorocyclopentadiene (C-56)	77474	NA	3.2E+5	ID	7.2E+5 (C)	30,000	50,000	50,000	50,000	1.3E+7	7.2E+5 (C)	7.2E+5
Hexachloroethane	67721	NA	430	1,800 (X)	1.1E+5	40,000	5.5E+5	9.3E+5	9.3E+5	2.3E+8	2.3E+5	NA
n-Hexane	110543	NA	44,000 (C)	NA	44,000 (C)	44,000 (C)	3.0E+6	3.2E+6	6.2E+6	1.3E+10	44,000 (C)	44,000
2-Hexanone	591786	NA	20,000	NA	2.5E+6 (C)	9.9E+5	1.1E+6	1.1E+6	1.4E+6	2.7E+9	2.5E+6 (C)	2.5E+6
Indeno(1,2,3-cd)pyrene (Q)	193395	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	ID	20,000	NA
Iron (B)	7439896	1.2E+7	6,000	NA	1.0E+9 (D)	NLV	NLV	NLV	NLV	ID	1.6E+8	NA
Isobutyl alcohol (I)	78831	NA	46,000	NA	8.9E+6 (C)	8.9E+6 (C)	7.9E+7	7.9E+7	7.9E+7	1.0E+11	8.9E+6 (C)	8.9E+6
Isophorone	78591	NA	15,000	11,000 (X)	2.4E+6 (C)	NLV	NLV	NLV	NLV	1.2E+10	2.4E+6 (C)	2.4E+6
Isopropyl alcohol (I)	67630	NA	9,400	1.1E+6 (X)	1.1E+8 (C)	NLV	NLV	NLV	NLV	1.5E+10	1.4E+7	1.1E+8
Isopropyl benzene	98828	NA	91,000	ID	3.9E+5 (C)	3.9E+5 (C)	1.7E+6	1.7E+6	2.8E+6	5.8E+9	3.9E+5 (C)	3.9E+5
Lead (B)	7439921	21,000	7.0E+5	(G,X)	ID	NLV	NLV	NLV	NLV	1.0E+8	4.0E+5	NA
Lindane	58899	NA	20 (M); 7.0	20 (M); 0.99	7,100	ID	ID	ID	ID	ID	8,300	NA
Lithium (B)	7439932	9,800	3,400	1,900	1.1E+8	NLV	NLV	NLV	NLV	ID	4.2E+6 (DD)	NA
Magnesium (B)	7439954	NA	8.0E+6	NA	1.0E+9 (D)	NLV	NLV	NLV	NLV	6.7E+9	1.0E+9 (D)	NA
Manganese (B)	7439965	4.4E+5	1,000	(G,X)	1.8E+8	NLV	NLV	NLV	NLV	3.3E+6	2.5E+7	NA
Mercury (Total) (B,Z)	Varies	130	1,700	50 (M); 1.2	47,000	48,000	52,000	52,000	52,000	2.0E+7	1.6E+5	NA
Methane	74828	NA	ID	NA	ID	8.4E+6 ug/m3 (GG)	ID	ID	ID	ID	ID	ID
Methanol	67561	NA	74,000	9,600	3.1E+6 (C)	3.1E+6 (C)	3.1E+7	4.4E+7	9.6E+7	2.2E+11	3.1E+6 (C)	3.1E+6
Methoxychlor	72435	NA	16,000	NA	18,000	ID	ID	ID	ID	ID	1.9E+6	NA
2-Methoxyethanol (I)	109864	NA	150	NA	1.7E+7	NLV	NLV	NLV	NLV	1.3E+9	2.3E+5	1.1E+8
2-Methyl-4-chlorophenoxyacetic acid	94746	NA	390	NA	4.9E+5	NLV	NLV	NLV	NLV	ID	2.3E+5	NA

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PART 213 TIER 1 RISK-BASED SCREENING LEVELS (RBSLs)

