INTERIM RESPONSE
CONSTRUCTION SUMMARY REPORT FOR
ABANDONED CONTAINER REMOVAL

ABANDONED MINING WASTES – TORCH LAKE NON-SUPERFUND SITE
CHLL HUBBELL PROCESSING AREA – SMELTER PROPERTY
HOUGHTON COUNTY, MICHIGAN
SITE ID# 31000098

DECEMBER 2017

PREPARED FOR:

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
REMEDIATION & REDEVELOPMENT DIVISION
CALUMET FIELD OFFICE
CALUMET, MICHIGAN

Mannik Smith GROUP

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1.0 INTRODUCTION

The Mannik & Smith Group, Inc. (MSG) has prepared this *Interim Response Construction Summary Report (CSR) for Abandoned Container Removal* as part of the Abandoned Mining Wastes – Torch Lake non-Superfund Site (Project) http://www.michigan.gov/deq/0,4561,7-135-3311_4109_9846_76560---,00.html (Site ID: 31000098). This CSR summarizes the abandoned container interim response (IR) completed at the Calumet & Hecla Lake Linden Operations Area (CHLL) Hubbell Processing Area Smelter property. The IR entailed the removal and disposal of abandoned containers. The partially buried abandoned containers were protruding from beneath the U.S. Environmental Protection Agency (EPA) installed cap near the Torch Lake shoreline in Hubbell, Houghton County, Michigan. This CSR was prepared in accordance with the *Indefinite Scope Indefinite Delivery (ISID) Discretionary Proposal for FS and Remedial Action Activities* (24 February 2016) prepared by MSG in response to a request from the Michigan Department of Environmental Quality (DEQ), Remediation and Redevelopment Division (RRD), Calumet Field Office under MSG's 2015 Environmental Services ISID Contract Number 00538 with the State of Michigan.

1.1 Project Location

The Project area is located along the shoreline and in Torch Lake, Houghton County, Michigan. Due to the complex nature and very large area RRD subdivided the Project into study areas based on past use and known issues. Depicted on *Figure 1, Project Location Map* are the CHLL and Calumet & Hecla Tamarack City (CHTC) areas and their respective former industrial operations.

Centralized around Calumet & Hecla's copper mining and processing operations near Lake Linden and Hubbell, Michigan, the CHLL consists of approximately 155 acres of land extending approximately two miles along the shoreline of Torch Lake and incorporates over 40 different parcels with multiple property owners.

The CHLL Hubbell Processing Area is located between Lake Linden and Hubbell along the southeast side of Highway M-26 and is comprised of three mining era industrial properties including the Hubbell Coal Dock and Mineral Building that are vacant, and the Hubbell Smelter that is the location of an operating industrial facility. The Hubbell Processing Area is bordered by residential (single-family residences and an apartment complex), commercial (restaurant and retail business), and industrial (sand and gravel pit, construction company, and manufacturing) land uses, and Torch Lake.

The IR for abandoned container removal was limited to the Smelter property shoreline area in the Hubbell Processing Area. *Figure 2, Abandoned Container Location Map – Hubbell Processing Area Smelter Property* depicts features and the former location of removed abandoned containers.

1.2 Project Background

Copper mining was extensive in the Keweenaw and formed the backbone of the regional economy and society. Copper ore milling and smelting operations conducted from the mid-1860s to the 1960s, included the importation, reprocessing, and smelting of various scrap metals in the later years of operation. Consistent with past industrial practices, Torch Lake served as dumping grounds for virtually all mining industry related waste products produced, including tailings, slag, and various chemicals. It is estimated that at least 20 percent of Torch Lake's volume was filled with tailings and other waste products.

The environmental legacy resulting from over 100 years of mining and reclamation led to Torch Lake and its western shoreline to be designated as a Superfund site by the United States Environmental Protection Agency (EPA) https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0503034 and a Great Lakes Area of Concern (AOC) under the U.S./Canada Great Lakes Water Quality Agreement https://www.epa.gov/torch-lake-aoc. The EPA undertook cleanup activities to address some of the byproducts of the mining industry while others were not addressed or left to recover through natural processes.

Environmental impairments within Torch Lake and along the shoreline resulting from historical mining era industrial operations:

- Present potential exposure risk to human and ecological receptors;
- Limit the recovery of the Torch Lake ecosystem;
- Create uncertainty over safe and beneficial reuse of the land; and,
- Prevent delisting of Torch Lake as an AOC due to Beneficial Use Impairments (BUIs) related to restrictions on fish and wildlife consumption because of the on-going presence of polychlorinated biphenyls (PCBs) in fish and degradation of benthos because of metals contaminated sediments.

PCBs are of particular concern in Torch Lake sediments, surface water, and submerged abandoned container contents, as well as in upland soil, waste, residual processing materials (RPM), and abandoned container contents in former industrial areas along the shoreline as they serve as a continuing source of PCBs into the environment.

The DEQ Project is addressing some of the remaining concerns in Houghton County not addressed by the EPA. The Project concerns involve groundwater, surface water, sediments, and "upland" media. Known or suspected problems which are being evaluated include: an unidentified, significant in-lake and/or terrestrial source of PCBs; uncharacterized waste deposits and >750 uncharacterized drums on the lake bottom; slag; landfills; industrial ruins; coal storage areas; underground storage tanks (USTs); RPM; asbestos containing materials (ACM); and any other waste materials identified during future investigations.

From 2014 through 2017, RRD conducted Site Investigation (SI) activities and confirmed the remaining concerns in the Project area involve groundwater, surface water, sediments, "upland" media, seeps, RPM, and abandoned containers. Priority concerns which were evaluated and deemed to require IRs include: significant terrestrial and in-lake sources of PCBs; ACM; RPM; abandoned mining era containers; seeps; limited areas of soil in which there are Direct Contact Criteria and Particulate Soil Inhalation Criteria exceedances; and, physical hazards.

Analytical results of one surface water sample collected near a deteriorated, partially buried abandoned container containing PCB waste protruding from beneath the EPA-installed cap along the Smelter property shoreline contained Total PCB concentrations above applicable regulatory criteria. The container contents were subject to disturbance from wave action. Analytical results from semi-permeable membrane device (SPMD) sampling indicate the presence of PCBs throughout Torch Lake. Of note, the greatest SPMD PCB concentration was detected in the SPMD sample collected just off shore of the Hubbell Processing Area. Immediately off shore of the Smelter property is an area of sediments and submerged abandoned containers that have been identified as an ongoing in-lake source of PCBs, contributing to the Michigan Department of Human Health Services (MDHHS) fish consumption guideline for total PCBs in Torch Lake fish.

In the case of the CHLL Hubbell Processing Area Smelter property shoreline, the identified risks from abandoned mining era containers posed potential threats to human and ecological receptors, including but not limited to human health risks in the event of direct contact with affected media and inhalation of particulates; physical hazards; erosion and deposition of PCB-contaminated wastes into Torch Lake; and direct discharge of PCB-contaminated abandoned container contents into Torch Lake.

Based on these conditions the Upper Peninsula RRD staff prepared an Emergency Procurement Action Form included in *Appendix A, Emergency Procurement Action Form*. Upon authorization, RRD staff completed an IR that removed and disposed of abandoned mining era containers to mitigate potential risks to human health and the environment.

2.0 OBJECTIVE AND SCOPE OF WORK

The objective of the IR was to remove and dispose of partially buried abandoned mining era containers protruding from beneath the EPA installed cap near the Torch Lake shoreline, test pit in anomalous areas identified by the DEQ Geological Services Unit, and subsequent replacement/repair of any disturbed areas to meet EPA capping standards adjacent to the CHLL Hubbell Processing Area Smelter property to mitigate potential risks to human health and the environment. To meet this objective MSG developed a Trade Contractor (TC) scope of work and assisted DEQ with soliciting bids in accordance with DEQ RRD Emergency Funding and Procurement Procedures.

3.0 INTERIM RESPONSE ACTIVITIES

MSG supported the DEQ RRD in the procurement and oversight of a TC during implementation of the IR. The TC selected and retained by the State of Michigan was UP Environmental Services (UPES) of Bark River, Michigan. Refer to *Appendix B, Purchase Order*. UPES completed the work in accordance with the TC procurement package included in *Appendix C, Smelter Drum Removal Interim Response Scope of Work* during July 2017 at a cost of $50,830.00 ($8,880.00 less than the purchase order amount).

Due to the proximity of the work to Torch Lake a Part 91, Soil Erosion and Sedimentation Control (SESC) Permit included in *Appendix D, Soil Erosion and Sedimentation Control Permit*, was required. Due to the nearshore work considered regulated under Part 301, a Joint Permit Application was submitted and a permit obtained, which is included in *Appendix E, Joint Permit*. Note that the U.S. Army Corps of Engineers (USACE) did not require the permit since the work is located within the footprint of the Torch Lake Superfund site and the actions were within the DEQ's scope of long-term monitoring; however, the DEQ Water Resources Division proceeded with permit issuance. *Appendix F, Removed Abandoned Container Inventory* details the 10 abandoned containers removed, including containers discovered during test pitting. Based on analytical testing and an evaluation of waste disposal methods:

- 4 of the containers were disposed of as solid hazardous wastes based on the levels of lead;
- 4 of the containers were disposed of as a non-hazardous solid waste;
- 1 of the drums was determined to be empty and was recycled; and,
- 1 of the drums contained copper wiring and electric motors, and was recycled.

The contents of the drums were unknown, but based on field observations, drum contents appeared to include, but were not limited to, hardened masses of granular materials in some cases embedded with copper wire and other metallic debris. CONT-010 also included a whitish-sludge, similar to that observed in submerged drums in deeper water just offshore of the Hubbell Processing Area. All eight of the drums with contents contained Total PCBs. Documentation of abandoned container disposal is included in *Appendix G, Waste Management Records*. Photographs of the IR operations are included in *Appendix H, Photographic Log*.

4.0 SUMMARY AND CONCLUSIONS

Completed Abandoned Container IR operations within the CHLL Hubbell Processing Area Smelter property shoreline included test pitting; characterization, transportation, and disposal of 10 abandoned containers; and restoration in accordance with EPA capping standards for the Torch Lake Superfund site.

The completed IR operations met the objective of abandoned container removal to mitigate potential risks to human health and the environment.

5.0 RECOMMENDATIONS

MSG has the following recommendations:

- Conduct characterization, transportation, and disposal of any additional abandoned containers identified during future Project SI or IR activities.

- Proper management of the Hubbell Processing Area upland soil, waste, stack debris, RPM, and the in-lake PCB source area inclusive of surface water, sediments, and submerged drum contents as they serve as a continuing source of contamination including PCBs into the environment.

FIGURES

Prepared for:
Michigan Department of Environmental Quality

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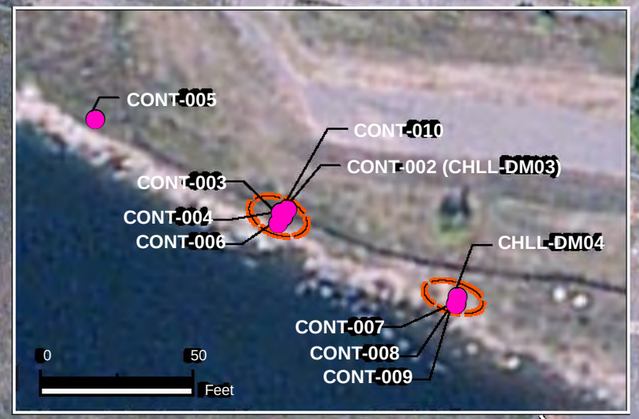
Figure 1

Project Location Map
Houghton County,
Michigan

FILE: C:\temp\Projects\MDEQ0070\GIS\mxds\Planning\20171207-Smelter_IRIFig01_ProjectLocation_v20171208.mxd 9:23:06 AM 12/8/2017 KBrown

Image Source: ESRI World Imagery (NAIP 2016)



Legend

- Removed Abandoned Container
- Test Pit Area

0 100 Ft

Coordinate System: MIGeoRef(m)

Prepared for:
Michigan Department of Environmental Quality

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Figure 2

Abandoned Container Location Map
Hubbell Processing Area - Hubbell Smelter Property
Hubbell, Houghton County, Michigan

APPENDIX A

Emergency Procurement Action Form

EMERGENCY PROCUREMENT ACTION FORM

Site Name: Abandoned Mining Wastes County: Houghton

Index: 44251 PCA: 30872 Project #: 456990

ERD Staff Contact: Amy Keranen Date of Emergency: September 2016

District Supervisor's Signature: _____

Site Description: The "**Abandoned Mining Wastes- Hubbell Smelter Drum Removal**" site within the Abandoned Mining Wastes (AMW) project involves a stretch of shoreline in Hubbell where drums containing characteristically hazardous waste concentrations of lead, and PCBs were buried beneath the cap at the Torch Lake Superfund shoreline. These drums have been deteriorated and eroded by wave action over the decades and are now releasing their contents into Torch Lake. Waste characterization samples collected from within these drums in September 2016 show there to be concentrations of lead which exceed TCLP hazardous waste limits and PCBs which exceed criteria protective of human and aquatic health.

Failure to undertake emergency response actions will allow for the on-going release of contaminants into Torch Lake and continued presence in areas accessible to the public.

Cause of Emergency: Buried drums of waste materials left behind after the mining & reclamation era are present at the shoreline and are subject to wave action washing their contents into the surface waters of Torch Lake, contributing to fish consumption advisories in Torch Lake. Shoreline drum contents also exceed human direct contact criteria.

Specific Threats: Concentrations of contaminants exceeding ecological screening levels and threshold effect concentrations as well as residential and non-residential direct contact and particulate soil inhalation criteria are present in locations accessible to human direct contact and are leaching into the soils, groundwater and surface waters at Torch Lake.

Action Taken: Because of the imminent threat the emergency procurement process is being utilized to contract removal of the shoreline drums. Specifications have been developed and a Pre-Bid Meeting was conducted September 15, 2016 to obtain firm bids for the work.

Additional Information:

4 bids were obtained on October 28, 2016 and evaluated. Based on the evaluation, it is recommended that the bid be awarded to **UP Environmental Services** for **$59,170.00**

Their address is:
UP Environmental Services, Inc, attn.: Wayne Stenberg
P.O. Box 127

Bark River, MI 49807
(906)466-9900

Funding Source: CMI Funds: **SWQIF Funds: $59,170.00**

Authorized by:

Responsible Party: none identified

Cost Recovery:

APPENDIX B

Purchase Order

STATE OF MICHIGAN

FORM DMB-287 (REV 11/94)

PURCHASE ORDER

PURCHASE ORDER NUMBER: 761P7700119

REQUESTING DEPARTMENT OR AGENCY : RD - CONTRACTS I
MICHIGAN DEPT OF ENVIRONMENTAL QUALITY

CONSTITUTION HALL, 4TH FLOOR
525 WEST ALLEGAN
LANSING MI 48933

CONTACT:TRACEY CURTIS 517 284-5083 EXT:	DELIVERY REQUIRED	AGENCY REF #	REQ NO.	ORDER DATE
	12/02/16	76120100	761R7700203	12/02/16

U P ENVIRONMENTAL SERVICES INC
P O BOX 127
BARK RIVER MI 49807-0127

CASH DISCOUNT : NET 30 DAYS
DELIVERY REQUIRED :
FREIGHT CARRIER :
F.O.B. : DELIVERED

VENDOR PHONE : -

SHIP TO:
MICHIGAN DEPT OF ENVIRONMENTAL QUALIT
CALUMET FIELD OFFICE - RRD

55195 U.S. 41
CALUMET MI 49913

BILL TO:
MICHIGAN DEPT OF ENVIRONMENTAL QUALIT
REMEDIATION AND REDEVELOPMENT DIVISIO
ADMINISTRATION 5TH FLOOR SOUTH TOWER
PO BOX 30426
LANSING MI 48909-7926

ITEM	COMMODITY ID	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
1	912-68	1.00	EA	59,710.0000	59,710.00

COMMODITY NAME/SPECIFICATIONS

MANAGEMENT, CONSTRUCTION #

FURNISH ALL LABOR, MATERIALS, EQUIPMENT AND RELATED WORK REQUIRED TO REMOVE, CHARACTERIZE AND PROPERLY DISPOSE OF PARIALLY SUBMERGED SHORELINE DRUMS CONTAINING UNACCEPTABLE CONCENTRATIONS OF PCB'S AND LEAD AT THE ABANDONED MINING WASTES, TORCH LAKE HUBBELL SMELTER SHORELINE SITE #31000098

PM: A. KERANEN START: 12/1/16 END: 7/1/18

GRAND TOTAL 59,710.00

ADDITIONAL REQUIREMENTS :

AUTHORITY: ACT 431 OF 1984. RESPONSE: REQUIRED. PENALTY: FAILURE TO DELIVER MAY RESULT IN CANCELLATION OF ORDER OR CONTRACT.

Michael Churches
AUTHORIZED SIGNATURE

FORM DMB-287 (REV 11/94) | PURCHASE ORDER | PURCHASE ORDER NUMBER | 761P7700119

ACCOUNTING INFORMATION :

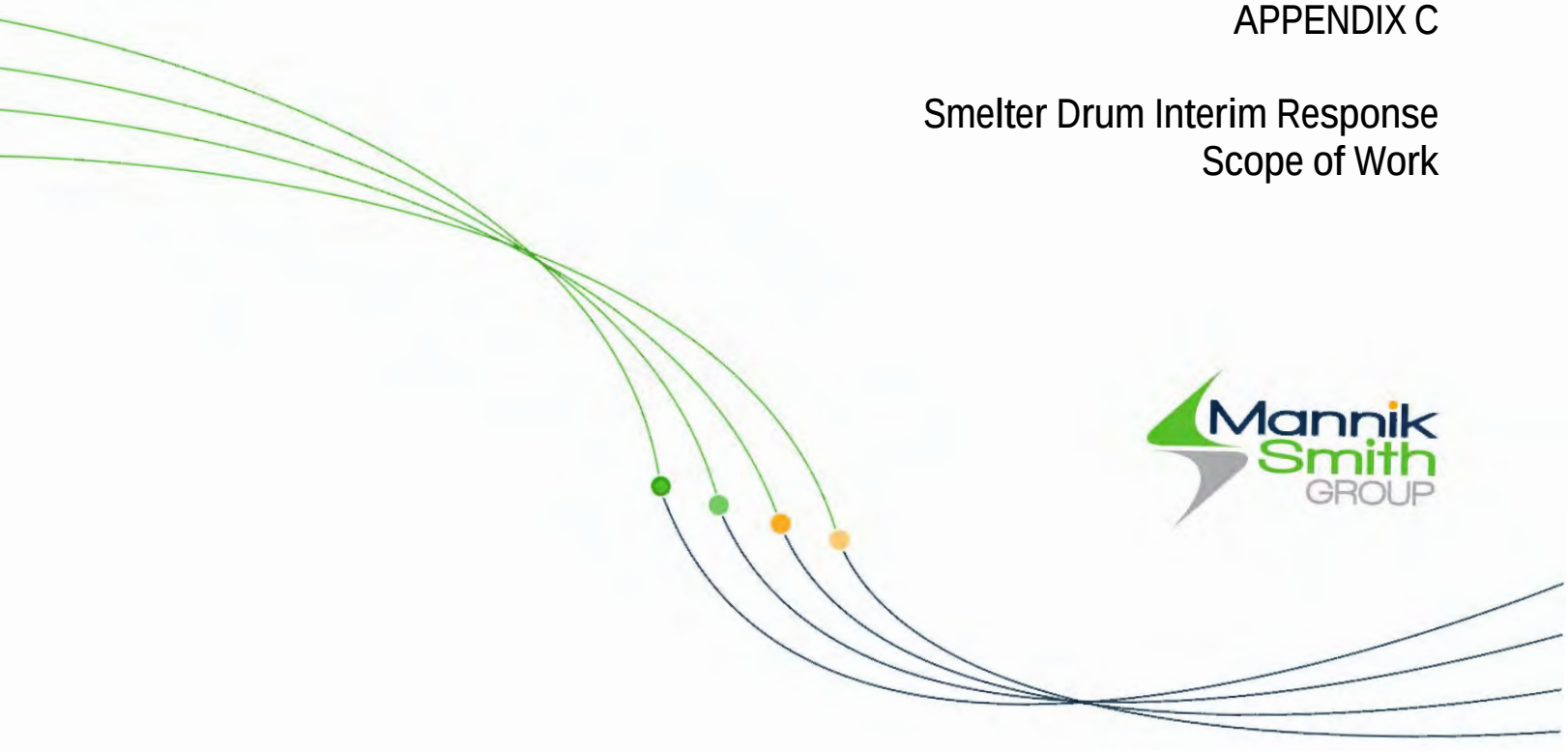
SX	AGY	Y	INDEX	PCA	COBJ	AOBJ	GRANT	PH	PROJ	PH	AG1	AG2	AG3	TOTAL
01	761	4	44251	30872		6127			45699000					59710.00

PENALTY: FAILURE TO DELIVER MAY RESULT IN CANCELLATION OF ORDER OR CONTRACT

--- END OF DOCUMENT ---

APPENDIX C

Smelter Drum Interim Response Scope of Work



Scope of Work and Bid Table
Hubbell Smelter Drum Removal Interim Response
Abandoned Mining Wastes – Torch Lake Non-Superfund Site

The Michigan Department of Environmental Quality (MDEQ) has identified the presence of several drums along the Torch Lake shoreline at the former Hubbell Smelter property associated with the Abandoned Mining Wastes – Torch Lake Non-Superfund Site (Project). To reduce potential risks to the public and the environment, MDEQ is seeking cost estimates to remove and properly dispose the drums.

Figure 1 depicts the location. **Figure 2** depicts the known drum locations along with existing sample results for characterization and health and safety planning purposes. MDEQ will be collecting additional sampling data in September 2016 and this data will be provided via Addendum prior to bids being due. **Table 1** provides information on known containers. This Scope of Work (SOW) also includes test pit excavation within the "Lake Shore Work Area" on **Figure 2** proximal to the known drums in response to anomalies identified during a recent geophysical survey and replacement/repair of any disturbed areas to meet capping standards implemented by the United States Environmental Protection Agency (USEPA) along the shore of Torch Lake.

Permits

Due to the proximity of Torch Lake, soil erosion and sedimentation control (SESC) best management practices must be applied and a SESC permit (acquired by the Contractor) is required. Refer to:

- http://www.houghtoncounty.net/directory-drain-commissioner.php; and,
- http://www.houghtoncounty.net/docs/SESC_Email_Att.pdf.

MDEQ is in the process of securing a Joint Permit for the drum removal activities since they are occurring within and on the shore of Torch Lake. A copy of the permit will be provided to the Contractor once it is issued.

Work Element Details

Removal and disposal as referenced in the attached Bid Table shall consist of the following:

- Waste profiling and disposal facility coordination and acceptance.
- Excavation of whole and/or partial containers and their contents, over-packing, bulking of containers, hand and/or mechanical pick-up of whole and/or partial containers and their contents, retrieval of containers from shallow water, dewatering, and any other means and methods required to safely retrieve containers (and their contents if not empty) and prepare them for shipping for disposal. All securely re-packaged containers and their contents shall be staged inside the perimeter fence between the time of retrieval and sampling for characterization and when they are ultimately picked up for disposal. Securely re-packaged means contained in new steel DOT drums, contained in over-pack

drums, or contained in a tightly covered roll-off box that is free of holes or other compromises from which contents could escape.

- Transportation of properly packaged, labeled, and placarded containers and their contents (as may be applicable) to proper disposal facilities, including all manifests.
- Disposal of hazardous and non-hazardous containers and provision to MDEQ of fully executed manifests and any other disposal documentation as may be appropriate (such as scale receipts, destruction records, etc.).

Riprap placement will be required in removal areas as part of restoration. Riprap shall have an average size (D_{50}) of 12-inches and be angular to subrounded. It shall be free of dirt, clay, fines, slag, and vegetation. The least dimension of a rock shall not be less than one-third the largest dimension. Individual rocks shall be dense, sound, and free from cracks, seams, and other defects that could result in accelerated weathering. Per Natural Resources Conservation Service (NRCS) specifications, the riprap shall have a gradation that falls within the following percentages:

Size (Weight, lbs)	Percent Passing
24-inches (1007.8)	100
18-inches (425.2)	60-100
12-inches (125.9)	30-50
3-inches (2)	5-25
#4 sieve	0-5

(The size and weight of rock pieces are based on 50% cubical and 50% spherical, with a specific gravity of 2.65.)

Riprap shall be placed in a manner that is reasonably homogenous with larger rock uniformly distributed and in contact with one another and the smaller rocks filling the voids between the larger rocks. Some hand placement may be required. As previously identified by NRCS, acceptable sources for riprap, assuming gradation requirements are met, include the waste rock pile at the Quincy Mine, Hancock, Michigan, the waste rock pile at the Baltic Mine, Baltic, Michigan, the waste rock pile at Dodgeville, Michigan, or the waste rock pile at Allouez, Michigan.

Areas that require reseeding shall be seeded with the following mixture:

- 10 lbs./ac. red clover
- 25 lbs./ac. creeping red fescue
- 5 lbs./ac. vernal alfalfa (legume seed shall be inoculated)
- 5 lbs./ac white dutch clover
- 10 lbs./ac. perennial rye grass
- 5 lbs./ac. sweet clover
- 15/lbs./ac. orchard grass

The seed mixture may be adjusted depending on when the work occurs (i.e. dormant seeding for the winter).

Access, Coordination, Notifications, Health and Safety

MDEQ has secured written access to the property where the work will occur. The Contractor shall provide MDEQ and/or its designated agent at least two weeks notice before (each) mobilization with the exception of picking up characterized containers for transportation to a disposal facility, which will require one-week notice. Work hours shall be between 7:00 a.m. and 5:00 p.m. local time.

The MDEQ shall be provided all waste characterization and disposal documents for review and approval at least two business days in advance of when they are needed. MDEQ will sign all disposal documents as the waste generator.

The Contractor is responsible for compliance with all State and Federal health and safety, transportation, and disposal regulations. This also includes work practices and engineering controls to prevent contaminant release and potential exposure to site workers, the public, and the environment.

40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) training is required for all on-site persons that may encounter contaminated media. A summary of existing data for the work location is provided in **Figure 2**. The Contractor is responsible for their own health and safety, including compliance with 29 Code of Federal Regulations (CFR) Part 1910 and 29 CFR Part 1926.

All Contractor employees that will be working on the property are required to attend an approximately one-hour long safety training conducted by Koppers, Inc. (Koppers) who operates on the property. Koppers may also require the Contractor to provide company insurance and other information using the form in **Attachment A** prior to conducting any on-location work. The personal protective equipment (PPE) required to attend the Pre-Bid Meeting and to work on Koppers' property includes the following:

- Safety-toe boots;
- Hard hat;
- Safety glasses;
- Long pants (no shorts); and,
- Long sleeve shirts.

Refer to **Attachment B** for Conditions for Emergency Bids that will apply to the work. In addition, the selected Contractor must supply the following written information within five business days after receiving a telephone authorization from the MDEQ district Project Manager to start the work:

- Copy of Certificate of Awardability, for contracts over $100,000.
- Proof of 40-hour hazardous waste safety training for on-site personnel.

The Contractor's invoice(s) shall be submitted to the invoicing address on the Purchase Order as well as a copy to Amy Keranen the MDEQ Project Manager at 55195 US-41, Calumet, MI 49913. Invoices shall include a breakdown of charges by Work Item from the Bid Table and disposal documentation must be provided prior to the invoice(s) being processed for payment.

Schedule:

- 15 September 2016 – Pre-Bid Meeting/Walkover at the location
- 12 October 2016 – Bids due at 5:00 p.m. local time via electronic mail
- 17 October 2016 – Award work (tentative)
- 24 October 2016 – Issue Purchase Order (tentative)
- Fall 2016/Spring 2017 – Drum removal work shall occur after receipt of the Joint Permit at a time mutually agreeable to the Contractor, MDEQ, and Koppers.
- No on-site work shall occur on weekends or government holidays without prior written approval.

The following tasks comprise the Scope of Work. Quantities shown are estimated for bid comparison purposes. Actual quantities may be more or less than the estimated value. Unit rates will be paid for the actual work performed. Fully executed disposal documentation will be required for payment of "remove and dispose" Work Items. Bids shall remain valid through 31 October 2017. If the Contractor intends to use Waste Management for disposal, please coordinate with Mr. Dan Roddan at droddan1@wm.com / 920-539-1167 for project-specific rates.

Work Item	Contractor Quote
1. Obtain a SESC Permit. Install, maintain, and ultimately remove silt fence and/or other measures when the disturbed areas have been stabilized and the permit is released.	$ _____
2. Mobilization and demobilization of all materials, tools, labor, and equipment required to characterize containers and contents for disposal acceptance, conduct test pitting, retrieve and contain drums and their contents, and stage securely repackaged containers and their contents inside the perimeter fence. Note – this is only for the mobilization of required materials, tools, labor, and equipment. The actual drum characterization, retrieval, test pitting, and packaging are itemized below on a unit rate basis.	$ _____
3. Conduct test-pitting within the "Lake Shore Work Area" on **Figure 2** after removal and containment of known visible drums. This includes replacement and compaction of existing soil into the excavated area(s). Any drums located during test pitting will be addressed under the below Work Items. Unit rate per hour = $ _____	$ _____ (assuming 4 hours)
4. Waste characterization sampling (per container) and analysis as may be required for disposal facility acceptance (including payment of analysis fees). Unit rate each = $ _____	$ _____ (assuming 5 drums)
5. Remove and dispose Resource Conservation and Recovery Act (RCRA) empty drum. Unit rate each = $ _____	$ _____ (assuming 2 drums)
6. Remove and dispose characteristically non-hazardous container. Unit rate each = $ _____	$ _____ (assuming 2 drums)
7. Remove and dispose characteristically hazardous container (due to metals content). Unit rate each = $ _____	$ _____ (assuming 1 drum)
8. Remove and dispose drum containing non-Toxic Substances Control Act (TSCA) regulated material with polychlorinated biphenyl (PCB) concentration less than 50 parts per million (ppm). Unit rate each = $ _____	$ _____ (assuming 1 drum)

9. Remove and dispose drum containing non-TSCA regulated material with PCB concentration greater than 50 ppm.
   Unit rate each = $ _____ $ _____ (assuming 1 drum)

10. Riprap placement to backfill drum removal and excavation areas within and on the shoreline of Torch Lake. The Contractor shall assume 10 tons of riprap meeting the requirements on page 2 of 6. $ _____

11. Site restoration including provision of 6-inches compacted thickness sandy loam soil that is free of large roots and rocks and is suitable for vigorous grass growth over all excavation areas. Assume up to 65 in-place cubic yards to cap the Lake Shore Work Area. Any other capped areas that are compromised by the work shall similarly receive additional sandy loam soil such that the compacted cap thickness remains six-inches. Soil placement areas and any other areas with significant disturbance from equipment tracking shall be seeded and mulched with 100% biodegradable straw mulch blankets. All other previously vegetated areas disturbed by the work shall be seeded and receive loose mulch placement. Equipment tracks shall be raked out. Hydroseeding may be substituted for loose mulch and blankets. $ _____

12. Provisional allowance for activities, situations, and/or waste streams not included above. Payment under the Provisional Allowance will be based on rates agreed upon prior to conducting the work and receipts provided. $ 10,000.00

TOTAL **$_____**

Bidder Company Name: _____

Represented by (print): _____

Address: _____

Telephone Number: _____

Date Submitted: _____

Signature: _____

Estimated Duration to Complete the Work: _____

Proposed Disposal Facilities: _____

Addendum(s) Received (Date): _____

TABLES

Table 1
Abandoned Drum Summary
Hubbell Processing Area
C&H Lake Linden Operations
Houghton County, Michigan

Container Number	Container Identification	Sample / Inspection Date	Property Identification Number	Laboratory Work Order Number	Longitude	Latitude	Container Description	Notes	Container Intact?	Container Empty?	Waste Characterization					Available Laboratory Analyses																		
											Hazardous Waste	Non-Hazardous Waste	Non-TSCA PCB Waste	RCRA Empty Drum	Unknown - Requires Characterization if Not Empty	TCLP VOCs	TCLP SVOCs	TCLP Metals	Reactive Sulfide	Reactive Cyanide	pH	Paint Filter	Flash Point	VOCs	PNAs	Metals	PCBs	Hexavalent Chromium	Chloride and Sulfate	Cyanide	Asbestos	DRO/ORO
Abandoned Containers - Hubbell Smelter																																		
1	SUBMERGED DRUM	8/20/2015	014-307-001-50	1508213	-88.42264007	47.17453117	An intact submerged drum observed in approximately 1 foot of water	Drum sampling location CHLL-DM04 is representative of the contents of the submerged drum identified during reconnaissance activities.	Yes	No					X									X	X	X	X			X		
2	SUBMERGED DRUM CONTENTS	8/20/2015	014-307-001-50	1508213	-88.422866627	47.174452345	A drum carcass containing black solid material observed in approximately 1 foot of water	Drum sampling location CHLL-DM03 is representative of the contents of the submerged drum identified during reconnaissance activities.	No	No					X									X	X	X	X			X		
3,4	DRUMS	08/19/14 and 07/01/15	014-307-001-50	NA	-88.422872653	47.174452769	Two submerged drums observed in approximately 1 foot of water. One drum observed protruding from the shoreline.	Surface soil location CHLL-SS14-0-6"' is representative of environmental conditions in the vicinity of the reconnaissance location.	No	Unk					X																	
5	SUBMERGED DRUM	08/19/14 and 07/01/15	014-307-001-50	NA	-88.423122590	47.174373113	An intact submerged drum observed in approximately 1 foot of water	Surface soil location CHLL-SS15-0-6"' is representative of environmental conditions in the vicinity of the reconnaissance location.	Yes	Unk					X																	

FIGURES

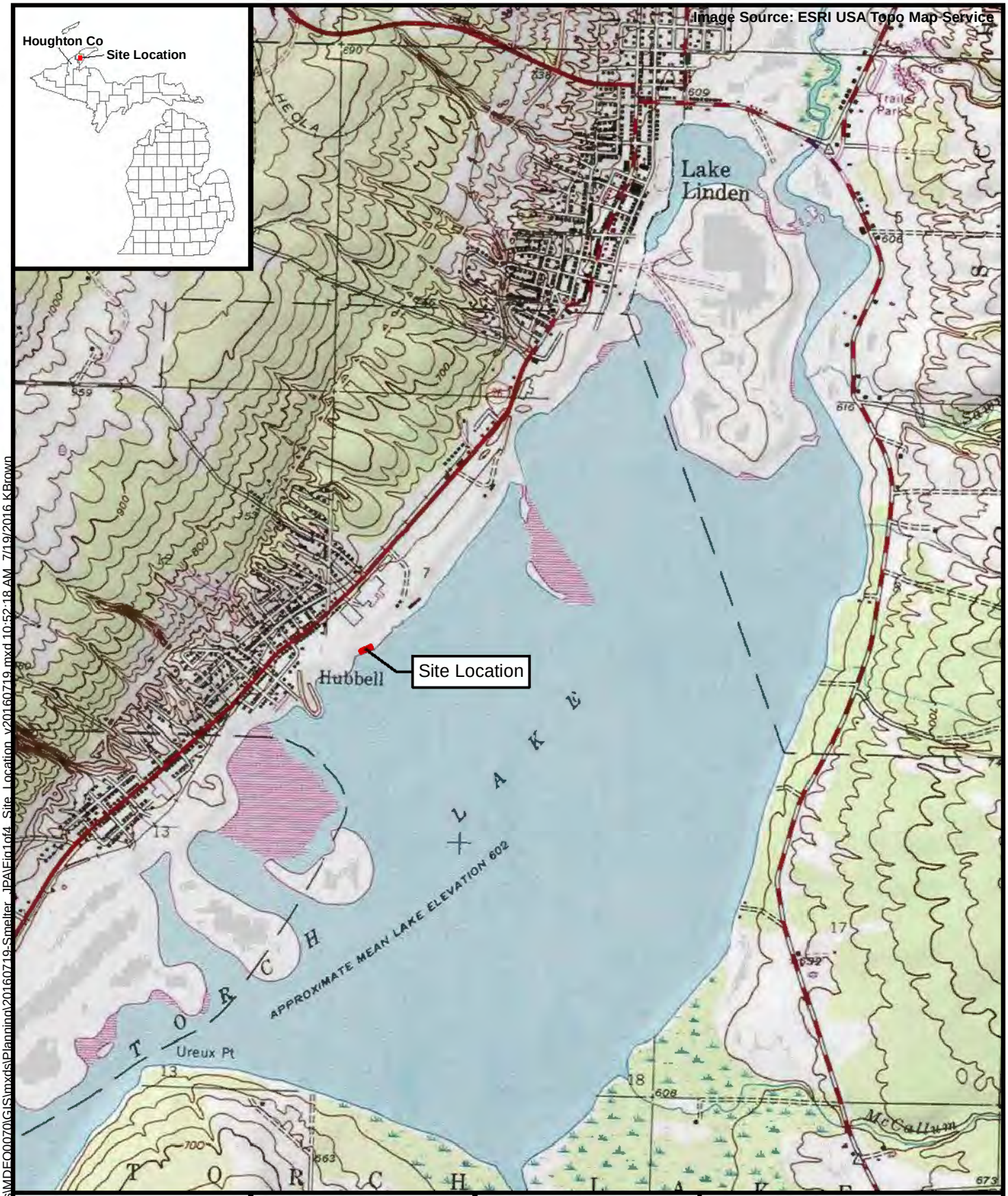
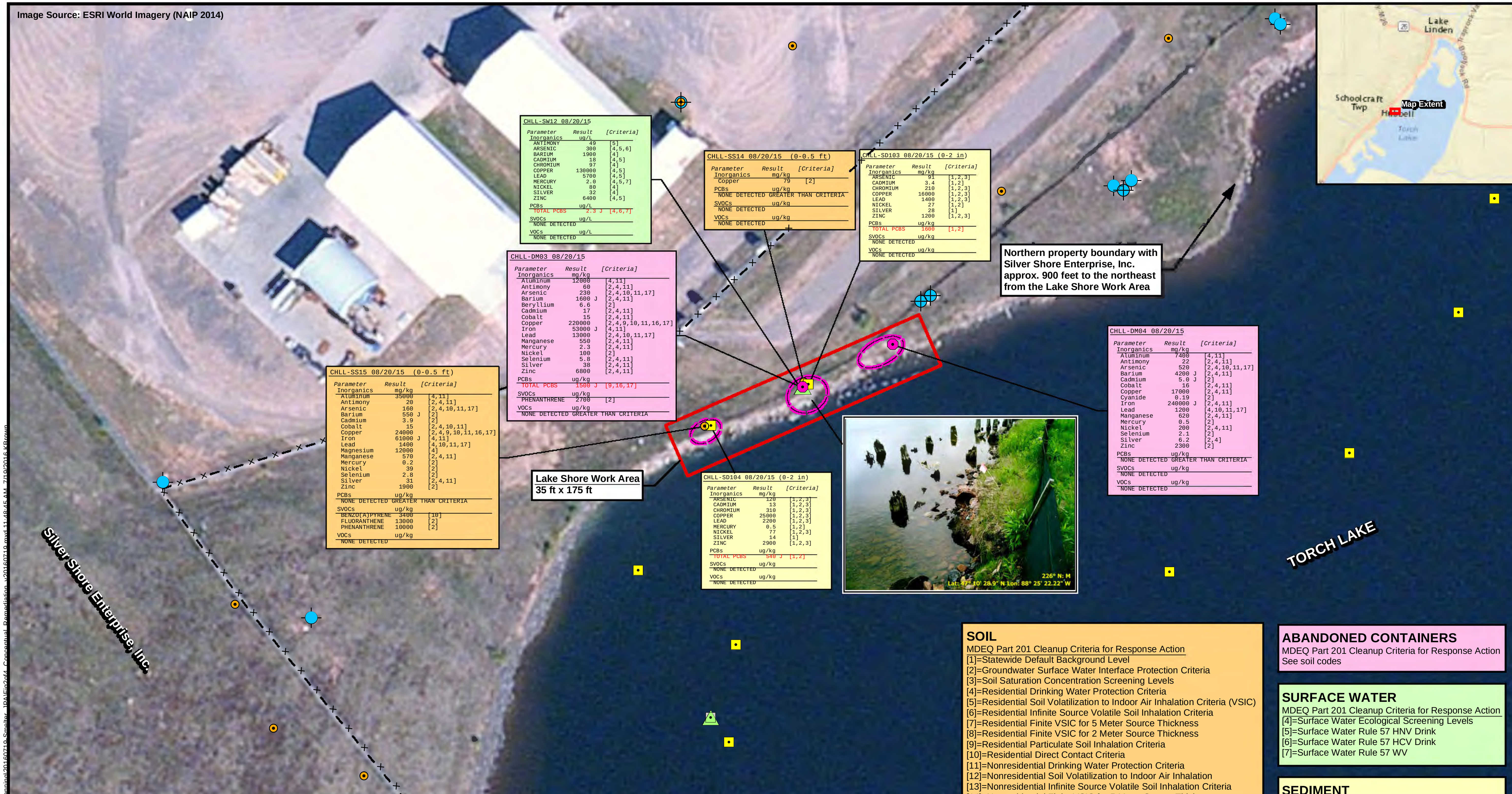


Figure 1
Site Location Map
Smelter Drum Interim Response
Hubbell, Houghton County, Michigan
July 2016

FILE: C:\temp\Projects\MDEQ0070\GIS\mxds\Planning\20160719-Smelter_JPAEfig1of4_Site_Location_v20160719.mxd 10:52:18 AM 7/19/2016 KBrown



CHLL-SW12 08/20/15

Parameter	Result	[Criteria]
Inorganics	ug/L	
ANTIMONY	49	[5]
ARSENIC	300	[4,5,6]
BARIUM	1900	[4]
CADMIUM	18	[4,5]
CHROMIUM	97	[4]
COPPER	130000	[4,5]
LEAD	5700	[4,5]
MERCURY	2.0	[4,5,7]
NICKEL	80	[4]
SILVER	32	[4]
ZINC	6400	[4,5]
PCBs	ug/L	
TOTAL PCBS	2.3 J	[4,6,7]
SVOCs	ug/L	
NONE DETECTED		
VOCs	ug/L	
NONE DETECTED		

CHLL-SS14 08/20/15 (0-0.5 ft)

Parameter	Result	[Criteria]
Inorganics	mg/kg	
Copper	79	[2]
PCBs	ug/kg	
NONE DETECTED GREATER THAN CRITERIA		
SVOCs	ug/kg	
NONE DETECTED		
VOCs	ug/kg	
NONE DETECTED		

CHLL-SD103 08/20/15 (0-2 in)

Parameter	Result	[Criteria]
Inorganics	mg/kg	
ARSENIC	91	[1,2,3]
CADMIUM	3.4	[1,2]
CHROMIUM	210	[1,2,3]
COPPER	16000	[1,2,3]
LEAD	1400	[1,2,3]
NICKEL	27	[1,2]
SILVER	28	[1]
ZINC	1200	[1,2,3]
PCBs	ug/kg	
TOTAL PCBS	1600	[1,2]
SVOCs	ug/kg	
NONE DETECTED		
VOCs	ug/kg	
NONE DETECTED		

CHLL-DM03 08/20/15

Parameter	Result	[Criteria]
Inorganics	mg/kg	
Aluminum	12000	[4,11]
Antimony	60	[2,4,11]
Arsenic	230	[2,4,10,11,17]
Barium	1600 J	[2,4,11]
Beryllium	6.6	[2]
Cadmium	17	[2,4,11]
Cobalt	15	[2,4,11]
Copper	220000	[2,4,9,10,11,16,17]
Iron	53000 J	[4,11]
Lead	13000	[2,4,10,11,17]
Manganese	550	[2,4,11]
Mercury	2.3	[2,4,11]
Nickel	100	[2]
Selenium	5.8	[2,4,11]
Silver	38	[2,4,11]
Zinc	6800	[2,4,11]
PCBs	ug/kg	
TOTAL PCBS	1500 J	[9,16,17]
SVOCs	ug/kg	
PHENANTHRENE	2700	[2]
VOCs	ug/kg	
NONE DETECTED GREATER THAN CRITERIA		

CHLL-SS15 08/20/15 (0-0.5 ft)

Parameter	Result	[Criteria]
Inorganics	mg/kg	
Aluminum	35000	[4,11]
Antimony	20	[2,4,11]
Arsenic	160	[2,4,10,11,17]
Barium	550 J	[2]
Cadmium	3.9	[2]
Cobalt	15	[2,4,10,11]
Copper	24000	[2,4,9,10,11,16,17]
Iron	61000 J	[4,11]
Lead	1400	[4,10,11,17]
Magnesium	12000	[4]
Manganese	570	[2,4,11]
Mercury	0.2	[2]
Nickel	39	[2]
Selenium	2.8	[2]
Silver	31	[2,4,11]
Zinc	1900	[2]
PCBs	ug/kg	
NONE DETECTED GREATER THAN CRITERIA		
SVOCs	ug/kg	
BENZO(A)PYRENE	3400	[10]
FLUORANTHENE	13000	[2]
PHENANTHRENE	10000	[2]
VOCs	ug/kg	
NONE DETECTED		

CHLL-DM04 08/20/15

Parameter	Result	[Criteria]
Inorganics	mg/kg	
Aluminum	7400	[4,11]
Antimony	22	[2,4,11]
Arsenic	520	[2,4,10,11,17]
Barium	4200 J	[2,4,11]
Cadmium	5.0 J	[2]
Cobalt	16	[2,4,11]
Copper	17000	[2,4,11]
Cyanide	0.19	[2]
Iron	240000 J	[2,4,11]
Lead	1200	[4,10,11,17]
Manganese	620	[2,4,11]
Mercury	0.5	[2]
Nickel	200	[2,4,11]
Selenium	2.1	[2]
Silver	6.2	[2,4]
Zinc	2300	[2]
PCBs	ug/kg	
NONE DETECTED GREATER THAN CRITERIA		
SVOCs	ug/kg	
NONE DETECTED		
VOCs	ug/kg	
NONE DETECTED		

CHLL-SD104 08/20/15 (0-2 in)

Parameter	Result	[Criteria]
Inorganics	mg/kg	
ARSENIC	120	[1,2,3]
CADMIUM	13	[1,2,3]
CHROMIUM	310	[1,2,3]
COPPER	25000	[1,2,3]
LEAD	2200	[1,2,3]
MERCURY	0.5	[1,2]
NICKEL	77	[1,2,3]
SILVER	14	[1]
ZINC	2900	[1,2,3]
PCBs	ug/kg	
TOTAL PCBS	540 J	[1,2]
SVOCs	ug/kg	
NONE DETECTED		
VOCs	ug/kg	
NONE DETECTED		

SOIL

MDEQ Part 201 Cleanup Criteria for Response Action

[1]=Statewide Default Background Level
[2]=Groundwater Surface Water Interface Protection Criteria
[3]=Soil Saturation Concentration Screening Levels
[4]=Residential Drinking Water Protection Criteria
[5]=Residential Soil Volatilization to Indoor Air Inhalation Criteria (VSIC)
[6]=Residential Infinite Source Volatile Soil Inhalation Criteria
[7]=Residential Finite VSIC for 5 Meter Source Thickness
[8]=Residential Finite VSIC for 2 Meter Source Thickness
[9]=Residential Particulate Soil Inhalation Criteria
[10]=Residential Direct Contact Criteria
[11]=Nonresidential Drinking Water Protection Criteria
[12]=Nonresidential Soil Volatilization to Indoor Air Inhalation
[13]=Nonresidential Infinite Source Volatile Soil Inhalation Criteria
[14]=Nonresidential Finite VSIC for 5 Meter Source Thickness
[15]=Nonresidential Finite VSIC for 2 Meter Source Thickness
[16]=Nonresidential Particulate Soil Inhalation Criteria
[17]=Nonresidential Direct Contact Criteria
[18]=Hazardous Waste Toxicity Screening Value

ABANDONED CONTAINERS

MDEQ Part 201 Cleanup Criteria for Response Action
See soil codes

SURFACE WATER

MDEQ Part 201 Cleanup Criteria for Response Action

[4]=Surface Water Ecological Screening Levels
[5]=Surface Water Rule 57 HNV Drink
[6]=Surface Water Rule 57 HCV Drink
[7]=Surface Water Rule 57 WV

SEDIMENT

MDEQ Part 201 Cleanup Criteria for Response Action

[1]=Sediment Ecological Screening Levels
[2]=Threshold Effect Concentration (TEC)
[3]=Probable Effect Concentration (PEC)

Sampling Location Type

- Abandoned Containers
- Soil
- Groundwater
- Surface Water
- Sediment
- Visual Drum / Conceptual Remediation Area
- Lake Shore Work Area
- Fence

Notes:
- Only results greater than criteria are shown.
- mg/kg = milligrams per kilogram
- ug/kg = micrograms per kilogram
- ug/L = micrograms per liter

N
0 60 Ft
Coordinate System: MIGeoRef(m)

Prepared for:
Michigan Department of Environmental Quality

Mannik Smith GROUP
TECHNICAL SKILL. CREATIVE SPIRIT.
www.MannikSmithGroup.com

Figure 2
Conceptual Remediation Area
Hubbell Processing Area - Smelter
Hubbell, Houghton County, Michigan
July 2016

ATTACHMENT A

Form

PURCHASING
Contractor Qualification Questionnaire/Survey

Written by: Heath Huschak
Marion Malus

Koppers is committed to providing a safe workplace for employees, contractors and the general public. As an RC14001 compliant company Koppers has specific safety, health, environmental and security (SH&E) expectations of all contractors. **Koppers SH&E Policy** consists of **Compliance** with all applicable federal, state, and local SH&E laws, regulations, and with other requirements to which Koppers subscribes; **Pollution Prevention** in order to preserve the environment for the health, productivity, and enjoyment of future generations; **Protection of People** through the management of product, process and other safety risks; **Continuous Improvement** of our safety, health and environmental systems and performance; and **Communication** regarding our business operations and potential risks, both internally and externally.

To qualify to perform on-site work, Koppers contractors must provide the following information and agree to obtain the following information from all subcontractors utilized and provide it upon request.

Company Name: _____ Date: _____

Contractor Qualification on File Yes ☐ No ☐ Valid Until _____

Contractor Representative: _____ Phone: _____

Statement of Work (SOW) Brief Description of Tasks and Associated SH&E Implications.

Check all Project Specific Aspects which apply from the list below:

ENVIRONMENTAL ASPECTS		SAFETY ASPECTS		TRAINING	
Air Pollutant Emissions	☐	Fire/Explosion	☐	Pinch Points	☐
Environmental Noise/Light Pollution	☐	Hazardous Energy (L.O.T.O.)	☐	Radiation Exposure	☐
Potential Spill/Release	☐	Manual Material Handling	☐	Sharp Object Exposure	☐
Waste Generation	☐	Noise Exposure	☐	Struck by Vehicles or Equipment	☐
Waste Water/Storm Water	☐	Personnel Exposure: Skin	☐	Trip/Slip/Fall Conditions	☐
		Personnel Exposure: Heat Stress/Hypothermia	☐	Use of Reactive Chemical	☐
		Personnel Exposure: Ingestion	☐	Working at Heights	☐
		Personnel Exposure: Inhalation	☐		

TRAINING	
Asbestos Abatement	☐
Confined Space	☐
Hazwoper	☐
Welding	☐

Emergency Contact/Safety Coordinator: _____ Phone: _____

1. List any chemicals or equipment to be used on-site (attach applicable SDS) _____

2. List any additional SHE aspects pertaining to this work that we did not include above. _____

All information contained in and supplied with this document is true and correct. I also understand that Koppers personnel have the right to verify, inspect/audit our activities and those of our Suppliers/Contractors with regards to our on-site activities. I further understand that activities pertaining to service and/or maintenance contracts may require submission of this form on an annual basis. The facility representative should be contacted to make this determination.

Signature of Contractor's Representative _____ Date: _____

Company Name _____

Commercial Qualification:

1. Have you done business with Koppers in the past? Yes ☐ No ☐

   a. If so, which locations _____

2. What description below best describes your business:

☐ Electrical ☐ Trackwork Other _____

☐ Piping ☐ Concrete

☐ Insulation ☐ General Construction

3. All work for Koppers will be based on the Terms and Conditions listed at http://www.koppers.com/pages/doing-business-with-koppers. Please check here if you agree to these Terms and Conditions. ☐

4. Please check here that you agree with Koppers payment terms of net 45 days. ☐

5. Do you have any registered minority status? Yes ☐ No ☐

   a. Type _____ b. Date of expiration on your certification _____

6. Please complete the following with your current insurance information:

Date	Employers Liability Amount	Commercial General Liability Amt.	Automobile Liability Amount

7. Are you RC14001 certified and have you implemented comparable management system qualifications? Yes ☐ No ☐

   List Qualifications: _____

If RC14001 or comparable management system you do NOT have to complete the remainder of the form

8. In the table below, provide the three most recent full years of history for the area or region to which this questionnaire applies.

ITEM	DESCRIPTION	20__	20__	20__
A	Interstate Experience Modification Rate (EMR)			
B	Total Recordable Incident Rate			
C	Days Away Incident Rate			
Using the OSHA #300 logs from the facility providing labor, please document the following:				
D	Number of Injuries and Illnesses			
E	Number of Lost Workday Cases			
F	Number of Injury Related Fatalities			
G	Total Number of Employees			
H	Employee Hours Worked Per Year (If unknown use # employees x 2080)			

***(B) Rate = D x 200,000 / H** ***(C) Rate = E x 200,000 / H**

9. Has your company experienced any work-related fatalities in the last three years? Yes ☐ No ☐

   If yes, describe circumstances and corrective measures taken:

   _____

10. Has your company experienced any OSHA, EPA (federal or state) or DOT violations in last three years? Yes ☐ No ☐

    If yes, describe and detail corrective measures taken:

    _____

GENERAL

11. Does your company have a written safety and health program? Yes ☐ No ☐
12. Does your company have a written Hazard Communication Program? Yes ☐ No ☐
13. Does your company use subcontractors? Yes ☐ No ☐

    If yes, do you qualify subcontractors based on their ability to address SHE requirements? Yes ☐ No ☐

    a. Do you verify the meet regulatory requirements? Yes ☐ No ☐

    b. Do you have a formal contractor safety program? Yes ☐ No ☐

14. Are all documents pertaining to this questionnaire available for auditing? Yes ☐ No ☐

    If No, please explain: _____

15. Indicate the circumstances in which your company's employees may be subject to substance abuse screening.

☐ Employment ☐ Probable Cause ☐ Periodic

☐ Random ☐ Post-Accident ☐ Other _____

16. Does your company have a policy requiring written accidents / incidents reports? Yes ☐ No ☐

17. Does your company conduct jobsite safety inspections? Yes ☐ No ☐

TRAINING

18. Please respond to the following items with "Yes, No, or NA".

Programs/Training	Reference Source	Program is documented and written Yes/No/NA	Frequency of training for individual employees	Individual employee training documented Yes/No/NA
Asbestos Abatement	OSHA 29 CFR 1926-1101			
Confined Space Entry	OSHA 29 CFR 1910.146(g)			
Cranes	OSHA 29 CFR 1926.1400			
Electric Power Gen, Tran, Dist.	OSHA CFR 29 1910.269			
Electrical Safety	OSHA 29 CFR 126.400			
Emergency Action Plan	OSHA 29 CFR 126.35			
Excavations	OSHA 29 CFR 1926.651			
Fall Protection	OSHA 29 CFR 1926.500			
First Aid/CPR	OSHA 29 CFR 1926.23			
Forklifts	OSHA 29 CFR 1910.178(1)			
Hazard Communication	OSHA 29 CFR 1910.1200(h)			
HAZWOPER	OSHA 20 CFR 1926.65			
Hearing Protection	OSHA 29 CFR 1926.101			
Fire Protection & Prevention	OSHA 29 CFR 1926.150			
Lockout/Tagout	OSHA 29 CFR 1910.147 (c)(7)			
Personal Protective Equipment	OSHA 29 CFR 1926.95			
Respiratory Protection	OSHA 29 CFR 1926.103			
Welding and Burning	OSHA 29 CFR 1926.350			
Scaffolding	OSHA 29 CFR 1926.451			

Please send this completed form to: _____ Fax: _____

Email: _____

Koppers Use Only

Reviewed by: _____ Date: _____

☐ Approve ☐ Reject ☐ Conditional Approval

Justification for Conditional/Reject:

_____

ATTACHMENT B

MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY

Remediation and Redevelopment Division
Department of Environmental Quality
Conditions for Emergency Bids

Printed under the authority of the Natural Resources and Environmental Protection Act, PA 451, February 1995, as amended

By your response to the Department of Environmental Quality request for bids on the _____ site, the contractor agrees to provide all labor, materials, equipment, tools and services required to complete the work and comply with the following conditions:

1. **INSURANCE**: No work connected with this contract shall be started until the contractor has submitted evidence that (a) all workers are insured to protect him/her from claims for damages for personal injury or death which may arise from operations under this contract and that (b) he/she is covered by Property Damage Insurance in the amount of $100,000 and Public Liability Insurance in the amount of $100,000-$300,000. All of the above insurances shall be maintained until final payment is made. The contractor shall assume full responsibility for any damage which may result from any cause including fire or other casualty until completion of the contract and final payment. Any casualties shall not relieve the contractor from performing the contract.

2. **EMPLOYEES AND SUPERINTENDENT**: Contractor shall enforce good order among his/her employees and shall not employ on the work site any disorderly, intemperate, or unfit person or anyone not skilled in the work assigned to him/her. Contractor or a competent person having authority to act for him/her shall be at the work site at all times.

3. **PROTECTION**: Contractor shall properly protect all new and existing work from damage. Proper safety provisions shall be made at all times for the protection of all persons.

4. **ROYALTIES, PATENTS, NOTICES, AND FEES**: Contractor shall give all notices and pay all royalties, building permits, and fees. He/she shall defend all suits or claims for infringement of any patent rights and shall save the state harmless from loss on account thereof. He/she shall comply with all laws, ordinances, and codes applicable to any portion of the work.

5. **EXAMINATION OF PREMISES**: Bidder shall familiarize himself/herself with local conditions affecting the job. He/she shall take his/her own measurements and be responsible for the correctness of same. Bidder shall be held to have made such examinations and no allowances will be made in his/her behalf by reason of error or omission on his/her part. If any part of the contractor's work depends upon existing work for proper results or the work of another contractor, the contractor shall notify the Department before commencing work of any defects that will affect the results. Failure to so notify will constitute his/her acceptance of the conditions.

6. **OTHER CONTRACTS**: The state may let other contracts in connection with the work and the contractor shall properly connect and coordinate his/her work with the work of such other contractors. The state shall not be liable for any damages or increased costs occasioned by the failure of other contractors to execute their work as may be anticipated by these documents.

7. **PAYMENT**: Payment for the work will be made in one sum upon completion of the work. When applying for payment, the contractor shall submit a statement based upon an itemized schedule. The work will not be considered complete until the work has been finally accepted by the Department of Environmental Quality and the contractor has furnished satisfactory evidence that all payrolls and other indebtedness connected with the work have been paid.

8. **REGULATIONS:** The contractor shall comply with all authorities having jurisdiction over the work. This includes all applicable federal, state, and local laws, ordinances, rules and regulations.

9. **PREVAILING WAGES.** The contractor shall comply with Michigan's Prevailing Wage Act, MCL 408.551 et seg. Shall ensure that all employees covered by this act are compensated at a rate not less than those established by the Michigan Department of Consumer and Industry Service as Prevailing Wage and Fringe Benefit rates.

The contractor shall secure all construction permits necessary for proper execution of the work prior to starting work on the project. All fees for securing the permits shall be paid by the contractor, including all inspection costs which may be legally assessed by the Bureau of Construction Codes in accordance with authority granted under 1980 PA 371. All work shall be executed in accordance with the state of Michigan's Construction Codes. If the contractor performs any work knowing it to be contrary to the state of Michigan's Construction Codes, the contractor shall assume full responsibility and shall bear all attributable costs.

The contractor shall conform to the provisions of the Michigan Right to Know law, 1986 PA 80 and all other applicable state and federal health and safety regulations, including U.S. Occupational Safety and Health Administration (29 CFR 1910).

The contractor shall follow all state and federal laws and regulations that govern the handling, transportation, and disposal of material and waste that are deemed part of the work and shall use licensed personnel were appropriate.

DTMB-0414 (R 1/15)

STATE OF MICHIGAN
Department of Technology, Management and Budget
State Facilities Administration
3111 W. St. Joseph Street
Lansing, Michigan 48917

Date Issued: 12 October 2016
Index No(s): NA
File No: NA
Department: MDEQ-RRD
Project Name: Abandoned Mining Wastes Torch Lake Non-Superfund Site

Subject: Clarification to Scope of Work

Bid Opening Date: 28 October 2016

ADDENDUM NO. 1

TO: All Bidders

SUBJECT: Hubbell Smelter Drum Removal Interim Response

INTENT: This Addendum No. 1 is issued to revise the Bid Opening Date, adjust quantities to align with discussions during the Pre-Bid Meeting walkover, clarify the scope of work by answering questions, and provide analysis results and Prevailing Wage Rates. This Addendum No. 1 consists of one page and five attachments including Attachment A – Sign In Sheet, Attachment B – Revised Bid Table, Attachment C – Prevailing Wages, Attachment D – Answers to Questions, and Attachment E – Analysis Summary Tables and Lab Report.

Item 1 – Revised Bid Opening Date: The Bid Opening Date is revised to October 28, 2016 at 5:00 pm Eastern Daylight Time (EDT). Bids shall be submitted via electronic mail to Mr. Jed Chrestensen of The Mannik Smith Group, Inc. at JChrestensen@manniksmithgroup.com and Ms. Amy Keranen of MDEQ at keranena@michigan.gov.

Item 2 – Bid Table Amendment: The quantities for Work Items 3, 5, 6, and 7 in the Bid Table have been revised and the description for Work Item 8 has been revised. A revised Bid Table is provided in Attachment B.

Item 3 – Deadline for Questions: The deadline for submitting questions is October 19, 2016 at 5:00 pm EDT.

Item 4 – Answers to Questions: Several questions have been posed by Bidders. Please refer to Attachment D for answers and clarifications.

Item 5 – Addition of Seeding Guarantee: The revised Bid Table in Attachment B includes a one year guarantee for the vegetative cover. Refer to the revised Bid Table for details.

ACKNOWLEDGEMENT: This Addendum must be acknowledged by the bidder in the space provided at the bottom of the Bid Table for submission of a valid bid. The changes and information shall become part of the contract documents.

ATTACHMENT A

PRE-BID MEETING SIGN-IN SHEET

DTMB-0441 (R 6/16)

MEETING ATTENDANCE RECORD

DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
State Facilities Administration
Design and Construction Division

PROJECT DESCRIPTION/LOCATION			DATE
HUBBELL SMELTER DRUM REMOVAL INTERIM RESPONSE			9-15-16
INDEX NUMBER	FILE NUMBER	CONTRACT NUMBER	TIME
			13:00

MEETING PLACE
HUBBELL PARK PAVILION

PLEASE PRINT YOUR NAME	FIRM YOU REPRESENT	TELEPHONE NUMBER AND EMAIL ADDRESS
Terry Weering	JSS	9899396419 TWeering@JSSMI.com
Jed Christenson	Mannik + Smith Group	906-487-7452 JChristenson@mannikSmithgroup.com
JOSH MCCOLLUM	CLEAN HARBORS	262 328 7443 mccollum.joshua@cleanharbors.com
Laura Bonen	B&B Contracting	337-0017 lahonen@hotmail.com
Kurt Doss	Northern AI	231-342-3735 kurtd@northernAIC.com
Chris Gendron	U.P. Environmental Services	280-3339 chris@upenvironmental.com
Jeff Binkley	Mannik Smith Group	906-281-3404 jbinkley@mannikSmithgroup.com
Amy Keranen	MDEQ	906-387-0389 keranena@michigan.gov

ATTACHMENT B

REVISED BID TABLE

The following tasks comprise the Scope of Work. Quantities shown are estimated for bid comparison purposes. Actual quantities may be more or less than the estimated value. Unit rates will be paid for the actual work performed. Fully executed disposal documentation will be required for payment of "remove and dispose" Work Items. Bids shall remain valid through 31 October 2017. If the Contractor intends to use Waste Management for disposal, please coordinate with Mr. Dan Roddan at droddan1@wm.com / 920-539-1167 for project-specific rates.

Work Item	Contractor Quote
1. Obtain a SESC Permit. Install, maintain, and ultimately remove silt fence and/or other measures when the disturbed areas have been stabilized and the permit is released.	$ _____
2. Mobilization and demobilization of all materials, tools, labor, and equipment required to characterize containers and contents for disposal acceptance, conduct test pitting, retrieve and contain drums and their contents, and stage securely repackaged containers and their contents inside the perimeter fence. Note – this is only for the mobilization of required materials, tools, labor, and equipment. The actual drum characterization, retrieval, test pitting, and packaging are itemized below on a unit rate basis.	$ _____
3. Conduct test-pitting within the "Lake Shore Work Area" on **Figure 2** after removal and containment of known visible drums. This includes replacement and compaction of existing soil into the excavated area(s). Any drums located during test pitting will be addressed under the below Work Items. Unit rate per hour = $ _____	$ _____ (assuming 12 hours)
4. Waste characterization sampling (per container) and analysis as may be required for disposal facility acceptance (including payment of analysis fees). Unit rate each = $ _____	$ _____ (assuming 5 drums)
5. Remove and dispose Resource Conservation and Recovery Act (RCRA) empty drum. Unit rate each = $ _____	$ _____ (assuming 5 drums)
6. Remove and dispose characteristically non-hazardous container. Unit rate each = $ _____	$ _____ (assuming 1 drum)
7. Remove and dispose characteristically hazardous container (due to metals content) that is not exempt from RCRA Subtitle C. Unit rate each = $ _____	$ _____ (assuming 2 drums)
8. Remove and dispose characteristically hazardous container (due to metals content) that is exempt from RCRA Subtitle C per 40 CFR 261.4(b)(7). Unit rate each = $ _____	$ _____ (assuming 1 drum)
9. Remove and dispose drum containing non-Toxic Substances Control Act (TSCA) regulated material with polychlorinated biphenyl (PCB) concentration less than 50 parts per million (ppm). Unit rate each = $ _____	$ _____ (assuming 1 drum)

10. Riprap placement to backfill drum removal and excavation areas within and on the shoreline of Torch Lake. The Contractor shall assume 10 tons of riprap meeting the requirements on page 2 of 6. $ _____

11. Site restoration including provision of 6-inches compacted thickness sandy loam soil that is free of large roots and rocks and is suitable for vigorous grass growth over all excavation areas. Assume up to 65 in-place cubic yards to cap the Lake Shore Work Area. Any other capped areas that are compromised by the work shall similarly receive additional sandy loam soil such that the compacted cap thickness remains six-inches. Soil placement areas and any other areas with significant disturbance from equipment tracking shall be seeded and mulched with 100% biodegradable straw mulch blankets. All other previously vegetated areas disturbed by the work shall be seeded and receive loose mulch placement. Equipment tracks shall be raked out. Hydroseeding may be substituted for loose mulch and blankets. Guarantee vegetative cover for 1 year*. $ _____

12. Provisional allowance for activities, situations, and/or waste streams not included above. Payment under the Provisional Allowance will be based on rates agreed upon prior to conducting the work and receipts provided. $ 10,000.00

TOTAL **$_____**

Bidder Company Name: _____

Represented by (print): _____

Address: _____

Telephone Number: _____

Date Submitted: _____

Signature: _____

Estimated Duration to Complete the Work: _____

Proposed Disposal Facilities: _____

Addendum(s) Received (Date): _____

* = Seeded areas will be accepted when a full uniform stand of grass has become established and maintained for one year. A satisfactory stand of grass is defined as no bare spots larger than one square foot and not more than 10 percent of the area with bare spots larger than 3-inches by 3-inches. 80% of the line item amount will be paid upon completion of seeding with the balance upon acceptance after the following growing season or within one year, whichever occurs first.

ATTACHMENT C

PREVAILING WAGES

STATE OF MICHIGAN

Wage and Hour Division
PO Box 30476
Lansing, MI 48909
517-284-7800

Informational Sheet: Prevailing Wages on State Projects

REQUIREMENTS OF
THE PREVAILING WAGES ON STATE PROJECTS ACT, PUBLIC ACT 166 OF 1965

The State of Michigan determines prevailing rates pursuant to the Prevailing Wages on State Projects Act, Public Act 166 of 1965, as amended. The purpose of establishing prevailing rates is to provide minimum rates of pay that must be paid to workers on construction projects for which the state or a school district is the contracting agent and which is financed or financially supported by the state. By law, prevailing rates are compiled from the rates contained in collectively bargained agreements which cover the locations of the state projects. The official prevailing rate schedule provides an hourly rate which includes *wage and fringe benefit totals* for designated construction mechanic classifications. The overtime rates also include *wage and fringe benefit totals*. Please pay special attention to the overtime and premium pay requirements. Prevailing wage is satisfied when wages plus fringe benefits paid to a worker are equal to or greater than the required rate.

State of Michigan responsibilities under the law:

- The department establishes the prevailing rate for each classification of construction mechanic ***requested by a contracting agent*** prior to contracts being let out for bid on a state project.

Contracting agent responsibilities under the law:

- If a contract is not awarded or construction does not start within 90 days of the date of the issuance of rates, a re-determination of rates must be requested by the contracting agent.
- Rates for classifications needed but not provided on the Prevailing Rate Schedule, ***must*** be obtained ***prior*** to contracts being let out for bid on a state project.
- The contracting agent, by written notice to the contractor and the sureties of the contractor known to the contracting agent, may terminate the contractor's right to proceed with that part of the contract, for which less than the prevailing rates have been or will be paid, and may proceed to complete the contract by separate agreement with another contractor or otherwise, and the original contractor and his sureties shall be liable to the contracting agent for any excess costs occasioned thereby.

Contractor responsibilities under the law:

- Every contractor and subcontractor shall keep posted on the construction site, in a conspicuous place, a copy of all prevailing rates prescribed in a contract.
- Every contractor and subcontractor shall keep an accurate record showing the name and occupation of and the actual wages and benefits paid to each construction mechanic employed by him in connection including certified payroll, as used in the industry, with said contract. This record shall be available for reasonable inspection by the contracting agent or the department.
- Each contractor or subcontractor is separately liable for the payment of the prevailing rate to its employees.
- The prime contractor is responsible for advising all subcontractors of the requirement to pay the prevailing rate prior to commencement of work.
- The prime contractor is secondarily liable for payment of prevailing rates that are not paid by a subcontractor.
- A construction mechanic *shall only* be paid the apprentice rate if registered with the United States Department of Labor, Bureau of Apprenticeship and Training and the rate is included in the contract.

Enforcement:

A person who has information of an alleged prevailing wage violation on a state project may file a complaint with the State of Michigan. The department will investigate and attempt to resolve the complaint informally. During the course of an investigation, if the requested records and posting certification are not made available in compliance with Section 5 of Act 166, the investigation will be concluded and a referral to the Office of Attorney General for civil action will be made. The Office of Attorney General will pursue costs and fees associated with a lawsuit if filing is necessary to obtain records.

STATE OF MICHIGAN

Wage and Hour Division
PO Box 30476
Lansing, MI 48909
517-284-7800

Informational Sheet: Prevailing Wages on State Projects

General Information Regarding Fringe Benefits

Certain fringe benefits **may** be credited toward the payment of the Prevailing Wage Rate:

- If a fringe benefit is paid directly to a construction mechanic
- If a fringe benefit contribution or payment is made on behalf of a construction mechanic
- If a fringe benefit, which may be provided to a construction mechanic**,** is pursuant to a written contract or policy
- If a fringe benefit is paid into a fund, for a construction mechanic

When a fringe benefit is not paid by an hourly rate, the hourly credit will be calculated based on the annual value of the fringe benefit divided by 2080 hours per year (52 weeks @ 40 hours per week).

The following is an example of the types of fringe benefits allowed and how an hourly credit is calculated:

Vacation	40 hours X $14.00 per hour = $560/2080 =	$.27
Dental insurance	$31.07 monthly premium X 12 mos. = $372.84 /2080 =	$.18
Vision insurance	$5.38 monthly premium X 12 mos. = $64.56/2080 =	$.03
Health insurance	$230.00 monthly premium X 12 mos. = $2,760.00/2080 =	$1.33
Life insurance	$27.04 monthly premium X 12 mos. = $324.48/2080 =	$.16
Tuition	$500.00 annual cost/2080 =	$.24
Bonus	4 quarterly bonus/year x $250 = $1000.00/2080 =	$.48
401k Employer Contribution	$2000.00 total annual contribution/2080 =	$.96
Total Hourly Credit		$3.65

Other examples of the types of fringe benefits allowed:

- Sick pay
- Holiday pay
- Accidental Death & Dismemberment insurance premiums

The following are examples of items that **will not** be credited toward the payment of the Prevailing Wage Rate

- Legally required payments, such as:
  - Unemployment Insurance payments
  - Workers' Compensation Insurance payments
  - FICA (Social Security contributions, Medicare contributions)
- Reimbursable expenses, such as:
  - Clothing allowance or reimbursement
  - Uniform allowance or reimbursement
  - Gas allowance or reimbursement
  - Travel time or payment
  - Meals or lodging allowance or reimbursement
  - Per diem allowance or payment
- Other payments to or on behalf of a construction mechanic that are not wages or fringe benefits, such as:
  - Industry advancement funds
  - Financial or material loans

State of Michigan

OVERTIME PROVISIONS for MICHIGAN PREVAILING WAGE RATE COMMERCIAL SCHEDULE

1. Overtime is represented as a nine character code. Each character represents a certain period of time after the first 8 hours Monday thru Friday.

	Monday thru Friday	Saturday	Sunday & Holidays	Four 10s
First 8 Hours		**4**	**8**	**9**
9th Hour	**1**	**5**		
10th Hour	**2**	**6**		
Over 10 hours	**3**	**7**		

Overtime for Monday thru Friday after 8 hours:
the 1st character is for time worked in the 9th hour *(8.1 - 9 hours)*
the 2nd character is for time worked in the 10th hour *(9.1 - 10 hours)*
the 3rd character is for time worked beyond the 10th hour *(10.1 and beyond)*

Overtime on Saturday:
the 4th character is for time worked in the first 8 hours on Saturday *(0 - 8 hours)*
the 5th character is for time worked in the 9th hour on Saturday *(8.1 - 9 hours)*
the 6th character is for time worked in the 10th hour *(9.1 - 10 hours)*
the 7th character is for time worked beyond the 10th hour *(10.01 and beyond)*

Overtime on Sundays & Holidays
The 8th character is for time worked on Sunday or on a holiday

Four Ten Hour Days
The 9th character indicates if an optional 4-day 10-hour per day workweek can be worked ***between Monday and Friday* without paying overtime after 8 hours worked, unless otherwise noted in the rate schedule. To *utilize a 4 ten workweek, notice is required from the employer to employee prior to the start of work on the project.***

2. Overtime Indicators Used in the Overtime Provision:
   H - means TIME AND ONE-HALF due
   X - means TIME AND ONE-HALF due after 40 HOURS worked
   D - means DOUBLE PAY due
   Y - means YES an optional 4-day 10-hour per day workweek can be worked without paying overtime after 8 hours worked
   N - means NO an optional 4-day 10-hour per day workweek *can not* be worked without paying overtime after 8 hours worked

3. EXAMPLES:
   HHHHHHHDN - This example shows that the 1½ rate must be used for time worked after 8 hours Monday thru Friday *(characters 1 - 3);* for all hours worked on Saturday, 1½ rate is due *(characters 4 - 7).* Work done on Sundays or holidays must be paid double time *(character 8).* The N *(character 9)* indicates that 4 ten-hour days is not an acceptable workweek at regular pay.

   XXXHHHHDY - This example shows that the 1½ rate must be used for time worked after 40 hours are worked Monday thru Friday *(characters 1-3);* for hours worked on Saturday, 1½ rate is due *(characters 4 – 7)*. Work done on Sundays or holidays must be paid double time *(character 8).* The Y *(character 9)* indicates that 4 ten-hour days is an acceptable alternative workweek.

ENGINEERS - CLASSES OF EQUIPMENT LIST

UNDERGROUND ENGINEERS

CLASS I

Backfiller Tamper, Backhoe, Batch Plant Operator, Clam-Shell, Concrete Paver (2 drums or larger), Conveyor Loader (Euclid type), Crane (crawler, truck type or pile driving), Dozer, Dragline, Elevating Grader, End Loader, Gradall (and similar type machine), Grader, Power Shovel, Roller (asphalt), Scraper (self propelled or tractor drawn), Side Broom Tractor (type D-4 or larger), Slope Paver, Trencher (over 8' digging capacity), Well Drilling Rig, Mechanic, Slip Form Paver, Hydro Excavator.

CLASS II

Boom Truck (power swing type boom), Crusher, Hoist, Pump (1 or more 6" discharge or larger gas or diesel powered by generator of 300 amps or more, inclusive of generator), Side Boom Tractor (smaller than type D-4 or equivalent), Tractor (pneu-tired, other than backhoe or front end loader), Trencher (8' digging capacity and smaller), Vac Truck.

CLASS III

Air Compressors (600 cfm or larger), Air Compressors (2 or more less than 600 cfm), Boom Truck (non-swinging, non-powered type boom), Concrete Breaker (self-propelled or truck mounted, includes compressor), Concrete Paver (1 drum, ½ yard or larger), Elevator (other than passenger), Maintenance Man, Mechanic Helper, Pump (2 or more 4" up to 6" discharge, gas or diesel powered, excluding submersible pump), Pumpcrete Machine (and similar equipment), Wagon Drill Machine, Welding Machine or Generator (2 or more 300 amp or larger, gas or diesel powered).

CLASS IV

Boiler, Concrete Saw (40HP or over), Curing Machine (self-propelled), Farm Tractor (w/attachment), Finishing Machine (concrete), Firemen, Hydraulic Pipe Pushing Machine, Mulching Equipment, Oiler (2 or more up to 4", exclude submersible), Pumps (2 or more up to 4" discharge if used 3 hrs or more a day-gas or diesel powered, excluding submersible pumps), Roller (other than asphalt), Stump Remover, Vibrating Compaction Equipment (6' wide or over), Trencher (service) Sweeper (Wayne type and similar equipment), Water Wagon, Extend-a-Boom Forklift.

HAZARDOUS WASTE ABATEMENT ENGINEERS

CLASS I

Backhoe, Batch Plant Operator, Clamshell, Concrete Breaker when attached to hoe, Concrete Cleaning Decontamination Machine Operator, Concrete Pump, Concrete Paver, Crusher, Dozer, Elevating Grader, Endloader, Farm Tractor (90 h.p. and higher), Gradall, Grader, Heavy Equipment Robotics Operator, Hydro Excavator, Loader, Pug Mill, Pumpcrete Machines, Pump Trucks, Roller, Scraper (self-propelled or tractor drawn), Side Boom Tractor, Slip Form Paver, Slope Paver, Trencher, Ultra High Pressure Waterjet Cutting Tool System Operator, Vactors, Vacuum Blasting Machine Operator, Vertical Lifting Hoist, Vibrating Compaction Equipment (self-propelled), and Well Drilling Rig.

CLASS II

Air Compressor, Concrete Breaker when not attached to hoe, Elevator, End Dumps, Equipment Decontamination Operator, Farm Tractor (less than 90 h.p.), Forklift, Generator, Heater, Mulcher, Pigs (Portable Reagent Storage Tanks), Power Screens, Pumps (water), Stationary Compressed Air Plant, Sweeper, Water Wagon and Welding Machine.

State of Michigan

WHPWRequest@michigan.gov

Official Request #: 1155
Requestor: MDEQ
Project Description: Abandoned mining waste-Torch Lake nonsuperfund site test pit excavation,container removal & disposal
Project Number: 761/16108.SAR

Houghton County

Official 2016 Prevailing Wage Rates for State Funded Projects

Issue Date: 10/7/2016
Contract must be awarded by: 1/5/2017

Classification Name / Description		Last Updated	Straight Hourly	Time and Half	a Double Time	Overtime Provision
Asbestos & Lead Abatement Laborer						
Asbestos & Lead Abatement Laborer 4 ten hour days @ straight time allowed Monday-Saturday, must be consecutive	MLDC	9/16/2016	$41.25	$55.00	$68.75	H H H X X X X D Y
Asbestos & Lead Abatement, Hazardous Material Handler						
Asbestos and Lead Abatement, Hazardous Material Handler 4 ten hour days @ straight time allowed Monday-Saturday, must be consecutive	AS207	10/30/2015	$40.75	$54.25	$67.75	H H H X X X X D Y
Boilermaker						
Boilermaker	BO169	2/17/2015	$54.70	$81.08	$107.45	H H H H H H H D Y
Apprentice Rates:						
1st 6 months			$40.31	$59.49	$78.67	
2nd 6 months			$41.45	$61.21	$80.95	
3rd 6 months			$42.57	$62.88	$83.19	
4th 6 months			$43.69	$64.57	$85.43	
5th 6 months			$44.81	$66.24	$87.67	
6th 6 months			$48.63	$72.50	$96.36	
7th 6 months			$49.32	$73.01	$96.69	
8th 6 months			$51.58	$76.40	$101.21	

Official Rate Schedule

Every contractor and subcontractor shall keep posted on the construction site, in a conspicuous place, a copy of all prevailing wage and fringe benefit rates prescribed in a contract.

Classification Name / Description		Last Updated	Straight Hourly	Time and a Half	Double Time	Overtime Provision
Bricklayer						
Marble, Tile and Terrazzo Finisher	BR6		$36.55	$45.79	$55.03	H H D X H H D D Y
Make up day allowed comment		6/2/2014				
Four 10s allowed Monday-Thurs. Make up days: Friday & Saturday.						
Bricklayer, stone mason, moisaic worker, plasterer, tuck pointer, pointer, caulker & cleaner	BR6-2		$42.71	$55.03	$67.35	X X H X X H H D Y
Make up day allowed comment		6/2/2014				
Saturday All time over 12 hours pr day - double						
	Apprentice Rates:					
	0 - 749 hours		$32.85	$40.24	$47.63	
	750 - 1499 hours		$34.09	$42.10	$50.11	
	1500 - 2249 hours		$35.32	$43.95	$52.57	
	2250 - 2999 hours		$36.55	$45.79	$55.03	
	3000 - 3749 hours		$37.78	$47.63	$57.49	
	3750 - 4499 hours		$39.01	$49.48	$59.95	
	4500 - 5249 hours		$40.25	$51.34	$62.43	
	5250 - 6000 hours		$41.48	$53.19	$64.89	
Marble, Tile and Terrazzo Layer	BR6TL		$42.71	$55.03	$67.35	H H D X H H D D Y
Make up day allowed comment		6/2/2014				
Four 10s allowed Monday-Thurs. Make up days: Friday & Saturday.						

Classification Name / Description		Last Updated	Straight Hourly	Time and a Half	Double Time	Overtime Provision
Carpenter						
Carpenter, Drywall Taper & Finisher, & Floor	CA1510-C		$42.75	$54.46	$66.17	X X H X X H H D Y
Make up day allowed comment Saturday		7/26/2016				
	Apprentice Rates:					
	1st 6 months		$33.38	$40.41	$47.43	
	2nd 6 months		$34.55	$42.16	$49.77	
	3rd 6 months		$35.72	$43.91	$52.11	
	4th 6 months		$36.90	$45.69	$54.47	
	5th 6 months		$38.07	$47.44	$56.81	
	6th 6 months		$39.24	$49.19	$59.15	
	7th 6 months		$40.41	$50.95	$61.49	
	8th 6 months		$41.58	$52.71	$63.83	
Pile driver	CA1510-P		$42.95	$54.76	$66.57	X X H X X H H D Y
Make up day allowed comment Saturday		7/26/2016				
	Apprentice Rates:					
	1st 6 months		$33.50	$40.59	$47.67	
	2nd 6 months		$34.68	$42.35	$50.03	
	3rd 6 months		$35.86	$44.13	$52.39	
	4th 6 months		$37.05	$45.91	$54.77	
	5th 6 months		$38.23	$47.68	$57.13	
	6th 6 months		$39.41	$49.45	$59.49	
	7th 6 months		$40.59	$51.22	$61.85	
	8th 6 months		$41.77	$52.99	$64.21	

Classification Name / Description		Last Updated	Straight Hourly	Time and Half	a Double Time	Overtime Provision
Cement Mason						
Cement Mason	BR6-CM		$42.71	$55.03	$67.35	H H D X H H D D Y
Make up day allowed comment		6/2/2014				
Four 10s allowed Monday-Thurs. Make up days: Friday and Saturday.						
	Apprentice Rates:					
	0 - 749 hours		$34.09	$42.10	$50.11	
	750 - 1499 hours		$35.32	$43.95	$52.57	
	1500 - 2249 hours		$36.55	$45.79	$55.03	
	2250 - 2999 hours		$37.78	$47.63	$57.49	
	3000 - 3749 hours		$39.01	$49.48	$59.95	
	3750 - 4500 hours		$40.25	$51.34	$62.43	
Cement Mason	PL16-16		$33.04	$43.99	$54.93	H H H H H H H D Y
Four 10s allowed Monday-Thursday with Friday or Saturday inclement weather make up days. Saturday hours for inclement weather make up shall be paid straight rate unless over 40 hours worked.						
Make up day allowed comment		8/18/2016				
Friday or Saturday for inclement weather						
	Apprentice Rates:					
	1st year		$25.38	$32.49	$39.61	
	2nd year		$27.57	$35.78	$43.99	
	3rd year		$29.76	$39.07	$48.37	

Classification Name / Description		Last Updated	Straight Hourly	Time and a Half	Double Time	Overtime Provision
Electrician						
Sound and Communications Technician 4 10 hour days allowed M-Th	EC-1070		$36.60	$47.73	$58.85	H H H H H H H D Y
Make up day allowed comment Friday for inclement weather or holidays		8/26/2016				
	Apprentice Rates:					
	1st Period		$27.70	$34.37	$41.04	
	2nd Period		$29.93	$37.72	$45.50	
	3rd Period		$31.04	$39.38	$47.72	
	4th Period		$32.15	$41.04	$49.94	
	5th Period		$33.27	$42.73	$52.18	
	6th Period		$34.38	$44.40	$54.40	
Inside wireman for work above $160,000	EC-906z2H		$51.23	$68.06	$84.90	H H H H H H H D Y
A 4 ten schedule may be worked if 4 consecutive days, M-Th						
Make up day allowed comment Friday		8/30/2016				
	Apprentice Rates:					
	2nd period indentured before 10/12/15		$32.77	$43.20	$53.63	
	3rd period indentured before 10/12/15		$36.26	$48.44	$60.61	
	4th period indentured before 10/12/15		$39.73	$53.64	$67.55	
	5th period indentured before 10/12/15		$41.47	$56.25	$71.03	
	6th period indentured before 10/12/15		$43.21	$58.86	$74.51	
	1st period indentured after 10/12/15		$25.83	$32.79	$39.75	
	2nd period indentured after 10/12/15		$27.56	$35.39	$43.21	
	3rd period indentured after 10/12/15		$31.04	$40.60	$50.17	
	4th period indentured after 10/12/15		$34.52	$45.83	$57.13	
	5th period indentured after 10/12/15		$37.99	$51.03	$64.07	
	6th period indentured after 10/12/15		$41.47	$56.25	$71.03	

Classification Name / Description		Last Updated	Straight Hourly	Time and Half	a Double Time	Overtime Provision
Inside wireman for work below 160,000 A 4 ten schedule may be worked if 4 consecutive days, M-Th	EC-906z2L		$48.94	$64.63	$80.32	H H H H H H D Y
Make up day allowed comment Friday		8/30/2016				
	Apprentice Rates:					
	1st period indentured before 10/12/15		$29.30	$38.00	$46.69	
	2nd period indentured before 10/12/15		$32.77	$43.20	$53.63	
	3rd period indentured before 10/12/15		$36.26	$48.44	$60.61	
	4th period indentured before 10/12/15		$39.73	$53.64	$67.55	
	5th period indentured before 10/12/15		$41.47	$56.25	$71.03	
	6th period indentured before 10/12/15		$43.21	$58.86	$74.51	
	1st period indentured after 10/12/15		$25.83	$32.79	$39.75	
	2nd period indentured after 10/12/15		$27.56	$35.39	$43.21	
	3rd period indentured after 10/12/15		$31.04	$40.60	$50.17	
	4th period indentured after 10/12/15		$34.52	$45.83	$57.13	
	5th period indentured after 10/12/15		$37.99	$51.03	$64.07	
	6th period indentured after 10/12/15		$41.47	$56.25	$71.03	
Elevator Constructor						
Elevator Constructor Mechanic	EL-85		$70.77		$116.32	D D D D D D D D Y
comment 4 tens allowed M-TH		4/8/2013				
	Apprentice Rates:					
	1st year		$50.27		$75.32	
	2nd year		$54.83		$84.44	
	3rd year		$57.10		$88.98	
	4th year		$61.66		$98.10	

Classification Name / Description		Last Updated	Straight Hourly	Time and a Half	Double Time	Overtime Provision
Glazier						
Glazier	GL-826		$44.78	$60.87	$76.95	H H H H H H H D Y
4 tens allowed on consecutive days		6/3/2016				
	Apprentice Rates:					
	1st 6 months		$31.91	$41.57	$51.21	
	2nd 6 months		$33.52	$43.98	$54.43	
	3rd 6 months		$35.12	$46.38	$57.63	
	4th 6 months		$36.74	$48.81	$60.87	
	5th 6 months		$38.35	$51.22	$64.09	
	6th 6 months		$39.96	$53.64	$67.31	
	7th 6 months		$41.57	$56.05	$70.53	
	8th 6 months		$43.17	$58.45	$73.73	
Heat and Frost Insulator						
Heat and Frost Insulator	AS127		$42.97	$55.93	$68.89	H H H H D D D D Y
Make up day allowed		11/3/2014				
	Apprentice Rates:					
	1st year		$30.01	$36.49	$42.97	
	2nd year		$32.60	$40.37	$48.15	
	3rd year		$35.19	$44.26	$53.33	
	4th year		$37.79	$48.16	$58.53	
Spray Insulation	AS25S		$25.29	$36.51		X X X H H H H H N
		6/2/2016				

Classification Name / Description		Last Updated	Straight Hourly	Time and a Half	Double Time	Overtime Provision
Ironworker						
For work over $10 million: Structural, Ornamental, Machinery Rigger & Reinforcing Ironworker; installation of sheet metal siding A 4-10 work week allowed Monday thru Thursday. Friday may be used as a make-up day. Hours in excess of 40 must be paid time and one half. *Make up day allowed*	IR-8-A	9/29/2014	$50.07	$69.76	$89.45	H H D H D D D Y
	Apprentice Rates:					
	0 - 1,000 hours		$25.39	$37.75	$50.11	
	1,001 - 2,000 hours		$37.71	$51.22	$64.73	
	2,001 - 3,000 hours		$39.01	$53.17	$67.33	
	3,001 - 4,000 hours		$40.31	$55.12	$69.93	
	4,001 - 5,000 hours		$41.61	$57.07	$72.53	
	5,001 - 6,000 hours		$42.92	$59.04	$75.15	
	6,001 - 7,000 hours		$44.22	$60.98	$77.75	
For work under $10 Million: Structural, Ornamental, Machinery Rigger & Reinforcing Ironworker; pre-engineered metal buildings A 4-10 work week allowed Monday thru Thursday. Friday may be used as a make-up day. Hours in excess of 40 must be paid time and one half. *Make up day allowed*	IR-8-B	9/29/2014	$46.73	$64.76	$82.79	H H D H D D D Y
	Apprentice Rates:					
	0-1,000 hours		$25.39	$37.75	$50.11	
	1,001 - 2,000 hours		$37.71	$51.22	$64.73	
	2,001 - 3,000 hours		$39.01	$53.17	$67.33	
	3,001 - 4,000 hours		$40.31	$55.12	$69.93	
	4,001 - 5,000 hours		$41.61	$57.07	$72.53	
	5,001 - 6,000 hours		$42.92	$59.04	$75.15	
	6,001 - 7,000 hours		$44.22	$60.98	$77.75	