			Groundwater Protection			Indoor Air	Ambient Air (Y)				Direct Contact	
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2-Methyl-4,6-dinitrophenol	534521	NA	830 (M); 400	NA	1.9E+5	NLV	NLV	NLV	NLV	ID	79,000	NA
N-Methyl-morpholine (I)	109024	NA	400	NA	3.0E+7	NLV	NLV	NLV	NLV	ID	6.1E+5	1.1E+8
Methyl parathion	298000	NA	46	NA	76,000	NLV	NLV	NLV	NLV	ID	56,000	NA
4-Methyl-2-pentanone (MIBK) (I)	108101	NA	36,000	ID	2.7E+6 (C)	2.7E+6 (C)	4.5E+7	4.5E+7	6.7E+7	1.4E+11	2.7E+6 (C)	2.7E+6
Methyl-tert-butyl ether (MTBE)	1634044	NA	800	15,000 (X)	5.9E+6 (C)	5.9E+6 (C)	2.5E+7	3.9E+7	8.7E+7	2.0E+11	1.5E+6	5.9E+6
Methylcyclopentane (I)	96377	NA	ID	NA	ID	ID	ID	ID	ID	ID	ID	3.5E+5
4,4'-Methylene-bis-2-chloroaniline (MBOCA)	101144	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	8.4E+7	6,800	NA
Methylene chloride	75092	NA	100	19,000 (X)	2.3E+6 (C)	45,000	2.1E+5	5.9E+5	1.4E+6	6.6E+9	1.3E+6	2.3E+6
2-Methylnaphthalene	91576	NA	57,000	ID	5.5E+6	ID	ID	ID	ID	ID	8.1E+6	NA
Methylphenols (J)	1319773	NA	7,400	1,400	1.6E+7	NLV	NLV	NLV	NLV	6.7E+9	1.1E+7	NA
Metolachlor	51218452	NA	4,800	NA	4.4E+5 (C)	NLV	NLV	NLV	NLV	ID	4.4E+5 (C,DD)	4.4E+5
Metribuzin	21087649	NA	3,600	NA	2.4E+7	ID	ID	ID	ID	ID	9.6E+6	NA
Mirex	2385855	NA	NLL	NLL	NLL	ID	ID	ID	ID	ID	9,600	NA
Molybdenum (B)	7439987	NA	1,500	16,000 (X)	1.9E+7	NLV	NLV	NLV	NLV	ID	2.6E+6	NA
Naphthalene	91203	NA	35,000	870	2.1E+6	2.5E+5	3.0E+5	3.0E+5	3.0E+5	2.0E+8	1.6E+7	NA
Nickel (B)	7440020	20,000	1.0E+5	(G)	1.0E+9 (D)	NLV	NLV	NLV	NLV	1.3E+7	4.0E+7	NA
Nitrate (B,N)	14797558	NA	2.0E+5 (N)	NA	1.0E+9 (D)	NLV	NLV	NLV	NLV	ID	ID	NA
Nitrite (B,N)	14797650	NA	20,000 (N)	NA	3.8E+8	NLV	NLV	NLV	NLV	ID	ID	NA
Nitrobenzene (I)	98953	NA	330 (M); 68	3,600 (X)	2.2E+5	91,000	54,000	54,000	54,000	4.7E+7	1.0E+5	4.9E+5
2-Nitrophenol	88755	NA	400	ID	1.6E+6	NLV	NLV	NLV	NLV	ID	6.3E+5	NA
n-Nitroso-di-n-propylamine	621647	NA	330 (M); 100	NA	7,200	NLV	NLV	NLV	NLV	1.6E+6	1,200	1.5E+6
N-Nitrosodiphenylamine	86306	NA	5,400	NA	7.0E+5	NLV	NLV	NLV	NLV	ID	1.7E+6	NA
Oxamyl	23135220	NA	4,000	NA	1.0E+9 (D)	NLV	NLV	NLV	NLV	ID	8.6E+6	NA
Oxo-hexyl acetate	88230357	NA	1,500	NA	ID	ID	ID	ID	ID	5.4E+9	2.3E+6	1.0E+7

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			Groundwater Protection			Indoor Air	Ambient Air (Y)				Direct Contact	
Guidesheet Number →		#10	#11	#12	#13	#14	#15	#16	#17	#18	#19	#20
Hazardous Substance	Chemical Abstract Service Number	Statewide Default Background Levels	Drinking Water Protection Criteria & RBSLs	Groundwater Surface Water Interface Protection Criteria & RBSLs	Groundwater Contact Protection Criteria & RBSLs	Soil Volatilization to Indoor Air Inhalation Criteria & RBSLs	Infinite Source Volatile Soil Inhalation Criteria (VSIC) & RBSLs	Finite VSIC for 5 Meter Source Thickness	Finite VSIC for 2 Meter Source Thickness	Particulate Soil Inhalation Criteria & RBSLs	Direct Contact Criteria & RBSLs	Soil Saturation Concentration Screening Levels
Pendimethalin	40487421	NA	1.1E+6	NA	1.1E+6	NLV	NLV	NLV	NLV	ID	4.6E+7	NA
Pentachlorobenzene	608935	NA	29,000	9,500	1.9E+5 (C)	ID	ID	ID	ID	ID	1.9E+5 (C)	1.9E+5
Pentachloronitrobenzene	82688	NA	37,000	NA	37,000	1.2E+5	2.3E+5	2.3E+5	2.3E+5	3.3E+8	1.7E+6	NA
Pentachlorophenol	87865	NA	22	(G,X)	4,300	NLV	NLV	NLV	NLV	1.0E+8	90,000	NA
Pentane	109660	NA	ID	NA	ID	2.4E+5 (C)	3.7E+7	3.1E+8	5.8E+8	1.2E+12	ID	2.4E+5
2-Pentene (I)	109682	NA	ID	NA	ID	ID	ID	ID	ID	ID	ID	2.2E+5
Phenanthrene	85018	NA	56,000	5,300	1.1E+6	2.8E+6	1.6E+5	1.6E+5	1.6E+5	6.7E+6	1.6E+6	NA
Phenol	108952	NA	88,000	4,200	1.2E+7 (C)	NLV	NLV	NLV	NLV	4.0E+10	1.2E+7 (C,DD)	1.2E+7
Phosphorus (Total)	7723140	NA	1.3E+6	(EE)	ID	NLV	NLV	NLV	NLV	ID	1.0E+9 (D)	NA
Phthalic acid	88993	NA	2.8E+5	NA	1.7E+6 (C)	NLV	NLV	NLV	NLV	ID	1.7E+6 (C)	1.7E+6
Phthalic anhydride	85449	NA	3.0E+5	NA	1.1E+6 (C)	NLV	NLV	NLV	NLV	ID	1.1E+6 (C)	1.1E+6
Picloram	1918021	NA	10,000	920	8.6E+6	NLV	NLV	NLV	NLV	ID	1.6E+7	NA
Piperidine	110894	NA	64	NA	6.8E+5	NLV	NLV	NLV	NLV	9.3E+9	99,000	1.2E+8
Polybrominated biphenyls (J)	67774327	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	ID	1,200	NA
Polychlorinated biphenyls (PCBs) (J,T)	1336363	NA	NLL	NLL	NLL	3.0E+6	2.4E+5	7.9E+6	7.9E+6	5.2E+6	(T)	NA
Prometon	1610180	NA	4,900	NA	5.5E+6	NLV	NLV	NLV	NLV	ID	5.0E+6	NA
Propachlor	1918167	NA	1,900	NA	8.8E+6	NLV	NLV	NLV	NLV	ID	2.9E+6	NA
Propazine	139402	NA	4,000	NA	1.7E+5	NLV	NLV	NLV	NLV	ID	6.1E+6	NA
Propionic acid	79094	NA	2.4E+5	NA	1.1E+8 (C)	NLV	NLV	NLV	NLV	2.0E+10	1.1E+8 (C)	1.1E+8
Propyl alcohol (I)	71238	NA	28,000	NA	1.1E+8 (C)	NLV	NLV	NLV	NLV	4.9E+10	1.3E+7 (DD)	1.1E+8
n-Propylbenzene (I)	103651	NA	1,600	NA	3.0E+5	ID	ID	ID	ID	1.3E+9	2.5E+6	1.0E+7
Propylene glycol	57556	NA	3.0E+6	5.8E+6	1.1E+8 (C)	NLV	NLV	NLV	NLV	4.0E+11	1.1E+8 (C)	1.1E+8
Pyrene	129000	NA	4.8E+5	ID	4.8E+5	1.0E+9 (D)	6.5E+8	6.5E+8	6.5E+8	6.7E+9	2.9E+7	NA
Pyridine (I)	110861	NA	400	NA	37,000 (C)	1,100	8,200	40,000	97,000	2.3E+8	37,000 (C)	37,000