Classification Name / Description		Last Updated	Straight Hourly	Time and Half	a Double Time	Overtime Provision
Laborer						
Class A Laborer - construction laborer on building and heavy construction work, storm, and sanitary sewers on all construction sites and streets which are not included in the road builder rates, tool crib attendant, civil engineer helper, rodman, oxi-gun operator, propane or acetylene cutting torch operator, motor driven buggies, chipping hammers, tamping machines, green cutting, sand blasters, mason tenders, mortar mixers, marterial mixers, vibrator operators, concrete mixers, laborers with concrete crew, mixer to pour, including pour time from trucks.	L1329-B-A	5/4/2016	$33.71	$43.89	$54.07	X X X X X X X D Y
Apprentice Rates:						
0 - 1,000 hours			$28.62	$36.25	$43.89	
1,001 - 2,000 hours			$29.64	$37.79	$45.93	
2,001 - 3,000 hours			$30.66	$39.31	$47.97	
3,001 - 4,000 hours			$32.69	$42.36	$52.03	
Class B Laborer - Cement gun nozzleman, blasters, miners, drillers, buster operators, layers of all non-metallic pipe	L1329-B-B	5/4/2016	$34.13	$44.52	$54.91	X X X X X X X D Y
Class C Laborer - caisson worker & airtrack	L1329-B-C	5/4/2016	$34.49	$45.06	$55.63	X X X X X X X D Y
Class E Laborer - digester, tanks & kilns	L1329-B-D	5/4/2016	$35.85	$47.10	$58.35	X X X X X X X D Y

Classification Name / Description		Last Updated	Straight Hourly	Time and Half	a Double Time	Overtime Provision
Laborer - Hazardous						
Class A - performing work in conjunction with site preparation and other preliminary work prior to actual removal, handling, or containment of hazardous waste substances not requiring use of personal protective equipment required by state or federal regulations; or a laborer performing work in conjunction with the removal, handling, or containment of hazardous waste substances when use of personal protective equipment level "D" is required.	LHAZ-Z11-A		$32.91	$46.37	$59.82	H H H H H H H D Y
Make up day allowed comment		11/7/2014				
4 10s allowed M-Th or T-F; inclement weather makeup day Friday						
Apprentice Rates:						
0-1,000 work hours			$27.93	$38.90	$49.86	
1,001-2,000 work hours			$28.93	$40.40	$51.86	
2,001-3,000 work hours			$29.92	$41.88	$53.84	
3,001-4,000 work hours			$31.91	$44.86	$57.82	
Class B - performing work in conjunction with the removal, handling, or containment of hazardous waste substances when the use of personal protective equipment levels "A", "B" or "C" is required.	LHAZ-Z11-B		$33.91	$47.87	$61.82	H H H H H H H D Y
Make up day allowed comment		11/7/2014				
4 10s allowed M-Th or T-F; inclement weather makeup day Friday						
Apprentice Rates:						
0-1,000 work hours			$28.68	$40.02	$51.36	
1,001-2,000 work hours			$29.73	$41.60	$53.46	
2,001-3,000 work hours			$30.77	$43.16	$55.54	
3,001-4,000 work hours			$32.86	$46.29	$59.72	

Classification Name / Description		Last Updated	Straight Hourly	Time and Half	a Double Time	Overtime Provision
Laborer Underground - Tunnel, Shaft & Caisson						
Class I - Tunnel, shaft and caisson laborer, dump man, shanty man, hog house tender, testing man (on gas), and watchman.	LAUCT-Z2-1	10/30/2014	$35.67	$47.07	$58.47	X X X X X X X D Y
Apprentice Rates:						
0-1,000 work hours			$30.52	$39.35	$48.17	
1,001-2,000 work hours			$31.55	$40.90	$50.23	
2,001-3,000 work hours			$32.58	$42.44	$52.29	
3,001-4,000 work hours			$34.64	$45.53	$56.41	
Class II - Manhole, headwall, catch basin builder, bricklayer tender, mortar man, material mixer, fence erector, and guard rail builder	LAUCT-Z2-2	10/30/2014	$35.76	$47.21	$58.65	X X X X X X X D Y
Apprentice Rates:						
0-1,000 work hours			$30.58	$39.44	$48.29	
1,001-2,000 work hours			$31.62	$41.00	$50.37	
2,001-3,000 work hours			$32.66	$42.56	$52.45	
3,001-4,000 work hours			$34.72	$45.65	$56.57	

Classification Name / Description		Last Updated	Straight Hourly	Time and a Half	Double Time	Overtime Provision
Class III - Air tool operator (jack hammer man, bush hammer man and grinding man), first bottom man, second bottom man, cage tender, car pusher, carrier man, concrete man, concrete form man, concrete repair man, cement invert laborer, cement finisher, concrete shoveler, conveyor man, floor man, gasoline and electric tool operator, gunnite man, grout operator, welder, heading dinky man, inside lock tender, pea gravel operator, pump man, outside lock tender, scaffold man, top signal man, switch man, track man, tugger man, utility man, vibrator man, winch operator, pipe jacking man, wagon drill and air track operator and concrete saw operator (under 40 h.p.).	LAUCT-Z2-3	10/30/2014	$35.86	$47.36	$58.85	X X X X X X X D Y
Apprentice Rates:						
0-1,000 work hours			$30.66	$39.56	$48.45	
1,001-2,000 work hours			$31.70	$41.12	$50.53	
2,001-3,000 work hours			$32.74	$42.68	$52.61	
3,001-4,000 work hours			$34.82	$45.80	$56.77	
Class IV - Tunnel, shaft and caisson mucker, bracer man, liner plate man, long haul dinky driver and well point man.	LAUCT-Z2-4	10/30/2014	$36.02	$47.60	$59.17	X X X X X X X D Y
Apprentice Rates:						
0-1,000 work hours			$30.78	$39.74	$48.69	
1,001-2,000 work hours			$31.83	$41.32	$50.79	
2,001-3,000 work hours			$32.88	$42.89	$52.89	
3,001-4,000 work hours			$34.97	$46.02	$57.07	

Classification Name / Description		Last Updated	Straight Hourly	Time and a Half	Double Time	Overtime Provision
Class V - Tunnel, shaft and caisson miner, drill runner, keyboard operator, power knife operator, reinforced steel or mesh man (e.g. wire mesh, steel mats, dowel bars)	LAUCT-Z2-5	10/30/2014	$36.28	$47.99	$59.69	X X X X X X X D Y
Apprentice Rates:						
0-1,000 work hours			$30.98	$40.04	$49.09	
1,001-2,000 work hours			$32.04	$41.63	$51.21	
2,001-3,000 work hours			$33.10	$43.22	$53.33	
3,001-4,000 work hours			$35.22	$46.40	$57.57	
Class VI - Dynamite man and powder man.	LAUCT-Z2-6	10/30/2014	$36.59	$48.45	$60.31	X X X X X X X D Y
Apprentice Rates:						
0-1,000 work hours			$31.21	$40.38	$49.55	
1,001-2,000 work hours			$32.28	$41.99	$51.69	
2,001-3,000 work hours			$33.36	$43.61	$53.85	
3,001-4,000 work hours			$35.51	$46.84	$58.15	
Class VII - Restoration laborer, seeding, sodding, planting, cutting, mulching and topsoil grading and the restoration of property such as replacing mail boxes, wood chips, planter boxes and flagstones.	LAUCT-Z2-7	10/30/2014	$28.86	$36.86	$44.85	X X X X X X X D Y
Apprentice Rates:						
0-1,000 work hours			$25.41	$31.68	$37.95	
1,001-2,000 work hours			$26.10	$32.72	$39.33	
2,001-3,000 work hours			$26.79	$33.76	$40.71	
3,001-4,000 work hours			$28.17	$35.82	$43.47	

Classification Name / Description		Last Updated	Straight Hourly	Time and Half	a Double Time	Overtime Provision
Landscape Laborer						
Landscape Specialist includes air, gas, and diesel equipment operator, skidsteer (or equivalent), lawn sprinkler installer on landscaping work where seeding, sodding, planting, cutting, trimming, backfilling, rough grading or maintenance of landscape projects occurs. Sundays paid at time & one half. Holidays paid at double time.	LLAN-Z2-A	10/13/2015	$28.25	$39.04	$49.82	X X H X X X H D Y
Skilled Landscape Laborer: small power tool operator, lawn sprinkler installers' tender, material mover, truck driver on when seeding, sodding, planting, cutting, trimming, backfilling, rough grading or maintaining of landscape projects occurs Sundays paid at time & one half. Holidays paid at double time.	LLAN-Z2-B	10/13/2015	$24.05	$32.74	$41.42	X X H X X X H D Y
Operating Engineer - DIVER						
Diver/Wet Tender/Tender/Rov Pilot/Rov Tender	GLF D	4/2/2014	$52.80	$79.20	$105.60	H H H H H H H D N
Operating Engineer - Marine Construction						
Diver/Wet Tender, Engineer (hydraulic dredge)	GLF-1		$65.00	$84.85	$104.70	X X H H H H H D Y
Make up day allowed		2/12/2014				
Subdivision of county	all Great Lakes, islands therein, & connecting & tributary waters					
Crane/Backhoe Operator, 70 ton or over Tug Operator, Mechanic/Welder, Assistant Engineer (hydraulic dredge), Leverman (hydraulic dredge), Diver Tender Holiday pay = $120.80 per hour, wages &	GLF-2		$63.50	$82.60	$101.70	X X H H H H H D Y
Make up day allowed		2/12/2014				
Subdivision of county	All Great Lakes, islands therein, & connecting & tributary waters					

Classification Name / Description		Last Updated	Straight Hourly	Time and a Half	Double Time	Overtime Provision
Friction, Lattice Boom or Crane License Certification	GLF-2B		$64.50	$84.10	$103.70	X X H H H H H D Y
Holiday pay = $123.30						
Make up day allowed		2/12/2014				
Subdivision of county	All Great Lakes, islands, therein, & connecting & tributary waters					
Deck Equipment Operator, Machineryman, Maintenance of Crane (over 50 ton capacity) or Backhoe (115,000 lbs or more), Tug/Launch Operator, Loader, Dozer on Barge, Deck Machinery	GLF-3		$59.30	$76.30	$93.30	X X H H H H H D Y
Holiday pay = $110.30 per hour, wages &						
Make up day allowed		2/12/2014				
Subdivision of county	All Great Lakes, islands therein, & connecting & tributary waters					
Deck Equipment Operator, (Machineryman/Fireman), (4 equipment units or more), Off Road Trucks, Deck Hand, Tug Engineer, & Crane Maintenance 50 ton capacity and under or Backhoe 115,000 lbs or less, Assistant Tug Operator	GLF-4		$53.60	$67.75	$81.90	X X H H H H H D Y
Holiday pay = $96.05 per hour, wages & fringes						
Make up day allowed		2/12/2014				
Subdivision of county	All Great Lakes, islands therein, & connecting & tributary waters					
Operating Engineer General Construction & Underground						
Crane 120' boom & jib	EN-324UP-120GU		$51.45	$65.86	$80.26	X X H H H H H D N
comment		5/24/2016				
Double time after 12 hours Mon-Sat						
Crane 140' boom & jib	EN-324UP-140GU		$51.70	$66.23	$80.76	X X H H H H H D N
comment		5/24/2016				
Double time after 12 hours Mon-Sat						
Crane with 400' or longer main boom & jib	EN-324UP-400GU		$54.40	$70.28	$86.17	X X H H H H H D N
comment		5/24/2016				
Double time after 12 hours Mon-Sat						

Classification Name / Description		Last Updated	Straight Hourly	Time and a Half	Double Time	Overtime Provision
Class A- Regular equipment operator, crane, dozer, front end loader, pumpcrete, squeeze crete, job mechanic, welder, concrete pump, excavator, milling & pulverizing machines, & scraper (self-propelled & tractor drawn).	EN-324UP-AGU		$50.95	$65.11	$79.26	X X H H H H H D N
comment		5/24/2016				
Double time after 12 hours Mon-Sat						
	Apprentice Rates:					
	1st 6 months		$40.71	$50.62	$60.53	
	2nd 6 months		$42.12	$52.74	$63.35	
	3rd 6 months		$43.54	$54.87	$66.19	
	4th 6 months		$44.96	$57.00	$69.03	
	5th 6 months		$46.37	$59.11	$71.85	
	6th 6 months		$47.79	$61.24	$74.69	
Class B- Air-Trac Drill, boom truck (non-swing), concrete mixers, material hoist and tugger, pumps 6" and over, beltcrete, sweeping machine, trencher, head grease man, winches, well points and freeze systems	EN-324UP-BGU		$47.70	$60.23	$72.76	X X H H H H H D N
comment		5/24/2016				
Double time after 12 hours Mon-Sat						
Class C- Fork Truck, air compressor, conveyer, concrete saw, farm tractor(without attachments), generator, guard post driver, mulching machines, pumps under 6", welding machines,	EN-324UP-CGU		$47.12	$59.36	$71.60	X X H H H H H D N
comment		5/24/2016				
Double time after 12 hours Mon-Sat						
Class D- Oiler, fireman, heater operator, brock concrete breaker, elevators (other than passenger), end dump & skid steer	EN-324UP-DGU		$46.18	$57.95	$69.72	X X H H H H H D N
comment		5/24/2016				
Double time after 12 hours Mon-Sat						
Crane 220' boom & jib	EN-324UP-GU		$51.95	$66.61	$81.26	X X H H H H H D N
comment		5/24/2016				
Double time after 12 hours Mon-Sat						

Classification Name / Description		Last Updated	Straight Hourly	Time and Half	a Double Time	Overtime Provision
Mechanic w/ truck & tools	EN-324UP-MGU		$52.45	$67.36	$82.26	X X H H H H H D N
comment		5/24/2016				
Double time after 12 hours Mon-Sat						
Operating Engineer Steel Work						
Crane 120' boom & jib	EN-324UP-120S		$51.85	$66.46	$81.06	X X H H H H H D Y
comment		5/24/2016				
Double time after 12 hours Mon-Sat						
Crane 140' boom & jib	EN-324UP-140S		$52.10	$66.83	$81.56	X X H H H H H D Y
comment		7/8/2015				
Double time after 12 hours Mon-Sat						
Crane 220' boom & jib	EN-324UP-220S		$52.35	$67.21	$82.06	X X H H H H H D Y
comment		5/24/2016				
Double time after 12 hours Mon-Sat						
Crane with 300' boom & jib	EN-324UP-300S		$54.07	$69.79	$85.50	X X H H H H H D Y
Make up day allowed comment		5/24/2016				
Double time after 12 hours Mon-Sat						
Crane with 400' boom & jib	EN-324UP-400S		$55.79	$72.37	$88.95	X X H H H H H D Y
Make up day allowed comment		5/24/2016				
Double time after 12 hours Mon-Sat						
Compressor, Welder & Forklift	EN-324UP-CWS		$48.10	$60.83	$73.56	X X H H H H H D Y
comment		5/24/2016				
Double time after 12 hours Mon-Sat						
Mechanic w/ truck & tools	EN-324UP-MS		$52.85	$67.96	$83.06	X X H H H H H D Y
comment		5/24/2016				
Double time after 12 hours Mon-Sat						
Oiler & Fireman	EN-324UP-OFS		$46.80	$58.88	$70.96	X X H H H H H D Y
comment		5/24/2016				
Double time after 12 hours Mon-Sat						

Classification Name / Description		Last Updated	Straight Hourly	Time and a Half	Double Time	Overtime Provision
Operator	EN-324UP-OS		$51.35	$65.71	$80.06	X X H H H H H D Y
comment		5/24/2016				
Double time after 12 hours Mon-Sat						
	Apprentice Rates:					
	1st 6 months		$40.99	$51.04	$61.09	
	2nd 6 months		$42.26	$52.95	$63.63	
	3rd 6 months		$43.87	$55.36	$66.85	
	4th 6 months		$45.29	$57.49	$69.69	
	5th 6 months		$46.73	$59.65	$72.57	
	6th 6 months		$48.17	$61.81	$75.45	
Painter						
Painter	PT-1011		$31.25	$41.01	$50.76	H H H H H H H D N
		7/17/2015				
	Apprentice Rates:					
	1st 1000 hours		$23.45	$29.30	$35.16	
	2nd 1000 hours		$24.42	$30.76	$37.10	
	3rd 1000 hours		$25.40	$32.23	$39.06	
	4th 1000 hours		$26.37	$33.68	$41.00	
	5th 1000 hours		$27.35	$35.16	$42.96	
	6th 1000 hours		$28.32	$36.61	$44.90	
	7th 1000 hours		$29.30	$38.08	$46.86	
	8th 1000 hours		$30.27	$39.54	$48.80	

Classification Name / Description		Last Updated	Straight Hourly	Time and a Half	Double Time	Overtime Provision
Bridge Painter (under 30 feet)	PT-1011B	8/28/2015	$35.89	$47.97	$60.04	H H H H H H H D N
Apprentice Rates:						
1st 1,000 hours			$26.23	$33.48	$40.72	
2nd 1,000 hours			$27.44	$35.29	$43.14	
3rd 1,000 hours			$28.64	$37.09	$45.54	
4th 1,000 hours			$29.85	$38.90	$47.96	
5th 1,000 hours			$31.06	$40.72	$50.38	
6th 1,000 hours			$32.27	$42.54	$52.80	
7th 1,000 hours			$33.48	$44.35	$55.22	
8th 1,000 hours			$34.68	$46.15	$57.62	
Drywall Finisher, Soundproofing, & Plural Component Applicator	PT-1011-DF	7/17/2015	$37.67	$50.64	$63.60	H H H H H H H D N
Apprentice Rates:						
2nd 1,000 hours			$28.59	$37.02	$45.44	
3rd 1,000 hours			$29.89	$38.96	$48.04	
4th 1,000 hours			$31.19	$40.92	$50.64	
5th 1,000 hours			$32.48	$42.85	$53.22	
6th 1,000 hours			$33.78	$44.80	$55.82	
7th 1,000 hours			$35.08	$46.75	$58.42	
8th 1,000 hours			$36.37	$48.68	$61.00	
Pipe and Manhole Rehab						
General Laborer for rehab work or normal cleaning and cctv work-top man, scaffold man, CCTV assistant, jetter-vac assistant	TM247	4/17/2015	$28.20	$38.20		H H H H H H H H N
Tap cutter/CCTV Tech/Grout Equipment Operator: unit driver and operator of CCTV; grouting equipment and tap cutting equipment	TM247-2	4/17/2015	$32.70	$44.95		H H H H H H H H N

Classification Name / Description		Last Updated	Straight Hourly	Time and Half	a Double Time	Overtime Provision
CCTV Technician/Combo Unit Operator: unit driver and operator of cctv unit or combo unit in connection with normal cleaning and televising work	TM247-3	4/17/2015	$31.45	$43.07		H H H H H H H H N
Boiler Operator: unit driver and operator of steam/water heater units and all ancillary equipment associated	TM247-4	4/17/2015	$33.20	$45.70		H H H H H H H H N
Combo Unit driver & Jetter-Vac Operator	TM247-5	4/17/2015	$33.20	$45.70		H H H H H H H H N
Pipe Bursting & Slip-lining Equipment Operator	TM247-6	4/17/2015	$34.20	$47.20		H H H H H H H H N
Plasterer						
Plasterer	PL16UP	10/23/2012	$38.71	$51.63	$64.54	H H H H H H H D N
Apprentice Rates:						
1st year			$29.67	$38.06	$46.46	
2nd year			$32.25	$41.94	$51.62	
3rd year			$34.84	$45.82	$56.80	

Classification Name	Description		Last Updated	Straight Hourly	Time and a Half	Double Time	Overtime Provision
Plumber & Pipefitter							
Plumber & Pipefitter		PL-111		$47.61	$71.42	$95.22	H H H H H H H D Y
4 ten hour days may be worked only Monday-Thursday							
Make up day allowed			7/30/2009				
	Apprentice Rates:						
	1st 6 months			$23.96	$35.94	$47.92	
	2nd 6 months			$25.44	$38.16	$50.88	
	3rd 6 months			$35.32	$52.98	$70.64	
	4th 6 months			$36.65	$54.98	$73.30	
	5th 6 months			$37.99	$56.98	$75.98	
	6th 6 months			$39.47	$59.20	$78.94	
	7th 6 months			$40.80	$61.20	$81.60	
	8th 6 months			$42.13	$63.20	$84.26	
	9th 6 months			$43.46	$65.19	$86.92	
Roofer							
Commercial Roofer		RO-149-UP		$28.23	$36.56	$44.88	X X X X X X X D Y
Make up day allowed			4/17/2015				
	Apprentice Rates:						
	Apprentice 1			$20.84	$25.96	$31.08	
	Apprentice 2			$21.67	$27.17	$32.67	
	Apprentice 3			$22.48	$28.37	$34.26	
	Apprentice 4			$23.29	$29.56	$35.82	
	Apprentice 5			$24.09	$30.72	$37.36	
	Apprentice 6			$24.90	$31.91	$38.93	
Sewer Relining							
Class I-Operator of audio visual CCTV system including remote in-ground cutter and other equipment used in conjunction with CCTV		SR-I		$43.66	$59.01	$74.36	H H H H H H H D N
			11/24/2015				

Classification Name / Description		Last Updated	Straight Hourly	Time and a Half	Double Time	Overtime Provision
Class II-Operator of hot water heaters and circulation system; water jetters; and vacuum and mechanical debris removal systems and those assisting.	SR-II	11/24/2015	$42.13	$56.72	$71.30	H H H H H H D N

Sheet Metal Worker

Sheet Metal Worker 4 10s allowed as consecutive days, M-Th	shm-7-5		$51.59	$65.60	$79.60	H H H H D D D Y
Make up day allowed comment Friday		11/5/2015				
Apprentice Rates:						
1st 6 months			$27.84	$34.14	$40.44	
2nd 6 months			$29.88	$36.88	$43.88	
3rd 6 months			$31.93	$39.64	$47.34	
4th 6 months			$33.96	$42.37	$50.77	
5th 6 months			$36.01	$45.12	$54.22	
6th 6 months			$38.05	$47.86	$57.66	
7th 6 months			$40.09	$50.60	$61.10	
8th 6 months			$42.13	$53.34	$64.54	

Classification Name	Description		Last Updated	Straight Hourly	Time and Half	a Double Time	Overtime Provision
Sprinkler Fitter							
Sprinkler Fitter		SP 669		$51.64	$68.45	$85.26	H H H H H H H D Y
Make up day allowed			6/24/2016				
	Apprentice Rates:						
	Class 1			$23.03	$30.60	$38.16	
	Class 2			$24.71	$33.12	$41.52	
	Class 3			$34.01	$43.26	$52.50	
	Class 4			$35.69	$45.78	$55.86	
	Class 5			$37.62	$48.55	$59.47	
	Class 6			$39.30	$51.07	$62.83	
	Class 8			$42.67	$56.12	$69.57	
	Class 9			$44.35	$58.64	$72.93	
	Class 10			$46.03	$61.16	$76.29	
	Class 7			$40.99	$53.60	$66.21	
Truck Driver							
of all trucks of 8 cubic yd capacity or over		TM-RB2		$44.10	$48.81		H H H H H H H H Y
			6/7/2016				
of all trucks of 8 cubic yard capacity or less (except dump trucks of 8 cubic yard capacity or over, tandem axle trucks, transit mix and semis, euclid type equipment, double bottoms and low boys)		TM-RB2A		$44.00	$48.66		H H H H H H H H Y
			6/7/2016				
on euclid type equipment		TM-RB2B		$44.25	$49.04		H H H H H H H H Y
			6/7/2016				

Classification Name / Description		Last Updated	Straight Hourly	Time and a Half	Double Time	Overtime Provision
Underground Laborer Open Cut, Class I						
Construction Laborer	LAUC-Z5-1	10/30/2014	$32.75	$42.68	$52.61	X X X X X X X D Y
	Apprentice Rates:					
	0-1,000 work hours		$28.35	$36.08	$43.81	
	1,001-2,000 work hours		$29.23	$37.40	$45.57	
	2,001-3,000 work hours		$30.11	$38.72	$47.33	
	3,001-4,000 work hours		$31.87	$41.36	$50.85	
Underground Laborer Open Cut, Class II						
Mortar and material mixer, concrete form man, signal man, well point man, manhole, headwall and catch basin builder, guard rail builders, headwall, seawall, breakwall, dock builder and fence erector.	LAUC-Z5-2	10/30/2014	$32.89	$42.89	$52.89	X X X X X X X D Y
	Apprentice Rates:					
	0-1,000 work hours		$28.46	$36.25	$44.03	
	1,001-2,000 work hours		$29.34	$37.57	$45.79	
	2,001-3,000 work hours		$30.23	$38.90	$47.57	
	3,001-4,000 work hours		$32.00	$41.56	$51.11	
Underground Laborer Open Cut, Class III						
Air, gasoline and electric tool operator, vibrator operator, drillers, pump man, tar kettle operator, bracers, rodder, reinforced steel or mesh man (e.g. wire mesh, steel mats, dowel bars, etc.), cement finisher, welder, pipe jacking and boring man, wagon drill and air track operator and concrete saw operator (under 40 h.p.), windlass and tugger man, and directional boring man.	LAUC-Z5-3	10/30/2014	$33.02	$43.09	$53.15	X X X X X X X D Y
	Apprentice Rates:					
	0-1,000 work hours		$28.56	$36.40	$44.23	
	1,001-2,000 work hours		$29.45	$37.74	$46.01	
	2,001-3,000 work hours		$30.34	$39.07	$47.79	
	3,001-4,000 work hours		$32.13	$41.76	$51.37	

Classification Name	Description		Last Updated	Straight Hourly	Time and Half	a Double Time	Overtime Provision
Underground Laborer Open Cut, Class IV							
Trench or excavating grade man.		LAUC-Z5-4	10/30/2014	$33.07	$43.16	$53.25	X X X X X X X D Y
	Apprentice Rates:						
	0-1,000 work hours			$28.59	$36.44	$44.29	
	1,001-2,000 work hours			$29.49	$37.80	$46.09	
	2,001-3,000 work hours			$30.38	$39.13	$47.87	
	3,001-4,000 work hours			$32.17	$41.82	$51.45	
Underground Laborer Open Cut, Class V							
Pipe Layer		LAUC-Z5-5	10/30/2014	$33.12	$43.24	$53.35	X X X X X X X D Y
	Apprentice Rates:						
	0-1,000 work hours			$28.63	$36.50	$44.37	
	1,001-2,000 work hours			$29.53	$37.86	$46.17	
	2,001-3,000 work hours			$30.43	$39.20	$47.97	
	3,001-4,000 work hours			$32.22	$41.89	$51.55	
Underground Laborer Open Cut, Class VI							
Grouting man, top man assistant, audio visual television operations and all other operations in connection with closed circuit television inspection, pipe cleaning and pipe relining work & the installation and repair of water service pipe and appurtenances.		LAUC-Z5-6	10/30/2014	$30.50	$39.31	$48.11	X X X X X X X D Y
	Apprentice Rates:						
	0-1,000 work hours			$26.66	$33.55	$40.43	
	1,001-2,000 work hours			$27.43	$34.70	$41.97	
	2,001-3,000 work hours			$28.20	$35.86	$43.51	
	3,001-4,000 work hours			$29.73	$38.16	$46.57	

Classification Name	Description	Last Updated	Straight Hourly	Time and Half	a Double Time	Overtime Provision
Underground Laborer Open Cut, Class VII						
Restoration laborer, seeding, sodding, planting, cutting, mulching and topsoil grading and the restoration of property such as replacing mail boxes, wood chips, planter boxes, flagstones etc.	LAUC-Z5-7	10/30/2014	$28.61	$36.47	$44.33	X X X X X X X D Y
	Apprentice Rates:					
	0-1,000 work hours		$25.25	$31.44	$37.61	
	1,001-2,000 work hours		$25.92	$32.44	$38.95	
	2,001-3,000 work hours		$26.59	$33.44	$40.29	
	3,001-4,000 work hours		$27.94	$35.47	$42.99	

ATTACHMENT D

ANSWERS TO QUESTIONS

ATTACHMENT D

ANSWERS TO QUESTIONS

Q: Can you send us a copy of the pre bid meeting sign in sheet?

A: Yes, refer to Attachment A.

Q: What is the deadline for questions?

A: The deadline for questions is Wednesday October 19, 2016 at 5:00 pm EDT.

Q: When do you expect the lab results to be completed? Will you send these out prior to the bid opening?

A: The results have been received, tabulated, and are provided in Attachment D. Note that the CHLL-WC02-0-6 sample was collected as a composite of the material from the visible drum spilled contents and/or surrounding soils. The data does not represent individual container contents. Based on the results, the Contractor will be required to sample individual containers and/or spilled contents for disposal acceptance.

Q: Will the bid opening be extended?

A: Yes, refer to the Addendum No. 1 text.

Q: When is this work expected to take place?

A: The work shall take place in the spring of 2017 once the seasonal frost law restrictions have been removed, at a time mutually agreeable to the Contractor and MDEQ.

Q: How deep is the maximum depth of the test pitting?

A: The anticipated maximum depth of test pitting is 6-feet below the existing ground surface. The furthest drum from shore on the lake bottom is assumed to be no more than 8-feet from the bank.

Q: Can you provide us with a copy of the prevailing wages for this project?

A: Yes, refer to Attachment C.

Q: Is a sediment curtain required? If so how long and what type?

A: Yes. Given the possibility of wind and waves, a Type 2 silt curtain is required. The proposed work area is approximately 180 feet in length plus additional length will be needed to curve the ends back in to shore.

Q: What is required for equipment decontamination?

A: The Contractor shall decontaminate and power wash their tools and equipment at the Site to remove adhered contaminated material and stamp sands/tailings/slag so that no material leaves the Site on tools or equipment or is left upon the clean soil cap. Decontamination shall be performed in such a manner that solid material removed from equipment is deposited back in the excavation area and not left on the clean soil cap. Decontamination water that is free of detergents or other cleaning additives may be applied to the ground surface at the Site.

Q: Can we cut down trees that are in the way?

A: Yes, trees may be cut off if necessary, leaving stumps in the ground. Replanting is not required. The Contractor shall remove as few trees as possible.

Q: Can we drive through the storm water basin?

A: No. Koppers' storm water basin shall be protected from damage.

Q: Instead of the entrance we used for the Pre-Bid Meeting walkover, can we use as an alternate access route through the Koppers truck entrance and make a temporary opening in the fence to get to the work area?

A: Yes. Given the shorter distance across the EPA Superfund cap to the work area, Contractors will be required to use this route for access. Koppers requires the temporary fence opening to be secured at the end of each work day and the fence to be fully restored to existing or better conditions at the completion of the work. It is imperative that the Kopper's facility remain secure. The existing requirement to repair any damage from traversing the EPA Superfund cap remains.

Q: Do we need to use wood stakes for the mulch blankets?

A: Yes.

Q: Where is the nearest boat launch?

A: The nearest boat launch is at the park in Hubbell where we held the Pre-Bid Meeting prior to driving to the respective site locations for walkovers. There is also a larger boat launch in Lake Linden.

Q: What pay item is the re-packaging of containers to be included in?

A: Per the scope of work, it is part of removal and disposal of each container, which are Work Items 6 through 9.

Q: How many 55 gallon drums, 85 gallon overpacks, or roll off containers are we required to provide?

A: Contractors should plan to drum or overpack each intact container or area of container contents (if the remains are just a carcass with spilled contents) that are removed from the work area. It is recommended that Contractors be prepared with at least five 55-gallon steel DOT drums and five 85-gallon overpack drums.

ATTACHMENT E

ANALYSIS SUMMARY TABLES AND LAB REPORT

TABLE 1
Sample Analytical Summary - Waste Characterization
Abandoned Minig Wastes - Torch Lake Non-Superfund Site

Station Name		CHLL-WC02	Hazardous Waste Toxicity Value
Field Sample ID		CHLL-WC02-0-6 TCLP	
Lab Sample ID		1609985-03 1609985-04	
Sample Date		9/12/2016	
Chemical Name	Unit	Result	
TCLP Inorganics - Metals			
ARSENIC	mg/l	< 0.05 U	5.0
BARIUM	mg/l	4.8	100.0
CADMIUM	mg/l	0.16	1.0
CHROMIUM	mg/l	< 0.05 U	5.0
COPPER	mg/l	120	--
LEAD	mg/l	78	5.0
MERCURY	mg/l	< 0.002 U	0.2
SELENIUM	mg/l	< 0.05 U	1.0
SILVER	mg/l	< 0.05 U	5.0
ZINC	mg/l	30	--
TCLP Organics - Pesticides			
gamma-BHC (Lindane)	ug/l	< 0.05 U	400
Chlordane, Technical	ug/l	< 2.5 U	30
Endrin	ug/l	< 0.1 U	20
Heptachlor	ug/l	< 0.05 U	8.00
Heptachlor epoxide	ug/l	< 0.05 U	8.00
Methoxychlor	ug/l	< 0.2 U	10,000
Toxaphene	ug/l	< 10 U	500
TCLP Organics - Herbicides			
2,4,5-TP (Silvex)	ug/l	< 5 U	1,000
2,4-D	ug/l	< 5 U	10,000
TCLP Organics - SVOCs			
m-Cresol	ug/l	< 100 U	200,000
o-Cresol	ug/l	< 100 U	200,000
p-Cresol	ug/l	< 100 U	200,000
2,4-DINITROTOLUENE	ug/l	< 100 U	130
HEXACHLORO-1,3-BUTADIENE	ug/l	< 100 U	500
HEXACHLOROBENZENE	ug/l	< 100 U	130
HEXACHLOROETHANE (SVOC)	ug/l	< 100 U	3,000
NITROBENZENE	ug/l	< 100 U	2,000
PENTACHLOROPHENOL	ug/l	< 100 U	100,000
PYRIDINE	ug/l	< 200 U	5,000
2,4,5-TRICHLOROPHENOL	ug/l	< 100 U	400,000
2,4,6-TRICHLOROPHENOL	ug/l	< 100 U	2,000
TCLP Organics - VOCs			
BENZENE	ug/l	< 20 U	500
2-BUTANONE (MEK)	ug/l	< 100 U	200,000
CARBON TETRACHLORIDE	ug/l	< 20 U	500
CHLOROBENZENE	ug/l	< 20 U	100,000
CHLOROFORM	ug/l	< 20 U	6,000
1,1-DICHLOROETHYLENE	ug/l	< 20 U	700
1,2-DICHLOROETHANE	ug/l	< 20 U	500
1,4-DICHLOROBENZENE	ug/l	< 100 U	7,500
TETRACHLOROETHYLENE	ug/l	< 20 U	700
TRICHLOROETHYLENE	ug/l	< 20 U	500
VINYL CHLORIDE	ug/l	< 20 U	200
Other - Waste Characteristics			
PERCENT MOISTURE	%	20	--
pH	s.u.	7.2	--
FLASHPOINT/IGNITABILITY	Deg F	>200	--
FREE LIQUIDS	--	Absent	--
CYANIDE, REACTIVE	mg/kg-dry	<120 U	--
SULFIDE, REACTIVE	mg/kg-dry	< 120 U	---

Notes:

Hazardous Waste Toxicity Screening values from Title 40 of the *Code of Federal Regulations* , Chapter 1, Section 261.20-24

-- = No value listed
% = Percent
ID = Identification
J = The concentration is an approximate value
mg/L = Milligram per liter
SVOC = Semi-volatile organic compound
TCLP = Toxicity Charateristic Leaching Procedure
U = Analyte analyzed for but not detected above reported sample
ug/L = microgram per liter

TABLE 2
Sample Analytical Summary - Waste Material
Abandoned Minig Wastes - Torch Lake Non-Superfund Site

		Station Name	CHLL-WC02	Residential Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Residential Particulate Soil Inhalation Criteria	Residential Direct Contact Criteria	Nonresidential Drinking Water Protection Criteria	Nonresidential Particulate Soil Inhalation Criteria	Nonresidential Direct Contact Criteria
		Field Sample ID	CHLL-WC02-0-6							
		Lab Sample ID	1609985-04							
		Sample Date	9/12/2016							
Chemical Name	Units		Result							
Inorganics - Metals (Totals)										
ARSENIC	mg/kg		150	4.6	4.6	720	7.6	4.6	910	37
BARIUM	mg/kg		850	1,300 (G)	130	330,000	37,000	1,300	150,000	130,000
CADMIUM	mg/kg		54	6.0	1.6 (G,X)	1,700	550	6.0	2,200	2,100
CHROMIUM	mg/kg		130	1,000,000 (D,H)	1,200,000 (G,H,X)	330,000 (H)	790,000 (H)	1,000,000 (D,H)	150,000 (H)	1,000,000 (D,H)
COPPER	mg/kg		29,000	5,800	32 (G)	130,000	20,000	5,800	59,000	73,000
LEAD	mg/kg		8,600	700	1,900 (G,X)	100,000	400	700	44,000	900 (DD)
MERCURY	mg/kg		0.97	1.7 (Z)	0.13 (B, Z)	20000 (Z)	160 (Z)	1.7 (Z)	8800 (Z)	580 (Z)
ZINC	mg/kg		4,100	2,400	62 (G)	ID	170,000	5,000	ID	630,000
Organics - Pesticides (Totals)										
PESTICIDES WERE ALL NON-DETECT			--	--	--	--	--	--	--	--
Organics - Herbicides (Totals)										
2,4,5-TP (Silvex)	ug/kg		7.8	3,600	2,200	ID	1,700,000	3,600	ID	5,500,000
Organics - SVOCs (Totals)										
ANTHRACENE	ug/kg		280	41,000	ID	6.7E+10	2.3E+08	41,000	2.9E+10	7.3E+08
BENZO(A)PYRENE	ug/kg		640	NLL	NLL	1,500,000 (Q)	2,000 (Q)	NLL	1,900,000 (Q)	8,000 (Q)
BENZO(B)FLUORANTHENE	ug/kg		1200	NLL	NLL	ID	20,000 (Q)	NLL	ID	80,000 (Q)
BENZO(G,H,I)PERYLENE	ug/kg		360	NLL	NLL	8E+08 (Q)	2,500,000 (Q)	NLL	3.5E+08	7,000,000 (Q)
BENZO(K)FLUORANTHENE	ug/kg		440	NLL	NLL	ID	200,000 (Q)	NLL	ID	800,000 (Q)
CHRYSENE	ug/kg		640	NLL	NLL	ID	2,000,000 (Q)	NLL	ID	8,000,000 (Q)
DI-N-BUTYLPHTHALATE	ug/kg		700	960,000 (C)	11,000	3.3E+09	2.7E+07 (C)	2,700,000 (C)	1.5E+09	8.7E+07 (C)
FLUORANTHENE	ug/kg		1400	730,000	5,500	9.3E+09	4.6E+07	730,000	4.1E+09	1.3E+08
INDENO(1,2,3-CD)PYRENE	ug/kg		440	NLL	NLL	ID	20,000	NLL	ID	80,000
PHENANTHRENE	ug/kg		860	56,000	2,100	6,700,000	1,600,000	160,000	2,900,000	5,200,000
PYRENE	ug/kg		1100	480,000	ID	6.7E+09	2.9E+07	480,000	2.9E+09	8.4E+07
Organics - VOCs (Totals)										
2-METHYLNAPHTHALENE (VOC)	ug/kg		130	57,000	4,200	6.70E+08	8,100,000	170,000	2.9E+08	2.6E+07
METHYLENE CHLORIDE	ug/kg		130	100	30,000 (X)	6.60E+09	1.30E+06	100	8.30E+09	5.8E+06 (C)
NAPHTHALENE (VOC)	ug/kg		110	35,000	730	2E+08	1.6E+07	100,000	8.8E+07	5.2E+07
TETRACHLOROETHYLENE	ug/kg		< 30 U	100	1,200 (X)	2.70E+09	2.0E+05 (C)	100	1.20E+09	9.3E+05 (C)
TOLUENE	ug/kg		38	16,000 (I)	5,400 (I)	2.7E+10 (I)	5E+07 (C,I)	16,000 (I)	1.2E+10 (I)	1.6E+08 (C,I)
Organics - PCBs (Totals)										
AROCLOR-1254	ug/kg		1800	NA	NA	NA	NA	NA	NA	NA
Total PCBs (J,T)	ug/kg		1,800	NLL	NLL	5,200,000 (J)	1,000 (J,T)	NLL	6,500,000 (J)	1,000 (J,T)

Note: Analytical and Criteria Footnotes are included on the last page of the table.

TABLE 2
Sample Analytical Summary - Waste Material
Abandoned Minig Wastes - Torch Lake Non-Superfund Site

Table Footnotes:

- MDEQ Part 201 residential and non-residential generic cleanup criteria and screening levels criteria were originally 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. This table reflects revisions to the criteria pursuant to the December 2010 Part 201 amendments and new criteria consistent with the provisions of R299.5706a.Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Release Date: December 30, 2013.

- Only detected analytes are listed - Gray rows indicate requested analyses. If no analytes are listed below a gray row then all analytes of that group were either not analyzed or not detected. ND indicates that one or more analyte of that goup was tested and not detected and a -- indicates not analyzed.

- **Bold** values are concentrations detected above the laboratory reporting limit.

- **Shaded values indicate analyte concentration exceed applicable criteria. Color presented is the criteria with the highest value that was exceeded:**

Residential Drinking Water Protection Criteria
Groundwater Surface Water Interface Protection Criteria
Residential Particulate Soil Inhalation Criteria
Residential Direct Contact Criteria
Nonresidential Drinking Water Protection Criteria
Nonresidential Particulate Soil Inhalation Criteria
Nonresidential Direct Contact Criteria

-- = Not analyzed/Not Reported
bgs = Below ground surface
mg/kg = Milligrams per kilogram.
PCBs = Polychlorinated biphenyls
SVOC = Semi-volatile organic compound
ug/kg = Micrograms per kilogram
VOC = Volatile organic compound

Criteria Footnotes

ID = Insufficient data to develop criterion.
NA = A criterion or value is not available
NLL = Hazardous substance is not likely to leach under most soil conditions.
NLV = Hazardous substance is not likely to volatilize under most conditions.
(B) = Background, as defined in R 299.1(b), may be substituted if higher than the calculated cleanup criterion. Background levels may be less than criteria for some inorganic compounds.

(C) = The criterion developed under R 299.20 to R 299.26 exceeds the chemical- specific soil saturation screening level (Csat). The person proposing or implementing response activity shall document whether additional response activity is required to control free-phase liquids or NAPL to protect against risks associated with free-phase liquids by using methods appropriate for the free-phase liquids present. Development of a site-specific Csat or methods presented in R 299.22, R 299.24(5), and R 299.26(8) may be conducted for the relevant exposure pathways.

(D) = Calculated criterion exceeds 100 percent, hence it is reduced to 100 percent or 1.0E+9 parts per billion (ppb).
(DD) = Hazardous substance causes developmental effects. Residential direct contact criteria are protective of both prenatal and postnatal exposure. Nonresidential direct contact criteria are protective for a pregnant adult receptor.

(G) = Groundwater surface water interface (GSI) criterion depends on the pH or water hardness, or both, of the receiving surface water. The final chronic value (FCV) for the protection of aquatic life shall be calculated based on the pH or hardness of the receiving surface water. Where water hardness exceeds 400 mg CaCO3/L, use 400 mg CaCO3/L for the FCV calculation. The FCV formula provides values in units of ug/L or ppb. The generic GSI criterion is the lesser of the calculated FCV, the wildlife value (WV), and the surface water human non-drinking water value (HNDV). The soil GSI protection criteria for these hazardous substances are the greater of the 20 times the GSI criterion or the GSI soil-water partition values using the GSI criteria developed with the procedure described in this footnote. A spreadsheet that may be used to calculate GSI and GSI protection criteria for (G)-footnoted hazardous substances is available on the Department of Environmental Quality (DEQ) internet web site.

(H) = Valence-specific chromium data (Cr III and Cr VI) shall be compared to the corresponding valence-specific cleanup criteria. If both Cr III and Cr VI are present in groundwater, the total concentration of both cannot exceed the drinking water criterion of 100 ug/L. If analytical data are provided for total chromium only, they shall be compared to the cleanup criteria for Cr VI. Cr III soil cleanup criterion for protection of drinking water can only be used at sites where groundwater is prevented from being used as a public water supply, currently and in the future, through an approved land or resource use restriction.

(I) = Hazardous substance may exhibit the characteristic of ignitability as defined in 40 C.F.R. §261.21 (revised as of July 1, 2001), which is adopted by reference in these rules and is available for inspection at the DEQ, 525 West Allegan Street, Lansing, Michigan. Copies of the regulation may be purchased, at a cost as of the time of adoption of these rules of $45, from the Superintendent of documents, Government Printing Office, Washington, DC 20401 (stock number 869-044-00155-1), or from the DEQ, Remediation and Redevelopment Division (RRD), 525 West Allegan Street, Lansing, Michigan 48933, at cost.

(J) = Hazardous substance may be present in several isomer forms. Isomer-specific concentrations shall be added together for comparison to criteria.
(Q) = Criteria for carcinogenic polycyclic aromatic hydrocarbons were developed using relative potential potencies to benzo(a)pyrene.