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			Groundwater Protection			Indoor Air	Ambient Air (Y)				Direct Contact	
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Selenium (B)	7782492	410	4,000	400	7.8E+7	NLV	NLV	NLV	NLV	1.3E+8	2.6E+6	NA
Silver (B)	7440224	1,000	4,500	100 (M); 27	2.0E+8	NLV	NLV	NLV	NLV	6.7E+6	2.5E+6	NA
Silvex (2,4,5-TP)	93721	NA	3,600	2,200	3.1E+6	NLV	NLV	NLV	NLV	ID	1.7E+6	NA
Simazine	122349	NA	80	NA	90,000	NLV	NLV	NLV	NLV	ID	1.2E+6	NA
Sodium	17341252	NA	2.5E+6	NA	1.0E+9 (D)	NLV	NLV	NLV	NLV	ID	1.0E+9 (D)	NA
Sodium azide	26628228	NA	1,800	NA	ID	ID	ID	ID	ID	ID	2.7E+6	NA
Strontium (B)	7440246	NA	92,000	46,000 (X)	1.0E+9 (D)	NLV	NLV	NLV	NLV	ID	3.3E+8	NA
Styrene	100425	NA	2,700	2,200	2.7E+5	2.5E+5	9.7E+5	9.7E+5	1.4E+6	5.5E+9	4.0E+5	5.2E+5
Sulfate	14808798	NA	5.0E+6	NA	ID	NLV	NLV	NLV	NLV	ID	ID	NA
Tebuthiuron	34014181	NA	10,000	NA	5.0E+7	NLV	NLV	NLV	NLV	ID	4.6E+6 (DD)	NA
2,3,7,8-Tetrabromodibenzo-p-dioxin (O)	50585416	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	(O)	(O)	NA
1,2,4,5-Tetrachlorobenzene	95943	NA	1.5E+6	3,400 (X)	1.5E+6	ID	ID	ID	ID	ID	7.7E+7	NA
2,3,7,8-Tetrachlorodibenzo-p-dioxin (O)	1746016	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	71 (O)	0.09 (O)	NA
1,1,1,2-Tetrachloroethane	630206	NA	1,500	ID (X)	4.4E+5 (C)	6,200	36,000	54,000	1.0E+5	4.2E+8	4.4E+5 (C)	4.4E+5
1,1,2,2-Tetrachloroethane	79345	NA	170	1,600 (X)	94,000	4,300	10,000	10,000	14,000	5.4E+7	53,000	8.7E+5
Tetrachloroethylene	127184	NA	100	900 (X)	88,000 (C)	11,000	1.8E+5	4.8E+5	1.1E+6	5.4E+9	88,000 (C)	88,000
Tetrahydrofuran	109999	NA	1,900	2.2E+5 (X)	3.2E+7	1.3E+6	1.3E+7	6.7E+7	1.6E+8	3.9E+11	2.9E+6	1.2E+6
Tetranitromethane	509148	NA	ID	ID	ID	500 (M); 110	500 (M); 51	ID	ID	2.1E+5	ID	ID
Thallium (B)	7440280	NA	2,300	4,200 (X)	1.5E+7	NLV	NLV	NLV	NLV	ID	35,000	NA
Toluene (I)	108883	NA	16,000	2,800	2.5E+5 (C)	2.5E+5 (C)	2.8E+6	5.1E+6	1.2E+7	2.7E+10	2.5E+5 (C)	2.5E+5
p-Toluidine	106490	NA	660 (M); 300	NA	4.8E+5	NLV	NLV	NLV	NLV	1.0E+8	94,000	1.2E+6
Toxaphene	8001352	NA	24,000	860	3.6E+5	NLV	NLV	NLV	NLV	9.7E+6	20,000	NA
Triallate	2303175	NA	95,000	NA	2.5E+5 (C)	ID	ID	ID	ID	ID	2.5E+5 (C)	2.5E+5
Tributylamine	102829	NA	7,800	ID	1.8E+6	5.8E+5	6.0E+5	6.0E+5	6.0E+5	4.7E+8	7.9E+5	3.7E+6

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1,2,4-Trichlorobenzene	120821	NA	4,200	1,800	1.1E+6	1.1E+6 (C)	2.8E+7	2.8E+7	2.8E+7	2.5E+10	9.9E+5 (DD)	1.1E+6
1,1,1-Trichloroethane	71556	NA	4,000	4,000	4.6E+5 (C)	2.5E+5	3.8E+6	1.2E+7	2.8E+7	6.7E+10	4.6E+5 (C)	4.6E+5
1,1,2-Trichloroethane	79005	NA	100	6,600 (X)	4.2E+5	4,600	17,000	21,000	44,000	1.9E+8	1.8E+5	9.2E+5
Trichloroethylene	79016	NA	100	4,000 (X)	4.4E+5	7,100	78,000	1.7E+5	3.9E+5	1.8E+9	5.0E+5 (C,DD)	5.0E+5
Trichlorofluoromethane	75694	NA	52,000	NA	5.6E+5 (C)	5.6E+5 (C)	9.2E+7	6.3E+8	1.5E+9	3.8E+12	5.6E+5 (C)	5.6E+5
2,4,5-Trichlorophenol	95954	NA	39,000	NA	9.1E+6	NLV	NLV	NLV	NLV	2.3E+10	2.3E+7	NA
2,4,6-Trichlorophenol	88062	NA	2,400	NA	2.0E+5	NLV	NLV	NLV	NLV	1.0E+9	7.1E+5	NA
1,2,3-Trichloropropane	96184	NA	840	NA	8.3E+5 (C)	ID	ID	ID	ID	ID	8.3E+5 (C)	8.3E+5
1,1,2-Trichloro-1,2,2-trifluoroethane	76131	NA	5.5E+5 (C)	1,700	5.5E+5 (C)	5.5E+5 (C)	1.8E+8	8.8E+8	2.1E+9	5.1E+12	5.5E+5 (C)	5.5E+5
Triethanolamine	102716	NA	74,000	NA	1.1E+8 (C)	NLV	NLV	NLV	NLV	3.3E+9	1.1E+8	1.1E+8
Triethylene glycol	112276	NA	1.1E+5 (C)	NA	1.1E+5 (C)	NLV	NLV	NLV	NLV	ID	1.1E+5 (C,DD)	1.1E+5
3-Trifluoromethyl-4-nitrophenol	88302	NA	1.1E+5	NA	1.2E+8	NLV	NLV	NLV	NLV	ID	4.1E+7 (DD)	NA
Trifluralin	1582098	NA	1.9E+5	NA	1.2E+7	ID	ID	ID	ID	ID	2.0E+6	NA
2,2,4-Trimethyl pentane	540841	NA	ID	NA	ID	ID	ID	ID	ID	ID	ID	19,000
2,4,4-Trimethyl-2-pentene (I)	107404	NA	ID	NA	ID	ID	ID	ID	ID	ID	ID	56,000
1,2,4-Trimethylbenzene (I)	95636	NA	2,100	570	1.1E+5 (C)	1.1E+5 (C)	2.1E+7	5.0E+8	5.0E+8	8.2E+10	1.1E+5 (C)	1.1E+5
1,3,5-Trimethylbenzene (I)	108678	NA	1,800	1,100	94,000 (C)	94,000 (C)	1.6E+7	3.8E+8	3.8E+8	8.2E+10	94,000 (C)	94,000
Triphenyl phosphate	115866	NA	1.1E+5 (C)	NA	1.1E+5 (C)	NLV	NLV	NLV	NLV	ID	1.1E+5 (C)	1.1E+5
tris(2,3-Dibromopropyl)phosphate	126727	NA	930	NA	27,000 (C)	27,000 (C)	18,000	18,000	18,000	5.9E+6	4,400	27,000
Urea	57136	NA	ID (N)	NA	ID	NLV	NLV	NLV	NLV	ID	ID	NA
Vanadium	7440622	NA	72,000	1.9E+5	1.0E+9 (D)	NLV	NLV	NLV	NLV	ID	7.5E+5 (DD)	NA
Vinyl acetate (I)	108054	NA	13,000	NA	2.4E+6 (C)	7.9E+5	1.7E+6	2.6E+6	5.8E+6	1.3E+10	2.4E+6 (C,DD)	2.4E+6
Vinyl chloride	75014	NA	40	300	20,000	270	4,200	30,000	73,000	3.5E+8	3,800	4.9E+5
White phosphorus (R)	12185103	NA	2.2	NA	58,000	NLV	NLV	NLV	NLV	ID	2,300 (DD)	NA

TABLE 2. SOIL: RESIDENTIAL AND COMMERCIAL I
PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS;
PART 213 TIER 1 RISK-BASED SCREENING LEVELS (RBSLs)

			Groundwater Protection			Indoor Air	Ambient Air (Y)				Direct Contact	
Guidesheet Number →		#10	#11	#12	#13	#14	#15	#16	#17	#18	#19	#20
Hazardous Substance	Chemical Abstract Service Number	Statewide Default Background Levels	Drinking Water Protection Criteria & RBSLs	Groundwater Surface Water Interface Protection Criteria & RBSLs	Groundwater Contact Protection Criteria & RBSLs	Soil Volatilization to Indoor Air Inhalation Criteria & RBSLs	Infinite Source Volatile Soil Inhalation Criteria (VSIC) & RBSLs	Finite VSIC for 5 Meter Source Thickness	Finite VSIC for 2 Meter Source Thickness	Particulate Soil Inhalation Criteria & RBSLs	Direct Contact Criteria & RBSLs	Soil Saturation Concentration Screening Levels
Xylenes (I)	1330207	NA	5,600	700	1.5E+5 (C)	1.5E+5 (C)	4.6E+7	6.1E+7	1.3E+8	2.9E+11	1.5E+5 (C)	1.5E+5
Zinc (B)	7440666	47,000	2.4E+6	(G)	1.0E+9 (D)	NLV	NLV	NLV	NLV	ID	1.7E+8	NA