(T) = Refer to the federal Toxic Substances Control Act (TSCA), 40 C.F.R. §761, Subpart D and 40 C.F.R. §761, Subpart G, to determine the applicability of TSCA cleanup standards. Subpart D and Subpart G of 40 C.F.R. §761 (July 1, 2001) are adopted by reference in these rules and are available for inspection at the DEQ, 525 West Allegan Street, Lansing, Michigan. Copies of the regulations may be purchased, at a cost as of the time of adoption of these rules of $55, from the Superintendent of Documents, Government Printing Office, Washington, DC 20401, or from the DEQ, RRD, 525 West Allegan Street, Lansing, Michigan 48933, at cost. Alternatives to compliance with the TSCA standards listed below are possible under 40 C.F.R. §761 Subpart D. New releases may be subject to the standards identified in 40 C.F.R. §761, Subpart G. Use Part 201 soil direct contact cleanup criteria in the published table if TSCA standards are not applicable.

(X) = The GSI criterion shown in the generic cleanup criteria tables is not protective for surface water that is used as a drinking water source. (See R 299.49 Footnotes for generic cleanup criteria tables for additional information.)

(Z) = Mercury is typically measured as total mercury. The generic cleanup criteria, however, are based on data for different species of mercury. Specifically, data for elemental mercury, chemical abstract service (CAS) number 7439976, serve as the basis for the soil volatilization to indoor air criteria, groundwater volatilization to indoor air, and soil inhalation criteria. Data for methyl mercury, CAS number 22967926, serve as the basis for the GSI criterion; and data for mercuric chloride, CAS number 7487947, serve as the basis for the drinking water, groundwater contact, soil direct contact, and the groundwater protection criteria. Comparison to criteria shall be based on species-specific analytical data only if sufficient facility characterization has been conducted to rule out the presence of other species of mercury.

Laboratory Footnotes

J = Estimated result
ND = Not detected
U = Analyte analyzed for but not detected above the reported sample reporting limit.

28-Sep-2016

Amy Keranen
Michigan Dept.of Environmental Quality
3350 N. Martin Luther King Jr. Blvd.
Building #44, 3rd Floor
Lansing, MI 48906

Re: **Abandoned Mining Wastes - Torch Lake** Work Order: **1609985**

Dear Amy,

ALS Environmental received 4 samples on 17-Sep-2016 08:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

Sample results are compliant with NELAP standard requirements and QC results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is .

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Alex Csaszar

Electronically approved by: Alex Csaszar

Alex Csaszar
Project Manager

Certificate No: MI: 0022

Report of Laboratory Analysis

ALS Group USA, Corp

Date: 28-Sep-16

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake
Work Order: **1609985**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1609985-01	CHTC-WC01-0-6 TCLP	Tclp Extract		9/10/2016 14:28	9/17/2016 08:00	☐
1609985-02	CHTC-WC01-0-6	Waste		9/10/2016 14:28	9/17/2016 08:00	☐
1609985-03	CHLL-WC02-0-6 TCLP	Tclp Extract		9/12/2016 13:54	9/17/2016 08:00	☐
1609985-04	CHLL-WC02-0-6	Waste		9/12/2016 13:54	9/17/2016 08:00	☐

Client:	Michigan Dept.of Environmental Quality
Project:	Abandoned Mining Wastes - Torch Lake
Work Order:	1609985

Case Narrative

Samples for the above noted Work Order were received on 09/17/2016. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting.

With the following exceptions, all sample analyses achieved analytical criteria.

Volatile Organics:

Batch 91663, Method VOC_8260_S, Sample 1609985-02B: This sample ran at dilution due to an extremely foamy matrix.

Batch 91663, Method VOC_8260_S, Sample LCS-91663: The LCS recoveries were above the upper control limits for 1,2-Dibromoethane and Methyl iodide. All sample results in the batch were non-detect. No qualification is necessary for these analytes.

Extractable Organics:

Batch 91791, Method PEST_8081_S, Sample 1609985-04A: The reporting limit is elevated due to dilution needed to eliminate matrix-related interference for this analyte: Pesticides - Sample required dilution due to the yellow color of the sample extract.

Batch 91791, Method PEST_8081_S, Sample 1609985-04A: The reporting limit is elevated due to dilution needed to eliminate matrix-related interference for this analyte.

Metals:

No other deviations or anomalies were noted.

Wet Chemistry:

No other deviations or anomalies were noted.

Client:	Michigan Dept.of Environmental Quality
Project:	Abandoned Mining Wastes - Torch Lake
WorkOrder:	**1609985**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte is present at an estimated concentration between the MDL and Report Limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
% of sample	Percent of Sample
°F	Degrees Fahrenheit
µg/Kg	Micrograms per Kilogram
µg/Kg-dry	Micrograms per Kilogram Dry Weight
µg/L	Micrograms per Liter
mg/Kg	Milligrams per Kilogram
mg/Kg-dry	Milligrams per Kilogram Dry Weight
mg/L	Milligrams per Liter

none

s.u. Standard Units

ALS Group USA, Corp

Date: *28-Sep-16*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake
Work Order: 1609985
Sample ID: CHTC-WC01-0-6 TCLP
Lab ID: 1609985-01
Collection Date: 9/10/2016 02:28 PM
Matrix: TCLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
TCLP HERBICIDES			**SW8151**		Prep: SW8151M / 9/22/16	Analyst: **KYM**
2,4,5-TP (Silvex)	ND		5.0	µg/L	1	9/22/2016 08:32 PM
2,4-D	ND		5.0	µg/L	1	9/22/2016 08:32 PM
Surr: DCAA	*30.8*		*30-150*	*%REC*	1	9/22/2016 08:32 PM
TCLP PESTICIDES			**SW8081**			Analyst: **BLM**
Chlordane, Technical	ND		12	µg/L	5	9/23/2016 11:59 PM
Endrin	ND		0.50	µg/L	5	9/23/2016 11:59 PM
gamma-BHC (Lindane)	ND		0.25	µg/L	5	9/23/2016 11:59 PM
Heptachlor	ND		0.25	µg/L	5	9/23/2016 11:59 PM
Heptachlor epoxide	ND		0.25	µg/L	5	9/23/2016 11:59 PM
Methoxychlor	ND		1.0	µg/L	5	9/23/2016 11:59 PM
Toxaphene	ND		50	µg/L	5	9/23/2016 11:59 PM
Surr: Decachlorobiphenyl	*55.0*		*42-119*	*%REC*	5	9/23/2016 11:59 PM
Surr: Tetrachloro-m-xylene	*75.0*		*32-104*	*%REC*	5	9/23/2016 11:59 PM
TCLP MERCURY BY CVAA			**SW7470A**		Prep: SW7470 / 9/21/16	Analyst: **LR**
Mercury	ND		0.0020	mg/L	1	9/21/2016 08:41 PM
TCLP METALS ANALYSIS BY ICP-MS			**SW6020A**		Prep: SW3005A / 9/22/16	Analyst: **ML**
Arsenic	ND		0.050	mg/L	1	9/23/2016 02:47 AM
Barium	**0.085**		**0.050**	**mg/L**	1	9/23/2016 02:47 AM
Cadmium	ND		0.0020	mg/L	1	9/23/2016 02:47 AM
Chromium	ND		0.050	mg/L	1	9/23/2016 02:47 AM
Copper	**0.24**		**0.050**	**mg/L**	1	9/23/2016 02:47 AM
Lead	**0.077**		**0.050**	**mg/L**	1	9/23/2016 02:47 AM
Selenium	ND		0.050	mg/L	1	9/23/2016 02:47 AM
Silver	ND		0.050	mg/L	1	9/23/2016 02:47 AM
Zinc	ND		0.10	mg/L	1	9/23/2016 02:47 AM
TCLP SEMI-VOLATILE ORGANICS			**SW8270D**		Prep: SW3510 / 9/21/16	Analyst: **RM**
1,4-Dichlorobenzene	ND		100	µg/L	1	9/23/2016 06:24 AM
2,4,5-Trichlorophenol	ND		100	µg/L	1	9/23/2016 06:24 AM
2,4,6-Trichlorophenol	ND		100	µg/L	1	9/23/2016 06:24 AM
2,4-Dinitrotoluene	ND		100	µg/L	1	9/23/2016 06:24 AM
Hexachloro-1,3-butadiene	ND		100	µg/L	1	9/23/2016 06:24 AM
Hexachlorobenzene	ND		100	µg/L	1	9/23/2016 06:24 AM
Hexachloroethane	ND		100	µg/L	1	9/23/2016 06:24 AM
m-Cresol	ND		100	µg/L	1	9/23/2016 06:24 AM
Nitrobenzene	ND		100	µg/L	1	9/23/2016 06:24 AM
o-Cresol	ND		100	µg/L	1	9/23/2016 06:24 AM
p-Cresol	ND		100	µg/L	1	9/23/2016 06:24 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake **Work Order:** 1609985
Sample ID: CHTC-WC01-0-6 TCLP **Lab ID:** 1609985-01
Collection Date: 9/10/2016 02:28 PM **Matrix:** TCLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Pentachlorophenol	ND		100	µg/L	1	9/23/2016 06:24 AM
Pyridine	ND		200	µg/L	1	9/23/2016 06:24 AM
Surr: 2,4,6-Tribromophenol	*76.5*		*38-115*	*%REC*	1	9/23/2016 06:24 AM
Surr: 2-Fluorobiphenyl	*68.0*		*32-100*	*%REC*	1	9/23/2016 06:24 AM
Surr: 2-Fluorophenol	*35.9*		*22-59*	*%REC*	1	9/23/2016 06:24 AM
Surr: 4-Terphenyl-d14	*69.1*		*23-112*	*%REC*	1	9/23/2016 06:24 AM
Surr: Nitrobenzene-d5	*57.4*		*31-93*	*%REC*	1	9/23/2016 06:24 AM
Surr: Phenol-d6	*22.5*		*13-36*	*%REC*	1	9/23/2016 06:24 AM
TCLP VOLATILE ORGANICS			**SW8260B**		Leachate: SW1311 / 9/20/16	Analyst: **AK**
1,1-Dichloroethene	ND		20	µg/L	20	9/21/2016 07:11 PM
1,2-Dichloroethane	ND		20	µg/L	20	9/21/2016 07:11 PM
2-Butanone	ND		100	µg/L	20	9/21/2016 07:11 PM
Benzene	**39**		**20**	**µg/L**	20	9/21/2016 07:11 PM
Carbon tetrachloride	ND		20	µg/L	20	9/21/2016 07:11 PM
Chlorobenzene	ND		20	µg/L	20	9/21/2016 07:11 PM
Chloroform	ND		20	µg/L	20	9/21/2016 07:11 PM
Tetrachloroethene	ND		20	µg/L	20	9/21/2016 07:11 PM
Trichloroethene	ND		20	µg/L	20	9/21/2016 07:11 PM
Vinyl chloride	ND		20	µg/L	20	9/21/2016 07:11 PM
Surr: 1,2-Dichloroethane-d4	*96.4*		*70-130*	*%REC*	20	9/21/2016 07:11 PM
Surr: 4-Bromofluorobenzene	*94.0*		*70-130*	*%REC*	20	9/21/2016 07:11 PM
Surr: Dibromofluoromethane	*90.2*		*70-130*	*%REC*	20	9/21/2016 07:11 PM
Surr: Toluene-d8	*97.1*		*70-130*	*%REC*	20	9/21/2016 07:11 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *28-Sep-16*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake
Work Order: 1609985
Sample ID: CHTC-WC01-0-6
Lab ID: 1609985-02
Collection Date: 9/10/2016 02:28 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
HERBICIDES			**SW8151**		Prep: SW8151M / 9/19/16	Analyst: **KYM**
2,4,5-T	ND		2.0	µg/Kg-dry	1	9/22/2016 07:06 AM
2,4,5-TP (Silvex)	ND		2.0	µg/Kg-dry	1	9/22/2016 07:06 AM
2,4-D	ND		2.0	µg/Kg-dry	1	9/22/2016 07:06 AM
Surr: DCAA	*27.6*		*10-150*	*%REC*	1	9/22/2016 07:06 AM
PCBS			**SW8082**			Analyst: **EB**
Aroclor 1016	ND		1.3	mg/Kg-dry	1	9/27/2016 01:56 AM
Aroclor 1221	ND		1.3	mg/Kg-dry	1	9/27/2016 01:56 AM
Aroclor 1232	ND		1.3	mg/Kg-dry	1	9/27/2016 01:56 AM
Aroclor 1242	ND		1.3	mg/Kg-dry	1	9/27/2016 01:56 AM
Aroclor 1248	ND		1.3	mg/Kg-dry	1	9/27/2016 01:56 AM
Aroclor 1254	ND		1.3	mg/Kg-dry	1	9/27/2016 01:56 AM
Aroclor 1260	ND		1.3	mg/Kg-dry	1	9/27/2016 01:56 AM
Surr: Decachlorobiphenyl	*126*		*40-140*	*%REC*	1	9/27/2016 01:56 AM
Surr: Tetrachloro-m-xylene	*134*		*40-140*	*%REC*	1	9/27/2016 01:56 AM
PESTICIDES			**SW8081**		Prep: SW3580 / 9/27/16	Analyst: **BLM**
4,4´-DDD	ND		13	µg/Kg-dry	1	9/27/2016 02:07 PM
4,4´-DDE	ND		13	µg/Kg-dry	1	9/27/2016 02:07 PM
4,4´-DDT	ND		13	µg/Kg-dry	1	9/27/2016 02:07 PM
Aldrin	ND		13	µg/Kg-dry	1	9/27/2016 02:07 PM
alpha-BHC	ND		13	µg/Kg-dry	1	9/27/2016 02:07 PM
alpha-Chlordane	ND		13	µg/Kg-dry	1	9/27/2016 02:07 PM
beta-BHC	ND		13	µg/Kg-dry	1	9/27/2016 02:07 PM
Chlordane, Technical	ND		33	µg/Kg-dry	1	9/27/2016 02:07 PM
delta-BHC	ND		13	µg/Kg-dry	1	9/27/2016 02:07 PM
Dieldrin	ND		13	µg/Kg-dry	1	9/27/2016 02:07 PM
Endosulfan I	ND		13	µg/Kg-dry	1	9/27/2016 02:07 PM
Endosulfan II	ND		13	µg/Kg-dry	1	9/27/2016 02:07 PM
Endosulfan sulfate	ND		13	µg/Kg-dry	1	9/27/2016 02:07 PM
Endrin	ND		13	µg/Kg-dry	1	9/27/2016 02:07 PM
Endrin aldehyde	ND		13	µg/Kg-dry	1	9/27/2016 02:07 PM
Endrin ketone	ND		13	µg/Kg-dry	1	9/27/2016 02:07 PM
gamma-BHC (Lindane)	ND		13	µg/Kg-dry	1	9/27/2016 02:07 PM
gamma-Chlordane	ND		13	µg/Kg-dry	1	9/27/2016 02:07 PM
Heptachlor	ND		13	µg/Kg-dry	1	9/27/2016 02:07 PM
Heptachlor epoxide	ND		13	µg/Kg-dry	1	9/27/2016 02:07 PM
Methoxychlor	ND		13	µg/Kg-dry	1	9/27/2016 02:07 PM
Toxaphene	ND		78	µg/Kg-dry	1	9/27/2016 02:07 PM
Surr: Decachlorobiphenyl	*96.0*		*30-145*	*%REC*	1	9/27/2016 02:07 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *28-Sep-16*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake
Work Order: 1609985
Sample ID: CHTC-WC01-0-6
Lab ID: 1609985-02
Collection Date: 9/10/2016 02:28 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: Tetrachloro-m-xylene	*78.0*		*25-140*	*%REC*	1	9/27/2016 02:07 PM
MERCURY BY CVAA			**SW7471B**		Prep: SW7471 / 9/25/16	Analyst: **LR**
Mercury	ND		0.021	mg/Kg-dry	1	9/25/2016 10:54 PM
METALS BY ICP-MS			**SW6020A**		Prep: SW3050B / 9/23/16	Analyst: **ML**
Arsenic	ND		5.1	mg/Kg-dry	10	9/23/2016 10:46 PM
Barium	**19**		**5.1**	**mg/Kg-dry**	10	9/23/2016 10:46 PM
Cadmium	ND		2.1	mg/Kg-dry	10	9/23/2016 10:46 PM
Chromium	ND		5.1	mg/Kg-dry	10	9/23/2016 10:46 PM
Lead	ND		5.1	mg/Kg-dry	10	9/23/2016 10:46 PM
Selenium	ND		5.1	mg/Kg-dry	10	9/23/2016 10:46 PM
Silver	ND		5.1	mg/Kg-dry	10	9/23/2016 10:46 PM
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**		Prep: SW3580 / 9/23/16	Analyst: **RS**
1,1`-Biphenyl	ND		100	mg/Kg	10	9/25/2016 03:34 PM
2,2`-Oxybis(1-chloropropane)	ND		100	mg/Kg	10	9/25/2016 03:34 PM
2,4,5-Trichlorophenol	ND		100	mg/Kg	10	9/25/2016 03:34 PM
2,4,6-Trichlorophenol	ND		100	mg/Kg	10	9/25/2016 03:34 PM
2,4-Dichlorophenol	ND		100	mg/Kg	10	9/25/2016 03:34 PM
2,4-Dimethylphenol	ND		100	mg/Kg	10	9/25/2016 03:34 PM
2,4-Dinitrophenol	ND		100	mg/Kg	10	9/25/2016 03:34 PM
2,4-Dinitrotoluene	ND		100	mg/Kg	10	9/25/2016 03:34 PM
2,6-Dichlorophenol	ND		100	mg/Kg	10	9/25/2016 03:34 PM
2-Chloronaphthalene	ND		10	mg/Kg	10	9/25/2016 03:34 PM
2-Chlorophenol	ND		100	mg/Kg	10	9/25/2016 03:34 PM
2-Methylnaphthalene	ND		10	mg/Kg	10	9/25/2016 03:34 PM
2-Methylphenol	ND		100	mg/Kg	10	9/25/2016 03:34 PM
2-Nitroaniline	ND		100	mg/Kg	10	9/25/2016 03:34 PM
2-Nitrophenol	ND		100	mg/Kg	10	9/25/2016 03:34 PM
3&4-Methylphenol	ND		100	mg/Kg	10	9/25/2016 03:34 PM
3,3´-Dichlorobenzidine	ND		500	mg/Kg	10	9/25/2016 03:34 PM
3-Nitroaniline	ND		100	mg/Kg	10	9/25/2016 03:34 PM
4,6-Dinitro-2-methylphenol	ND		100	mg/Kg	10	9/25/2016 03:34 PM
4-Bromophenyl phenyl ether	ND		100	mg/Kg	10	9/25/2016 03:34 PM
4-Chloro-3-methylphenol	ND		100	mg/Kg	10	9/25/2016 03:34 PM
4-Chloroaniline	ND		100	mg/Kg	10	9/25/2016 03:34 PM
4-Chlorophenyl phenyl ether	ND		100	mg/Kg	10	9/25/2016 03:34 PM
4-Nitroaniline	ND		100	mg/Kg	10	9/25/2016 03:34 PM
4-Nitrophenol	ND		500	mg/Kg	10	9/25/2016 03:34 PM
Acenaphthene	ND		10	mg/Kg	10	9/25/2016 03:34 PM
Acenaphthylene	ND		10	mg/Kg	10	9/25/2016 03:34 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake **Work Order:** 1609985
Sample ID: CHTC-WC01-0-6 **Lab ID:** 1609985-02
Collection Date: 9/10/2016 02:28 PM **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Acetophenone	ND		100	mg/Kg	10	9/25/2016 03:34 PM
Anthracene	ND		10	mg/Kg	10	9/25/2016 03:34 PM
Atrazine	ND		100	mg/Kg	10	9/25/2016 03:34 PM
Benzaldehyde	ND		100	mg/Kg	10	9/25/2016 03:34 PM
Benzo(a)anthracene	ND		10	mg/Kg	10	9/25/2016 03:34 PM
Benzo(a)pyrene	ND		10	mg/Kg	10	9/25/2016 03:34 PM
Benzo(b)fluoranthene	ND		10	mg/Kg	10	9/25/2016 03:34 PM
Benzo(g,h,i)perylene	ND		10	mg/Kg	10	9/25/2016 03:34 PM
Benzo(k)fluoranthene	ND		10	mg/Kg	10	9/25/2016 03:34 PM
Bis(2-chloroethoxy)methane	ND		100	mg/Kg	10	9/25/2016 03:34 PM
Bis(2-chloroethyl)ether	ND		100	mg/Kg	10	9/25/2016 03:34 PM
Bis(2-ethylhexyl)phthalate	ND		100	mg/Kg	10	9/25/2016 03:34 PM
Butyl benzyl phthalate	ND		100	mg/Kg	10	9/25/2016 03:34 PM
Caprolactam	ND		500	mg/Kg	10	9/25/2016 03:34 PM
Carbazole	ND		100	mg/Kg	10	9/25/2016 03:34 PM
Chrysene	ND		10	mg/Kg	10	9/25/2016 03:34 PM
Dibenzo(a,h)anthracene	ND		10	mg/Kg	10	9/25/2016 03:34 PM
Dibenzofuran	ND		100	mg/Kg	10	9/25/2016 03:34 PM
Diethyl phthalate	ND		100	mg/Kg	10	9/25/2016 03:34 PM
Dimethyl phthalate	ND		100	mg/Kg	10	9/25/2016 03:34 PM
Di-n-butyl phthalate	**48,000**		**2,500**	**mg/Kg**	250	9/25/2016 04:01 PM
Di-n-octyl phthalate	ND		100	mg/Kg	10	9/25/2016 03:34 PM
Fluoranthene	ND		10	mg/Kg	10	9/25/2016 03:34 PM
Fluorene	ND		10	mg/Kg	10	9/25/2016 03:34 PM
Hexachlorobenzene	ND		100	mg/Kg	10	9/25/2016 03:34 PM
Hexachlorobutadiene	ND		100	mg/Kg	10	9/25/2016 03:34 PM
Hexachlorocyclopentadiene	ND		100	mg/Kg	10	9/25/2016 03:34 PM
Hexachloroethane	ND		100	mg/Kg	10	9/25/2016 03:34 PM
Indeno(1,2,3-cd)pyrene	ND		100	mg/Kg	10	9/25/2016 03:34 PM
Isophorone	ND		100	mg/Kg	10	9/25/2016 03:34 PM
Naphthalene	ND		10	mg/Kg	10	9/25/2016 03:34 PM
Nitrobenzene	ND		100	mg/Kg	10	9/25/2016 03:34 PM
N-Nitrosodimethylamine	ND		100	mg/Kg	10	9/25/2016 03:34 PM
N-Nitrosodi-n-propylamine	ND		100	mg/Kg	10	9/25/2016 03:34 PM
Pentachlorophenol	ND		500	mg/Kg	10	9/25/2016 03:34 PM
Phenanthrene	ND		10	mg/Kg	10	9/25/2016 03:34 PM
Phenol	ND		100	mg/Kg	10	9/25/2016 03:34 PM
Pyrene	ND		10	mg/Kg	10	9/25/2016 03:34 PM
Surr: 2,4,6-Tribromophenol	*0*		*38-115*	*%REC*	10	9/25/2016 03:34 PM
Surr: 2-Fluorobiphenyl	*0*		*32-100*	*%REC*	10	9/25/2016 03:34 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake **Work Order:** 1609985
Sample ID: CHTC-WC01-0-6 **Lab ID:** 1609985-02
Collection Date: 9/10/2016 02:28 PM **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	*0*		*22-59*	*%REC*	10	9/25/2016 03:34 PM
Surr: 4-Terphenyl-d14	*0*		*23-112*	*%REC*	10	9/25/2016 03:34 PM
Surr: Nitrobenzene-d5	*0*		*31-93*	*%REC*	10	9/25/2016 03:34 PM
Surr: Phenol-d6	*0*		*13-36*	*%REC*	10	9/25/2016 03:34 PM
VOLATILE ORGANIC COMPOUNDS			**SW8260B**		Prep: SW5035 / 9/20/16	Analyst: **LSY**
1,1,1,2-Tetrachloroethane	ND		9,500	µg/Kg	100	9/25/2016 01:13 AM
1,1,1-Trichloroethane	ND		9,500	µg/Kg	100	9/25/2016 01:13 AM
1,1,2,2-Tetrachloroethane	ND		9,500	µg/Kg	100	9/25/2016 01:13 AM
1,1,2-Trichloroethane	ND		9,500	µg/Kg	100	9/25/2016 01:13 AM
1,1,2-Trichlorotrifluoroethane	ND		9,500	µg/Kg	100	9/25/2016 01:13 AM
1,1-Dichloroethane	ND		9,500	µg/Kg	100	9/25/2016 01:13 AM
1,1-Dichloroethene	ND		9,500	µg/Kg	100	9/25/2016 01:13 AM
1,2,3-Trichloropropane	ND		9,500	µg/Kg	100	9/25/2016 01:13 AM
1,2,4-Trichlorobenzene	ND		9,500	µg/Kg	100	9/25/2016 01:13 AM
1,2,4-Trimethylbenzene	ND		9,500	µg/Kg	100	9/25/2016 01:13 AM
1,2-Dibromo-3-chloropropane	ND		9,500	µg/Kg	100	9/25/2016 01:13 AM
1,2-Dibromoethane	ND		9,500	µg/Kg	100	9/25/2016 01:13 AM
1,2-Dichlorobenzene	ND		9,500	µg/Kg	100	9/25/2016 01:13 AM
1,2-Dichloroethane	ND		9,500	µg/Kg	100	9/25/2016 01:13 AM
1,2-Dichloropropane	ND		9,500	µg/Kg	100	9/25/2016 01:13 AM
1,3,5-Trimethylbenzene	ND		9,500	µg/Kg	100	9/25/2016 01:13 AM
1,3-Dichlorobenzene	ND		9,500	µg/Kg	100	9/25/2016 01:13 AM
1,4-Dichlorobenzene	ND		9,500	µg/Kg	100	9/25/2016 01:13 AM
2-Butanone	ND		63,000	µg/Kg	100	9/25/2016 01:13 AM
2-Hexanone	ND		9,500	µg/Kg	100	9/25/2016 01:13 AM
2-Methylnaphthalene	ND		32,000	µg/Kg	100	9/25/2016 01:13 AM
4-Methyl-2-pentanone	ND		9,500	µg/Kg	100	9/25/2016 01:13 AM
Acetone	ND		32,000	µg/Kg	100	9/25/2016 01:13 AM
Acrylonitrile	ND		32,000	µg/Kg	100	9/25/2016 01:13 AM
Benzene	ND		9,500	µg/Kg	100	9/25/2016 01:13 AM
Bromochloromethane	ND		9,500	µg/Kg	100	9/25/2016 01:13 AM
Bromodichloromethane	ND		9,500	µg/Kg	100	9/25/2016 01:13 AM
Bromoform	ND		9,500	µg/Kg	100	9/25/2016 01:13 AM
Bromomethane	ND		24,000	µg/Kg	100	9/25/2016 01:13 AM
Carbon disulfide	ND		9,500	µg/Kg	100	9/25/2016 01:13 AM
Carbon tetrachloride	ND		9,500	µg/Kg	100	9/25/2016 01:13 AM
Chlorobenzene	ND		9,500	µg/Kg	100	9/25/2016 01:13 AM
Chloroethane	ND		32,000	µg/Kg	100	9/25/2016 01:13 AM
Chloroform	ND		9,500	µg/Kg	100	9/25/2016 01:13 AM
Chloromethane	ND		32,000	µg/Kg	100	9/25/2016 01:13 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake **Work Order:** 1609985
Sample ID: CHTC-WC01-0-6 **Lab ID:** 1609985-02
Collection Date: 9/10/2016 02:28 PM **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
cis-1,2-Dichloroethene	ND		9,500	µg/Kg	100	9/25/2016 01:13 AM
cis-1,3-Dichloropropene	ND		9,500	µg/Kg	100	9/25/2016 01:13 AM
Dibromochloromethane	ND		9,500	µg/Kg	100	9/25/2016 01:13 AM
Dibromomethane	ND		9,500	µg/Kg	100	9/25/2016 01:13 AM
Dichlorodifluoromethane	ND		9,500	µg/Kg	100	9/25/2016 01:13 AM
Diethyl ether	ND		9,500	µg/Kg	100	9/25/2016 01:13 AM
Ethylbenzene	ND		9,500	µg/Kg	100	9/25/2016 01:13 AM
Hexachloroethane	ND		32,000	µg/Kg	100	9/25/2016 01:13 AM
Isopropylbenzene	ND		9,500	µg/Kg	100	9/25/2016 01:13 AM
m,p-Xylene	ND		19,000	µg/Kg	100	9/25/2016 01:13 AM
Methyl iodide	ND		24,000	µg/Kg	100	9/25/2016 01:13 AM
Methyl tert-butyl ether	ND		9,500	µg/Kg	100	9/25/2016 01:13 AM
Methylene chloride	ND		9,500	µg/Kg	100	9/25/2016 01:13 AM
Naphthalene	ND		32,000	µg/Kg	100	9/25/2016 01:13 AM
n-Propylbenzene	ND		9,500	µg/Kg	100	9/25/2016 01:13 AM
o-Xylene	ND		9,500	µg/Kg	100	9/25/2016 01:13 AM
Styrene	ND		9,500	µg/Kg	100	9/25/2016 01:13 AM
Tetrachloroethene	**27,000**		**9,500**	**µg/Kg**	100	9/25/2016 01:13 AM
Toluene	ND		9,500	µg/Kg	100	9/25/2016 01:13 AM
trans-1,2-Dichloroethene	ND		9,500	µg/Kg	100	9/25/2016 01:13 AM
trans-1,3-Dichloropropene	ND		9,500	µg/Kg	100	9/25/2016 01:13 AM
trans-1,4-Dichloro-2-butene	ND		9,500	µg/Kg	100	9/25/2016 01:13 AM
Trichloroethene	ND		9,500	µg/Kg	100	9/25/2016 01:13 AM
Trichlorofluoromethane	ND		9,500	µg/Kg	100	9/25/2016 01:13 AM
Vinyl acetate	ND		79,000	µg/Kg	100	9/25/2016 01:13 AM
Vinyl chloride	ND		9,500	µg/Kg	100	9/25/2016 01:13 AM
Xylenes, Total	ND		28,000	µg/Kg	100	9/25/2016 01:13 AM
Surr: 1,2-Dichloroethane-d4	*100*		*70-130*	*%REC*	100	9/25/2016 01:13 AM
Surr: 4-Bromofluorobenzene	*97.0*		*70-130*	*%REC*	100	9/25/2016 01:13 AM
Surr: Dibromofluoromethane	*95.2*		*70-130*	*%REC*	100	9/25/2016 01:13 AM
Surr: Toluene-d8	*99.8*		*70-130*	*%REC*	100	9/25/2016 01:13 AM
CYANIDE, REACTIVE			**SW7.3.3.2**			Analyst: **EE**
Cyanide, Reactive	ND		130	mg/Kg-dry	1	9/23/2016 01:00 PM
FLASHPOINT/IGNITABILITY ANALYSIS			**SW1010A**			Analyst: **STP**
Flashpoint/Ignitability	**>200**			**°F**	1	9/20/2016 10:47 AM
PAINT FILTER (FREE LIQUIDS)			**SW9095B**			Analyst: **KF**
Free Liquids	**Absent**			**none**	1	9/20/2016 10:34 AM
MOISTURE			**SW3550C**			Analyst: **LW**

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *28-Sep-16*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake
Work Order: 1609985
Sample ID: CHTC-WC01-0-6
Lab ID: 1609985-02
Collection Date: 9/10/2016 02:28 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Moisture	**24**		**0.050**	**% of sample**	1	9/22/2016 01:50 PM
PH			**SW9045D**		Prep: EXTRACT / 9/17/16	Analyst: **EDL**
pH	**3.0**			**s.u.**	1	9/17/2016 03:30 PM
SULFIDE, REACTIVE			**SW7.3.4.2**			Analyst: **EE**
Sulfide, Reactive	ND		130	mg/Kg-dry	1	9/23/2016 01:00 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake
Work Order: 1609985
Sample ID: CHLL-WC02-0-6 TCLP
Lab ID: 1609985-03
Collection Date: 9/12/2016 01:54 PM
Matrix: TCLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
TCLP HERBICIDES			**SW8151**		Prep: SW8151M / 9/22/16	Analyst: **KYM**
2,4,5-TP (Silvex)	ND		5.0	µg/L	1	9/22/2016 08:51 PM
2,4-D	ND		5.0	µg/L	1	9/22/2016 08:51 PM
Surr: DCAA	*30.8*		*30-150*	*%REC*	1	9/22/2016 08:51 PM
TCLP PESTICIDES			**SW8081**			Analyst: **BLM**
Chlordane, Technical	ND		2.5	µg/L	1	9/24/2016 12:35 AM
Endrin	ND		0.10	µg/L	1	9/24/2016 12:35 AM
gamma-BHC (Lindane)	ND		0.050	µg/L	1	9/24/2016 12:35 AM
Heptachlor	ND		0.050	µg/L	1	9/24/2016 12:35 AM
Heptachlor epoxide	ND		0.050	µg/L	1	9/24/2016 12:35 AM
Methoxychlor	ND		0.20	µg/L	1	9/24/2016 12:35 AM
Toxaphene	ND		10	µg/L	1	9/24/2016 12:35 AM
Surr: Decachlorobiphenyl	*68.0*		*42-119*	*%REC*	1	9/24/2016 12:35 AM
Surr: Tetrachloro-m-xylene	*55.0*		*32-104*	*%REC*	1	9/24/2016 12:35 AM
TCLP MERCURY BY CVAA			**SW7470A**		Prep: SW7470 / 9/21/16	Analyst: **LR**
Mercury	ND		0.0020	mg/L	1	9/21/2016 08:44 PM
TCLP METALS ANALYSIS BY ICP-MS			**SW6020A**		Prep: SW3005A / 9/22/16	Analyst: **ML**
Arsenic	ND		0.050	mg/L	1	9/23/2016 02:53 AM
Barium	**4.8**		**0.050**	**mg/L**	1	9/23/2016 02:53 AM
Cadmium	**0.16**		**0.0020**	**mg/L**	1	9/23/2016 02:53 AM
Chromium	ND		0.050	mg/L	1	9/23/2016 02:53 AM
Copper	**120**		**0.50**	**mg/L**	10	9/23/2016 11:52 AM
Lead	**78**	*	**0.50**	**mg/L**	10	9/23/2016 11:52 AM
Selenium	ND		0.050	mg/L	1	9/23/2016 02:53 AM
Silver	ND		0.050	mg/L	1	9/23/2016 02:53 AM
Zinc	**30**		**1.0**	**mg/L**	10	9/23/2016 11:52 AM
TCLP SEMI-VOLATILE ORGANICS			**SW8270D**		Prep: SW3510 / 9/21/16	Analyst: **RM**
1,4-Dichlorobenzene	ND		100	µg/L	1	9/23/2016 06:44 AM
2,4,5-Trichlorophenol	ND		100	µg/L	1	9/23/2016 06:44 AM
2,4,6-Trichlorophenol	ND		100	µg/L	1	9/23/2016 06:44 AM
2,4-Dinitrotoluene	ND		100	µg/L	1	9/23/2016 06:44 AM
Hexachloro-1,3-butadiene	ND		100	µg/L	1	9/23/2016 06:44 AM
Hexachlorobenzene	ND		100	µg/L	1	9/23/2016 06:44 AM
Hexachloroethane	ND		100	µg/L	1	9/23/2016 06:44 AM
m-Cresol	ND		100	µg/L	1	9/23/2016 06:44 AM
Nitrobenzene	ND		100	µg/L	1	9/23/2016 06:44 AM
o-Cresol	ND		100	µg/L	1	9/23/2016 06:44 AM
p-Cresol	ND		100	µg/L	1	9/23/2016 06:44 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake
Work Order: 1609985
Sample ID: CHLL-WC02-0-6 TCLP
Lab ID: 1609985-03
Collection Date: 9/12/2016 01:54 PM
Matrix: TCLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Pentachlorophenol	ND		100	µg/L	1	9/23/2016 06:44 AM
Pyridine	ND		200	µg/L	1	9/23/2016 06:44 AM
Surr: 2,4,6-Tribromophenol	*76.6*		*38-115*	*%REC*	1	9/23/2016 06:44 AM
Surr: 2-Fluorobiphenyl	*65.6*		*32-100*	*%REC*	1	9/23/2016 06:44 AM
Surr: 2-Fluorophenol	*40.4*		*22-59*	*%REC*	1	9/23/2016 06:44 AM
Surr: 4-Terphenyl-d14	*75.5*		*23-112*	*%REC*	1	9/23/2016 06:44 AM
Surr: Nitrobenzene-d5	*60.1*		*31-93*	*%REC*	1	9/23/2016 06:44 AM
Surr: Phenol-d6	*23.7*		*13-36*	*%REC*	1	9/23/2016 06:44 AM
TCLP VOLATILE ORGANICS			**SW8260B**		Leachate: SW1311 / 9/20/16	Analyst: **AK**
1,1-Dichloroethene	ND		20	µg/L	20	9/21/2016 07:37 PM
1,2-Dichloroethane	ND		20	µg/L	20	9/21/2016 07:37 PM
2-Butanone	ND		100	µg/L	20	9/21/2016 07:37 PM
Benzene	ND		20	µg/L	20	9/21/2016 07:37 PM
Carbon tetrachloride	ND		20	µg/L	20	9/21/2016 07:37 PM
Chlorobenzene	ND		20	µg/L	20	9/21/2016 07:37 PM
Chloroform	ND		20	µg/L	20	9/21/2016 07:37 PM
Tetrachloroethene	ND		20	µg/L	20	9/21/2016 07:37 PM
Trichloroethene	ND		20	µg/L	20	9/21/2016 07:37 PM
Vinyl chloride	ND		20	µg/L	20	9/21/2016 07:37 PM
Surr: 1,2-Dichloroethane-d4	*95.6*		*70-130*	*%REC*	20	9/21/2016 07:37 PM
Surr: 4-Bromofluorobenzene	*96.6*		*70-130*	*%REC*	20	9/21/2016 07:37 PM
Surr: Dibromofluoromethane	*92.0*		*70-130*	*%REC*	20	9/21/2016 07:37 PM
Surr: Toluene-d8	*97.8*		*70-130*	*%REC*	20	9/21/2016 07:37 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *28-Sep-16*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake
Work Order: 1609985
Sample ID: CHLL-WC02-0-6
Lab ID: 1609985-04
Collection Date: 9/12/2016 01:54 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
HERBICIDES			**SW8151**		Prep: SW8151M / 9/19/16	Analyst: **KYM**
2,4,5-T	ND		1.2	µg/Kg-dry	1	9/22/2016 07:25 AM
2,4,5-TP (Silvex)	**7.8**		**1.2**	**µg/Kg-dry**	1	9/22/2016 07:25 AM
2,4-D	ND		1.2	µg/Kg-dry	1	9/22/2016 07:25 AM
Surr: DCAA	*34.4*		*10-150*	*%REC*	1	9/22/2016 07:25 AM
PCBS			**SW8082**		Prep: SW3546 / 9/26/16	Analyst: **EB**
Aroclor 1016	ND		110	µg/Kg-dry	1	9/26/2016 11:00 PM
Aroclor 1221	ND		110	µg/Kg-dry	1	9/26/2016 11:00 PM
Aroclor 1232	ND		110	µg/Kg-dry	1	9/26/2016 11:00 PM
Aroclor 1242	ND		110	µg/Kg-dry	1	9/26/2016 11:00 PM
Aroclor 1248	ND		110	µg/Kg-dry	1	9/26/2016 11:00 PM
Aroclor 1254	**1,800**		**110**	**µg/Kg-dry**	1	9/26/2016 11:00 PM
Aroclor 1260	ND		110	µg/Kg-dry	1	9/26/2016 11:00 PM
Surr: Decachlorobiphenyl	*75.1*		*40-140*	*%REC*	1	9/26/2016 11:00 PM
Surr: Tetrachloro-m-xylene	*79.1*		*45-124*	*%REC*	1	9/26/2016 11:00 PM
PESTICIDES			**SW8081**		Prep: SW3546 / 9/22/16	Analyst: **BLM**
4,4´-DDD	ND		150	µg/Kg-dry	10	9/25/2016 11:55 PM
4,4´-DDE	ND		150	µg/Kg-dry	10	9/25/2016 11:55 PM
4,4´-DDT	ND		150	µg/Kg-dry	10	9/25/2016 11:55 PM
Aldrin	ND		150	µg/Kg-dry	10	9/25/2016 11:55 PM
alpha-BHC	ND		150	µg/Kg-dry	10	9/25/2016 11:55 PM
alpha-Chlordane	ND		150	µg/Kg-dry	10	9/25/2016 11:55 PM
beta-BHC	ND		150	µg/Kg-dry	10	9/25/2016 11:55 PM
Chlordane, Technical	ND		370	µg/Kg-dry	10	9/25/2016 11:55 PM
delta-BHC	ND		150	µg/Kg-dry	10	9/25/2016 11:55 PM
Dieldrin	ND		150	µg/Kg-dry	10	9/25/2016 11:55 PM
Endosulfan I	ND		150	µg/Kg-dry	10	9/25/2016 11:55 PM
Endosulfan II	ND		150	µg/Kg-dry	10	9/25/2016 11:55 PM
Endosulfan sulfate	ND		150	µg/Kg-dry	10	9/25/2016 11:55 PM
Endrin	ND		150	µg/Kg-dry	10	9/25/2016 11:55 PM
Endrin aldehyde	ND		150	µg/Kg-dry	10	9/25/2016 11:55 PM
Endrin ketone	ND		150	µg/Kg-dry	10	9/25/2016 11:55 PM
gamma-BHC (Lindane)	ND		150	µg/Kg-dry	10	9/25/2016 11:55 PM
gamma-Chlordane	ND		150	µg/Kg-dry	10	9/25/2016 11:55 PM
Heptachlor	ND		150	µg/Kg-dry	10	9/25/2016 11:55 PM
Heptachlor epoxide	ND		150	µg/Kg-dry	10	9/25/2016 11:55 PM
Methoxychlor	ND		150	µg/Kg-dry	10	9/25/2016 11:55 PM
Toxaphene	ND		890	µg/Kg-dry	10	9/25/2016 11:55 PM
Surr: Decachlorobiphenyl	*100*		*45-135*	*%REC*	10	9/25/2016 11:55 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake
Work Order: 1609985
Sample ID: CHLL-WC02-0-6
Lab ID: 1609985-04
Collection Date: 9/12/2016 01:54 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: Tetrachloro-m-xylene	*90.1*		*45-124*	*%REC*	10	9/25/2016 11:55 PM
MERCURY BY CVAA			**SW7471B**		Prep: SW7471 / 9/25/16	Analyst: **LR**
Mercury	**0.97**		**0.21**	**mg/Kg-dry**	10	9/27/2016 10:25 AM
METALS BY ICP-MS			**SW6020A**		Prep: SW3050B / 9/23/16	Analyst: **ML**
Arsenic	**150**		**41**	**mg/Kg-dry**	100	9/23/2016 10:53 PM
Barium	**850**		**41**	**mg/Kg-dry**	100	9/23/2016 10:53 PM
Cadmium	**54**		**17**	**mg/Kg-dry**	100	9/23/2016 10:53 PM
Chromium	**130**		**41**	**mg/Kg-dry**	100	9/23/2016 10:53 PM
Copper	**29,000**		**410**	**mg/Kg-dry**	1000	9/24/2016 11:01 PM
Lead	**8,600**		**41**	**mg/Kg-dry**	100	9/23/2016 10:53 PM
Selenium	ND		41	mg/Kg-dry	100	9/23/2016 10:53 PM
Silver	ND		41	mg/Kg-dry	100	9/23/2016 10:53 PM
Zinc	**4,100**		**83**	**mg/Kg-dry**	100	9/23/2016 10:53 PM
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**		Prep: SW3546 / 9/22/16	Analyst: **RS**
1,1`-Biphenyl	ND		400	µg/Kg-dry	5	9/26/2016 11:38 PM
2,2`-Oxybis(1-chloropropane)	ND		400	µg/Kg-dry	5	9/26/2016 11:38 PM
2,4,5-Trichlorophenol	ND		400	µg/Kg-dry	5	9/26/2016 11:38 PM
2,4,6-Trichlorophenol	ND		400	µg/Kg-dry	5	9/26/2016 11:38 PM
2,4-Dichlorophenol	ND		400	µg/Kg-dry	5	9/26/2016 11:38 PM
2,4-Dimethylphenol	ND		400	µg/Kg-dry	5	9/26/2016 11:38 PM
2,4-Dinitrophenol	ND		400	µg/Kg-dry	5	9/26/2016 11:38 PM
2,4-Dinitrotoluene	ND		400	µg/Kg-dry	5	9/26/2016 11:38 PM
2,6-Dinitrotoluene	ND		400	µg/Kg-dry	5	9/26/2016 11:38 PM
2-Chloronaphthalene	ND		80	µg/Kg-dry	5	9/26/2016 11:38 PM
2-Chlorophenol	ND		400	µg/Kg-dry	5	9/26/2016 11:38 PM
2-Methylnaphthalene	**430**		**80**	**µg/Kg-dry**	5	9/26/2016 11:38 PM
2-Methylphenol	ND		400	µg/Kg-dry	5	9/26/2016 11:38 PM
2-Nitroaniline	ND		400	µg/Kg-dry	5	9/26/2016 11:38 PM
2-Nitrophenol	ND		400	µg/Kg-dry	5	9/26/2016 11:38 PM
3&4-Methylphenol	ND		400	µg/Kg-dry	5	9/26/2016 11:38 PM
3,3´-Dichlorobenzidine	ND		2,000	µg/Kg-dry	5	9/26/2016 11:38 PM
3-Nitroaniline	ND		400	µg/Kg-dry	5	9/26/2016 11:38 PM
4,6-Dinitro-2-methylphenol	ND		400	µg/Kg-dry	5	9/26/2016 11:38 PM
4-Bromophenyl phenyl ether	ND		400	µg/Kg-dry	5	9/26/2016 11:38 PM
4-Chloro-3-methylphenol	ND		400	µg/Kg-dry	5	9/26/2016 11:38 PM
4-Chloroaniline	ND		800	µg/Kg-dry	5	9/26/2016 11:38 PM
4-Chlorophenyl phenyl ether	ND		400	µg/Kg-dry	5	9/26/2016 11:38 PM
4-Nitroaniline	ND		2,000	µg/Kg-dry	5	9/26/2016 11:38 PM
4-Nitrophenol	ND		400	µg/Kg-dry	5	9/26/2016 11:38 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake
Work Order: 1609985
Sample ID: CHLL-WC02-0-6
Lab ID: 1609985-04
Collection Date: 9/12/2016 01:54 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Acenaphthene	ND		80	µg/Kg-dry	5	9/26/2016 11:38 PM
Acenaphthylene	ND		80	µg/Kg-dry	5	9/26/2016 11:38 PM
Acetophenone	ND		400	µg/Kg-dry	5	9/26/2016 11:38 PM
Anthracene	**280**		**80**	**µg/Kg-dry**	5	9/26/2016 11:38 PM
Atrazine	ND		400	µg/Kg-dry	5	9/26/2016 11:38 PM
Benzaldehyde	ND		800	µg/Kg-dry	5	9/26/2016 11:38 PM
Benzo(a)anthracene	**710**		**80**	**µg/Kg-dry**	5	9/26/2016 11:38 PM
Benzo(a)pyrene	**640**		**80**	**µg/Kg-dry**	5	9/26/2016 11:38 PM
Benzo(b)fluoranthene	**1,200**		**80**	**µg/Kg-dry**	5	9/26/2016 11:38 PM
Benzo(g,h,i)perylene	**360**		**80**	**µg/Kg-dry**	5	9/26/2016 11:38 PM
Benzo(k)fluoranthene	**440**		**80**	**µg/Kg-dry**	5	9/26/2016 11:38 PM
Bis(2-chloroethoxy)methane	ND		400	µg/Kg-dry	5	9/26/2016 11:38 PM
Bis(2-chloroethyl)ether	ND		400	µg/Kg-dry	5	9/26/2016 11:38 PM
Bis(2-ethylhexyl)phthalate	ND		400	µg/Kg-dry	5	9/26/2016 11:38 PM
Butyl benzyl phthalate	ND		400	µg/Kg-dry	5	9/26/2016 11:38 PM
Caprolactam	ND		400	µg/Kg-dry	5	9/26/2016 11:38 PM
Carbazole	ND		400	µg/Kg-dry	5	9/26/2016 11:38 PM
Chrysene	**640**		**80**	**µg/Kg-dry**	5	9/26/2016 11:38 PM
Dibenzo(a,h)anthracene	ND		80	µg/Kg-dry	5	9/26/2016 11:38 PM
Dibenzofuran	ND		400	µg/Kg-dry	5	9/26/2016 11:38 PM
Diethyl phthalate	ND		400	µg/Kg-dry	5	9/26/2016 11:38 PM
Dimethyl phthalate	ND		400	µg/Kg-dry	5	9/26/2016 11:38 PM
Di-n-butyl phthalate	**700**		**400**	**µg/Kg-dry**	5	9/26/2016 11:38 PM
Di-n-octyl phthalate	ND		400	µg/Kg-dry	5	9/26/2016 11:38 PM
Fluoranthene	**1,400**		**80**	**µg/Kg-dry**	5	9/26/2016 11:38 PM
Fluorene	ND		80	µg/Kg-dry	5	9/26/2016 11:38 PM
Hexachlorobenzene	ND		400	µg/Kg-dry	5	9/26/2016 11:38 PM
Hexachlorobutadiene	ND		400	µg/Kg-dry	5	9/26/2016 11:38 PM
Hexachlorocyclopentadiene	ND		400	µg/Kg-dry	5	9/26/2016 11:38 PM
Hexachloroethane	ND		400	µg/Kg-dry	5	9/26/2016 11:38 PM
Indeno(1,2,3-cd)pyrene	**440**		**80**	**µg/Kg-dry**	5	9/26/2016 11:38 PM
Isophorone	ND		2,000	µg/Kg-dry	5	9/26/2016 11:38 PM
Naphthalene	**350**		**80**	**µg/Kg-dry**	5	9/26/2016 11:38 PM
Nitrobenzene	ND		2,000	µg/Kg-dry	5	9/26/2016 11:38 PM
N-Nitrosodimethylamine	ND		2,000	µg/Kg-dry	5	9/26/2016 11:38 PM
N-Nitrosodi-n-propylamine	ND		400	µg/Kg-dry	5	9/26/2016 11:38 PM
Pentachlorophenol	ND		400	µg/Kg-dry	5	9/26/2016 11:38 PM
Phenanthrene	**860**		**80**	**µg/Kg-dry**	5	9/26/2016 11:38 PM
Phenol	ND		400	µg/Kg-dry	5	9/26/2016 11:38 PM
Pyrene	**1,100**		**80**	**µg/Kg-dry**	5	9/26/2016 11:38 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake
Work Order: 1609985
Sample ID: CHLL-WC02-0-6
Lab ID: 1609985-04
Collection Date: 9/12/2016 01:54 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2,4,6-Tribromophenol	*102*		*34-140*	*%REC*	5	9/26/2016 11:38 PM
Surr: 2-Fluorobiphenyl	*77.1*		*12-100*	*%REC*	5	9/26/2016 11:38 PM
Surr: 2-Fluorophenol	*70.7*		*33-117*	*%REC*	5	9/26/2016 11:38 PM
Surr: 4-Terphenyl-d14	*92.2*		*25-137*	*%REC*	5	9/26/2016 11:38 PM
Surr: Nitrobenzene-d5	*70.6*		*37-107*	*%REC*	5	9/26/2016 11:38 PM
Surr: Phenol-d6	*68.1*		*40-106*	*%REC*	5	9/26/2016 11:38 PM
VOLATILE ORGANIC COMPOUNDS			**SW8260B**		Prep: SW5035 / 9/20/16	Analyst: **LSY**
1,1,1,2-Tetrachloroethane	ND		30	µg/Kg	1	9/24/2016 09:30 PM
1,1,1-Trichloroethane	ND		30	µg/Kg	1	9/24/2016 09:30 PM
1,1,2,2-Tetrachloroethane	ND		30	µg/Kg	1	9/24/2016 09:30 PM
1,1,2-Trichloroethane	ND		30	µg/Kg	1	9/24/2016 09:30 PM
1,1,2-Trichlorotrifluoroethane	ND		30	µg/Kg	1	9/24/2016 09:30 PM
1,1-Dichloroethane	ND		30	µg/Kg	1	9/24/2016 09:30 PM
1,1-Dichloroethene	ND		30	µg/Kg	1	9/24/2016 09:30 PM
1,2,3-Trichloropropane	ND		30	µg/Kg	1	9/24/2016 09:30 PM
1,2,4-Trichlorobenzene	ND		30	µg/Kg	1	9/24/2016 09:30 PM
1,2,4-Trimethylbenzene	ND		30	µg/Kg	1	9/24/2016 09:30 PM
1,2-Dibromo-3-chloropropane	ND		30	µg/Kg	1	9/24/2016 09:30 PM
1,2-Dibromoethane	ND		30	µg/Kg	1	9/24/2016 09:30 PM
1,2-Dichlorobenzene	ND		30	µg/Kg	1	9/24/2016 09:30 PM
1,2-Dichloroethane	ND		30	µg/Kg	1	9/24/2016 09:30 PM
1,2-Dichloropropane	ND		30	µg/Kg	1	9/24/2016 09:30 PM
1,3,5-Trimethylbenzene	ND		30	µg/Kg	1	9/24/2016 09:30 PM
1,3-Dichlorobenzene	ND		30	µg/Kg	1	9/24/2016 09:30 PM
1,4-Dichlorobenzene	ND		30	µg/Kg	1	9/24/2016 09:30 PM
2-Butanone	ND		200	µg/Kg	1	9/24/2016 09:30 PM
2-Hexanone	ND		30	µg/Kg	1	9/24/2016 09:30 PM
2-Methylnaphthalene	**130**		**100**	**µg/Kg**	1	9/24/2016 09:30 PM
4-Methyl-2-pentanone	ND		30	µg/Kg	1	9/24/2016 09:30 PM
Acetone	ND		100	µg/Kg	1	9/24/2016 09:30 PM
Acrylonitrile	ND		100	µg/Kg	1	9/24/2016 09:30 PM
Benzene	ND		30	µg/Kg	1	9/24/2016 09:30 PM
Bromochloromethane	ND		30	µg/Kg	1	9/24/2016 09:30 PM
Bromodichloromethane	ND		30	µg/Kg	1	9/24/2016 09:30 PM
Bromoform	ND		30	µg/Kg	1	9/24/2016 09:30 PM
Bromomethane	ND		75	µg/Kg	1	9/24/2016 09:30 PM
Carbon disulfide	ND		30	µg/Kg	1	9/24/2016 09:30 PM
Carbon tetrachloride	ND		30	µg/Kg	1	9/24/2016 09:30 PM
Chlorobenzene	ND		30	µg/Kg	1	9/24/2016 09:30 PM
Chloroethane	ND		100	µg/Kg	1	9/24/2016 09:30 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake **Work Order:** 1609985
Sample ID: CHLL-WC02-0-6 **Lab ID:** 1609985-04
Collection Date: 9/12/2016 01:54 PM **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Chloroform	ND		30	µg/Kg	1	9/24/2016 09:30 PM
Chloromethane	ND		100	µg/Kg	1	9/24/2016 09:30 PM
cis-1,2-Dichloroethene	ND		30	µg/Kg	1	9/24/2016 09:30 PM
cis-1,3-Dichloropropene	ND		30	µg/Kg	1	9/24/2016 09:30 PM
Dibromochloromethane	ND		30	µg/Kg	1	9/24/2016 09:30 PM
Dibromomethane	ND		30	µg/Kg	1	9/24/2016 09:30 PM
Dichlorodifluoromethane	ND		30	µg/Kg	1	9/24/2016 09:30 PM
Diethyl ether	ND		30	µg/Kg	1	9/24/2016 09:30 PM
Ethylbenzene	ND		30	µg/Kg	1	9/24/2016 09:30 PM
Hexachloroethane	ND		100	µg/Kg	1	9/24/2016 09:30 PM
Isopropylbenzene	ND		30	µg/Kg	1	9/24/2016 09:30 PM
m,p-Xylene	ND		60	µg/Kg	1	9/24/2016 09:30 PM
Methyl iodide	ND		75	µg/Kg	1	9/24/2016 09:30 PM
Methyl tert-butyl ether	ND		30	µg/Kg	1	9/24/2016 09:30 PM
Methylene chloride	**130**		**30**	**µg/Kg**	1	9/24/2016 09:30 PM
Naphthalene	**110**		**100**	**µg/Kg**	1	9/24/2016 09:30 PM
n-Propylbenzene	ND		30	µg/Kg	1	9/24/2016 09:30 PM
o-Xylene	ND		30	µg/Kg	1	9/24/2016 09:30 PM
Styrene	ND		30	µg/Kg	1	9/24/2016 09:30 PM
Tetrachloroethene	ND		30	µg/Kg	1	9/24/2016 09:30 PM
Toluene	**38**		**30**	**µg/Kg**	1	9/24/2016 09:30 PM
trans-1,2-Dichloroethene	ND		30	µg/Kg	1	9/24/2016 09:30 PM
trans-1,3-Dichloropropene	ND		30	µg/Kg	1	9/24/2016 09:30 PM
trans-1,4-Dichloro-2-butene	ND		30	µg/Kg	1	9/24/2016 09:30 PM
Trichloroethene	ND		30	µg/Kg	1	9/24/2016 09:30 PM
Trichlorofluoromethane	ND		30	µg/Kg	1	9/24/2016 09:30 PM
Vinyl acetate	ND		250	µg/Kg	1	9/24/2016 09:30 PM
Vinyl chloride	ND		30	µg/Kg	1	9/24/2016 09:30 PM
Xylenes, Total	ND		90	µg/Kg	1	9/24/2016 09:30 PM
Surr: 1,2-Dichloroethane-d4	*105*		*70-130*	*%REC*	1	9/24/2016 09:30 PM
Surr: 4-Bromofluorobenzene	*96.7*		*70-130*	*%REC*	1	9/24/2016 09:30 PM
Surr: Dibromofluoromethane	*95.5*		*70-130*	*%REC*	1	9/24/2016 09:30 PM
Surr: Toluene-d8	*97.8*		*70-130*	*%REC*	1	9/24/2016 09:30 PM
CYANIDE, REACTIVE			**SW7.3.3.2**			Analyst: **EE**
Cyanide, Reactive	ND		120	mg/Kg-dry	1	9/23/2016 01:00 PM
FLASHPOINT/IGNITABILITY ANALYSIS			**SW1010A**			Analyst: **STP**
Flashpoint/Ignitability	**>200**			**°F**	1	9/20/2016 10:47 AM
PAINT FILTER (FREE LIQUIDS)			**SW9095B**			Analyst: **KF**
Free Liquids	**Absent**			**none**	1	9/20/2016 10:34 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: *28-Sep-16*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake
Work Order: 1609985
Sample ID: CHLL-WC02-0-6
Lab ID: 1609985-04
Collection Date: 9/12/2016 01:54 PM
Matrix: WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MOISTURE			**SW3550C**			Analyst: **LW**
Moisture	**20**		**0.050**	**% of sample**	1	9/23/2016 07:00 PM
PH			**SW9045D**		Prep: EXTRACT / 9/17/16	Analyst: **EDL**
pH	**7.2**			**s.u.**	1	9/17/2016 03:30 PM
SULFIDE, REACTIVE			**SW7.3.4.2**			Analyst: **EE**
Sulfide, Reactive	ND		120	mg/Kg-dry	1	9/23/2016 01:00 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Batch ID: **91556** Instrument ID **GC7** Method: **SW8151**