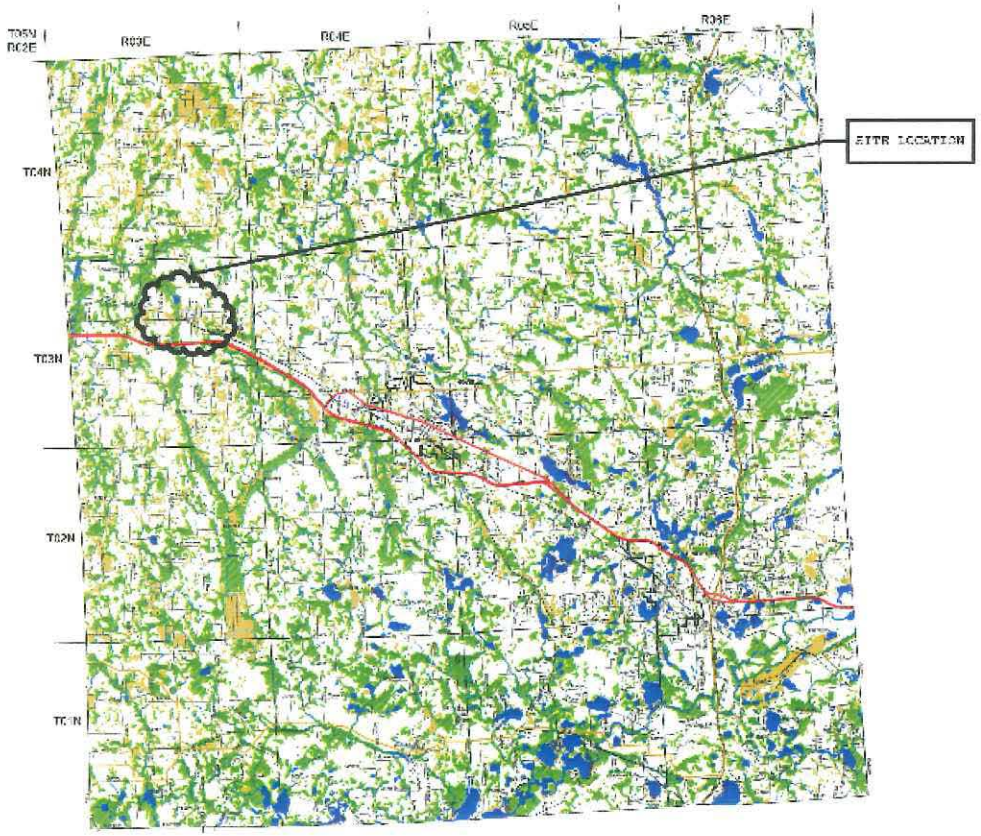
APPENDIX C

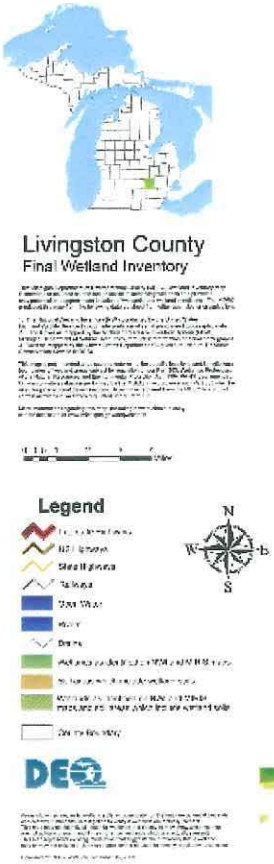
SWAC Calculation Support Data (on attached CD)

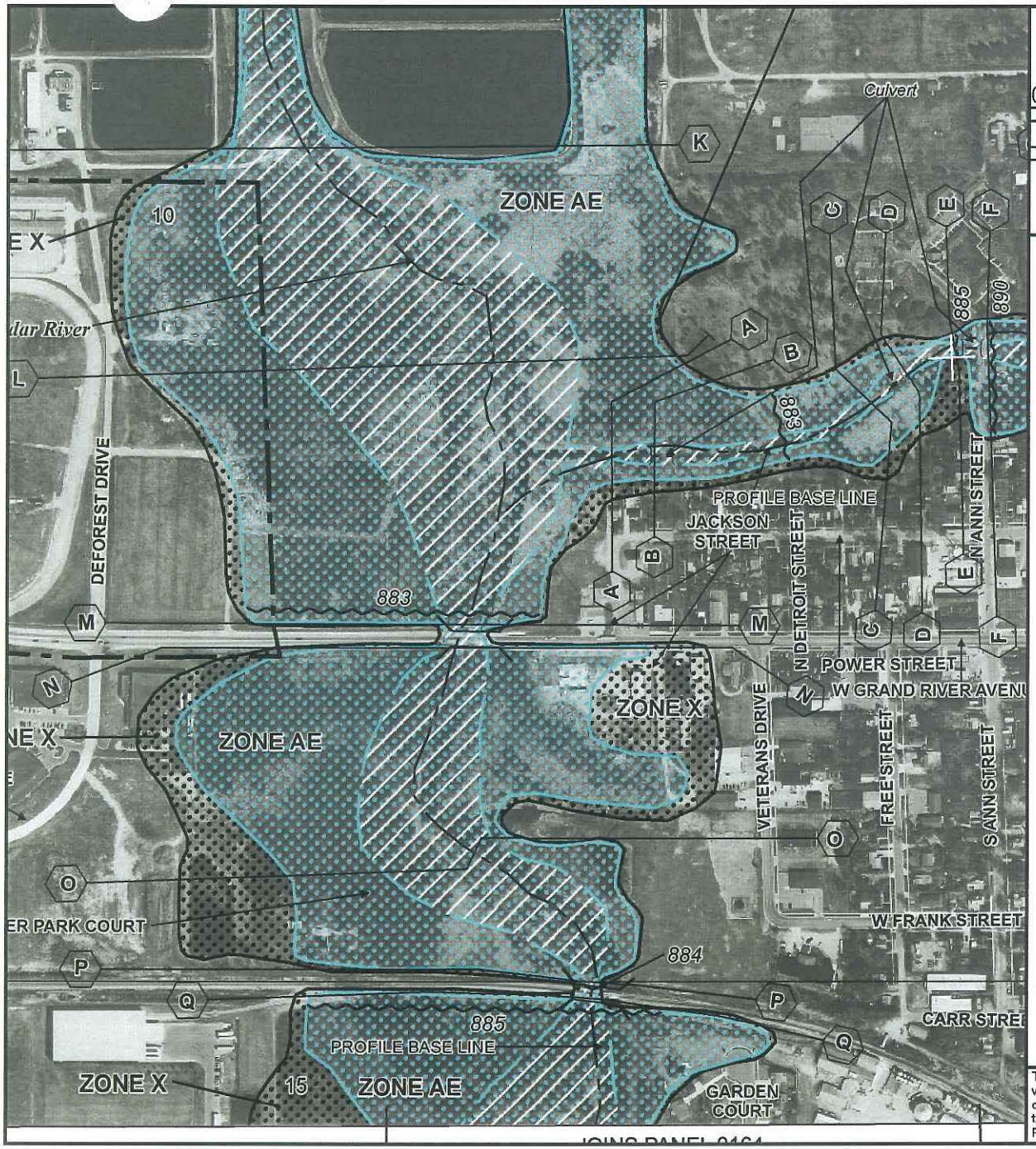
APPENDIX D

Site Access Constraints

Livingston County Final Wetland Inventory







MAP SCALE 1 " = 500 '

0 0 500 1000 FEET

0 150 300 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0162D

FIRM

FLOOD INSURANCE RATE MAP

LIVINGSTON COUNTY, MICHIGAN

(ALL JURISDICTIONS)

PANEL 162 OF 495

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
CONWAY, TOWNSHIP OF	260841	0162	D
FOWLERVILLE, VILLAGE OF	260439	0162	D
HANDY, TOWNSHIP OF	260627	0162	D

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
26093C0162D

EFFECTIVE DATE
9/17/2008

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

FILE: G:\07193-AmericanCompounding\dwg\eng_comp\07193_concept_4.dwg

© 2009

Job no. 07193	Drawn by:	REVISIONS	DATE
Scale:	Checked:		
Vertical:	Approved:		
Horizontal: 1"=30'	Date: 8-13-09		

AMERICAN COMPOUNDING

VILLAGE OF FOWLERVILLE, LIVINGSTON COUNTY, MICHIGAN

CONCEPT #1

Client
AMERICAN COMPOUNDING
200 VETERANS DRIVE
FOWLERVILLE, MI 48836
(517) 223-4500

LIVINGSTON ENGINEERING
CIVIL ENGINEERING SURVEYING PLANNING
2094 PLESS DRIVE, BRIGHTON, MI 48114
PHONE (810) 225-7100 FAX (810) 225-7899
http://www.livingstoneng.com

APPENDIX E

Sediment Treatability Study Report

Stantec Consulting Corporation
Treatability Testing Services Group
4035 King Road Suite D
Sylvania OH 43560
Tel: (419) 841-2731
Fax: (419) 843-1571

Stantec

January 8, 2010

Mr. Jamie Dickson, P.E.
CTI and Associates, Inc.
1202 W. Washington Avenue
Cleveland, Wisconsin 53015

RE: Sediment Stabilization Treatability Testing Report
Johnson Controls, Inc. Site – Fowlerville, Michigan

Dear Mr. Dickson:

CTI and Associates, Inc. (CTI) is currently evaluating the potential application of a sediment stabilization program to address metals and polychlorinated biphenyl (PCB) compound impacts in material to be excavated for off-site disposal from the above-referenced site. As part of the evaluation Stantec Consulting Corporation (Stantec) was contracted to conduct treatability testing designed to evaluate the potential for drying and stabilization of the sediment through addition of multiple amendments. Potential sediment amendments evaluated during the treatability testing included Type F fly ash, Type C fly ash, cement kiln dust (CKD), dolomitic lime, calcium oxide (CaO), and bed ash. In addition to sediment stabilization, the treated material will also need to achieve applicable toxicity characteristic leaching procedure (TCLP) criteria associated with the metals of concern at the site and PCBs. The following report summarizes the activities and results of the treatability testing conducted by Stantec.

The treatability testing protocol was designed to provide a comprehensive evaluation of multiple reagents to determine the efficacy of their use for fixation and/or solidification of excavated sediments prior to off-site disposal of the material. The proposed remedy would involve the excavation of sediments and stockpiling the material in a designated mixing area for treatment. Chemical fixation involves the addition of fixating reagents into impacted soil, sediments or waste to immobilize contaminants of concern. The most commonly used fixation reagents for metals are alkaline reagents, phosphate salts and materials containing ferrous iron. Chemical fixation is effective for immobilization of metals and is performed by directly mixing the chemicals into the sediment using specially designed mixing equipment.

Solidification is similar to the process described for chemical fixation. Solidification reagents (which are typically comprised of portland cement, kiln dust, fly ash or bottom ash) may be mixed into the sediment material using rotary augers, hydraulic mixing tools mounted onto excavators or by conventional excavator bucket mixing techniques. Solidification processes primarily focus on adding reagents to sediments for purposes of reducing water content or for increasing strength and density.

Representative sediment samples were collected from multiple site locations by CTI personnel on November 23, 2009. Two, 5-gallon containers containing approximately 2.5 gallons each of sediment were received by Stantec personnel on November 24, 2009 and delivered to Stantec's Treatability Testing Services Group in Sylvania, Ohio for testing. Initial testing activities involved the preparation of a single composite sample from the sediment material contained within the two, 5-gallon buckets. Once compositing of the material was completed baseline screening was conducted.