MBLK Sample ID: **HBLKS1-91556-91556** Units: **µg/Kg** Analysis Date: **9/20/2016 12:32 PM**
Client ID: Run ID: **GC7_160919C** SeqNo: **4041673** Prep Date: **9/19/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2,4,5-T	ND	1.0								
2,4,5-TP (Silvex)	ND	1.0								
2,4-D	ND	1.0								
Surr: DCAA	*10.7*	0	*50*	0	*21.4*	*10-150*	0			

LCS Sample ID: **HLCSDS1-91556-91556** Units: **µg/Kg** Analysis Date: **9/20/2016 01:49 PM**
Client ID: Run ID: **GC7_160919C** SeqNo: **4041675** Prep Date: **9/19/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2,4,5-T	1.379	0.98	4.924	0	28	10-150	0			
2,4,5-TP (Silvex)	2.167	0.98	4.924	0	44	10-150	0			
2,4-D	13.1	0.98	49.24	0	26.6	10-130	0			
Surr: DCAA	*14.08*	0	*49.24*	0	*28.6*	*10-150*	0			

LCS Sample ID: **HLCSDS1-91556-91556** Units: **µg/Kg** Analysis Date: **9/20/2016 02:08 PM**
Client ID: Run ID: **GC7_160919C** SeqNo: **4041676** Prep Date: **9/19/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2,4,5-T	0.8864	0.98	4.924	0	18	10-150	1.379	0		J
2,4,5-TP (Silvex)	2.364	0.98	4.924	0	48	10-150	2.167	0		
2,4-D	10.83	0.98	49.24	0	22	10-130	13.1	0		
Surr: DCAA	*11.82*	0	*49.24*	0	*24*	*10-150*	14.08	*0*		

MS Sample ID: **1609939-05A MS** Units: **µg/Kg** Analysis Date: **9/20/2016 02:27 PM**
Client ID: Run ID: **GC7_160919C** SeqNo: **4041677** Prep Date: **9/19/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2,4,5-T	1.479	0.99	4.93	0	30	10-150	0			
2,4,5-TP (Silvex)	2.465	0.99	4.93	0	50	10-150	0			
2,4-D	23.67	0.99	49.3	0	48	10-130	0			
Surr: DCAA	*13.31*	0	*49.3*	0	*27*	*10-150*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 1609985
Project: Abandoned Mining Wastes - Torch Lake

QC BATCH REPORT

Batch ID: **91556** Instrument ID **GC7** Method: **SW8151**

MSD Sample ID: **1609939-05A MSD** Units: **µg/Kg** Analysis Date: **9/20/2016 02:46 PM**

Client ID: Run ID: **GC7_160919C** SeqNo: **4041678** Prep Date: **9/19/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2,4,5-T	1.588	0.99	4.962	0	32	10-150	1.479	7.08	50	
2,4,5-TP (Silvex)	2.382	0.99	4.962	0	48	10-150	2.465	3.45	50	
2,4-D	31.65	0.99	49.62	0	63.8	10-130	23.67	28.9	50	
Surr: DCAA	*15.88*	0	*49.62*	0	*32*	*10-150*	13.31	*17.6*	*50*	

The following samples were analyzed in this batch: 1609985-02A 1609985-04A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **91705A** Instrument ID **GC12** Method: **SW8081**

MBLK Sample ID: **PBLKW1-91705-91705A** Units: **µg/L** Analysis Date: **9/23/2016 11:23 PM**
Client ID: Run ID: **GC12_160923A** SeqNo: **4046881** Prep Date: **9/22/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chlordane, Technical	ND	0.50								
Endrin	ND	0.020								
gamma-BHC (Lindane)	ND	0.010								
Heptachlor	ND	0.010								
Heptachlor epoxide	ND	0.010								
Methoxychlor	ND	0.040								
Toxaphene	ND	2.0								
Surr: Decachlorobiphenyl	*0.068*	0	*0.1*	0	*68*	*42-119*	0			
Surr: Tetrachloro-m-xylene	*0.054*	0	*0.1*	0	*54*	*32-104*	0			

LCS Sample ID: **PLCSW1-91705-91705A** Units: **µg/L** Analysis Date: **9/23/2016 11:41 PM**
Client ID: Run ID: **GC12_160923A** SeqNo: **4046882** Prep Date: **9/22/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Endrin	0.077	0.020	0.1	0	77	39-123	0			
gamma-BHC (Lindane)	0.055	0.010	0.1	0	55	32-114	0			
Heptachlor	0.04	0.010	0.1	0	40	34-112	0			
Heptachlor epoxide	0.063	0.010	0.1	0	63	36-109	0			
Methoxychlor	0.079	0.040	0.1	0	79	44-133	0			
Surr: Decachlorobiphenyl	*0.07*	0	*0.1*	0	*70*	*42-119*	0			
Surr: Tetrachloro-m-xylene	*0.056*	0	*0.1*	0	*56*	*32-104*	0			

MS Sample ID: **1609985-01A MS** Units: **µg/L** Analysis Date: **9/24/2016 12:17 AM**
Client ID: **CHTC-WC01-0-6 TCLP** Run ID: **GC12_160923A** SeqNo: **4046884** Prep Date: **9/22/2016** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Endrin	0.35	0.50	0.5	0	70	39-123	0			J
gamma-BHC (Lindane)	0.475	0.25	0.5	0	95	32-114	0			
Heptachlor	0.275	0.25	0.5	0	55	34-112	0			
Heptachlor epoxide	0.275	0.25	0.5	0	55	36-109	0			
Methoxychlor	0.3	1.0	0.5	0	60	44-133	0			J
Surr: Decachlorobiphenyl	*0.25*	0	*0.5*	0	*50*	*42-119*	0			
Surr: Tetrachloro-m-xylene	*0.325*	0	*0.5*	0	*65*	*32-104*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **91705A** Instrument ID **GC12** Method: **SW8081**

DUP Sample ID: **1609985-03A DUP** Units: **µg/L** Analysis Date: **9/24/2016 12:52 AM**

Client ID: **CHLL-WC02-0-6 TCLP** Run ID: **GC12_160923A** SeqNo: **4046886** Prep Date: **9/22/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chlordane, Technical	ND	2.5	0	0	0	0-0	0	0	20	
Endrin	ND	0.10	0	0	0	0-0	0	0	20	
gamma-BHC (Lindane)	ND	0.050	0	0	0	0-0	0	0	20	
Heptachlor	ND	0.050	0	0	0	0-0	0	0	20	
Heptachlor epoxide	ND	0.050	0	0	0	0-0	0	0	20	
Methoxychlor	ND	0.20	0	0	0	0-0	0	0	20	
Toxaphene	ND	10	0	0	0	0-0	0	0	20	
Surr: Decachlorobiphenyl	*0.3*	0	*0.5*	0	*60*	*42-119*	0.34	*12.5*	*20*	
Surr: Tetrachloro-m-xylene	*0.27*	0	*0.5*	0	*54*	*32-104*	0.275	*1.83*	*20*	

The following samples were analyzed in this batch: 1609985-01A 1609985-03A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 1609985
Project: Abandoned Mining Wastes - Torch Lake

QC BATCH REPORT

Batch ID: **91707** Instrument ID **GC7** Method: **SW8151**

MBLK Sample ID: **HBLKW1-91707-91707** Units: **µg/L** Analysis Date: **9/22/2016 06:56 PM**
Client ID: Run ID: **GC7_160922A** SeqNo: **4042757** Prep Date: **9/22/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2,4,5-TP (Silvex)	ND	5.0								
2,4-D	ND	5.0								
Surr: DCAA	*15*	0	*50*	0	*30*	*30-150*	0			

LCS Sample ID: **HLCSW1-91707-91707** Units: **µg/L** Analysis Date: **9/22/2016 07:16 PM**
Client ID: Run ID: **GC7_160922A** SeqNo: **4042758** Prep Date: **9/22/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2,4,5-TP (Silvex)	8.7	5.0	10	0	87	50-150	0			
2,4-D	95.8	5.0	100	0	95.8	50-150	0			
Surr: DCAA	*15.2*	0	*50*	0	*30.4*	*30-150*	0			

MS Sample ID: **16091019-02A MS** Units: **µg/L** Analysis Date: **9/22/2016 07:35 PM**
Client ID: Run ID: **GC7_160922A** SeqNo: **4042759** Prep Date: **9/22/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2,4,5-TP (Silvex)	9.5	5.0	10	0	95	50-150	0			
2,4-D	108.3	5.0	100	0	108	50-150	0			
Surr: DCAA	*15.1*	0	*50*	0	*30.2*	*30-150*	0			

MSD Sample ID: **16091019-02A MSD** Units: **µg/L** Analysis Date: **9/22/2016 07:54 PM**
Client ID: Run ID: **GC7_160922A** SeqNo: **4042760** Prep Date: **9/22/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2,4,5-TP (Silvex)	9.9	5.0	10	0	99	50-150	9.5	4.12	30	
2,4-D	113.3	5.0	100	0	113	50-150	108.3	4.51	30	
Surr: DCAA	*15.5*	0	*50*	0	*31*	*30-150*	15.1	*2.61*	*30*	

The following samples were analyzed in this batch: 1609985-01A 1609985-03A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **91791** Instrument ID **GC12** Method: **SW8081**

MBLK Sample ID: **PBLKS1-91791-91791** Units: **µg/Kg** Analysis Date: **9/25/2016 09:56 PM**
Client ID: Run ID: **GC12_160925A** SeqNo: **4047974** Prep Date: **9/22/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
4,4´-DDD	ND	10								
4,4´-DDE	ND	10								
4,4´-DDT	ND	10								
Aldrin	ND	10								
alpha-BHC	ND	10								
alpha-Chlordane	ND	10								
beta-BHC	ND	10								
Chlordane, Technical	ND	25								
delta-BHC	ND	10								
Dieldrin	ND	10								
Endosulfan I	ND	10								
Endosulfan II	ND	10								
Endosulfan sulfate	ND	10								
Endrin	ND	10								
Endrin aldehyde	ND	10								
Endrin ketone	ND	10								
gamma-BHC (Lindane)	ND	10								
gamma-Chlordane	ND	10								
Heptachlor	ND	10								
Heptachlor epoxide	ND	10								
Methoxychlor	ND	10								
Toxaphene	ND	60								
Surr: Decachlorobiphenyl	*29.33*	0	*33.3*	0	*88.1*	*45-135*	0			
Surr: Tetrachloro-m-xylene	*25*	0	*33.3*	0	*75.1*	*45-124*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **91791** Instrument ID **GC12** Method: **SW8081**

LCS Sample ID: **PLCSS1-91791-91791** Units: **µg/Kg** Analysis Date: **9/25/2016 10:13 PM**
Client ID: Run ID: **GC12_160925A** SeqNo: **4047975** Prep Date: **9/22/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
4,4´-DDD	23	10	33.33	0	69	30-135	0			
4,4´-DDE	23.67	10	33.33	0	71	70-125	0			
4,4´-DDT	26.33	10	33.33	0	79	45-140	0			
Aldrin	23	10	33.33	0	69	45-140	0			
alpha-BHC	22.33	10	33.33	0	67	60-125	0			
alpha-Chlordane	23.33	10	33.33	0	70	50-150	0			
beta-BHC	23	10	33.33	0	69	60-125	0			
delta-BHC	23	10	33.33	0	69	55-130	0			
Dieldrin	23.33	10	33.33	0	70	65-125	0			
Endosulfan I	23.67	10	33.33	0	71	15-135	0			
Endosulfan II	23.33	10	33.33	0	70	35-140	0			
Endosulfan sulfate	23	10	33.33	0	69	60-135	0			
Endrin	27.67	10	33.33	0	83	60-135	0			
Endrin aldehyde	22	10	33.33	0	66	35-145	0			
Endrin ketone	23.33	10	33.33	0	70	50-150	0			
gamma-BHC (Lindane)	22.67	10	33.33	0	68	60-125	0			
gamma-Chlordane	20.67	10	33.33	0	62	50-150	0			
Heptachlor	24.33	10	33.33	0	73	50-140	0			
Heptachlor epoxide	23.67	10	33.33	0	71	65-130	0			
Methoxychlor	26.67	10	33.33	0	80	55-145	0			
Surr: Decachlorobiphenyl	*28*	0	*33.3*	0	*84.1*	*45-135*	0			
Surr: Tetrachloro-m-xylene	*25*	0	*33.3*	0	*75.1*	*45-124*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **91791** Instrument ID **GC12** Method: **SW8081**

MS Sample ID: **16091132-02C MS** Units: **µg/Kg** Analysis Date: **9/25/2016 10:49 PM**

Client ID: Run ID: **GC12_160925A** SeqNo: **4047977** Prep Date: **9/22/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
4,4´-DDD	26.47	9.6	31.89	0	83	30-135	0			
4,4´-DDE	28.06	9.6	31.89	0	88	70-125	0			
4,4´-DDT	31.25	9.6	31.89	0	98	45-140	0			
Aldrin	27.11	9.6	31.89	0	85	45-140	0			
alpha-BHC	26.79	9.6	31.89	0	84	60-125	0			
alpha-Chlordane	27.11	9.6	31.89	0	85	50-150	0			
beta-BHC	27.11	9.6	31.89	0	85	60-125	0			
delta-BHC	28.38	9.6	31.89	0	89	55-130	0			
Dieldrin	27.43	9.6	31.89	0	86	65-125	0			
Endosulfan I	27.74	9.6	31.89	0	87	15-135	0			
Endosulfan II	26.79	9.6	31.89	0	84	35-140	0			
Endosulfan sulfate	26.15	9.6	31.89	0	82	60-135	0			
Endrin	34.44	9.6	31.89	0	108	60-135	0			
Endrin aldehyde	21.69	9.6	31.89	0	68	35-145	0			
Endrin ketone	25.51	9.6	31.89	0	80	50-150	0			
gamma-BHC (Lindane)	27.11	9.6	31.89	0	85	60-125	0			
gamma-Chlordane	23.92	9.6	31.89	0	75	50-150	0			
Heptachlor	29.02	9.6	31.89	0	91	50-140	0			
Heptachlor epoxide	27.43	9.6	31.89	0	86	65-130	0			
Methoxychlor	29.98	9.6	31.89	0	94	55-145	0			
Surr: Decachlorobiphenyl	*27.74*	0	*31.86*	0	*87.1*	*45-135*	0			
Surr: Tetrachloro-m-xylene	*28.7*	0	*31.86*	0	*90.1*	*45-124*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **91791** Instrument ID **GC12** Method: **SW8081**

MSD Sample ID: **16091132-02C MSD** Units: **µg/Kg** Analysis Date: **9/25/2016 11:05 PM**

Client ID: Run ID: **GC12_160925A** SeqNo: **4047978** Prep Date: **9/22/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
4,4´-DDD	22.26	9.8	32.73	0	68	30-135	26.47	17.3	35	
4,4´-DDE	22.91	9.8	32.73	0	70	70-125	28.06	20.2	35	
4,4´-DDT	25.53	9.8	32.73	0	78	45-140	31.25	20.1	35	
Aldrin	21.28	9.8	32.73	0	65	45-140	27.11	24.1	35	
alpha-BHC	20.62	9.8	32.73	0	63	60-125	26.79	26	35	
alpha-Chlordane	22.26	9.8	32.73	0	68	50-150	27.11	19.6	35	
beta-BHC	21.93	9.8	32.73	0	67	60-125	27.11	21.1	35	
delta-BHC	22.59	9.8	32.73	0	69	55-130	28.38	22.7	35	
Dieldrin	22.26	9.8	32.73	0	68	65-125	27.43	20.8	35	
Endosulfan I	22.59	9.8	32.73	0	69	15-135	27.74	20.5	35	
Endosulfan II	22.26	9.8	32.73	0	68	35-140	26.79	18.5	35	
Endosulfan sulfate	21.93	9.8	32.73	0	67	60-135	26.15	17.5	35	
Endrin	27.82	9.8	32.73	0	85	60-135	34.44	21.3	35	
Endrin aldehyde	18.33	9.8	32.73	0	56	35-145	21.69	16.8	35	
Endrin ketone	21.6	9.8	32.73	0	66	50-150	25.51	16.6	35	
gamma-BHC (Lindane)	20.95	9.8	32.73	0	64	60-125	27.11	25.6	35	
gamma-Chlordane	19.97	9.8	32.73	0	61	50-150	23.92	18	35	
Heptachlor	22.59	9.8	32.73	0	69	50-140	29.02	24.9	35	
Heptachlor epoxide	22.26	9.8	32.73	0	68	65-130	27.43	20.8	35	
Methoxychlor	25.53	9.8	32.73	0	78	55-145	29.98	16	35	
Surr: Decachlorobiphenyl	*24.55*	0	*32.7*	0	*75.1*	*45-135*	27.74	*12.2*	*35*	
Surr: Tetrachloro-m-xylene	*21.93*	0	*32.7*	0	*67.1*	*45-124*	28.7	*26.7*	*35*	

The following samples were analyzed in this batch: 1609985-04A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **91892** Instrument ID **GC14** Method: **SW8082**

MBLK Sample ID: **PBLKS1-91892-91892** Units: **µg/Kg** Analysis Date: **9/26/2016 10:58 AM**
Client ID: Run ID: **GC14_160926A** SeqNo: **4047782** Prep Date: **9/26/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	ND	83								
Aroclor 1221	ND	83								
Aroclor 1232	ND	83								
Aroclor 1242	ND	83								
Aroclor 1248	ND	83								
Aroclor 1254	ND	83								
Aroclor 1260	ND	83								
Surr: Decachlorobiphenyl	*29*	0	*33.3*	0	*87.1*	*40-140*	0			
Surr: Tetrachloro-m-xylene	*29.33*	0	*33.3*	0	*88.1*	*45-124*	0			

LCS Sample ID: **PLCSS1-91892-91892** Units: **µg/Kg** Analysis Date: **9/26/2016 11:16 AM**
Client ID: Run ID: **GC14_160926A** SeqNo: **4047783** Prep Date: **9/26/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	948.3	83	833	0	114	50-130	0			
Aroclor 1260	882.3	83	833	0	106	50-130	0			
Surr: Decachlorobiphenyl	*30.33*	0	*33.3*	0	*91.1*	*40-140*	0			
Surr: Tetrachloro-m-xylene	*30*	0	*33.3*	0	*90.1*	*45-124*	0			

MS Sample ID: **16091086-27B MS** Units: **µg/Kg** Analysis Date: **9/26/2016 10:25 PM**
Client ID: Run ID: **GC14_160926A** SeqNo: **4049472** Prep Date: **9/26/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	962	82	823.3	0	117	40-140	0			
Aroclor 1260	881.3	82	823.3	0	107	40-140	0			
Surr: Decachlorobiphenyl	*30.31*	0	*32.91*	0	*92.1*	*40-140*	0			
Surr: Tetrachloro-m-xylene	*29.98*	0	*32.91*	0	*91.1*	*45-124*	0			

MSD Sample ID: **16091086-27B MSD** Units: **µg/Kg** Analysis Date: **9/26/2016 10:42 PM**
Client ID: Run ID: **GC14_160926A** SeqNo: **4049475** Prep Date: **9/26/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	904	80	801.6	0	113	40-140	962	6.22	50	
Aroclor 1260	849.1	80	801.6	0	106	40-140	881.3	3.72	50	
Surr: Decachlorobiphenyl	*29.51*	0	*32.05*	0	*92.1*	*40-140*	30.31	*2.67*	*50*	
Surr: Tetrachloro-m-xylene	*28.87*	0	*32.05*	0	*90.1*	*45-124*	29.98	*3.77*	*50*	

The following samples were analyzed in this batch: 1609985-04A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 1609985
Project: Abandoned Mining Wastes - Torch Lake

QC BATCH REPORT

Batch ID: **91927A** Instrument ID **GC14** Method: **SW8082**

MBLK Sample ID: **MBLK-91927-91927A** Units: **mg/Kg** Analysis Date: **9/26/2016 01:01 PM**
Client ID: Run ID: **GC14_160926A** SeqNo: **4047901** Prep Date: **9/26/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	ND	1.0								
Aroclor 1221	ND	1.0								
Aroclor 1232	ND	1.0								
Aroclor 1242	ND	1.0								
Aroclor 1248	ND	1.0								
Aroclor 1254	ND	1.0								
Aroclor 1260	ND	1.0								
Surr: Decachlorobiphenyl	*1.01*	0	*1*	0	*101*	*50-130*	0			
Surr: Tetrachloro-m-xylene	*1.05*	0	*1*	0	*105*	*50-130*	0			

LCS Sample ID: **LCS-91927-91927A** Units: **mg/Kg** Analysis Date: **9/26/2016 01:19 PM**
Client ID: Run ID: **GC14_160926A** SeqNo: **4047902** Prep Date: **9/26/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	57.94	1.0	50	0	116	50-130	0			
Aroclor 1260	55.12	1.0	50	0	110	50-130	0			
Surr: Decachlorobiphenyl	*1.14*	0	*1*	0	*114*	*50-130*	0			
Surr: Tetrachloro-m-xylene	*1.11*	0	*1*	0	*111*	*50-130*	0			

The following samples were analyzed in this batch: 1609985-02A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **92007** Instrument ID **GC12** Method: **SW8081**

MBLK Sample ID: **MBLK-92007-92007** Units: **µg/Kg** Analysis Date: **9/27/2016 01:31 PM**
Client ID: Run ID: **GC12_160927A** SeqNo: **4052918** Prep Date: **9/27/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
4,4´-DDD	ND	0.20								
4,4´-DDE	ND	0.20								
4,4´-DDT	ND	0.20								
Aldrin	ND	0.20								
alpha-BHC	ND	0.20								
alpha-Chlordane	ND	0.20								
beta-BHC	ND	0.20								
Chlordane, Technical	ND	25								
delta-BHC	ND	0.20								
Dieldrin	ND	0.20								
Endosulfan I	ND	0.20								
Endosulfan II	ND	0.20								
Endosulfan sulfate	ND	0.20								
Endrin	ND	0.20								
Endrin aldehyde	ND	0.20								
Endrin ketone	ND	0.20								
gamma-BHC (Lindane)	ND	0.20								
gamma-Chlordane	ND	0.20								
Heptachlor	ND	0.20								
Heptachlor epoxide	ND	0.20								
Methoxychlor	ND	0.40								
Toxaphene	ND	25								
Surr: Decachlorobiphenyl	*1210*	0	*1000*	0	*121*	*30-135*	0			
Surr: Tetrachloro-m-xylene	*1140*	0	*1000*	0	*114*	*25-140*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **92007** Instrument ID **GC12** Method: **SW8081**

LCS Sample ID: **LCS-92007-92007** Units: **µg/Kg** Analysis Date: **9/27/2016 01:49 PM**

Client ID: Run ID: **GC12_160927A** SeqNo: **4052919** Prep Date: **9/27/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
4,4´-DDD	970	0.20	1000	0	97	25-150	0			
4,4´-DDE	950	0.20	1000	0	95	35-140	0			
4,4´-DDT	1010	0.20	1000	0	101	45-140	0			
Aldrin	910	0.20	1000	0	91	25-140	0			
alpha-BHC	840	0.20	1000	0	84	60-130	0			
alpha-Chlordane	930	0.20	1000	0	93	50-150	0			
beta-BHC	880	0.20	1000	0	88	65-125	0			
delta-BHC	890	0.20	1000	0	89	45-135	0			
Dieldrin	950	0.20	1000	0	95	60-130	0			
Endosulfan I	950	0.20	1000	0	95	50-110	0			
Endosulfan II	970	0.20	1000	0	97	30-130	0			
Endosulfan sulfate	930	0.20	1000	0	93	55-135	0			
Endrin	1020	0.20	1000	0	102	55-135	0			
Endrin aldehyde	970	0.20	1000	0	97	55-135	0			
Endrin ketone	1070	0.20	1000	0	107	50-150	0			
gamma-BHC (Lindane)	890	0.20	1000	0	89	25-135	0			
gamma-Chlordane	780	0.20	1000	0	78	50-150	0			
Heptachlor	910	0.20	1000	0	91	40-130	0			
Heptachlor epoxide	990	0.20	1000	0	99	60-130	0			
Methoxychlor	1060	0.40	1000	0	106	55-150	0			
Surr: Decachlorobiphenyl	*1190*	0	*1000*	0	*119*	*30-135*	0			
Surr: Tetrachloro-m-xylene	*940*	0	*1000*	0	*94*	*25-140*	0			

The following samples were analyzed in this batch: 1609985-02A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 1609985
Project: Abandoned Mining Wastes - Torch Lake

QC BATCH REPORT

Batch ID: **91744** Instrument ID **HG1** Method: **SW7470A**

MBLK Sample ID: **MBLK-91744-91744** Units: **mg/L** Analysis Date: **9/21/2016 07:42 PM**
Client ID: Run ID: **HG1_160921A** SeqNo: **4040347** Prep Date: **9/21/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: **LCS-91744-91744** Units: **mg/L** Analysis Date: **9/21/2016 07:45 PM**
Client ID: Run ID: **HG1_160921A** SeqNo: **4040348** Prep Date: **9/21/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00203	0.00020	0.002	0	102	80-120	0			

MS Sample ID: **16091011-02CMS** Units: **mg/L** Analysis Date: **9/21/2016 08:10 PM**
Client ID: Run ID: **HG1_160921A** SeqNo: **4040382** Prep Date: **9/21/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00192	0.00020	0.002	-0.000008	96.4	75-125	0			

MSD Sample ID: **16091011-02CMSD** Units: **mg/L** Analysis Date: **9/21/2016 08:13 PM**
Client ID: Run ID: **HG1_160921A** SeqNo: **4040383** Prep Date: **9/21/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00194	0.00020	0.002	-0.000008	97.4	75-125	0.00192	1.04	20	

The following samples were analyzed in this batch: 1609985-01A 1609985-03A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 1609985
Project: Abandoned Mining Wastes - Torch Lake

QC BATCH REPORT

Batch ID: **91897** Instrument ID **HG1** Method: **SW7471B**

MBLK Sample ID: **MBLK-91897-91897** Units: **mg/Kg** Analysis Date: **9/25/2016 09:35 PM**
Client ID: Run ID: **HG1_160925A** SeqNo: **4046247** Prep Date: **9/25/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.020								

LCS Sample ID: **LCS-91897-91897** Units: **mg/Kg** Analysis Date: **9/25/2016 09:45 PM**
Client ID: Run ID: **HG1_160925A** SeqNo: **4046255** Prep Date: **9/25/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.175	0.020	0.1665	0	105	80-120	0			

MS Sample ID: **16091127-01CMS** Units: **mg/Kg** Analysis Date: **9/25/2016 10:06 PM**
Client ID: Run ID: **HG1_160925A** SeqNo: **4046271** Prep Date: **9/25/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.1453	0.014	0.1199	0.01854	106	75-125	0			

MSD Sample ID: **16091127-01CMSD** Units: **mg/Kg** Analysis Date: **9/25/2016 10:08 PM**
Client ID: Run ID: **HG1_160925A** SeqNo: **4046273** Prep Date: **9/25/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.1483	0.014	0.1199	0.01854	108	75-125	0.1453	2.04	35	

The following samples were analyzed in this batch: 1609985-02A 1609985-04A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **91776** Instrument ID **ICPMS2** Method: **SW6020A**

MBLK Sample ID: **MBLK-91776-91776** Units: **mg/L** Analysis Date: **9/22/2016 11:01 PM**
Client ID: Run ID: **ICPMS2_160922A** SeqNo: **4042051** Prep Date: **9/22/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Cadmium	ND	0.0020								
Chromium	ND	0.0050								
Copper	ND	0.0050								
Lead	ND	0.0050								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Zinc	ND	0.010								

LCS Sample ID: **LCS-91776-91776** Units: **mg/L** Analysis Date: **9/22/2016 11:07 PM**
Client ID: Run ID: **ICPMS2_160922A** SeqNo: **4042052** Prep Date: **9/22/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.09845	0.0050	0.1	0	98.4	80-120	0			
Barium	0.09226	0.0050	0.1	0	92.3	80-120	0			
Cadmium	0.09393	0.0020	0.1	0	93.9	80-120	0			
Chromium	0.09353	0.0050	0.1	0	93.5	80-120	0			
Copper	0.09475	0.0050	0.1	0	94.8	80-120	0			
Lead	0.09289	0.0050	0.1	0	92.9	80-120	0			
Selenium	0.0962	0.0050	0.1	0	96.2	80-120	0			
Silver	0.08014	0.0050	0.1	0	80.1	80-120	0			
Zinc	0.09607	0.010	0.1	0	96.1	80-120	0			

MS Sample ID: **16091127-02CMS** Units: **mg/L** Analysis Date: **9/23/2016 12:44 AM**
Client ID: Run ID: **ICPMS2_160922A** SeqNo: **4042069** Prep Date: **9/22/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.096	0.0050	0.1	-0.0002868	96.3	75-125	0			
Barium	0.1766	0.0050	0.1	0.08204	94.6	75-125	0			
Cadmium	0.09059	0.0020	0.1	0.0001881	90.4	75-125	0			
Chromium	0.08892	0.0050	0.1	0.00003087	88.9	75-125	0			
Copper	0.08904	0.0050	0.1	0.001767	87.3	75-125	0			
Lead	0.09363	0.0050	0.1	0.000124	93.5	75-125	0			
Selenium	0.09289	0.0050	0.1	0.0007928	92.1	75-125	0			
Silver	0.07408	0.0050	0.1	-2.336E-05	74.1	75-125	0			S
Zinc	0.09387	0.010	0.1	0.008012	85.9	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 1609985
Project: Abandoned Mining Wastes - Torch Lake

QC BATCH REPORT

Batch ID: **91776** Instrument ID **ICPMS2** Method: **SW6020A**

MSD Sample ID: **16091127-02CMSD** Units: **mg/L** Analysis Date: **9/23/2016 12:49 AM**

Client ID: Run ID: **ICPMS2_160922A** SeqNo: **4042070** Prep Date: **9/22/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.09923	0.0050	0.1	-0.0002868	99.5	75-125	0.096	3.31	20	
Barium	0.1768	0.0050	0.1	0.08204	94.8	75-125	0.1766	0.113	20	
Cadmium	0.09297	0.0020	0.1	0.0001881	92.8	75-125	0.09059	2.59	20	
Chromium	0.09181	0.0050	0.1	0.00003087	91.8	75-125	0.08892	3.2	20	
Copper	0.09058	0.0050	0.1	0.001767	88.8	75-125	0.08904	1.71	20	
Lead	0.09614	0.0050	0.1	0.000124	96	75-125	0.09363	2.65	20	
Selenium	0.0953	0.0050	0.1	0.0007928	94.5	75-125	0.09289	2.56	20	
Silver	0.07555	0.0050	0.1	-2.336E-05	75.6	75-125	0.07408	1.96	20	
Zinc	0.09426	0.010	0.1	0.008012	86.2	75-125	0.09387	0.415	20	

The following samples were analyzed in this batch: 1609985-01A 1609985-03A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **91843** Instrument ID **ICPMS1** Method: **SW6020A**

MBLK Sample ID: **MBLK-91843-91843** Units: **mg/Kg** Analysis Date: **9/23/2016 07:46 PM**
Client ID: Run ID: **ICPMS1_160923A** SeqNo: **4044877** Prep Date: **9/23/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	ND	0.25								
Barium	ND	0.25								
Cadmium	0.01472	0.10								J
Chromium	0.01666	0.25								J
Copper	ND	0.25								
Lead	ND	0.25								
Selenium	ND	0.25								
Silver	ND	0.25								
Zinc	ND	0.50								

LCS Sample ID: **LCS-91843-91843** Units: **mg/Kg** Analysis Date: **9/23/2016 07:52 PM**
Client ID: Run ID: **ICPMS1_160923A** SeqNo: **4044878** Prep Date: **9/23/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	4.562	0.25	5	0	91.2	80-120	0			
Barium	4.57	0.25	5	0	91.4	80-120	0			
Cadmium	4.526	0.10	5	0	90.5	80-120	0			
Chromium	4.678	0.25	5	0	93.6	80-120	0			
Copper	4.58	0.25	5	0	91.6	80-120	0			
Lead	4.57	0.25	5	0	91.4	80-120	0			
Selenium	4.506	0.25	5	0	90.1	80-120	0			
Silver	4.708	0.25	5	0	94.2	80-120	0			
Zinc	4.492	0.50	5	0	89.8	80-120	0			