The pH and moisture content of the sediments were determined to be 7.28 and 22.8%, respectively. The paint filter liquids test (EPA Method 9095B) was conducted and the sediments were determined to contain free liquids and therefore would require solidification treatment in order to achieve compliance with 40 CFR 264.314 and 265.314 prior to off-site disposal. A sample of the sediment material was also sent to Merit Laboratories, Inc. (Merit) in East Lansing, Michigan for TCLP analysis (EPA Method 1311) for the Michigan 10 RCRA metals. The analytical report received from Merit is provided as Attachment A and the results of the TCLP analysis are summarized in Table 1 below.

Table 1: TCLP Analysis Results* – Michigan 10 RCRA Metals

Analysis Parameter	Extract Concentration (mg/L)
Arsenic	< 0.02
Barium	0.82
Cadmium	< 0.005
Chromium	< 0.05
Copper	< 0.04
Lead	< 0.03
Mercury	< 0.0002
Selenium	< 0.05
Silver	< 0.005
Zinc	5.85

* - The TCLP analysis was conducted using extraction fluid 1.

Based on the results of the baseline TCLP analysis, the primary focus of the treatability testing was stabilization of the sediments in order to pass the paint filter liquids test. However, since the potential still existed for metals impacts to be encountered during sediments excavation activities, the ability of treatment reagents to also achieve TCLP objectives was also evaluated. The testing was conducted by weighing out individual, 200-gram sediment samples into gallon-size zip-lock bags and then dosing the material on a mass basis with the treatment reagents. Dosages of 10%, 15%, 20%, and 25% were tested for Type F fly ash, Type C fly ash, CKD, and dolomitic lime. Calcium oxide was applied at dosage rates of 2%, 4%, 6%, and 8%. Bed ash was evaluated at dosages of 5%, 6%, and 7%. Once the treatment reagent was added, the zip-lock bags were sealed and the sediment sample kneaded and mixed until uniform.

Once mixing of the samples was completed, the samples were allowed to sit over night and react. Once the reaction period was completed, the sediment pH and moisture content was determined. All of the treated samples passed the paint filter liquids test.

The extraction fluid which would be used to perform TCLP analysis on the material was also determined following the procedures outlined in EPA Method 1311. In each case testing indicated extraction fluid 2 would be required. In order to ensure compliance with TCLP criteria for the metals of concern, the extract fluid when applied to a treated sample would need to achieve a pH level between 9 and 10. The extraction procedure was simulated by weighing out 5 grams of treated sediment into a 125-milliliter, HDPE container and adding 100 milliliters of TCLP 2 solution. The containers were then placed in a tumbler at a rotational speed of 18 revolutions per minute to provide complete contact between the extraction fluid and sediments. After 24 hours of contact time the pH of the extraction fluid was measured. The results of the treatbiltity testing conducted for each of the treatment reagents are provided in Table 2.

The results of the treatability testing indicated solidification and fixation of excavated sediments can be achieved prior to off-site disposal of the material. Multiple treatment reagents were evaluated during testing and the proper dosage rate will be required to achieve the necessary criteria. The results of the sediment stabilization treatability study are further summarized below

- Baseline TCLP analysis of the composite sample for the Michigan 10 RCRA metals showed 8 metals to be below detection limits. Only barium (0.82 mg/L) and zinc (5.85 mg/L) were detected.
- Based on the metals analysis results, treatment will likely focus on solidification of the excavated sediments to pass the paint filter liquids test (EPA Method 9095B).
- Excavated sediments will need to be drained of free liquids and treated to pass the paint filter liquids test.
- TCLP analysis of treated sediment will require use of extraction fluid 2, making it more difficult to achieve optimal pH levels in the extract of 9 to 10 should metals fixation be required.
- Dolomitic lime was the only treatment reagent to achieve the optimal extract fluid pH range for the evaluated dosages.

Based on the results of the treatability testing, it is recommended that a dosage between 15% and 20% (w/w) of Type F fly ash be added to the excavated sediments provide a manageable material for off-site disposal. Free liquids would have to be allowed to drain from the sediments prior to blending the material with the fly ash. If metals impacts of the excavated sediments do become an issue, a dolomitic lime dosage of approximately 10% could be used be used for metals fixation.

Stantec appreciates this opportunity to provide CTI with its treatability testing services and looks forward to working again in the future. If you have any questions on the contents included in this report or require any additional information, please do not hesitate to contact me at (419) 843-1518.

Sincerely,

David Schroder

David Schroder
Senior Scientist

Tables

TABLE 2
SEDIMENT TREATABILITY TESTING RESULTS
CTI and Associates, Inc. - Fowlerville, Michigan Site

Sample Identification					
Reagent	Dosage % (w/w)	Sample pH	Moisture Content %	TCLP Extract Fluid	Extract Fluid pH
Control		7.28	22.8	1	6.22
Type F Fly Ash	10	7.34	17.7	2	4.56
	15	7.36	16.5	2	4.61
	20	7.41	13.6	2	4.63
	25	7.49	13.2	2	4.93
Type C Fly Ash	10	10.03	17.9	2	4.65
	15	10.23	16.7	2	4.74
	20	10.41	16.7	2	4.78
	25	10.67	15.8	2	4.97
Cement Kiln Dust	10	12.38	17.4	2	5.35
	15	12.57	17.3	2	5.69
	20	12.61	16.1	2	5.84
	25	12.72	14.2	2	6.00
Dolomitic Lime	10	12.53	19.1	2	8.86
	15	12.58	15.2	2	9.35
	20	12.66	15.0	2	11.87
	25	12.73	14.1	2	12.40
Calcium Oxide	2	12.10	17.5	2	4.67
	4	12.12	17.1	2	4.88
	6	12.17	13.1	2	5.74
	8	12.30	12.9	2	6.96
Bed Ash	5	12.31	19.8	2	4.98
	6	12.40	18.7	2	5.04
	7	12.42	18.3	2	5.23

Attachment A

Merit Laboratories, Inc.
Analytical Laboratory Report

Analytical Laboratory Report

Report ID: S42671.01(01)
Generated on 12/09/2009

Report to

Attention: David Schroder
Stantec
4035 King Road Suite D
Sylvania, OH 43560

Phone: 419-843-1518 FAX: 419-843-1571
Email: david.schroder@stantec.com

Report produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S42671.01
Project: 2132/ CTI Fowlerville
Collected Date: 11/24/2009
Submitted Date/Time: 11/25/2009 09:40
Sampled by: D. Schroder
P.O. #: 2132

Report Notes

Results relate only to items tested as received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
"Not detected" indicates that parameter was not found at a level equal to or greater than the RL.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories.

Violetta F. Murshak

Violetta F. Murshak
Laboratory Director

Sample Summary (1 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S42671.01	C-I	Solid	11/24/2009 12:00

Analytical Laboratory Report

Lab Sample ID: S42671.01
Sample Tag: C-I
Collected Date/Time: 11/24/2009 12:00
Matrix: Solid
COC Reference: 48920

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	Mason Jar	None	Yes	4.7	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	Limits	Flags
Extraction / Prep.								
Mercury Digestion	Completed			7471A	12/08/09 13:00	JRT		
Metal Digestion	Completed			3015A	12/09/09 12:00	PER		
TCLP Extraction								
Inital Sample pH	8.46			1311	12/07/09 16:00	WAR		
pH after 3.5 ml HCl	2.05			1311	12/07/09 16:00	WAR		
% Solids	71			1311	12/07/09 16:00	WAR		
Sample Used g	71			1311	12/07/09 16:00	WAR		
Final Volume mL	1,449			1311	12/07/09 16:00	WAR		
TCLP Extraction Fluid	1			1311	12/07/09 16:00	WAR		
Final Extract pH	6.37			1311	12/07/09 16:00	WAR		
Metals								
Arsenic, TCLP	Not detected	mg/L	0.02	6020	12/09/09 15:14	PER	5.0	
Barium, TCLP	0.82	mg/L	0.05	6020	12/09/09 15:14	PER	100.0	
Cadmium, TCLP	Not detected	mg/L	0.005	6020	12/09/09 15:14	PER	1.0	
Chromium, TCLP	Not detected	mg/L	0.05	6020	12/09/09 15:14	PER	5.0	
Copper, TCLP	Not detected	mg/L	0.04	6020	12/09/09 15:14	PER		
Lead, TCLP	Not detected	mg/L	0.03	6020	12/09/09 15:14	PER	5.0	
Mercury, TCLP	Not detected	mg/L	0.0002	7471A	12/08/09 15:52	JRT	0.2	
Selenium, TCLP	Not detected	mg/L	0.05	6020	12/09/09 15:14	PER	1.0	
Silver, TCLP	Not detected	mg/L	0.005	6020	12/09/09 15:14	PER	5.0	
Zinc, TCLP	5.85	mg/L	0.05	6020	12/09/09 15:14	PER		

Merit Laboratories, Inc.

2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-6333
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

48920

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: David Schroder
COMPANY: Stantec
ADDRESS: 4035 King Road Suite D
CITY: Sylvania STATE: OH ZIP CODE: 43560
PHONE NO.: (419) 843-1518 FAX NO.: (419) 843-1571 P.O. NO.: 2132
E-MAIL ADDRESS: david.schroder@stantec.com QUOTE NO.:

INVOICE TO

CONTACT NAME: X SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: FAX NO.: P.O. NO.:

PROJECT NO./NAME: 2132 / CTI Fowlerville
SAMPLER(S) - PLEASE PRINT/SIGN NAME: D. Schroder [signature]

TURNAROUND TIME REQUIRED: ☐ 24 HR ☐ 48 HR ☐ 72 HR ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED: ☒ STANDARD ☐ LEVEL II ☐ LEVEL III ☐ OTHER

MATRIX CODE: GW=GROUNDWATER SL=SLUDGE WW=WASTEWATER O=OIL S=SOIL A=AIR L=LIQUID W=WASTE SD=SOLID M=MISC

ANALYSIS (ATTACH LIST IF MORE SPACE REQUIRED)

SPECIAL INSTRUCTIONS/NOTES

MERIT LAB NO.	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCL	HNO3	H2SO4	NaOH	MeOH	OTHER	TCLP RCRA Michigan 10 Metals
42671.01	11/24/09	1200	C-I	SD	1	1							X

RELINQUISHED BY: SIGNATURE/ORGANIZATION: David Schroder / Stantec	DATE: 11/24/09	TIME: 1600	
RECEIVED BY: SIGNATURE/ORGANIZATION	DATE	TIME	
RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE	TIME	
RECEIVED BY: SIGNATURE/ORGANIZATION	DATE	TIME	

RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE	TIME	
RECEIVED BY: SIGNATURE/ORGANIZATION: [signature]	DATE: 11-25-09	TIME: 0940	
SEAL NO.	SEAL INTACT YES: NO:	INITIALS	NOTES: TEMP. ON ARRIVAL
SEAL NO.	SEAL INTACT YES: NO:	INITIALS	

PLEASE NOTE: SIGNING ACKNOWLEDGES ACCEPTANCE OF TERMS & CONDITIONS ON REVERSE SIDE