MS Sample ID: **16091317-02AMS** Units: **mg/Kg** Analysis Date: **9/23/2016 09:19 PM**
Client ID: Run ID: **ICPMS1_160923A** SeqNo: **4044892** Prep Date: **9/23/2016** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	7.895	1.5	7.74	0.3763	97.1	75-125	0			
Barium	10.55	1.5	7.74	2.783	100	75-125	0			
Cadmium	7.567	0.62	7.74	0.04396	97.2	75-125	0			
Chromium	8.412	1.5	7.74	0.9516	96.4	75-125	0			
Copper	8.031	1.5	7.74	0.6955	94.8	75-125	0			
Lead	8.923	1.5	7.74	1.546	95.3	75-125	0			
Selenium	7.307	1.5	7.74	0.1859	92	75-125	0			
Silver	7.585	1.5	7.74	0.007841	97.9	75-125	0			
Zinc	11.5	3.1	7.74	3.95	97.5	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 1609985
Project: Abandoned Mining Wastes - Torch Lake

QC BATCH REPORT

Batch ID: **91843** Instrument ID **ICPMS1** Method: **SW6020A**

MSD Sample ID: **16091317-02AMSD** Units: **mg/Kg** Analysis Date: **9/23/2016 09:25 PM**

Client ID: Run ID: **ICPMS1_160923A** SeqNo: **4044893** Prep Date: **9/23/2016** DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	8.534	1.5	7.716	0.3763	106	75-125	7.895	7.78	20	
Barium	11.34	1.5	7.716	2.783	111	75-125	10.55	7.17	20	
Cadmium	7.932	0.62	7.716	0.04396	102	75-125	7.567	4.72	20	
Chromium	9.022	1.5	7.716	0.9516	105	75-125	8.412	7	20	
Copper	8.556	1.5	7.716	0.6955	102	75-125	8.031	6.33	20	
Lead	9.343	1.5	7.716	1.546	101	75-125	8.923	4.6	20	
Selenium	7.744	1.5	7.716	0.1859	98	75-125	7.307	5.81	20	
Silver	8.062	1.5	7.716	0.007841	104	75-125	7.585	6.09	20	
Zinc	11.92	3.1	7.716	3.95	103	75-125	11.5	3.65	20	

The following samples were analyzed in this batch: 1609985-02A 1609985-04A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **91700** Instrument ID **SVMS5** Method: **SW8270D**

MBLK Sample ID: **SBLKW1-91700-91700** Units: **µg/L** Analysis Date: **9/22/2016 11:00 AM**
Client ID: Run ID: **SVMS5_160922A** SeqNo: **4043335** Prep Date: **9/21/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2,4-Dinitrotoluene	ND	5.0								
Hexachloro-1,3-butadiene	ND	5.0								
Hexachlorobenzene	ND	5.0								
Hexachloroethane	ND	5.0								
m-Cresol	ND	5.0								
Nitrobenzene	ND	5.0								
o-Cresol	ND	5.0								
p-Cresol	ND	5.0								
Pentachlorophenol	ND	5.0								
Pyridine	ND	10								
Surr: 2,4,6-Tribromophenol	*29.17*	0	*50*	0	*58.3*	*38-115*	0			
Surr: 2-Fluorobiphenyl	*28.78*	0	*50*	0	*57.6*	*32-100*	0			
Surr: 2-Fluorophenol	*19.02*	0	*50*	0	*38*	*22-59*	0			
Surr: 4-Terphenyl-d14	*36.96*	0	*50*	0	*73.9*	*23-112*	0			
Surr: Nitrobenzene-d5	*26.82*	0	*50*	0	*53.6*	*31-93*	0			
Surr: Phenol-d6	*10.01*	0	*50*	0	*20*	*13-36*	0			

LCS Sample ID: **SLCSW1-91700-91700** Units: **µg/L** Analysis Date: **9/23/2016 05:50 PM**
Client ID: Run ID: **SVMS4_160923A** SeqNo: **4048258** Prep Date: **9/21/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	13.42	5.0	20	0	67.1	30-110	0			
2,4,5-Trichlorophenol	15.41	5.0	20	0	77	50-110	0			
2,4,6-Trichlorophenol	16.47	5.0	20	0	82.4	50-115	0			
2,4-Dinitrotoluene	18.54	5.0	20	0	92.7	50-120	0			
Hexachloro-1,3-butadiene	14.35	5.0	20	0	71.8	25-105	0			
Hexachlorobenzene	14.47	5.0	20	0	72.4	50-110	0			
Hexachloroethane	13.25	5.0	20	0	66.2	30-95	0			
Nitrobenzene	14.7	5.0	20	0	73.5	45-110	0			
o-Cresol	11.64	5.0	20	0	58.2	40-110	0			
Pentachlorophenol	14.82	5.0	20	0	74.1	40-115	0			
Pyridine	6.5	10	20	0	32.5	10-71	0			J
Surr: 2,4,6-Tribromophenol	*36.47*	0	*50*	0	*72.9*	*38-115*	0			
Surr: 2-Fluorobiphenyl	*36.72*	0	*50*	0	*73.4*	*32-100*	0			
Surr: 2-Fluorophenol	*19.16*	0	*50*	0	*38.3*	*22-59*	0			
Surr: 4-Terphenyl-d14	*36.22*	0	*50*	0	*72.4*	*23-112*	0			
Surr: Nitrobenzene-d5	*33.74*	0	*50*	0	*67.5*	*31-93*	0			
Surr: Phenol-d6	*13.28*	0	*50*	0	*26.6*	*13-36*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **91700** Instrument ID **SVMS5** Method: **SW8270D**

MS Sample ID: **16091019-02A MS** Units: **µg/L** Analysis Date: **9/22/2016 02:18 PM**

Client ID: Run ID: **SVMS5_160922A** SeqNo: **4043337** Prep Date: **9/21/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	178.6	100	400	0	44.6	30-110	0			
2,4,5-Trichlorophenol	280.4	100	400	0	70.1	50-110	0			
2,4,6-Trichlorophenol	241.2	100	400	0	60.3	50-115	0			
2,4-Dinitrotoluene	303.2	100	400	0	75.8	50-120	0			
Hexachloro-1,3-butadiene	181.2	100	400	0	45.3	25-105	0			
Hexachlorobenzene	274	100	400	0	68.5	50-110	0			
Hexachloroethane	173.6	100	400	0	43.4	30-95	0			
m-Cresol	192.4	100	400	0	48.1	30-110	0			
Nitrobenzene	219.2	100	400	0	54.8	45-110	0			
o-Cresol	194	100	400	0	48.5	40-110	0			
p-Cresol	192	100	400	0	48	30-110	0			
Pentachlorophenol	288.8	100	400	0	72.2	40-115	0			
Pyridine	122.6	200	400	0	30.6	10-80	0			J
Surr: 2,4,6-Tribromophenol	*680.8*	0	*1000*	0	*68.1*	*38-115*	0			
Surr: 2-Fluorobiphenyl	*618.6*	0	*1000*	0	*61.9*	*32-100*	0			
Surr: 2-Fluorophenol	*309*	0	*1000*	0	*30.9*	*22-59*	0			
Surr: 4-Terphenyl-d14	*753.6*	0	*1000*	0	*75.4*	*23-112*	0			
Surr: Nitrobenzene-d5	*520.6*	0	*1000*	0	*52.1*	*31-93*	0			
Surr: Phenol-d6	*190.2*	0	*1000*	0	*19*	*13-36*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **91700** Instrument ID **SVMS5** Method: **SW8270D**

MSD Sample ID: **16091019-02A MSD** Units: **µg/L** Analysis Date: **9/22/2016 02:42 PM**

Client ID: Run ID: **SVMS5_160922A** SeqNo: **4043338** Prep Date: **9/21/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	256	100	400	0	64	30-110	178.6	35.6	30	R
2,4,5-Trichlorophenol	297	100	400	0	74.2	50-110	280.4	5.75	30	
2,4,6-Trichlorophenol	260.4	100	400	0	65.1	50-115	241.2	7.66	30	
2,4-Dinitrotoluene	311.8	100	400	0	78	50-120	303.2	2.8	30	
Hexachloro-1,3-butadiene	249.8	100	400	0	62.4	25-105	181.2	31.8	30	R
Hexachlorobenzene	271.6	100	400	0	67.9	50-110	274	0.88	30	
Hexachloroethane	271.4	100	400	0	67.8	30-95	173.6	44	30	R
m-Cresol	222	100	400	0	55.5	30-110	192.4	14.3	30	
Nitrobenzene	262.4	100	400	0	65.6	45-110	219.2	17.9	30	
o-Cresol	238.6	100	400	0	59.6	40-110	194	20.6	30	
p-Cresol	222.4	100	400	0	55.6	30-110	192	14.7	30	
Pentachlorophenol	294.4	100	400	0	73.6	40-115	288.8	1.92	30	
Pyridine	124.2	200	400	0	31	10-80	122.6	0	30	J
Surr: 2,4,6-Tribromophenol	*698.2*	0	*1000*	0	*69.8*	*38-115*	680.8	*2.52*	*0*	
Surr: 2-Fluorobiphenyl	*707.4*	0	*1000*	0	*70.7*	*32-100*	618.6	*13.4*	*0*	
Surr: 2-Fluorophenol	*404.4*	0	*1000*	0	*40.4*	*22-59*	309	*26.7*	*0*	
Surr: 4-Terphenyl-d14	*744.6*	0	*1000*	0	*74.5*	*23-112*	753.6	*1.2*	*0*	
Surr: Nitrobenzene-d5	*626.2*	0	*1000*	0	*62.6*	*31-93*	520.6	*18.4*	*0*	
Surr: Phenol-d6	*243.4*	0	*1000*	0	*24.3*	*13-36*	190.2	*24.5*	*0*	

The following samples were analyzed in this batch: 1609985-01A 1609985-03A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **91739** Instrument ID **SVMS5** Method: **SW846 8270D**

MBLK Sample ID: **SBLKS1-91739-91739** Units: **µg/Kg** Analysis Date: **9/22/2016 10:14 AM**

Client ID: Run ID: **SVMS5_160922A** SeqNo: **4042976** Prep Date: **9/22/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1`-Biphenyl	ND	66								
2,2`-Oxybis(1-chloropropane)	ND	66								
2,4,5-Trichlorophenol	ND	66								
2,4,6-Trichlorophenol	ND	66								
2,4-Dichlorophenol	ND	66								
2,4-Dimethylphenol	ND	66								
2,4-Dinitrophenol	ND	66								
2,4-Dinitrotoluene	ND	66								
2,6-Dinitrotoluene	ND	66								
2-Chloronaphthalene	ND	13								
2-Chlorophenol	ND	66								
2-Methylnaphthalene	ND	13								
2-Methylphenol	ND	66								
2-Nitroaniline	ND	66								
2-Nitrophenol	ND	66								
3&4-Methylphenol	ND	66								
3,3´-Dichlorobenzidine	ND	330								
3-Nitroaniline	ND	66								
4,6-Dinitro-2-methylphenol	ND	66								
4-Bromophenyl phenyl ether	ND	66								
4-Chloro-3-methylphenol	ND	66								
4-Chloroaniline	ND	130								
4-Chlorophenyl phenyl ether	ND	66								
4-Nitroaniline	ND	330								
4-Nitrophenol	ND	66								
Acenaphthene	ND	13								
Acenaphthylene	ND	13								
Acetophenone	ND	66								
Anthracene	ND	13								
Atrazine	ND	66								
Benzaldehyde	ND	130								
Benzo(a)anthracene	ND	13								
Benzo(a)pyrene	ND	13								
Benzo(b)fluoranthene	ND	13								
Benzo(g,h,i)perylene	ND	13								
Benzo(k)fluoranthene	ND	13								
Bis(2-chloroethoxy)methane	ND	66								
Bis(2-chloroethyl)ether	ND	66								
Bis(2-ethylhexyl)phthalate	ND	66								
Butyl benzyl phthalate	ND	66								
Caprolactam	ND	66								
Carbazole	ND	66								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **91739** Instrument ID **SVMS5** Method: **SW846 8270D**

Chrysene	ND	13					
Dibenzo(a,h)anthracene	ND	13					
Dibenzofuran	ND	66					
Diethyl phthalate	ND	66					
Dimethyl phthalate	ND	66					
Di-n-butyl phthalate	ND	66					
Di-n-octyl phthalate	ND	66					
Fluoranthene	ND	13					
Fluorene	ND	13					
Hexachlorobenzene	ND	66					
Hexachlorobutadiene	ND	66					
Hexachlorocyclopentadiene	ND	66					
Hexachloroethane	ND	66					
Indeno(1,2,3-cd)pyrene	ND	13					
Isophorone	ND	330					
Naphthalene	ND	13					
Nitrobenzene	ND	330					
N-Nitrosodimethylamine	ND	330					
N-Nitrosodi-n-propylamine	ND	66					
Pentachlorophenol	ND	66					
Phenanthrene	ND	13					
Phenol	ND	66					
Pyrene	ND	13					
Surr: 2,4,6-Tribromophenol	*2110*	0	*3333*	0	*63.3*	*34-140*	0
Surr: 2-Fluorobiphenyl	*2513*	0	*3333*	0	*75.4*	*12-100*	0
Surr: 2-Fluorophenol	*2643*	0	*3333*	0	*79.3*	*33-117*	0
Surr: 4-Terphenyl-d14	*2763*	0	*3333*	0	*82.9*	*25-137*	0
Surr: Nitrobenzene-d5	*2239*	0	*3333*	0	*67.2*	*37-107*	0
Surr: Phenol-d6	*2287*	0	*3333*	0	*68.6*	*40-106*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **91739** Instrument ID **SVMS5** Method: **SW846 8270D**

LCS Sample ID: **SLCSS1-91739-91739** Units: **µg/Kg** Analysis Date: **9/26/2016 04:18 PM**

Client ID: Run ID: **SVMS4_160926A** SeqNo: **4048265** Prep Date: **9/22/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1`-Biphenyl	1013	66	1333	0	75.9	30-120	0			
2,2`-Oxybis(1-chloropropane)	986.7	66	1333	0	74	20-115	0			
2,4,5-Trichlorophenol	1009	66	1333	0	75.7	50-110	0			
2,4,6-Trichlorophenol	1055	66	1333	0	79.1	45-110	0			
2,4-Dichlorophenol	922.7	66	1333	0	69.2	45-110	0			
2,4-Dimethylphenol	858	66	1333	0	64.3	30-105	0			
2,4-Dinitrophenol	522	66	1333	0	39.1	15-130	0			
2,4-Dinitrotoluene	1246	66	1333	0	93.4	50-115	0			
2,6-Dinitrotoluene	1007	66	1333	0	75.5	50-110	0			
2-Chloronaphthalene	992	13	1333	0	74.4	45-105	0			
2-Chlorophenol	950.7	66	1333	0	71.3	45-105	0			
2-Methylnaphthalene	992.7	13	1333	0	74.4	45-105	0			
2-Methylphenol	960	66	1333	0	72	40-105	0			
2-Nitroaniline	950.7	66	1333	0	71.3	45-120	0			
2-Nitrophenol	976.7	66	1333	0	73.2	40-110	0			
3&4-Methylphenol	858.7	66	1333	0	64.4	40-105	0			
3,3´-Dichlorobenzidine	1108	330	1333	0	83.1	30-120	0			
3-Nitroaniline	899.3	66	1333	0	67.4	25-150	0			
4,6-Dinitro-2-methylphenol	1166	66	1333	0	87.4	40-130	0			
4-Bromophenyl phenyl ether	1102	66	1333	0	82.6	45-115	0			
4-Chloro-3-methylphenol	1003	66	1333	0	75.2	45-115	0			
4-Chloroaniline	975.3	130	1333	0	73.1	15-110	0			
4-Chlorophenyl phenyl ether	1085	66	1333	0	81.4	45-110	0			
4-Nitroaniline	706	330	1333	0	52.9	35-150	0			
4-Nitrophenol	1175	66	1333	0	88.1	15-140	0			
Acenaphthene	1005	13	1333	0	75.3	45-110	0			
Acenaphthylene	1149	13	1333	0	86.1	45-105	0			
Acetophenone	969.3	66	1333	0	72.7	30-120	0			
Anthracene	1140	13	1333	0	85.5	55-105	0			
Atrazine	1363	66	1333	0	102	30-120	0			
Benzaldehyde	436	130	1333	0	32.7	30-120	0			
Benzo(a)anthracene	1122	13	1333	0	84.1	50-110	0			
Benzo(a)pyrene	1196	13	1333	0	89.7	50-110	0			
Benzo(b)fluoranthene	1222	13	1333	0	91.6	45-115	0			
Benzo(g,h,i)perylene	1215	13	1333	0	91.1	40-125	0			
Benzo(k)fluoranthene	1164	13	1333	0	87.3	45-115	0			
Bis(2-chloroethoxy)methane	960.7	66	1333	0	72	45-110	0			
Bis(2-chloroethyl)ether	1075	66	1333	0	80.6	40-105	0			
Bis(2-ethylhexyl)phthalate	1205	66	1333	0	90.3	45-125	0			
Butyl benzyl phthalate	1091	66	1333	0	81.8	50-125	0			
Caprolactam	858	66	1333	0	64.3	30-120	0			
Carbazole	1083	66	1333	0	81.2	50-150	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **91739** Instrument ID **SVMS5** Method: **SW846 8270D**

Chrysene	1153	13	1333	0	86.4	55-110	0
Dibenzo(a,h)anthracene	1173	13	1333	0	87.9	40-125	0
Dibenzofuran	1011	66	1333	0	75.8	50-105	0
Diethyl phthalate	1105	66	1333	0	82.8	50-115	0
Dimethyl phthalate	1071	66	1333	0	80.3	50-110	0
Di-n-butyl phthalate	1223	66	1333	0	91.7	55-110	0
Di-n-octyl phthalate	1129	66	1333	0	84.7	40-130	0
Fluoranthene	1171	13	1333	0	87.8	55-115	0
Fluorene	1045	13	1333	0	78.4	50-110	0
Hexachlorobenzene	1115	66	1333	0	83.6	45-120	0
Hexachlorobutadiene	1070	66	1333	0	80.2	40-115	0
Hexachlorocyclopentadiene	1298	66	1333	0	97.3	40-115	0
Hexachloroethane	1072	66	1333	0	80.4	35-110	0
Indeno(1,2,3-cd)pyrene	1265	13	1333	0	94.9	40-120	0
Isophorone	999.3	330	1333	0	74.9	45-110	0
Naphthalene	989.3	13	1333	0	74.2	40-105	0
Nitrobenzene	1016	330	1333	0	76.2	40-115	0
N-Nitrosodimethylamine	954.7	330	1333	0	71.6	20-115	0
N-Nitrosodi-n-propylamine	1019	66	1333	0	76.4	40-115	0
Pentachlorophenol	1007	66	1333	0	75.5	25-120	0
Phenanthrene	1089	13	1333	0	81.7	50-110	0
Phenol	888.7	66	1333	0	66.6	40-100	0
Pyrene	1117	13	1333	0	83.7	45-125	0
Surr: 2,4,6-Tribromophenol	*2734*	0	*3333*	0	*82*	*34-140*	0
Surr: 2-Fluorobiphenyl	*2503*	0	*3333*	0	*75.1*	*12-100*	0
Surr: 2-Fluorophenol	*2149*	0	*3333*	0	*64.5*	*33-117*	0
Surr: 4-Terphenyl-d14	*2638*	0	*3333*	0	*79.1*	*25-137*	0
Surr: Nitrobenzene-d5	*2334*	0	*3333*	0	*70*	*37-107*	0
Surr: Phenol-d6	*2175*	0	*3333*	0	*65.3*	*40-106*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **91739** Instrument ID **SVMS5** Method: **SW846 8270D**

MS Sample ID: **1609941-17A MS** Units: **µg/Kg** Analysis Date: **9/22/2016 01:09 PM**

Client ID: Run ID: **SVMS5_160922A** SeqNo: **4042980** Prep Date: **9/22/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1`-Biphenyl	1037	62	1260	0	82.3	30-120	0			
2,4,5-Trichlorophenol	998.9	62	1260	0	79.2	50-110	0			
2,4,6-Trichlorophenol	913.2	62	1260	0	72.4	45-110	0			
2,4-Dichlorophenol	911.9	62	1260	0	72.3	45-110	0			
2,4-Dimethylphenol	647.8	62	1260	0	51.4	30-105	0			
2,4-Dinitrophenol	562.1	62	1260	0	44.6	15-130	0			
2,4-Dinitrotoluene	1052	62	1260	0	83.4	50-115	0			
2,6-Dinitrotoluene	1052	62	1260	0	83.4	50-110	0			
2-Chloronaphthalene	1043	13	1260	0	82.7	45-105	0			
2-Chlorophenol	1033	62	1260	0	81.9	45-105	0			
2-Methylnaphthalene	986.9	13	1260	0	78.3	45-105	0			
2-Methylphenol	898.7	62	1260	0	71.3	40-105	0			
2-Nitroaniline	979.3	62	1260	0	77.7	45-120	0			
2-Nitrophenol	955.4	62	1260	0	75.8	40-110	0			
3&4-Methylphenol	966.7	62	1260	0	76.7	40-105	0			
3,3´-Dichlorobenzidine	983.7	320	1260	0	78	30-120	0			
3-Nitroaniline	713.4	62	1260	0	56.6	25-150	0			
4,6-Dinitro-2-methylphenol	959.2	62	1260	0	76.1	40-130	0			
4-Bromophenyl phenyl ether	974.3	62	1260	0	77.3	45-115	0			
4-Chloro-3-methylphenol	971.8	62	1260	0	77.1	45-115	0			
4-Chloroaniline	1097	130	1260	0	87	15-110	0			
4-Chlorophenyl phenyl ether	1056	62	1260	0	83.8	45-110	0			
4-Nitroaniline	827.5	320	1260	0	65.6	35-150	0			
4-Nitrophenol	819.9	62	1260	0	65	15-140	0			
Acenaphthene	1031	13	1260	0	81.8	45-110	0			
Acenaphthylene	1199	13	1260	0	95.1	45-105	0			
Acetophenone	1151	62	1260	0	91.3	30-120	0			
Anthracene	1120	13	1260	0	88.9	55-105	0			
Atrazine	1364	62	1260	0	108	30-120	0			
Benzaldehyde	545.8	130	1260	0	43.3	30-120	0			
Benzo(a)anthracene	1047	13	1260	0	83	50-110	0			
Benzo(a)pyrene	1065	13	1260	0	84.5	50-110	0			
Benzo(b)fluoranthene	984.4	13	1260	0	78.1	45-115	0			
Benzo(g,h,i)perylene	1107	13	1260	0	87.8	40-125	0			
Benzo(k)fluoranthene	1152	13	1260	0	91.4	45-115	0			
Bis(2-chloroethoxy)methane	1039	62	1260	0	82.4	45-110	0			
Bis(2-chloroethyl)ether	1177	62	1260	0	93.3	40-105	0			
Bis(2-ethylhexyl)phthalate	1138	62	1260	0	90.2	45-125	0			
Butyl benzyl phthalate	1051	62	1260	0	83.4	50-125	0			
Caprolactam	983.1	62	1260	0	78	30-120	0			
Carbazole	1098	62	1260	0	87.1	50-150	0			
Chrysene	1165	13	1260	0	92.4	55-110	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **91739** Instrument ID **SVMS5** Method: **SW846 8270D**

Dibenzo(a,h)anthracene	1098	13	1260	0	87.1	40-125	0
Dibenzofuran	1067	62	1260	0	84.6	50-105	0
Diethyl phthalate	1146	62	1260	0	90.9	50-115	0
Dimethyl phthalate	1109	62	1260	0	87.9	50-110	0
Di-n-butyl phthalate	1153	62	1260	0	91.5	55-110	0
Di-n-octyl phthalate	1030	62	1260	0	81.7	40-130	0
Fluoranthene	1098	13	1260	0	87.1	55-115	0
Fluorene	1063	13	1260	0	84.3	50-110	0
Hexachlorobenzene	969.9	62	1260	0	76.9	45-120	0
Hexachlorobutadiene	955.4	62	1260	0	75.8	40-115	0
Hexachlorocyclopentadiene	1126	62	1260	0	89.3	40-115	0
Hexachloroethane	1093	62	1260	0	86.7	35-110	0
Indeno(1,2,3-cd)pyrene	1244	13	1260	0	98.7	40-120	0
Isophorone	1095	320	1260	0	86.8	45-110	0
Naphthalene	977.4	13	1260	0	77.5	40-105	0
Nitrobenzene	971.8	320	1260	0	77.1	40-115	0
N-Nitrosodimethylamine	955.4	320	1260	0	75.8	20-115	0
N-Nitrosodi-n-propylamine	1182	62	1260	0	93.8	40-115	0
Pentachlorophenol	989.4	62	1260	0	78.5	25-120	0
Phenanthrene	1060	13	1260	0	84.1	50-110	0
Phenol	835	62	1260	0	66.2	40-100	0
Pyrene	1089	13	1260	0	86.4	45-125	0
Surr: 2,4,6-Tribromophenol	*2406*	0	*3151*	0	*76.4*	*34-140*	0
Surr: 2-Fluorobiphenyl	*2616*	0	*3151*	0	*83*	*12-100*	0
Surr: 2-Fluorophenol	*2565*	0	*3151*	0	*81.4*	*33-117*	0
Surr: 4-Terphenyl-d14	*2620*	0	*3151*	0	*83.2*	*25-137*	0
Surr: Nitrobenzene-d5	*2395*	0	*3151*	0	*76*	*37-107*	0
Surr: Phenol-d6	*2467*	0	*3151*	0	*78.3*	*40-106*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **91739** Instrument ID **SVMS5** Method: **SW846 8270D**

MSD Sample ID: **1609941-17A MSD** Units: **µg/Kg** Analysis Date: **9/22/2016 01:32 PM**

Client ID: Run ID: **SVMS5_160922A** SeqNo: **4042981** Prep Date: **9/22/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1`-Biphenyl	1118	65	1321	0	84.6	30-120	1037	7.51	30	
2,4,5-Trichlorophenol	1136	65	1321	0	86	50-110	998.9	12.9	30	
2,4,6-Trichlorophenol	972.9	65	1321	0	73.6	45-110	913.2	6.34	30	
2,4-Dichlorophenol	1011	65	1321	0	76.5	45-110	911.9	10.3	30	
2,4-Dimethylphenol	673.7	65	1321	0	51	30-105	647.8	3.91	30	
2,4-Dinitrophenol	788.6	65	1321	0	59.7	15-130	562.1	33.5	30	R
2,4-Dinitrotoluene	1143	65	1321	0	86.5	50-115	1052	8.28	30	
2,6-Dinitrotoluene	1143	65	1321	0	86.5	50-110	1052	8.28	30	
2-Chloronaphthalene	1122	13	1321	0	84.9	45-105	1043	7.32	30	
2-Chlorophenol	1116	65	1321	0	84.5	45-105	1033	7.76	30	
2-Methylnaphthalene	1097	13	1321	0	83	45-105	986.9	10.6	30	
2-Methylphenol	967	65	1321	0	73.2	40-105	898.7	7.32	30	
2-Nitroaniline	1038	65	1321	0	78.5	45-120	979.3	5.78	30	
2-Nitrophenol	1072	65	1321	0	81.1	40-110	955.4	11.5	30	
3&4-Methylphenol	1042	65	1321	0	78.8	40-105	966.7	7.46	30	
3,3´-Dichlorobenzidine	974.9	330	1321	0	73.8	30-120	983.7	0.903	30	
3-Nitroaniline	761.6	65	1321	0	57.6	25-110	713.4	6.53	30	
4,6-Dinitro-2-methylphenol	1088	65	1321	0	82.3	40-130	959.2	12.6	30	
4-Bromophenyl phenyl ether	1032	65	1321	0	78.1	45-115	974.3	5.79	30	
4-Chloro-3-methylphenol	1049	65	1321	0	79.4	45-115	971.8	7.63	30	
4-Chloroaniline	1219	130	1321	0	92.3	15-110	1097	10.5	30	
4-Chlorophenyl phenyl ether	1127	65	1321	0	85.3	45-110	1056	6.53	30	
4-Nitroaniline	895	330	1321	0	67.7	35-150	827.5	7.84	30	
4-Nitrophenol	893	65	1321	0	67.6	15-140	819.9	8.54	30	
Acenaphthene	1118	13	1321	0	84.6	45-110	1031	8.06	30	
Acenaphthylene	1278	13	1321	0	96.7	45-105	1199	6.36	30	
Acetophenone	1260	65	1321	0	95.3	30-120	1151	8.98	30	
Anthracene	1188	13	1321	0	89.9	55-105	1120	5.87	30	
Atrazine	1472	65	1321	0	111	30-120	1364	7.61	30	
Benzaldehyde	642	130	1321	0	48.6	30-120	545.8	16.2	30	
Benzo(a)anthracene	1114	13	1321	0	84.3	50-110	1047	6.25	30	
Benzo(a)pyrene	1128	13	1321	0	85.4	50-110	1065	5.75	30	
Benzo(b)fluoranthene	1014	13	1321	0	76.7	45-115	984.4	2.95	30	
Benzo(g,h,i)perylene	1184	13	1321	0	89.6	40-125	1107	6.72	30	
Benzo(k)fluoranthene	1228	13	1321	0	92.9	45-115	1152	6.38	30	
Bis(2-chloroethoxy)methane	1143	65	1321	0	86.5	45-110	1039	9.55	30	
Bis(2-chloroethyl)ether	1273	65	1321	0	96.3	40-105	1177	7.86	30	
Bis(2-ethylhexyl)phthalate	1208	65	1321	0	91.4	45-125	1138	6.02	30	
Butyl benzyl phthalate	1129	65	1321	0	85.4	50-125	1051	7.12	30	
Caprolactam	1077	65	1321	0	81.5	30-120	983.1	9.08	30	
Carbazole	1171	65	1321	0	88.6	50-150	1098	6.4	30	
Chrysene	1233	13	1321	0	93.3	55-110	1165	5.72	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **91739** Instrument ID **SVMS5** Method: **SW846 8270D**

Dibenzo(a,h)anthracene	1205	13	1321	0	91.2	40-125	1098	9.29	30	
Dibenzofuran	1134	65	1321	0	85.8	50-105	1067	6.1	30	
Diethyl phthalate	1241	65	1321	0	93.9	50-115	1146	7.99	30	
Dimethyl phthalate	1187	65	1321	0	89.8	50-110	1109	6.83	30	
Di-n-butyl phthalate	1238	65	1321	0	93.7	55-110	1153	7.12	30	
Di-n-octyl phthalate	1087	65	1321	0	82.2	40-130	1030	5.3	30	
Fluoranthene	1170	13	1321	0	88.5	55-115	1098	6.35	30	
Fluorene	1140	13	1321	0	86.3	50-110	1063	6.98	30	
Hexachlorobenzene	1040	65	1321	0	78.7	45-120	969.9	6.94	30	
Hexachlorobutadiene	1077	65	1321	0	81.5	40-115	955.4	11.9	30	
Hexachlorocyclopentadiene	1296	65	1321	0	98.1	40-115	1126	14.1	30	
Hexachloroethane	1220	65	1321	0	92.3	35-110	1093	11	30	
Indeno(1,2,3-cd)pyrene	811.8	13	1321	0	61.4	40-120	1244	42.1	30	R
Isophorone	1209	330	1321	0	91.5	45-110	1095	9.9	30	
Naphthalene	1100	13	1321	0	83.2	40-105	977.4	11.8	30	
Nitrobenzene	1079	330	1321	0	81.7	40-115	971.8	10.5	30	
N-Nitrosodimethylamine	1085	330	1321	0	82.1	20-115	955.4	12.7	30	
N-Nitrosodi-n-propylamine	1287	65	1321	0	97.4	40-115	1182	8.51	30	
Pentachlorophenol	1059	65	1321	0	80.1	25-120	989.4	6.77	30	
Phenanthrene	1127	13	1321	0	85.3	50-110	1060	6.11	30	
Phenol	931.3	65	1321	0	70.5	40-100	835	10.9	30	
Pyrene	1172	13	1321	0	88.7	45-125	1089	7.32	30	
Surr: 2,4,6-Tribromophenol	*2512*	0	*3303*	0	*76.1*	*34-140*	2406	*4.3*	*40*	
Surr: 2-Fluorobiphenyl	*2758*	0	*3303*	0	*83.5*	*12-100*	2616	*5.3*	*40*	
Surr: 2-Fluorophenol	*2686*	0	*3303*	0	*81.3*	*33-117*	2565	*4.6*	*40*	
Surr: 4-Terphenyl-d14	*2736*	0	*3303*	0	*82.9*	*25-137*	2620	*4.33*	*40*	
Surr: Nitrobenzene-d5	*2632*	0	*3303*	0	*79.7*	*37-107*	2395	*9.42*	*40*	
Surr: Phenol-d6	*2678*	0	*3303*	0	*81.1*	*40-106*	2467	*8.21*	*40*	

The following samples were analyzed in this batch: 1609985-04A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **91663** Instrument ID **VMS7** Method: **SW8260B**

MBLK Sample ID: **MBLK-91663-91663** Units: **µg/Kg-dry** Analysis Date: **9/20/2016 10:38 PM**
Client ID: Run ID: **VMS7_160920B** SeqNo: **4038211** Prep Date: **9/20/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1,2-Trichlorotrifluoroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	ND	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								
Dichlorodifluoromethane	ND	30								
Diethyl ether	ND	30								
Ethylbenzene	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **91663** Instrument ID **VMS7** Method: **SW8260B**

Hexachloroethane	ND	100					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	ND	100					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
Styrene	ND	30					
Tetrachloroethene	ND	30					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl acetate	ND	250					
Vinyl chloride	ND	30					
Xylenes, Total	ND	90					
Surr: 1,2-Dichloroethane-d4	*990*	0	*1000*	0	*99*	*70-130*	0
Surr: 4-Bromofluorobenzene	*963*	0	*1000*	0	*96.3*	*70-130*	0
Surr: Dibromofluoromethane	*901.5*	0	*1000*	0	*90.2*	*70-130*	0
Surr: Toluene-d8	*1005*	0	*1000*	0	*100*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **91663** Instrument ID **VMS7** Method: **SW8260B**

LCS Sample ID: **LCS-91663-91663** Units: **µg/Kg-dry** Analysis Date: **9/20/2016 09:29 PM**
Client ID: Run ID: **VMS7_160920B** SeqNo: **4038210** Prep Date: **9/20/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	923.5	30	1000	0	92.4	75-125	0			
1,1,1-Trichloroethane	953	30	1000	0	95.3	70-135	0			
1,1,2,2-Tetrachloroethane	952.5	30	1000	0	95.2	55-130	0			
1,1,2-Trichloroethane	932.5	30	1000	0	93.2	60-125	0			
1,1-Dichloroethane	976	30	1000	0	97.6	75-125	0			
1,1-Dichloroethene	1000	30	1000	0	100	65-135	0			
1,2,3-Trichloropropane	935.5	30	1000	0	93.6	65-130	0			
1,2,4-Trichlorobenzene	923.5	30	1000	0	92.4	65-130	0			
1,2,4-Trimethylbenzene	924	30	1000	0	92.4	65-135	0			
1,2-Dibromo-3-chloropropane	855.5	30	1000	0	85.6	40-135	0			
1,2-Dibromoethane	1688	30	1000	0	169	75-125	0			S
1,2-Dichlorobenzene	951.5	30	1000	0	95.2	75-120	0			
1,2-Dichloroethane	911.5	30	1000	0	91.2	70-135	0			
1,2-Dichloropropane	923	30	1000	0	92.3	70-120	0			
1,3,5-Trimethylbenzene	951.5	30	1000	0	95.2	65-135	0			
1,3-Dichlorobenzene	955	30	1000	0	95.5	70-125	0			
1,4-Dichlorobenzene	927	30	1000	0	92.7	70-125	0			
2-Butanone	1066	200	1000	0	107	30-160	0			
2-Hexanone	987	30	1000	0	98.7	45-145	0			
4-Methyl-2-pentanone	1165	30	1000	0	116	74-176	0			
Acetone	1124	100	1000	0	112	20-160	0			
Acrylonitrile	979.5	100	1000	0	98	70-135	0			
Benzene	949	30	1000	0	94.9	75-125	0			
Bromochloromethane	974	30	1000	0	97.4	70-125	0			
Bromodichloromethane	899	30	1000	0	89.9	70-130	0			
Bromoform	785	30	1000	0	78.5	55-135	0			
Bromomethane	905	75	1000	0	90.5	30-160	0			
Carbon disulfide	931	30	1000	0	93.1	45-160	0			
Carbon tetrachloride	967	30	1000	0	96.7	65-135	0			
Chlorobenzene	917.5	30	1000	0	91.8	75-125	0			
Chloroethane	981.5	100	1000	0	98.2	40-155	0			
Chloroform	962.5	30	1000	0	96.2	70-125	0			
Chloromethane	862.5	100	1000	0	86.2	50-130	0			
cis-1,2-Dichloroethene	926	30	1000	0	92.6	65-125	0			
cis-1,3-Dichloropropene	919	30	1000	0	91.9	70-125	0			
Dibromochloromethane	789	30	1000	0	78.9	65-135	0			
Dibromomethane	953.5	30	1000	0	95.4	75-130	0			
Dichlorodifluoromethane	643.5	30	1000	0	64.4	35-135	0			
Ethylbenzene	957.5	30	1000	0	95.8	75-125	0			
Hexachloroethane	777.5	100	1000	0	77.8	53-112	0			
Isopropylbenzene	947.5	30	1000	0	94.8	75-130	0			
m,p-Xylene	1896	60	2000	0	94.8	80-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **91663** Instrument ID **VMS7** Method: **SW8260B**

Methyl iodide	1562	75	1000	0	156	64-145	0	S
Methyl tert-butyl ether	1033	30	1000	0	103	75-125	0	
Methylene chloride	1052	30	1000	0	105	55-145	0	
Naphthalene	959.5	100	1000	0	96	40-140	0	
n-Propylbenzene	932.5	30	1000	0	93.2	65-135	0	
o-Xylene	954.5	30	1000	0	95.4	75-125	0	
Styrene	981.5	30	1000	0	98.2	75-125	0	
Tetrachloroethene	1116	30	1000	0	112	64-140	0	
Toluene	952.5	30	1000	0	95.2	70-125	0	
trans-1,2-Dichloroethene	969	30	1000	0	96.9	65-135	0	
trans-1,3-Dichloropropene	896.5	30	1000	0	89.6	65-125	0	
trans-1,4-Dichloro-2-butene	767.5	30	1000	0	76.8	62-112	0	
Trichloroethene	928	30	1000	0	92.8	75-125	0	
Trichlorofluoromethane	895.5	30	1000	0	89.6	25-185	0	
Vinyl chloride	896.5	30	1000	0	89.6	60-125	0	
Xylenes, Total	2850	90	3000	0	95	75-125	0	
Surr: 1,2-Dichloroethane-d4	*1018*	0	*1000*	0	*102*	*70-130*	0	
Surr: 4-Bromofluorobenzene	*998.5*	0	*1000*	0	*99.8*	*70-130*	0	
Surr: Dibromofluoromethane	*1020*	0	*1000*	0	*102*	*70-130*	0	
Surr: Toluene-d8	*996*	0	*1000*	0	*99.6*	*70-130*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **91663** Instrument ID **VMS7** Method: **SW8260B**

MS Sample ID: **1609987-12A MS** Units: **µg/Kg-dry** Analysis Date: **9/24/2016 06:00 AM**

Client ID: Run ID: **VMS7_160923B** SeqNo: **4044264** Prep Date: **9/20/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1027	40	1326	0	77.5	75-125	0			
1,1,1-Trichloroethane	1150	40	1326	0	86.8	70-135	0			
1,1,2,2-Tetrachloroethane	636.9	40	1326	0	48	55-130	0			S
1,1,2-Trichloroethane	1092	40	1326	0	82.4	60-125	0			
1,1-Dichloroethane	1298	40	1326	0	97.9	75-125	0			
1,1-Dichloroethene	1382	40	1326	0	104	65-135	0			
1,2,3-Trichloropropane	1067	40	1326	0	80.5	65-130	0			
1,2,4-Trichlorobenzene	1168	40	1326	0	88.1	65-130	0			
1,2,4-Trimethylbenzene	1271	40	1326	0	95.9	65-135	0			
1,2-Dibromo-3-chloropropane	729.7	40	1326	0	55	40-135	0			
1,2-Dibromoethane	1854	40	1326	0	140	75-125	0			S
1,2-Dichlorobenzene	1150	40	1326	0	86.8	75-120	0			
1,2-Dichloroethane	1172	40	1326	0	88.4	70-135	0			
1,2-Dichloropropane	1165	40	1326	0	87.8	70-120	0			
1,3,5-Trimethylbenzene	1218	40	1326	0	91.8	65-135	0			
1,3-Dichlorobenzene	1165	40	1326	0	87.9	70-125	0			
1,4-Dichlorobenzene	1143	40	1326	0	86.2	70-125	0			
2-Butanone	2083	270	1326	0	157	30-160	0			
2-Hexanone	1582	40	1326	0	119	45-145	0			
4-Methyl-2-pentanone	1204	40	1326	0	90.8	74-176	0			
Acetone	3169	130	1326	0	239	20-160	0			S
Acrylonitrile	1212	130	1326	0	91.4	70-135	0			
Benzene	1202	40	1326	0	90.6	75-125	0			
Bromochloromethane	1288	40	1326	0	97.2	70-125	0			
Bromodichloromethane	1026	40	1326	0	77.4	70-130	0			
Bromoform	720.5	40	1326	0	54.4	55-135	0			S
Bromomethane	381.1	99	1326	0	28.8	30-160	0			S
Carbon disulfide	1002	40	1326	0	75.6	45-160	0			
Carbon tetrachloride	1141	40	1326	0	86.1	65-135	0			
Chlorobenzene	1154	40	1326	0	87	75-125	0			
Chloroethane	1086	130	1326	0	81.9	40-155	0			
Chloroform	1239	40	1326	0	93.5	70-125	0			
Chloromethane	1197	130	1326	0	90.3	50-130	0			
cis-1,2-Dichloroethene	1210	40	1326	0	91.2	65-125	0			
cis-1,3-Dichloropropene	1023	40	1326	0	77.2	70-125	0			
Dibromochloromethane	808.6	40	1326	0	61	65-135	0			S
Dibromomethane	1171	40	1326	0	88.4	75-130	0			
Dichlorodifluoromethane	907.4	40	1326	0	68.4	35-135	0			
Ethylbenzene	1229	40	1326	0	92.7	75-125	0			
Hexachloroethane	873.6	130	1326	0	65.9	53-112	0			
Isopropylbenzene	1205	40	1326	0	90.9	75-130	0			
m,p-Xylene	2497	80	2651	0	94.2	80-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **91663** Instrument ID **VMS7** Method: **SW8260B**

Methyl iodide	896.8	99	1326	0	67.6	30-105	0
Methyl tert-butyl ether	1314	40	1326	0	99.1	75-125	0
Methylene chloride	1306	40	1326	0	98.5	55-145	0
Naphthalene	1055	130	1326	0	79.6	40-140	0
n-Propylbenzene	1210	40	1326	0	91.2	65-135	0
o-Xylene	1221	40	1326	0	92.1	75-125	0
Styrene	1187	40	1326	0	89.6	75-125	0
Tetrachloroethene	2326	40	1326	1047	96.4	64-140	0
Toluene	1202	40	1326	0	90.7	70-125	0
trans-1,2-Dichloroethene	1286	40	1326	0	97	65-135	0
trans-1,3-Dichloropropene	920.6	40	1326	0	69.4	65-125	0
trans-1,4-Dichloro-2-butene	736.4	40	1326	0	55.6	45-86	0
Trichloroethene	1463	40	1326	0	110	75-125	0
Trichlorofluoromethane	1188	40	1326	0	89.6	25-185	0
Vinyl chloride	1175	40	1326	0	88.6	60-125	0
Xylenes, Total	3718	120	3977	0	93.5	75-125	0
Surr: 1,2-Dichloroethane-d4	*1408*	0	*1326*	0	*106*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1323*	0	*1326*	0	*99.8*	*70-130*	0
Surr: Dibromofluoromethane	*1290*	0	*1326*	0	*97.4*	*70-130*	0
Surr: Toluene-d8	*1324*	0	*1326*	0	*99.9*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **91663** Instrument ID **VMS7** Method: **SW8260B**

MSD Sample ID: **1609987-12A MSD** Units: **µg/Kg-dry** Analysis Date: **9/24/2016 06:23 AM**

Client ID: Run ID: **VMS7_160923B** SeqNo: **4044265** Prep Date: **9/20/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1040	40	1326	0	78.4	75-125	1027	1.22	30	
1,1,1-Trichloroethane	1153	40	1326	0	87	70-135	1150	0.23	30	
1,1,2,2-Tetrachloroethane	562.7	40	1326	0	42.4	55-130	636.9	12.4	30	S
1,1,2-Trichloroethane	1118	40	1326	0	84.4	60-125	1092	2.4	30	
1,1-Dichloroethane	1269	40	1326	0	95.8	75-125	1298	2.22	30	
1,1-Dichloroethene	1341	40	1326	0	101	65-135	1382	3.02	30	
1,2,3-Trichloropropane	1052	40	1326	0	79.4	65-130	1067	1.44	30	
1,2,4-Trichlorobenzene	1112	40	1326	0	83.9	65-130	1168	4.88	30	
1,2,4-Trimethylbenzene	1180	40	1326	0	89	65-135	1271	7.46	30	
1,2-Dibromo-3-chloropropane	780.1	40	1326	0	58.8	40-135	729.7	6.67	30	
1,2-Dibromoethane	1910	40	1326	0	144	75-125	1854	2.92	30	S
1,2-Dichlorobenzene	1149	40	1326	0	86.7	75-120	1150	0.0577	30	
1,2-Dichloroethane	1165	40	1326	0	87.9	70-135	1172	0.624	30	
1,2-Dichloropropane	1176	40	1326	0	88.8	70-120	1165	1.02	30	
1,3,5-Trimethylbenzene	1198	40	1326	0	90.4	65-135	1218	1.59	30	
1,3-Dichlorobenzene	1165	40	1326	0	87.8	70-125	1165	0.0569	30	
1,4-Dichlorobenzene	1131	40	1326	0	85.4	70-125	1143	0.991	30	
2-Butanone	2037	270	1326	0	154	30-160	2083	2.25	30	
2-Hexanone	1514	40	1326	0	114	45-145	1582	4.37	30	
4-Methyl-2-pentanone	1223	40	1326	0	92.2	74-176	1204	1.58	30	
Acetone	3024	130	1326	0	228	20-160	3169	4.69	30	S
Acrylonitrile	1229	130	1326	0	92.7	70-135	1212	1.36	30	
Benzene	1196	40	1326	0	90.2	75-125	1202	0.442	30	
Bromochloromethane	1269	40	1326	0	95.7	70-125	1288	1.5	30	
Bromodichloromethane	1024	40	1326	0	77.2	70-130	1026	0.194	30	
Bromoform	758.2	40	1326	0	57.2	55-135	720.5	5.11	30	
Bromomethane	292.3	99	1326	0	22	30-160	381.1	26.4	30	S
Carbon disulfide	1009	40	1326	0	76.2	45-160	1002	0.725	30	
Carbon tetrachloride	1151	40	1326	0	86.8	65-135	1141	0.867	30	
Chlorobenzene	1159	40	1326	0	87.4	75-125	1154	0.458	30	
Chloroethane	1048	130	1326	0	79	40-155	1086	3.54	30	
Chloroform	1240	40	1326	0	93.6	70-125	1239	0.0535	30	
Chloromethane	1185	130	1326	0	89.4	50-130	1197	1	30	
cis-1,2-Dichloroethene	1200	40	1326	0	90.6	65-125	1210	0.77	30	
cis-1,3-Dichloropropene	1025	40	1326	0	77.3	70-125	1023	0.129	30	
Dibromochloromethane	830.5	40	1326	0	62.6	65-135	808.6	2.67	30	S
Dibromomethane	1161	40	1326	0	87.6	75-130	1171	0.853	30	
Dichlorodifluoromethane	794	40	1326	0	59.9	35-135	907.4	13.3	30	
Ethylbenzene	1236	40	1326	0	93.2	75-125	1229	0.592	30	
Hexachloroethane	859.6	130	1326	0	64.8	53-112	873.6	1.61	30	
Isopropylbenzene	1221	40	1326	0	92.1	75-130	1205	1.31	30	
m,p-Xylene	2441	80	2651	0	92.1	80-125	2497	2.28	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **91663** Instrument ID **VMS7** Method: **SW8260B**

Methyl iodide	1197	99	1326	0	90.3	30-105	896.8	28.7	30
Methyl tert-butyl ether	1304	40	1326	0	98.4	75-125	1314	0.709	30
Methylene chloride	1274	40	1326	0	96.1	55-145	1306	2.47	30
Naphthalene	1062	130	1326	0	80.1	40-140	1055	0.626	30
n-Propylbenzene	1206	40	1326	0	91	65-135	1210	0.274	30
o-Xylene	1217	40	1326	0	91.8	75-125	1221	0.326	30
Styrene	1227	40	1326	0	92.6	75-125	1187	3.29	30
Tetrachloroethene	2732	40	1326	1047	127	64-140	2326	16.1	30
Toluene	1240	40	1326	0	93.6	70-125	1202	3.09	30
trans-1,2-Dichloroethene	1265	40	1326	0	95.4	65-135	1286	1.61	30
trans-1,3-Dichloropropene	977.6	40	1326	0	73.8	65-125	920.6	6.01	30
trans-1,4-Dichloro-2-butene	729.1	40	1326	0	55	45-86	736.4	0.995	30
Trichloroethene	1528	40	1326	0	115	75-125	1463	4.34	30
Trichlorofluoromethane	1150	40	1326	0	86.8	25-185	1188	3.29	30
Vinyl chloride	1123	40	1326	0	84.7	60-125	1175	4.56	30
Xylenes, Total	3658	120	3977	0	92	75-125	3718	1.64	30
Surr: 1,2-Dichloroethane-d4	*1376*	0	*1326*	0	*104*	*70-130*	1408	*2.33*	*30*
Surr: 4-Bromofluorobenzene	*1349*	0	*1326*	0	*102*	*70-130*	1323	*1.98*	*30*
Surr: Dibromofluoromethane	*1274*	0	*1326*	0	*96.1*	*70-130*	1290	*1.29*	*30*
Surr: Toluene-d8	*1335*	0	*1326*	0	*101*	*70-130*	1324	*0.798*	*30*

The following samples were analyzed in this batch: 1609985-02B 1609985-04B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R196197A** Instrument ID **VMS6** Method: **SW8260B**

MBLK Sample ID: **VBLKW1-160921-R196197A** Units: **µg/L** Analysis Date: **9/21/2016 02:24 PM**
Client ID: Run ID: **VMS6_160921A** SeqNo: **4039170** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	ND	1.0								
1,2-Dichloroethane	ND	1.0								
2-Butanone	ND	5.0								
Benzene	ND	1.0								
Carbon tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroform	ND	1.0								
Tetrachloroethene	ND	1.0								
Trichloroethene	ND	1.0								
Vinyl chloride	ND	1.0								
Surr: 1,2-Dichloroethane-d4	*19.31*	0	*20*	0	*96.6*	*75-120*	0			
Surr: 4-Bromofluorobenzene	*18.97*	0	*20*	0	*94.8*	*80-110*	0			
Surr: Dibromofluoromethane	*19*	0	*20*	0	*95*	*85-115*	0			
Surr: Toluene-d8	*19.59*	0	*20*	0	*98*	*85-110*	0			

LCS Sample ID: **VLCSW1-160921-R196197A** Units: **µg/L** Analysis Date: **9/21/2016 01:31 PM**
Client ID: Run ID: **VMS6_160921A** SeqNo: **4039169** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	20.97	1.0	20	0	105	70-145	0			
1,2-Dichloroethane	18.33	1.0	20	0	91.6	78-125	0			
2-Butanone	18.05	5.0	20	0	90.2	55-150	0			
Benzene	20.15	1.0	20	0	101	85-125	0			
Carbon tetrachloride	17.15	1.0	20	0	85.8	65-140	0			
Chlorobenzene	19.13	1.0	20	0	95.6	80-120	0			
Chloroform	19.44	1.0	20	0	97.2	80-130	0			
Tetrachloroethene	20.03	1.0	20	0	100	77-138	0			
Trichloroethene	19.75	1.0	20	0	98.8	84-130	0			
Vinyl chloride	16.59	1.0	20	0	83	50-136	0			
Surr: 1,2-Dichloroethane-d4	*19.4*	0	*20*	0	*97*	*75-120*	0			
Surr: 4-Bromofluorobenzene	*19.78*	0	*20*	0	*98.9*	*80-110*	0			
Surr: Dibromofluoromethane	*20.03*	0	*20*	0	*100*	*85-115*	0			
Surr: Toluene-d8	*19.95*	0	*20*	0	*99.8*	*85-110*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R196197A** Instrument ID **VMS6** Method: **SW8260B**

MS Sample ID: **16091057-01A MS** Units: **µg/L** Analysis Date: **9/21/2016 11:05 PM**

Client ID: Run ID: **VMS6_160921A** SeqNo: **4040256** Prep Date: DF: **200**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	4450	200	4000	0	111	70-145	0			
1,2-Dichloroethane	3636	200	4000	0	90.9	78-125	0			
2-Butanone	5834	1,000	4000	2458	84.4	55-150	0			
Benzene	4060	200	4000	0	102	85-125	0			
Carbon tetrachloride	3562	200	4000	0	89	65-140	0			
Chlorobenzene	3840	200	4000	0	96	80-120	0			
Chloroform	3818	200	4000	0	95.4	80-130	0			
Tetrachloroethene	4186	200	4000	0	105	77-138	0			
Trichloroethene	4076	200	4000	0	102	84-130	0			
Vinyl chloride	3630	200	4000	0	90.8	50-136	0			
Surr: 1,2-Dichloroethane-d4	*3916*	0	*4000*	0	*97.9*	*75-120*	0			
Surr: 4-Bromofluorobenzene	*4030*	0	*4000*	0	*101*	*80-110*	0			
Surr: Dibromofluoromethane	*3960*	0	*4000*	0	*99*	*85-115*	0			
Surr: Toluene-d8	*3988*	0	*4000*	0	*99.7*	*85-110*	0			

MSD Sample ID: **16091057-01A MSD** Units: **µg/L** Analysis Date: **9/21/2016 11:32 PM**

Client ID: Run ID: **VMS6_160921A** SeqNo: **4040257** Prep Date: DF: **200**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	4478	200	4000	0	112	70-145	4450	0.627	30	
1,2-Dichloroethane	3760	200	4000	0	94	78-125	3636	3.35	30	
2-Butanone	6230	1,000	4000	2458	94.3	55-150	5834	6.56	30	
Benzene	4182	200	4000	0	105	85-125	4060	2.96	30	
Carbon tetrachloride	3786	200	4000	0	94.6	65-140	3562	6.1	30	
Chlorobenzene	3862	200	4000	0	96.6	80-120	3840	0.571	30	
Chloroform	3866	200	4000	0	96.6	80-130	3818	1.25	30	
Tetrachloroethene	4238	200	4000	0	106	77-138	4186	1.23	30	
Trichloroethene	4114	200	4000	0	103	84-130	4076	0.928	30	
Vinyl chloride	3764	200	4000	0	94.1	50-136	3630	3.62	30	
Surr: 1,2-Dichloroethane-d4	*3942*	0	*4000*	0	*98.6*	*75-120*	3916	*0.662*	*30*	
Surr: 4-Bromofluorobenzene	*3974*	0	*4000*	0	*99.4*	*80-110*	4030	*1.4*	*30*	
Surr: Dibromofluoromethane	*4018*	0	*4000*	0	*100*	*85-115*	3960	*1.45*	*30*	
Surr: Toluene-d8	*4008*	0	*4000*	0	*100*	*85-110*	3988	*0.5*	*30*	

The following samples were analyzed in this batch: 1609985-01B 1609985-03B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 1609985
Project: Abandoned Mining Wastes - Torch Lake

QC BATCH REPORT

Batch ID: **91542** Instrument ID **WETCHEM** Method: **SW9045D**

LCS Sample ID: **LCS-91542-91542** Units: **s.u.** Analysis Date: **9/17/2016 03:30 PM**
Client ID: Run ID: **WETCHEM_160917E** SeqNo: **4031378** Prep Date: **9/17/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	4.02	0	4	0	100	90-110	0			

DUP Sample ID: **1609827-01B DUP** Units: **s.u.** Analysis Date: **9/17/2016 03:30 PM**
Client ID: Run ID: **WETCHEM_160917E** SeqNo: **4031386** Prep Date: **9/17/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	8.26	0	0	0	0	0-0	8.41	1.8	20	

DUP Sample ID: **1609985-04A DUP** Units: **s.u.** Analysis Date: **9/17/2016 03:30 PM**
Client ID: **CHLL-WC02-0-6** Run ID: **WETCHEM_160917E** SeqNo: **4031392** Prep Date: **9/17/2016** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7.46	0	0	0	0	0-0	7.15	4.24	20	

The following samples were analyzed in this batch: 1609985-02A 1609985-04A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 1609985
Project: Abandoned Mining Wastes - Torch Lake

QC BATCH REPORT

Batch ID: **R196107** Instrument ID **WETCHEM** Method: **SW1010A**

LCS Sample ID: **LCS-R196107-R196107** Units: **°F** Analysis Date: **9/20/2016 10:47 AM**
Client ID: Run ID: **WETCHEM_160920H** SeqNo: **4035890** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Flashpoint/Ignitability	83	0	81	0	102	97-103	0			

DUP Sample ID: **16091054-01A DUP** Units: **°F** Analysis Date: **9/20/2016 10:47 AM**
Client ID: Run ID: **WETCHEM_160920H** SeqNo: **4035892** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Flashpoint/Ignitability	ND	0	0	0	0	0-0	0	0	10	

The following samples were analyzed in this batch: 1609985-02A 1609985-04A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 1609985
Project: Abandoned Mining Wastes - Torch Lake

QC BATCH REPORT

Batch ID: **R196402** Instrument ID **MOIST** Method: **SW3550C**

MBLK Sample ID: **WBLKS-R196402** Units: **% of sample** Analysis Date: **9/22/2016 01:50 PM**
Client ID: Run ID: **MOIST_160922B** SeqNo: **4043077** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	ND	0.050								

LCS Sample ID: **LCS-R196402** Units: **% of sample** Analysis Date: **9/22/2016 01:50 PM**
Client ID: Run ID: **MOIST_160922B** SeqNo: **4043076** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **16091251-01B DUP** Units: **% of sample** Analysis Date: **9/22/2016 01:50 PM**
Client ID: Run ID: **MOIST_160922B** SeqNo: **4043063** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	64.14	0.050	0	0	0		64.11	0.0468	20	

DUP Sample ID: **1609994-02B DUP** Units: **% of sample** Analysis Date: **9/22/2016 01:50 PM**
Client ID: Run ID: **MOIST_160922B** SeqNo: **4043072** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	7.84	0.050	0	0	0		8.52	8.31	20	

The following samples were analyzed in this batch: 1609985-02A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 1609985
Project: Abandoned Mining Wastes - Torch Lake

QC BATCH REPORT

Batch ID: **R196437** Instrument ID **WETCHEM** Method: **SW7.3.4.2**

MBLK Sample ID: **MB-R196437-R196437** Units: **mg/Kg** Analysis Date: **9/23/2016 01:00 PM**
Client ID: Run ID: **WETCHEM_160923H** SeqNo: **4043914** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide, Reactive	ND	100								

LCS Sample ID: **LCS-R196437-R196437** Units: **mg/Kg** Analysis Date: **9/23/2016 01:00 PM**
Client ID: Run ID: **WETCHEM_160923H** SeqNo: **4043915** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide, Reactive	1584	100	2149	0	73.7	60-120	0			

The following samples were analyzed in this batch: 1609985-02A 1609985-04A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 1609985
Project: Abandoned Mining Wastes - Torch Lake

QC BATCH REPORT

Batch ID: **R196438** Instrument ID **WETCHEM** Method: **SW7.3.3.2**

MBLK Sample ID: **MB-R196438-R196438** Units: **mg/Kg** Analysis Date: **9/23/2016 01:00 PM**
Client ID: Run ID: **WETCHEM_160923I** SeqNo: **4043959** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	ND	100								

LCS Sample ID: **LCS-R196438-R196438** Units: **mg/Kg** Analysis Date: **9/23/2016 01:00 PM**
Client ID: Run ID: **WETCHEM_160923I** SeqNo: **4043960** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	124.8	100	125	0	99.8	75-125	0			

MS Sample ID: **1609985-04A MS** Units: **mg/Kg** Analysis Date: **9/23/2016 01:00 PM**
Client ID: **CHLL-WC02-0-6** Run ID: **WETCHEM_160923I** SeqNo: **4043965** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	233.9	100	250	0	93.6	50-150	0			

MSD Sample ID: **1609985-04A MSD** Units: **mg/Kg** Analysis Date: **9/23/2016 01:00 PM**
Client ID: **CHLL-WC02-0-6** Run ID: **WETCHEM_160923I** SeqNo: **4043966** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	233.9	100	250	0	93.6	50-150	233.9	0	35	

The following samples were analyzed in this batch: 1609985-02A 1609985-04A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 1609985
Project: Abandoned Mining Wastes - Torch Lake

QC BATCH REPORT

Batch ID: **R196465** Instrument ID **MOIST** Method: **SW3550C**

MBLK Sample ID: **WBLKS-R196465** Units: **% of sample** Analysis Date: **9/23/2016 07:00 PM**
Client ID: Run ID: **MOIST_160923E** SeqNo: **4044522** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	ND	0.050								

LCS Sample ID: **LCS-R196465** Units: **% of sample** Analysis Date: **9/23/2016 07:00 PM**
Client ID: Run ID: **MOIST_160923E** SeqNo: **4044521** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **16091144-02A DUP** Units: **% of sample** Analysis Date: **9/23/2016 07:00 PM**
Client ID: Run ID: **MOIST_160923E** SeqNo: **4044509** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	14.74	0.050	0	0	0		14.74	0	20	

DUP Sample ID: **1609985-04A DUP** Units: **% of sample** Analysis Date: **9/23/2016 07:00 PM**
Client ID: **CHLL-WC02-0-6** Run ID: **MOIST_160923E** SeqNo: **4044520** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	19.49	0.050	0	0	0		19.53	0.205	20	

The following samples were analyzed in this batch: 1609985-04A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

☐ ALS Environmental
10450 Stancliff Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5887

Chain of Custody Form

Page 1 of 1

☑ ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

ALS Project Manager: | ALS Work Order #: 1609985

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	Abandoned Mining Wastes- Torch Lake	A	TCLP VOCs-SVOA-PEST-HERB-METALS
Work Order		Project Number	31000098	B	Cyanide, Reactive/SW7.3.3.2
Company Name	Mannik & Smith Group	Bill To Company	MDEQ-RRD	C	Sulfide, Reactive/SW7.3.4.2
Send Report To	Jeff Binkley	Invoice Attn	Tracey Curtis	D	pH/SW9045D
Address	200 Michigan St, Suite 705	Address	Constitution Hall 5th Floor South 525 West Allegan Street	E	Flashpoint-Ignitability Analysis/SW1010A
				F	PCBs/SW8082
City/State/Zip	Hancock, MI 49930	City/State/Zip	Lansing/MI/48909	G	Moisture/SW3550C
Phone	906-281-3404	Phone	517-284-5176	H	Paint Filter (Free Liquids)/SW9095B
DEQ PM address	keranena@michigan.gov	Fax		I	Total VOC/8260B-SVOC/8270D-PEST/8081-HERB/8151-Metals/6010C/7471B
e-Mail Address	Jbinkley@manniksmithgroup.com	accounting #s	16 31100 29634 100081 16	J	NOTE - POTENTIALLY HIGH CONCENTRATIONS

No.	Sample Description	Date	Time	Matrix	Pres. Key Numbers	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	CHTC-WC01-0-6"	9-10-16	1428	waste		5	X	X	X	X	X	X	X	X	X		
2	CHLL-WC02-0-6"	9-12-16	1354	waste		5	X	X	X	X	X	X	X	X	X		
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s): Please Print & Sign | Shipment Method: | Turnaround Time in Business Days (BD): ☑ 10 BD ☐ 5 BD ☐ 3 BD ☐ 2 BD ☐ 1 BD ☐ Other | Results Due Date:

Relinquished by:	Date:	Time:	Received by:	Date:	Time:	Notes:
	9-14-16	9:09		9/14/16	9:09	Rec'd by Lab: MB 9/17/16 800
Relinquished by:	Date:	Time:	Received by (Laboratory):	Date:	Time:	
	9.16.16	910		9-16-16	0910	
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):			
MB	9/17/16	930				

ALS Cooler ID	Cooler Temp	QC Package: (Check Box Below)	
	2.4	☑ Level II: Standard QC	☐ Level III: Raw Data
		☐ TRRP LRC	☐ TRRP Level IV
		☐ Level IV: SW846 Methods/CLP like	
		☐ Other:	

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-None/4°

Note: Any changes must be made in writing once samples and COC Form have been submitted to ALS.

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **MDEQ** Date/Time Received: **17-Sep-16 08:00**

Work Order: **1609985** Received by: **MBB**

Checklist completed by Alex Csaszar (eSignature) 17-Sep-16 (Date) Reviewed by: Alex Csaszar (eSignature) 17-Sep-16 (Date)

Matrices: waste

Carrier name: Courier

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.4 / 2.4 degrees C	SR2	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	9/17/16 10:00am		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:	_		

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

DTMB-0414 (R 1/15)

STATE OF MICHIGAN
Department of Technology, Management and Budget
State Facilities Administration
3111 W. St. Joseph Street
Lansing, Michigan 48917

Date Issued: 21 October 2016
Index No(s): NA
File No: NA
Department: MDEQ-RRD
Project Name: Abandoned Mining Wastes Torch Lake Non-Superfund Site

Subject: Clarification to Scope of Work

Bid Opening Date: 28 October 2016

ADDENDUM NO. 2

TO: All Bidders

SUBJECT: Hubbell Smelter Drum Removal Interim Response

INTENT: This Addendum No. 2 is issued to clarify the scope of work by answering questions. This Addendum No. 2 consists of one page and one attachment including Attachment A – Answers to Questions.

Item 1 – Answers to Questions: Several questions have been posed by Bidders. Please refer to Attachment A for answers and clarifications.

ACKNOWLEDGEMENT: This Addendum must be acknowledged by the bidder in the space provided at the bottom of the Bid Table for submission of a valid bid. The changes and information shall become part of the contract documents.

ATTACHMENT A

ANSWERS TO QUESTIONS

ATTACHMENT A

ANSWERS TO QUESTIONS

Q: How deep is the water where the silt curtain needs to be installed?

A: The water depth is variable. If the Contactor installs the silt curtain landward or within the wood pilings the water depth appears to not exceed approximately six feet. The bottom drops off rapidly toward the outer edge and beyond the pilings to an unknown depth.

Q: How many feet of silt fence is required?

A: All areas of disturbed soils including the access route to the drum removal area (if soils are disturbed) once it leaves Koppers' improved gravel driveway must have silt fence installed along the downhill (lake) side. The required length of silt fence will depend on how large an area the Contractor disturbs. The Lake Shore Work Area on Figure 2 of the Scope of Work (SOW) is approximately 180 feet in length. A reasonable access route from Koppers' gravel driveway to the Lake Shore Work Area, using a temporary opening through the fence as discussed in Addendum No. 1, is approximately 240 feet in length. Therefore, rounding up, we estimate approximately 500 feet of silt fence may be required. This estimate does not relieve the Contractor from preparing their own estimate based on their intended means and methods of executing the work and ensuring that all areas of disturbed soils are bounded by silt fence to protect Torch Lake.

Q: Are we required to build a road to get to where the drums are located?

A: No. However, any damage to the EPA Superfund cap (rutting, vegetation removal/mortality, or disturbed soils) must be repaired such that a minimum of 6-inches compacted thickness of sandy loam soil is present, raked smooth, seeded, and mulched following the specifications in the SOW as amended.

Q: What pay item does the 5 steel drums and 5 over pack drums need to be included in?

A: Drums would be part of the Contractor's removal and disposal efforts as defined beginning toward the bottom of page 1 of the SOW. Therefore, they would be part of the unit rates for container disposal, which are Work Items 6 through 9 in the Revised Bid Table in Addendum No. 1.

APPENDIX D

Soil Erosion and Sedimentation Control Permit and Release

HOUGHTON COUNTY DRAIN COMMISSIONER

401 E. HOUGHTON AVENUE
HOUGHTON, MI 49931
Phone (906) 482-4491 FAX (906) 482-7238
jpekkala@houghtoncounty.net

April 10, 2017

Rick Riedy
UP Environmental Services, Inc.
P.O. Box 127
1315 US Hwy 2 & 41
Bark River, MI 49807

RE: Soil Erosion and Sedimentation Control Permit No. 17-942-SE

Dear Mr. Riedy:

Enclosed, please find a Soil Erosion and Sedimentation Control (SESC) Permit for the proposed earth change at the location specified on the permit. The SESC Site Plan that was submitted has been approved and is on file at the Houghton County Drain Commissioner's Office. Please notify my office 48 hours prior to commencing the earth change.

If you have any questions, feel free to contact me.

Sincerely,

John Pekkala

John Pekkala, Drain Commissioner
County Enforcing Agent for
Soil Erosion and Sedimentation Control

COUNTY OF HOUGHTON
SOIL EROSION AND SEDIMENTATION CONTROL PERMIT

(issued under the authority of part 91, Soil Erosion and Sedimentation Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended)

Permitee: Michael Lahti, President

Address: MSL Development, LLC
913 Quincy Street
Hancock, MI 49930

Permit No.: 17-942-SE
Issued: 04-10-17
Expires: 04-10-18
Extended:

On-Site Responsible Person: Name:

Company: U.P. Environmental Services, Inc. Telephone Number: (906) 466-9900

Permitted Activity:

Excavate up to 4 CY of material to remove drums from approximately 6 locations in and along Torch Lake.

Place approximately 1.5 CY of rip rap on bottom lands.

Silt fence will be used along the shoreline and silt curtain on Torch Lake.

Project Location: Town: 55N ; Range: 32W ; Section: 7

City or Township: Torch Lake Township

Address: 52430 Hwy. M-26/Duncan Ave.
PID # 31-014-307-001-50

Permit Conditions:

1. The permitted activity shall be completed in accordance with the approved plans and specifications and the attached general and specific conditions.
2. This permit does not waive the necessity for obtaining all other required federal, state, or local permits.
3. Permitee shall notify the permitting agency within one week after completing the permitted activity or one week prior to the permit expiration data, whichever comes first.

John Pekkala
Permitting Agent

(906) 482-4491
Telephone Number

THIS PERMIT MUST BE POSTED AT THE PROJECT SITE.

Permit Number: 17-942-SE

General Conditions:

In accordance with rule 1709 promulgated under the authority of part 91, Soil Erosion and Sedimentation Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, and in addition to the information on the attached plan(s) and special conditions, the following general conditions apply to the earth change authorized by this permit:

- Design, construct, and complete the earth change in a manner that limits the exposed area of disturbed land for the shortest period of time.
- Remove sediment caused by accelerated soil erosion from runoff water before it leaves the site of the earth change.
- Temporary or permanent control measures shall be designed and installed to convey water around, through, or from the earth change at a non-erosive velocity.
- Install temporary soil erosion and sedimentation control measures before or upon commencement of the earth change activity and maintain the measures on a daily basis. Remove temporary soil erosion and sedimentation control measures after permanent soil erosion measures are in place and the area is stabilized. (Stabilized means the establishment of vegetation or the proper placement, grading; or covering of soil to ensure its resistance to soil erosion, sliding, or other earth movement.)
- Complete permanent soil erosion control measures for the earth change within five calendar days after final grading or upon completion of the final earth change. If it is not possible to permanently stabilize the earth changes, then maintain temporary soil erosion and sedimentation control measures until permanent soil erosion control measures are in place and the area is stabilized.

SPECIFIC CONDITIONS

48 hours notice prior to earth change

SOIL EROSION AND SEDIMENTATION POLLUTION CONTROL APPLICATION

Part 91, P.A. 451 of 1994

Houghton County Drain Commissioner
401 E. Houghton Avenue
Houghton, MI 49931
(906) 482-4491

Permit Number	17-942-SE
Date Issued	4-10-17
Expiration Date	4-10-18
Permit Fee $	200.00

For Questions, please call: *John Pekkala -Office (906) 482-4491*
Home (906) 482-0765 Receipt # 168427

1. APPLICANT (Please check if the applicant is the landowner or designated agent*) ( ) Landowner ( ) Designated Agent

Name	Address		
U. P. Environmental Services, Inc.	P.O. Box 127/1315 US Hwy. 2 & 41		
City	**State**	**Zip**	**Area Code/Telephone**
Bark River	MI	49807	906-466-9900

2. LOCATION	Section	Town	Range	Lot No(s)	Township	Street Address:
	07	55N	32W		Torch Lake	52430 Hwy. M-26/Duncan Ave

City/Village	Property ID # or Attach Property Legal Description:
Hubbell, MI Houghton County	014-307-001-50

3. PROPOSED EARTH CHANGE **Project Type:** ( ) Residential ( ) Multi-Family ( ) Commercial ( ) Industrial ( ) Land Balancing (X) Other

Describe Project	Size of Earth Change (Acres or Square Feet)
Excavate up to 4 CY of material to remove drums from approximately 6 locations in and along Torch Lake. Place approximately 1.5 CY of rip rap on bottom lands. Silt fence will be used along the shoreline and silt curtain in Torch Lake.	

Distance to Nearest Lake, Stream or Dam _____ ft.	Watercourse(s) Affected:	Project Start Date:	Project Complete Date:
	Torch Lake	May 1, 2017	May 19, 2017

4. SOIL EROSION AND SEDIMENT POLLUTION CONTROL PLAN
(Note: Two (2) sets of complete plans must be attached.)

Estimated Cost of Erosion & Sedimentation Control $	Plan Preparer's Name and Telephone Number:	Area Code
10,000.	Rick Riedy	(906) 466-9900

5. PARTIES RESPONSIBLE FOR EARTH CHANGE: Property Owner of Record (If not provided in Box No.1 above)
NAME:

Address	City	State	Zip	Area Code/Telephone

6. Name of Individual "On Site" Responsible for Earth Change	Company Name

Address	City	State	Zip	Area Code/Telephone

I (we) affirm that the above information is accurate and that I (we) will conduct the above described earth change in accordance with Part 91, Soil Erosion and Sedimentation Control, of the Natural Resource and Environmental Protection Act, 1994 PA 451, as amended, applicable local ordinances, and the documents accompanying this application.

Landowner's Signature **Date:**

Designated Agents Signature* Rick Riedy **Date:** 4-6-17

* Designated agent must have a written statement from landowner authorizing him/her to secure a permit in the landowner's name.

Jeff Binkley

From: Jeff Binkley
Sent: Thursday, October 05, 2017 11:01 AM
To: KERANENA@michigan.gov
Subject: Smelter Drum IR and Tamarack Sands Area Seep IR Soil Erosion and Sedimentation Control Permits Closeout

Fyi – will be included in the IR reports as well.

For the smelter drum area we decided to leave the silt fence that UPES installed in place since we had simply replaced a section of Koppers existing silt fence.

From: Rick Riedy [mailto:rick@upenvironmental.com]
Sent: Thursday, October 05, 2017 11:31 AM
To: Jed Chrestensen <JChrestensen@manniksmithgroup.com>; Jeff Binkley <JBinkley@manniksmithgroup.com>
Cc: 'Wayne Stenberg' <wayne@stenbergs.us>
Subject: FW: Hubbell and Tamarack City Soil Erosion Applications

Jeff,

Here is the email from John that he closed out both soil erosion permits for Hubbell and Tamarack City.

We will send you the final invoices for this project.

Thanks,

Rick Riedy
UP Environmental Services, Inc.
Phone (906) 466-9900
Fax (906) 466-2641

From: John Pekkala [mailto:jpekkala@houghtoncounty.net]
Sent: Thursday, October 05, 2017 10:06 AM
To: Rick Riedy
Subject: Re: Hubbell and Tamarack City Soil Erosion Applications

Hi Rick,

I inspected both sites this morning October 5th and verified that they are adequately stabilized. I am closing out the SESC permit for each site. The permit number's are 17-942-SE and 17-943-SE.

FYI - the silt fence has been removed at the Tamarack Sands site but not at the Hubbell site. The man gate was locked behind the Kopper's facility.

If you have any questions, please contact me.

Thanks,

John Pekkala, Drain Commissioner
County Enforcing Agent for
Soil Erosion and Sedimentation Control

401 E. Houghton Avenue
Houghton, MI 49931
Phone: 906-482-4491
Fax: 906-482-7238

On Wed, Oct 4, 2017 at 3:23 PM, Rick Riedy <rick@upenvironmental.com> wrote:

Thanks!

Rick Riedy

UP Environmental Services, Inc.

Phone (906) 466-9900

Fax (906) 466-2641

From: John Pekkala [mailto:jpekkala@houghtoncounty.net]
Sent: Wednesday, October 04, 2017 2:33 PM

To: Rick Riedy
Subject: Re: Hubbell and Tamarack City Soil Erosion Applications

Rick,

I plan to inspect both sites later today or tomorrow morning. I will email a response after the inspections.

John

On Wed, Oct 4, 2017 at 8:54 AM, Rick Riedy <rick@upenvironmental.com> wrote:

John,

We are removing the silt fence today.

Please provide us with a closed out response as soon as you are able.

Thanks,

Rick Riedy

UP Environmental Services, Inc.

Phone (906) 466-9900

Fax (906) 466-2641

From: John Pekkala [mailto:jpekkala@houghtoncounty.net]
Sent: Tuesday, October 03, 2017 4:40 PM

To: Rick Riedy
Subject: Re: Hubbell and Tamarack City Soil Erosion Applications

Hi Rick,

Go ahead and tell your crew to remove the silt fence and both sites. I have a hearing all day tomorrow October 4th in my office. It's okay to call me though. I can do a final inspection at both sites this Thursday, assuming I can get through the gates. Let me know if you or anybody else needs a response from me that both SESC permits have been "closed out".

Thanks, John

John Pekkala, Drain Commissioner

County Enforcing Agent for
Soil Erosion and Sedimentation Control
401 E. Houghton Avenue
Houghton, MI 49931
Phone: 906-482-4491

Fax: 906-482-7238

On Tue, Oct 3, 2017 at 10:39 AM, Rick Riedy <rick@upenvironmental.com> wrote:

Hi John,

I am requested that you do an inspection on this one and if it is ok we can close this project out.

Our crew is working at MTU right now and would have time to remove any silt fence this afternoon or tomorrow if this is acceptable with you.

I don't know what your work load is right now but I am asking.

Thanks,

Rick Riedy

UP Environmental Services, Inc.

Phone (906) 466-9900

Fax (906) 466-2641

From: John Pekkala [mailto:jpekkala@houghtoncounty.net]
Sent: Wednesday, June 28, 2017 2:31 PM

To: Rick Riedy
Subject: Re: Hubbell and Tamarack City Soil Erosion Applications

Hi Rick,

Thanks for letting me know the anticipated start date for the Hubbell project. I plan to contact you the week of July 10th for project status and site inspection.

Have a nice day.

John

On Wed, Jun 28, 2017 at 2:41 PM, Rick Riedy <rick@upenvironmental.com> wrote:

John,

This SOIL EROSION CONTROL PERMIT 17-942-SE GOT POSTPONED DUE TO AREA WAS TOO WET. WE PLAND ON STARTING JULY 10, 2017.

AND TAMARACK PERMIT 17-943-SE WILL BE RIGHT AFTER WE COMPLETE THE HUBBLE ONE.

PLEASE LET ME KNOW IF THERE IS ANY THING ELSE THAT WE NEED TO DO.

Thanks,

Rick Riedy

UP Environmental Services, Inc.

Phone (906) 466-9900

Fax (906) 466-2641

From: Rick Riedy [mailto:rick@upenvironmental.com]
Sent: Thursday, April 06, 2017 3:42 PM
To: 'John Pekkala'
Subject: RE: Hubbell and Tamarack City Soil Erosion Applications

John,

Attached are the signed electronic copies.

The check for $ 400 is being mailed out today.

Thanks,

Rick Riedy

UP Environmental Services, Inc.

Phone (906) 466-9900

Fax (906) 466-2641

From: John Pekkala [mailto:jpekkala@houghtoncounty.net]
Sent: Thursday, April 06, 2017 2:38 PM
To: Rick Riedy

Subject: Re: Hubbell and Tamarack City Soil Erosion Applications

An electronic copy is fine. I will mail the permits as soon as I receive the check.

Thanks, John

On Thu, Apr 6, 2017 at 3:11 PM, Rick Riedy <rick@upenvironmental.com> wrote:

John,

Do you need one original in the mail or can I sign and scan and email back to you and mail you the check?

Thanks,

Rick Riedy

UP Environmental Services, Inc.

Phone (906) 466-9900

Fax (906) 466-2641

From: John Pekkala [mailto:jpekkala@houghtoncounty.net]
Sent: Thursday, April 06, 2017 2:20 PM
To: Jed Chrestensen
Cc: Rick Riedy; Keranen, Amy (DEQ); Jeff Binkley
Subject: Re: Hubbell and Tamarack City Soil Erosion Applications

Jed,

I totally missed the email that follows the expired access agreement. Sorry about that. I can accept that "undertake response activities" means including landowner authorization for contractors to sign permit applications. Please have your contractor(s) sign the application and submit the fee so I can issue the SESC permits.

Thanks,

John

On Thu, Apr 6, 2017 at 12:42 PM, Jed Chrestensen <JChrestensen@manniksmithgroup.com> wrote:

John,

The work is being conducted under the "undertake response activities" component of the access agreements. The work is being conducted by MDEQ and its contractors so we have been obtaining the permits and the contractors have been signing the applications. The Tamarack Sands access was extended through 2018 per the email that follows the original access agreement in the .pdf packet that was attached. Koppers and TLSWA are both aware of what we're planning and the schedule. Hopefully this answers your questions.

Thank you,

Jed

From: John Pekkala [mailto:jpekkala@houghtoncounty.net]
Sent: Thursday, April 06, 2017 12:24 PM
To: Rick Riedy <rick@upenvironmental.com>; Jed Chrestensen <JChrestensen@manniksmithgroup.com>
Cc: Keranen, Amy (DEQ) <KERANENA@michigan.gov>
Subject: Fwd: Hubbell and Tamarack City Soil Erosion Applications

Hi Rick & Jed,

It looks like the entry authorization has expired for the Tamarack City job. On both authorizations the landowners give consent to enter the property, but neither authorization says anything about who is authorized to pull the SESC permit? Maybe you want to talk to Amy K. about this technicality. I know both landowners. I don't think they really care who signs the SESC permit application. Do you want me to call them?

John

John Pekkala, Drain Commissioner

County Enforcing Agent for
Soil Erosion and Sedimentation Control
401 E. Houghton Avenue
Houghton, MI 49931
Phone: 906-482-4491

Fax: 906-482-7238

On Thu, Apr 6, 2017 at 9:03 AM, Rick Riedy <rick@upenvironmental.com> wrote:

John and Jed,

Please review the Soil Erosion Applications for Hubbell and Tamarack City and let me know if there is anything else that you need.

Jed, can you sign this or do we sign this.

Thanks,

Rick Riedy

UP Environmental Services, Inc.

Phone (906) 466-9900

Fax (906) 466-2641

APPENDIX E

Joint Permit Application and Notice of Completion

NOTICE OF AUTHORIZATION

Permit Number: WRP005678

Date Issued: January 13, 2017
Expiration Date: January 13, 2022

The Michigan Department of Environmental Quality, Water Resources Division, P.O. Box 30458, Lansing, Michigan 48909-7958, under provisions of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended; specifically:

- ☐ Part 31, Floodplain Regulatory Authority of the Water Resources Protection.
- ☒ Part 301, Inland Lakes and Streams.
- ☐ Part 303, Wetlands Protection.
- ☐ Part 315, Dam Safety.
- ☐ Part 323, Shorelands Protection and Management.
- ☐ Part 325, Great Lakes Submerged Lands.
- ☐ Part 353, Sand Dunes Protection and Management.

Authorized activity:

Excavate up to 4 cubic yards of material to remove drums from 6 locations in Torch Lake. Place approximately 1.5 cubic yards of riprap on Torch Lake bottomlands to fill voids in drum removal locations. All work shall be completed in accordance with the attached plans and specifications of this permit dated January 13, 2017.

To be conducted at property located in: Houghton County, Waterbody: Torch Lake
Section 07, Town 55N, Range 32W, Torch Lake Township

Permittee:

MDEQ RRD
55195 US-41 North
Calumet, MI 49913

Helana Nelson
Upper Peninsula District Office
Water Resources Division
906-202-1507

This notice must be displayed at the site of work.
Laminating this notice or utilizing sheet protectors is recommended.
Please refer to the above permit number with any questions or concerns.

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER RESOURCES DIVISION
MINOR PROJECT PERMIT

Issued To:

MDEQ RRD
Attn: Amy Keranen
55195 US-41 North
Calumet, MI 49913

Permit No.: WRP005678
Submission No.: 2HH-79K8-2XVQ
Site Name: 31-52430 Highway M-26/Duncan Avenue-Torch Lake Twp.
Issued: January 13, 2017
Expires: January 13, 2022

This permit is being issued by the Michigan Department of Environmental Quality (MDEQ), Water Resources Division, under the provisions of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA); specifically:

- ☒ **Part 301, Inland Lakes and Streams**
- ☐ **Part 303, Wetlands Protection**
- ☐ **Part 315, Dam Safety**
- ☐ **Part 323, Shorelands Protection and Management**
- ☐ **Part 325, Great Lakes Submerged Lands**
- ☐ **Part 353, Sand Dunes Protection and Management**
- ☐ **Part 31, Water Resources Protection (Floodplain Regulatory Authority)**

Permission is hereby granted, based on permittee assurance of adherence to State of Michigan requirements and permit conditions, to:

Authorized Activity:

Excavate up to 4 cubic yards of material to remove drums from 6 locations in Torch Lake. Place approximately 1.5 cubic yards of riprap on Torch Lake bottomlands to fill voids in drum removal locations. All work shall be completed in accordance with the attached plans and specifications of this permit dated January 13, 2017.

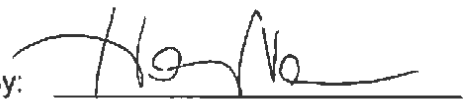
Authorized Under Minor Permit Category: 5. Cleanup of Hazardous & Toxic Waste
Water Course Affected: Torch Lake
Property Location: Houghton County, Torch Lake Township, Town/Range/Section: 55N32W07

Authority granted by this permit is subject to the following limitations:

A. Initiation of any work on the permitted project confirms the permittee's acceptance and agreement to comply with all terms and conditions of this permit.
B. The permittee, in exercising the authority granted by this permit, shall not cause unlawful pollution as defined by Part 31 of the NREPA.
C. This permit shall be kept at the site of the work and available for inspection at all times during the duration of the project or until its date of expiration.
D. All work shall be completed in accordance with the approved plans and specifications submitted with the application and/or plans and specifications attached to this permit.
E. No attempt shall be made by the permittee to forbid the full and free use by the public of public waters at or adjacent to the structure or work approved.

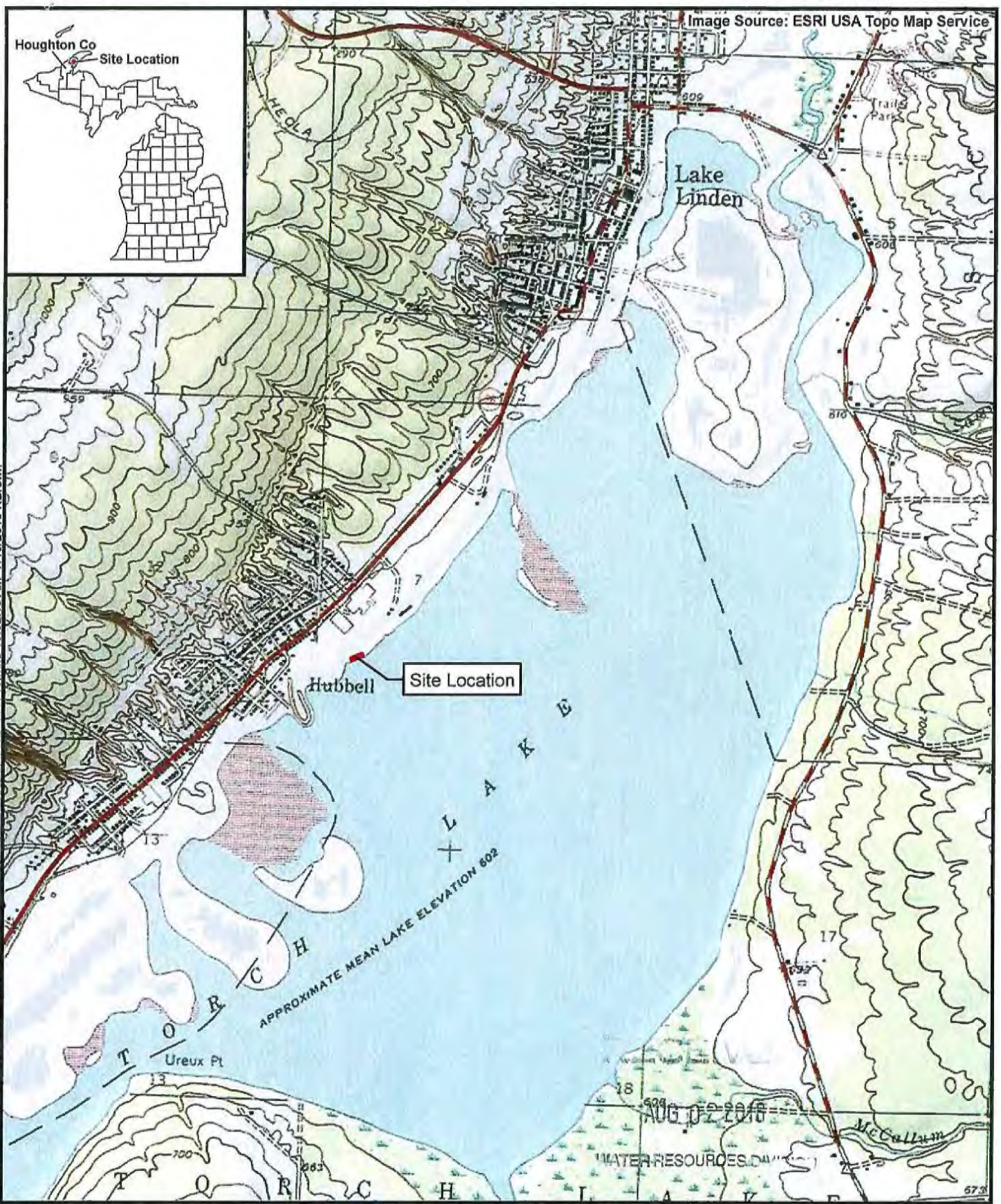
F. It is made a requirement of this permit that the permittee give notice to public utilities in accordance with 2013 PA 174 (Act 174) and comply with each of the requirements of Act 174.
G. This permit does not convey property rights in either real estate or material, nor does it authorize any injury to private property or invasion of public or private rights, nor does it waive the necessity of seeking federal assent, all local permits, or complying with other state statutes.
H. This permit does not prejudice or limit the right of a riparian owner or other person to institute proceedings in any circuit court of this state when necessary to protect his rights.
I. Permittee shall notify the MDEQ within one week after the completion of the activity authorized by this permit by completing and forwarding the attached preaddressed postcard to the office addressed thereon.
J. This permit shall not be assigned or transferred without the written approval of the MDEQ.
K. Failure to comply with conditions of this permit may subject the permittee to revocation of permit and criminal and/or civil action as cited by the specific state act, federal act, and/or rule under which this permit is granted.
L. All dredged or excavated materials shall be disposed of in an upland site (outside of floodplains, unless exempt under Part 31 of the NREPA, and wetlands).
M. In issuing this permit, the MDEQ has relied on the information and data that the permittee has provided in connection with the submitted application for permit. If, subsequent to the issuance of a permit, such information and data prove to be false, incomplete, or inaccurate, the MDEQ may modify, revoke, or suspend the permit, in whole or in part, in accordance with the new information.
N. The permittee shall indemnify and hold harmless the State of Michigan and its departments, agencies, officials, employees, agents, and representatives for any and all claims or causes of action arising from acts or omissions of the permittee, or employees, agents, or representative of the permittee, undertaken in connection with this permit. The permittee's obligation to indemnify the State of Michigan applies only if the state: (1) provides the permittee or its designated representative written notice of the claim or cause of action within 30 days after it is received by the state, and (2) consents to the permittee's participation in the proceeding on the claim or cause of action. It does not apply to contested case proceedings under the Administrative Procedures Act, 1969 PA 306, as amended, challenging the permit. This permit shall not be construed as an indemnity by the State of Michigan for the benefit of the permittee or any other person.
O. Noncompliance with these terms and conditions and/or the initiation of other regulated activities not specifically authorized shall be cause for the modification, suspension, or revocation of this permit, in whole or in part. Further, the MDEQ may initiate criminal and/or civil proceedings as may be deemed necessary to correct project deficiencies, protect natural resource values, and secure compliance with statutes.
P. If any change or deviation from the permitted activity becomes necessary, the permittee shall request, in writing, a revision of the permitted activity from the MDEQ. Such revision request shall include complete documentation supporting the modification and revised plans detailing the proposed modification. Proposed modifications must be approved, in writing, by the MDEQ prior to being implemented.
Q. This permit may be transferred to another person upon written approval of the MDEQ. The permittee must submit a written request to the MDEQ to transfer the permit to the new owner. The new owner must also submit a written request to the MDEQ to accept transfer. The new owner must agree, in writing, to accept all conditions of the permit. A single letter signed by both parties that includes all of the above information may be provided to the MDEQ. The MDEQ will review the request and, if approved, will provide written notification to the new owner.
R. Prior to initiating permitted construction, the permittee is required to provide a copy of the permit to the contractor(s) for review. The property owner, contractor(s), and any agent involved in exercising the permit are held responsible to ensure that the project is constructed in accordance with all drawings and specifications. The contractor is required to provide a copy of the permit to all subcontractors doing work authorized by the permit.
S. Construction must be undertaken and completed during the dry period of the wetland. If the area does not dry out, construction shall be done on equipment mats to prevent compaction of the soil.
T. Authority granted by this permit does not waive permit requirements under Part 91, Soil Erosion and Sedimentation Control, of the NREPA, or the need to acquire applicable permits from the County Enforcing Agent (CEA).
U. Authority granted by this permit does not waive permit requirements under the authority of Part 305, Natural Rivers, of the NREPA. A Natural Rivers Zoning Permit may be required for construction, land alteration, streambank stabilization, or vegetation removal along or near a natural river.
V. The permittee is cautioned that grade changes resulting in increased runoff onto adjacent property is subject to civil damage litigation.
W. Unless specifically stated in this permit, construction pads, haul roads, temporary structures, or other structural appurtenances to be placed in a wetland or on bottomland of the water body are not authorized and shall not be constructed unless authorized by a separate permit or permit revision granted in accordance with the applicable law.
X. For projects with potential impacts to fish spawning or migration, no work shall occur within fish spawning or migration timelines (i.e., windows) unless otherwise approved in writing by the Michigan Department of Natural Resources, Fisheries Division.
Y. Work to be done under authority of this permit is further subject to the following special instructions and specifications:

1. Authority granted by this permit does not waive permit or program requirements under Part 91 of the NREPA or the need to acquire applicable permits from the CEA. To locate the Soil Erosion Program Administrator for your county, visit www.mi.gov/deqstormwater and select "Soil Erosion and Sedimentation Control Program" under "Related Links."
2. The authority to conduct the activity as authorized by this permit is granted solely under the provisions of the governing act as identified above. This permit does not convey, provide, or otherwise imply approval of any other governing act, ordinance, or regulation, nor does it waive the permittee's obligation to acquire any local, county, state, or federal approval or authorization necessary to conduct the activity.
3. No fill, excess soil, or other material shall be placed in any wetland or surface water area not specifically authorized by this permit, its plans, and specifications.
4. This permit does not authorize or sanction work that has been completed in violation of applicable federal, state, or local statutes.
5. The permit placard shall be kept posted at the work site, in a prominent location at all times for the duration of the project, or until permit expiration.
6. This permit is being issued for the maximum time allowed and no extensions of this permit will be granted. Initiation of the construction work authorized by this permit indicates the permittee's acceptance of this condition. The permit, when signed by the MDEQ, will be for a five-year period beginning on the date of issuance. If the project is not completed by the expiration date, a new permit must be sought.
7. All fill shall consist of clean, washed rock or stone that is free of fines, other soil materials, any contaminants, or pollutants.
8. Prior to commencement of any dredging authorized by this permit, the entire dredged area shall be enclosed with a turbidity curtain to prevent off-site siltation. The turbidity curtain shall be installed to extend from the bed of the waterbody to a point above the existing water's surface. The turbidity curtain shall be maintained for the duration of the project and shall be left in place after completion of dredging until all disturbed sediments have settled.
9. No work or dredging within the water authorized by this permit is allowed from April 1 to July 1 due to critical spawning, migration, and/or recreational use periods.
10. All slurry resulting from any dewatering operation shall be discharged through a filter bag or pumped to a sump located away from wetlands and surface waters and allowed to filter through natural upland vegetation, gravel filters, or other engineered devices for a sufficient distance and/or period of time necessary to remove sediment or suspended particles. The discharge of slurry water resulting from the hydrodemolition of concrete is not allowed to enter a lake, stream, or wetland.
11. All dredge/excavated material shall be immediately placed into trucks or barges and taken to an approved upland disposal site. Placement of dredge/excavated material into open water, onto ice, or onto exposed bottomland is not authorized by this permit.
12. Drums shall be disposed of as hazardous waste in accordance with applicable federal, state, or local statutes.

Issued By: 

Helana Nelson
Upper Peninsula District Office
Water Resources Division
906-202-1507

cc: Torch Lake Township Clerk
Houghton County CEA



0 2,000 Feet

N

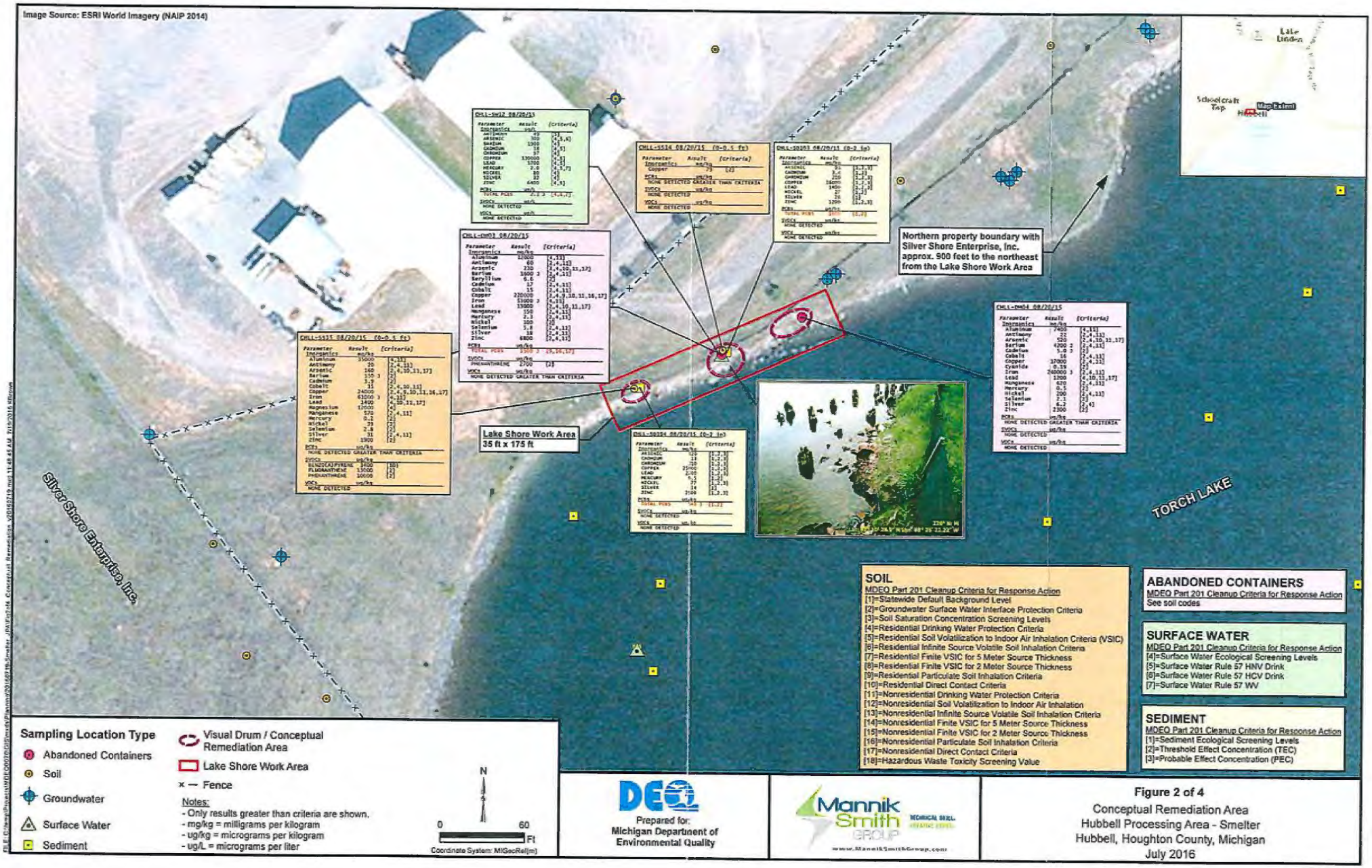
Coordinate System: MIGeoRef(m)

Prepared for:
Michigan Department of Environmental Quality

Mannik Smith GROUP
TECHNICAL SKILL. CREATIVE SPIRIT.
www.MannikSmithGroup.com

Figure 1 of 4
Site Location Map
Smelter Drum Interim Response
Hubbell, Houghton County, Michigan
July 2016

FILE: C:\temp\Projects\MDEQ0070\GIS\mxds\Planning\20160719-Smelter_JPA\Fig1of4_Site_Location_v20160719.mxd 10:52:18 AM 7/19/2016 KBrown



Sampling Location Type

- Abandoned Containers
- Soil
- Groundwater
- Surface Water
- Sediment
- Visual Drum / Conceptual Remediation Area
- Lake Shore Work Area
- Fence

Notes:
- Only results greater than criteria are shown.
- mg/kg = milligrams per kilogram
- ug/kg = micrograms per kilogram
- ug/L = micrograms per liter

N

0 60 Ft

Coordinate System: MIGeoRef(m)

SOIL

MDEQ Part 201 Cleanup Criteria for Response Action

[1]=Statewide Default Background Level
[2]=Groundwater Surface Water Interface Protection Criteria
[3]=Soil Saturation Concentration Screening Levels
[4]=Residential Drinking Water Protection Criteria
[5]=Residential Soil Volatilization to Indoor Air Inhalation Criteria (VSIC)
[6]=Residential Infinite Source Volatile Soil Inhalation Criteria
[7]=Residential Finite VSIC for 5 Meter Source Thickness
[8]=Residential Finite VSIC for 2 Meter Source Thickness
[9]=Residential Particulate Soil Inhalation Criteria
[10]=Residential Direct Contact Criteria
[11]=Nonresidential Drinking Water Protection Criteria
[12]=Nonresidential Soil Volatilization to Indoor Air Inhalation
[13]=Nonresidential Infinite Source Volatile Soil Inhalation Criteria
[14]=Nonresidential Finite VSIC for 5 Meter Source Thickness
[15]=Nonresidential Finite VSIC for 2 Meter Source Thickness
[16]=Nonresidential Particulate Soil Inhalation Criteria
[17]=Nonresidential Direct Contact Criteria
[18]=Hazardous Waste Toxicity Screening Value

ABANDONED CONTAINERS

MDEQ Part 201 Cleanup Criteria for Response Action

See soil codes

SURFACE WATER

MDEQ Part 201 Cleanup Criteria for Response Action

[4]=Surface Water Ecological Screening Levels
[5]=Surface Water Rule 57 HNV Drink
[6]=Surface Water Rule 57 HCV Drink
[7]=Surface Water Rule 57 WV

SEDIMENT

MDEQ Part 201 Cleanup Criteria for Response Action

[1]=Sediment Ecological Screening Levels
[2]=Threshold Effect Concentration (TEC)
[3]=Probable Effect Concentration (PEC)

Prepared for:
Michigan Department of Environmental Quality

Mannik Smith Group
www.MannikSmithGroup.com

Figure 2 of 4

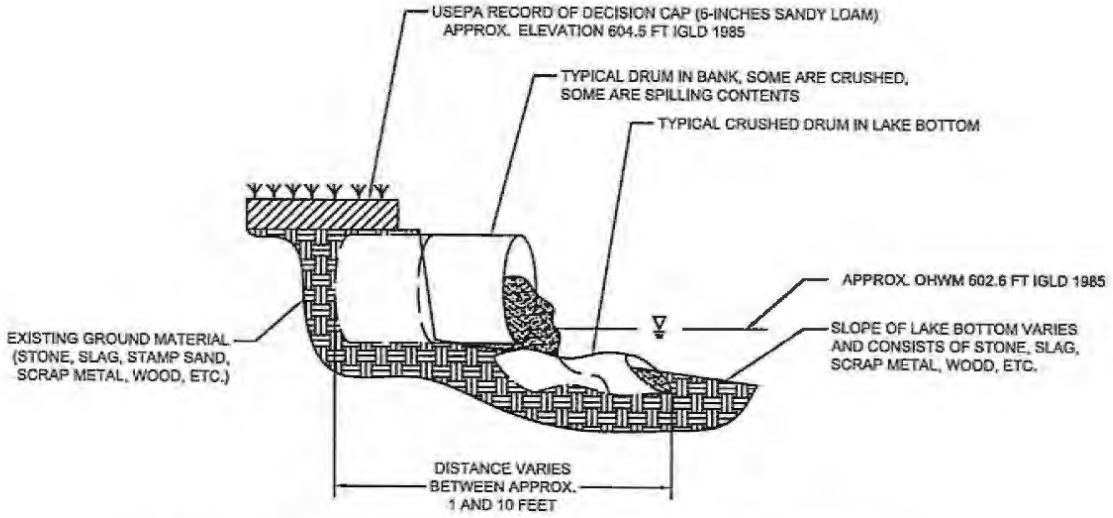
Conceptual Remediation Area
Hubbell Processing Area - Smelter
Hubbell, Houghton County, Michigan
July 2016

FILE: C:\temp\Projects\MDEQ0070\GIS\mxds\Planning\20160719-Smelter_JPA\Fig3of4_Cross_Section_Location_v20160719.mxd 11:44:28 AM 7/19/2016 KBrown

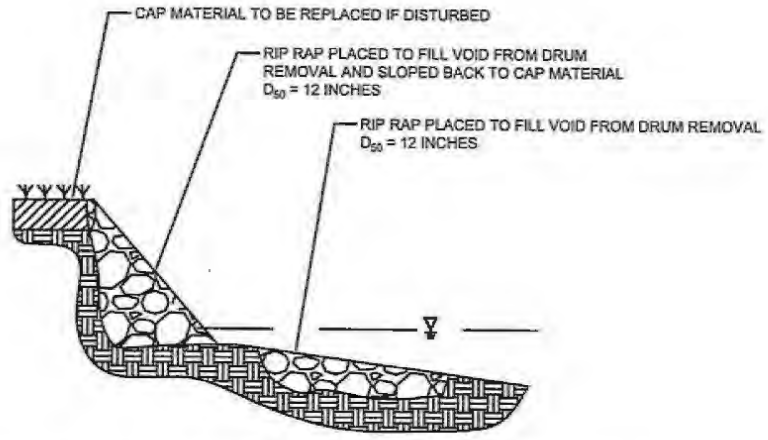
Prepared for:
Michigan Department of Environmental Quality

Mannik Smith Group
TECHNICAL SKILL. CREATIVE SPIRIT.
www.MannikSmithGroup.com

Figure 3 of 4
Cross Section Location
Hubbell Proecessing Area - Smelter
Hubbell, Houghton County, Michigan
July 2016



CROSS SECTION A - A'
TYPICAL EXISTING CONDITIONS AT DRUM LOCATIONS



CROSS SECTION A - A'
TYPICAL PROPOSED CONDITIONS

NOTES:
- ALL DIMENSIONS AND ELEVATIONS ARE APPROXIMATE.
- DRUM CONDITIONS AND LOCATIONS VARY, THE ABOVE IS A TYPICAL REPRESENTATION.

Mannik Smith GROUP
TECHNICAL SKILL. CREATIVE SPIRIT.
www.MannikSmithGroup.com

FIGURE 4 OF 4
CROSS SECTIONS
SMELTER DRUM INTERIM RESPONSE
HUBBELL, HOUGHTON COUNTY, MICHIGAN
JULY 2016

DATE	DRAWN BY	DESIGNED BY	PROJECT NO.
7/19/2016	JBC	JBC	MDEQ0070

DEPARTMENT OF THE ARMY
DETROIT DISTRICT, CORPS OF ENGINEERS
MARQUETTE FIELD OFFICE
115 SOUTH LAKESHORE BOULEVARD, SUITE C
MARQUETTE, MICHIGAN 49855-4652

REPLY TO
ATTENTION OF:

October 26, 2016

Engineering & Technical Services
Regulatory Office
File No. LRE-2016-00902-61

Amy Keranen
Michigan Department of Environmental Quality
Remediation and Redevelopment Division
55195 US-41 North
Calumet, Michigan 49913

Dear Ms. Keranen:

We have reviewed the application that you recently submitted for a proposed project at 52430 Highway M-26/Duncan Avenue, Hubbell, Houghton County, Michigan. During a recent telephone conversation, you confirmed that the proposed work is located in the Torch Lake Superfund site, and falls within the scope of long term monitoring, remediation, and management activities assumed by the Michigan Department of Environmental Quality's Remediation and Redevelopment Division. We have therefore determined that a Department of Army (DA) permit is not required for the work indicated on the enclosed plans, as activities undertaken entirely on a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) site by authority of CERCLA as approved or required by EPA, are not required to obtain permits under Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act. EPA has determined, through ongoing reviews of the Torch Lake project, that "...response actions at the site are in accordance with the remedy selected by EPA...", (https://cumulis.epa.gov/supercpad/cursites/dsp_ssppSiteData1.cfm?id=0503034#Status; accessed October 26, 2016.)

Any construction activity other than shown on the plans you provided may render this review invalid. To fully document your proposed activity, we have made your application and copies of the enclosed plans a part of our permanent records.

The Corps of Engineers' authority to regulate certain activities on and adjacent to the property in question is found in Section 10 of the Rivers and Harbors Act (Section 10), and Section 404 of the Clean Water Act (Section 404).

Under Section 10, a Corps permit is required for any structures or work in navigable waters of the United States, such as the Keweenaw Waterway, to what is called the Ordinary High Water Mark (OHWM). In the Keweenaw Waterway, the OHWM extends to the elevation contour of 603.1', International Great Lakes Datum 1985. Additionally, a Section 10 permit is required for structures or work outside this limit if they affect the course, location, or condition of the waterbody as to its navigable capacity. Some typical examples of structures or work requiring Section 10 permits within this jurisdictional area include beach nourishment, boat ramps, breakwaters, bulkheads,

dredging, filling or discharging material such as sand, gravel or stones, groins and jetties, mooring buoys, piers (seasonal or permanent), placement of riprap for wave protection or streambank stabilization, boat hoists, pilings and construction of marina facilities.

Section 404 requires a Corps permit for the discharge of dredged or fill material into navigable waters of the United States and in wetlands adjacent to those waters. The area of Corps jurisdiction under Section 404 extends to the OHWM, and to the upland boundary of any adjacent wetlands. Projects involving discharges typically include placement of fill material for homes and landscaping, impoundments, causeways, road fills, dams and dikes, riprap, groins, breakwaters, revetments, and beach nourishment. Section 404 also regulates discharges of dredged material incidental to certain activities such as grading, mechanized landclearing, ditching or other excavation activity, and the installation of certain pile-supported structures.

Should you have any questions, please contact me at the above address, by E-Mail at Jean.M.Battle2@usace.army.mil, or by telephone at 906-228-2833. In all communications, please refer to File Number LRE-2016-00902-61.

We are interested in your thoughts and opinions concerning your experience with the Detroit District, Corps of Engineers Regulatory Program. If you are interested in letting us know how we are doing, you can complete an electronic Customer Service Survey from our web site at: http://corpsmapu.usace.army.mil/cm_apex/f?p=136:4:0. Alternatively, you may contact us and request a paper copy of the survey that you may complete and return to us by mail or fax. Thank you for taking the time to complete the survey, we appreciate your feedback.

Sincerely,

Jean Battle
Regulatory Project Manager
Marquette Field Office

Enclosure

Copy Furnished

The Mannick & Smith Group, Inc., J. Chrestensen
MDEQ, L. Hansen (2HH-79K8-2XVQ)

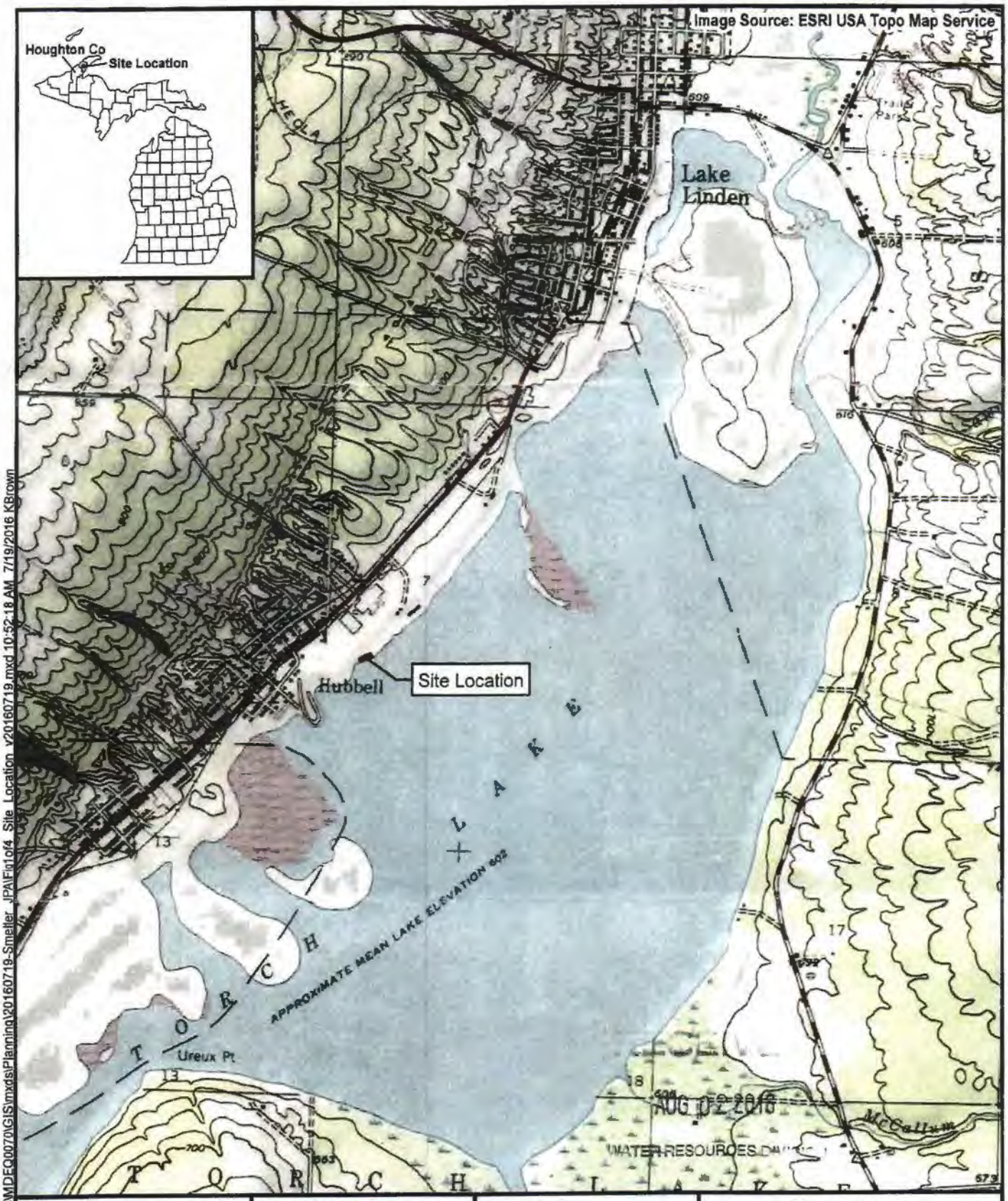


Figure 1 of 4
Site Location Map
Smelter Drum Interim Response
Hubbell, Houghton County, Michigan
July 2016

FILE: C:\temp\Projects\MDEQ0070\GIS\mxds\Planning\20160719-Smelter_JPA\Fin1of4_Site_Location_v20160719.mxd 10:52:18 AM 7/19/2016 KBrown

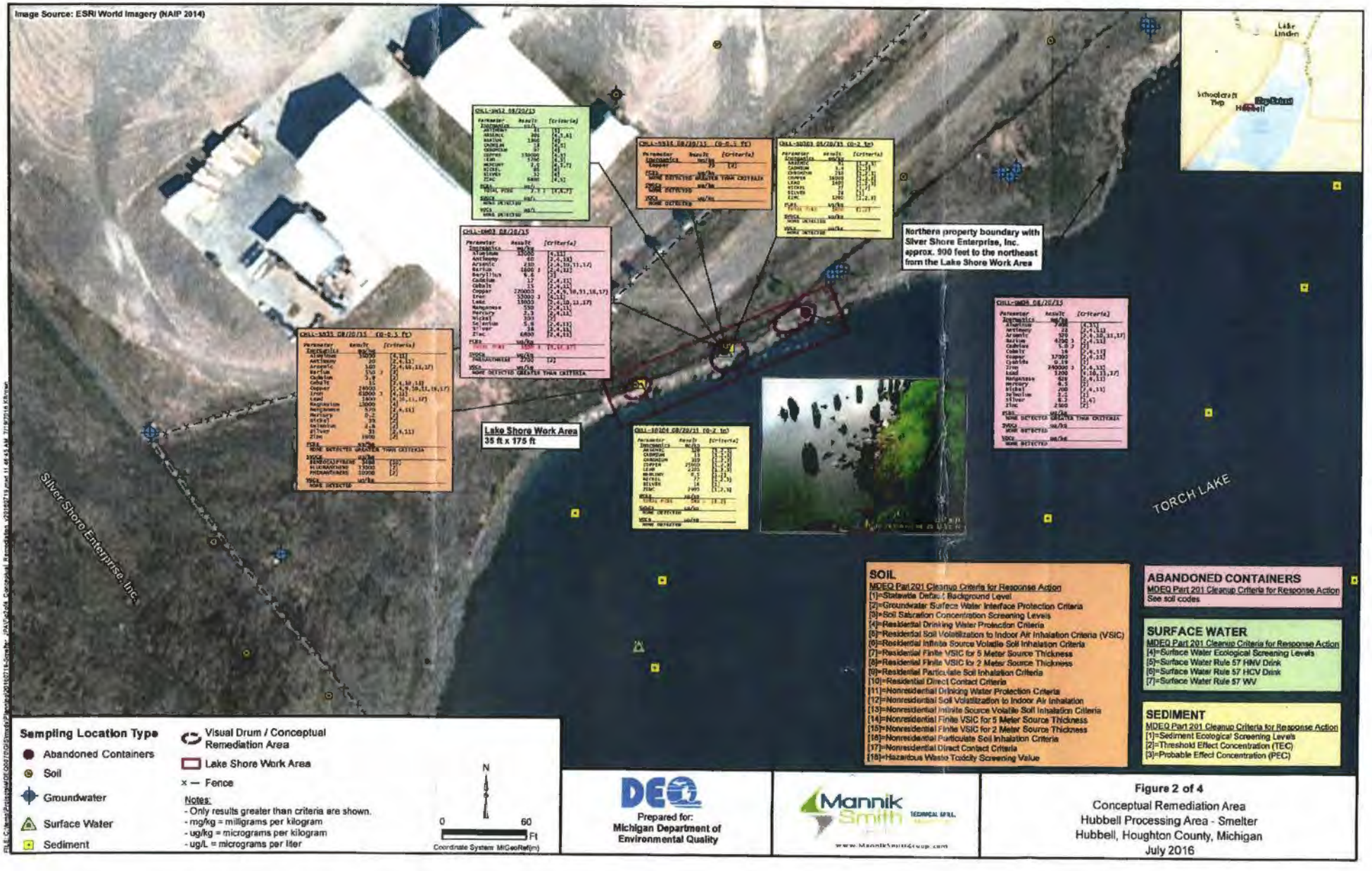


Figure 2 of 4

Conceptual Remediation Area
Hubbell Processing Area - Smelter
Hubbell, Houghton County, Michigan
July 2016

Figure 3 of 4
Cross Section Location
Hubbell Proecessing Area - Smelter
Hubbell, Houghton County, Michigan
July 2016

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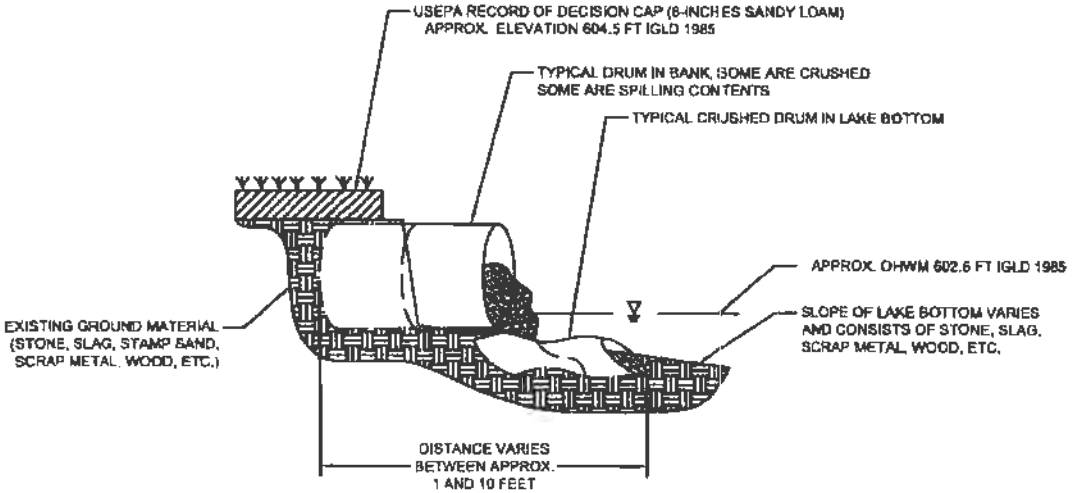
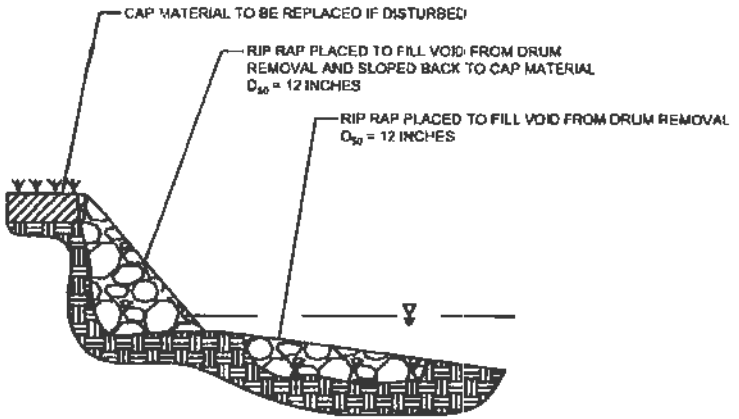


CROSS SECTION A - A'
TYPICAL EXISTING CONDITIONS AT DRUM LOCATIONS



CROSS SECTION A - A'
TYPICAL PROPOSED CONDITIONS

NOTES:
- ALL DIMENSIONS AND ELEVATIONS ARE APPROXIMATE.
- DRUM CONDITIONS AND LOCATIONS VARY, THE ABOVE IS A TYPICAL REPRESENTATION.

Mannik Smith GROUP
TECHNICAL SKILL. CREATIVE SPIRIT
www.MannikSmithGroup.com

FIGURE 4 OF 4
CROSS SECTIONS
SMELTER DRUM INTERIM RESPONSE
HUBBELL, HOUGHTON COUNTY, MICHIGAN
JULY 2016

DATE	DRAWN BY	DESIGNED BY	PROJECT NO.
7/19/2016	JBC	JBC	MDEQ0070

WATER RESOURCES DIVISION
MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
1504 WEST WASHINGTON STREET
MARQUETTE MI 49855-2141

DEQ

Michigan Department of Environmental Quality-Water Resources Division

NOTICE OF COMPLETION

I hereby give notice to the Michigan Department of Environmental Quality that the project, which was permitted under applicable statute provisions, has been completed.

PERMIT NUMBER WRP 5678	COUNTY Houghton
PROJECT COMPLETION DATE 10/9/17	AREA CODE & TELEPHONE NUMBER 906.337.0389
PERMITTEE'S SIGNATURE Cy Kerans	

Non-compliance with reporting requirements may result in monetary penalty.
Completion of this form is required under the authority of the applicable Parts of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

EQP 2731-1 (Rev. 7/2011) 1/17

2HH-79K8-2XVQ

APPENDIX F

Removed Abandoned Container Inventory

Table 1
Abandoned Container Removal Summary
Hubbell Processing Area - Smelter Property
C&H Lake Linden Operations
Houghton County, Michigan

Container Number	Container Identification	Sample / Inspection Date	Property Identification Number	Waste Characterization Laboratory Work Order Number	Longitude	Latitude	Container Description	Notes	Container Intact?	Container Empty?	Waste Characterization					
											Hazardous Waste	Non-Hazardous Waste	Non-TSCA PCB Waste	Contained Polychlorinated Biphenyls	RCRA Empty Drum	Recycled as Scrap Metal
Abandoned Containers - Hubbell Processing Area - Smelter Property																
1	CHLL-DM04	8/20/2015	014-307-001-50	NA	-88.42264007	47.17453117	An intact submerged drum observed in approximately 1 foot of water	During removal it was determined that CHLL-DM04 contained copper wire wrapping and electric motors. The drum and contents were recycled.	Yes	No						X
2	CONT-002 (CHLL-DM03)	8/20/2015	014-307-001-50	1707480-08	-88.422866627	47.174452345	A drum carcass containing black solid material observed in approximately 1 foot of water	CHLL-DM03 was partially intact and contained black sludge-like, granular waste. The drum was over packed and characterized for waste disposal.	No	No	X			X		
3	CONT-003	08/19/14 and 07/01/15	014-307-001-50	1707480-06	-88.422872653	47.174452769	Submerged drum observed in approximately 1 foot of water.	Partially intact drum with a hardened mass of waste. The drum was over packed and characterized for waste disposal.	No	No	X			X		
4	CONT-004	08/19/14 and 07/01/15	014-307-001-50	1707480-04	-88.422872653	47.174452769	Submerged drum observed in approximately 1 foot of water. Protruding from the shoreline.	Partially intact drum with waste near center of test pit area. The drum was over packed and characterized for waste disposal.	No	No		X		X		
5	CONT-005	08/19/14, 07/01/15, and 7/11/17	014-307-001-50	NA	-88.423122590	47.174373113	An intact submerged drum observed in approximately 1 foot of water	During removal it appeared that the drum may have further degraded and shifted due to shoreline erosion since initial observation. Fragments of the drum were removed and recycled.	No	Yes					X	X
6	CONT-006	7/11/2017	014-307-001-50	1707480-02			A partially intact submerged drum	1/2 of an intact drum with a hardened mass of waste discovered just south of CHLL-DM03 during interim response activities. The drum was over packed and characterized for waste disposal.	No	No		X		X		
7	CONT-007	7/11/2017	014-307-001-50	1707480-05			A partially intact submerged drum	Partially intact drum with a hardened mass of waste with some embedded copper wire wrapping discovered 3 feet offshore of CHLL-DM04 during interim response activities. The drum was over packed and characterized for waste disposal.	No	No	X			X		
8	CONT-008	7/11/2017	014-307-001-50	1707480-07			A partially intact drum	Partially intact drum with a hardened mass of waste with some rebar discovered just south of CHLL-DM04 during test pitting. The drum was over packed and characterized for waste disposal.	No	No		X		X		
9	CONT-009	7/11/2017	014-307-001-50	1707480-03			A partially intact drum	Partially intact drum with waste a few feet inland of Container 8 discovered during test pitting. The drum was over packed and characterized for waste disposal.	No	No		X		X		
10	CONT-010	7/11/2017	014-307-001-50	1707480-01			A partially intact drum	Partially intact drum with a hardened mass of granular, embedded copper wire wrap, and whitish-sludge waste (similar that observed in lake bottom drum content samples) discovered 3-5 feet inland of CHLL-DM03 during test pitting. The drum was over packed and characterized for waste disposal.	No	No	X			X		

APPENDIX G

Waste Management Records

TRADEBE TREATMENT AND RECYCLING, LLC

GENERATOR WASTE STREAM PROFILE SHEET

Profile # _____

Process Code _____

Fax or email completed profile sheet to: TTR Fax: 219-397-6411 TTR NE: 203-238-5744 usa.approvals@tradebe.com

A. GENERATOR INFORMATION:

MAILING OR SITE ADDRESS

USE CONTINUATION IF SITE & MAILING ADDRESSES ARE DIFFERENT

Generator #: _____
Generator Name: MI DEPT of ENVIRONMENTAL QUALITY
Generator Address: 55195 US-41
City: CALUMET State: MI Zip: 49913
Contact Name: AMY KERANEN
Generator Phone: 906-337-0389
Generator Fax: _____
Generator Email: KERANENA@michigan.gov
Generator USEPA/Federal ID # : MIK193755066

CUSTOMER INFORMATION:

Customer #: _____
Customer Name: UP ENVIRONMENTAL SERVICES, INC.
Customer Address: P.O. BOX 127
City: BARK RIVER State: MI Zip: 49807
Contact Name: RICK RIEDY or WAYNE STENBERG
Customer Phone: 906-466-9900
Customer Fax: 906-466-2641
Customer Email: rick@upenvironmental.com
Customer Service/Sales Rep: Mike

If no ID number is the Generator a "Conditionally Exempt Small Quantity Generator?" ___ Yes X No
Generator SIC (or NAIC) Code: _____ Generator State ID # (If applicable): _____
Please check if generator has "No Canada Disposal" policy ___ Yes X No
Please check if generator has "No Landfill" policy ___ Yes X No

B. WASTE STREAM INFORMATION:

Generator's Waste Name: ABANDONED CONTAINERS
Original Process Generating Waste: ABANDONED CONTAINER REMOVAL

Is this waste exempt from RCRA regulation? ___ Yes X No
If "yes" explain or cite regulation on continuation (Example HHW, CESQG): _____
Current method of disposal: _____
Is this waste from a CERCLA cleanup site? ___ Yes X No
Waste determination was made by: X Testing __ Generator Knowledge __ MSDS __ Sample __ Other
(Attach analytical, MSDS, or other supporting documentation used for waste determination)
Does the Waste have any of the following characteristics? ___ Yes *(if yes check all that apply)* X No

___ Oxidizer	___ Dioxin or Suspect	___ Water Reactive	___ Air Reactive	___ Organic Peroxide
___ Hexachrome	___ Infectious Waste	___ Radioactive	___ Chelating Agent	___ Lachrymator
___ Explosive	___ Shock Sensitive	___ Polymerizer	___ Pyrophoric	___ Inhalation Hazard, Zone ___

C. GENERAL CHARACTERISTICS:

Color: VARIES	**Physical state @ 70 F**		**Phases**	**BTU/lb**		**pH**
Odor: PETROLE	___ % liquid	___ aerosol	X single layer	X <3000(*Ex:* water)	__ <2 (Acid)	__ 10.0-12.5
___ None	100 % solid	___ powder	___ double layer	___ 3,000-5,000	X 2.0-4.0	__ >12.5 (Base)
X Mild	___ % sludge	___ other	___ >2 layers	___ 5,000-10,000	X 4.0-10.0	
___ Strong	___ % debris		___ how many?	___ >10,000 (*Ex:* oil)		

Liquid Flashpoint: ___ <73 F ___ 73 to 99 F ___ 100 to 139 F ___ 140 to 200 F X >200 F ___ None
Boiling Point _____ Specific Gravity: _____ Total Halogens: _____ % Total Organic Carbon (TOC): _____ % Viscosity: _____

D. CHEMICAL COMPOSITION: Total of Maximum concentration must be > or = to 100%.

Constituents	Min%	Max%	ppm	Constituents	Min%	Max%	ppm
See attached lab results for 010,007,003, and (							
Sludge	100	100					

Does the Waste contain any of the following?
Metal Pieces: ___ Yes X No *If yes, Describe Metal:* _____
Nitrocellulose: ___ Yes X No *Metal Powder or Flake:* ___ Yes X No *Sharps:* ___ Yes X No
Isocyanates: ___ Yes X No *Asbestos: (If yes, must be double bagged and wetted)* ___ Yes X No
Reactive cyanide: (If yes, indicate level in ppm) ___ Yes X No _____ *Range of reactive cyanide*
Reactive sulfide: (If yes, indicate level in ppm) ___ Yes X No _____ *Range of reactive sulfide*
PCBs: __ None X 0-49 ppm __ 50-499 ppm __ 500+ ppm *(If waste contains PCBs, certification form is required)*
Does the waste contain Benzene? ___ Yes X No
If yes, check all SIC codes that cover operations at your facility ___ Yes ___ No

__ 2812 __ 2813 __ 2816 __ 2819 __ 2821 __ 2822 __ 2823 __ 2824 __ 2833 __ 2834 __ 2835 __ 2836 __ 2841 __ 2842 __ 2843 __ 2844 __ 2851 __ 2861
__ 2865 __ 2869 __ 2873 __ 2874 __ 2875 __ 2879 __ 2891 __ 2892 __ 2893 __ 2896 __ 2899 __ 2911 __ 2999 __ 3312 __ 4953 __ 4959 __ 9511

If waste contains benzene and falls under one of the above SIC codes, Tradebe's benzene NESHAP form is required for each shipment

WASTE WATER ANALYSIS Profile # _____

For waste streams being managed through TTR NE's wastewater treatment operations only:

Phases: Oil _____ % Water _____ % Interface _____ % Sediments _____ % DNAPL _____ %

Petroleum Phase	Suspected Level	Actual Level	Aqueous Phase	Suspected Level	Actual Level	Aqueous Phase	Suspected Level	Actual Level
PCB			Copper			Cobalt		
Halogens			Cadmium			Mercury		
Solvents			Chromium			Arsenic		
Arsenic			Lead			Barium		
Cadmium			Nickel			Sulfides		
Chromium			Silver			Cyanides		
Lead			Zinc			Phenols		
			COD			Glycols		
			Iron			Selenium		

List Specific Solvents: _____

E. OTHER WASTE STREAM INFORMATION:

Is this waste a USED OIL per 40CFR PART 279? ___ Yes X No

If Yes, does the total halogen content exceed 1,000 ppm? ___ Yes ___ No

If Yes, can you identify the Chlorinated Constituent present in the oil? ___ Yes ___ No

If Yes, can you rebut the presumption that this material is a Hazardous Waste? ___ Yes ___ No

Is the Waste subject to RCRA 40 CFR Subpart CC controls (Are Volatile Organic Compounds >500ppmw)? ___ Yes X No

Does the Waste contain any Class I or Class II ozone-depleting substances? ___ Yes X No

Does waste contain EPCRA 313 chemicals identified in 40 CFR 372.65? ___ Yes X No

If yes list in Additional Information on Continuation Page.

Does this waste contain any Chemicals of Interest listed in *6 CFR Part 27 Appendix A* (Department of Homeland Security)? *If yes please list in Additional Information on Continuation Page.* ___ Yes X No

F. RCRA CHARACTERIZATION:

Is this a USEPA Hazardous Waste as defined in 40 CFR 261.3? X Yes ___ No

Is this a Universal Waste per 40 CFR part 273? ___ Yes X No

Please list any characteristic codes (D001-D043): D008

Does the waste contain UHCs above treatment standards levels? (40 CFR 268.48, 268.7) ___ Yes X No

If yes identify those chemicals in Appendix I - Underlying Hazardous Constituents

Please list any applicable "F" or "K" codes: _____

Please list any applicable "U" or "P" codes: _____

Please list any state regulated codes: _____

G. SHIPPING VOLUME & FREQUENCY:

___ Bulk Liquid (tanker) _____ Approximately how many gallons? ___ Bulk Solids(roll-off box, vacuum box, etc)

___ Cubic Yard Boxes ___ Totes _____ size in gallons ___ Metal ___ Plastic

___ Skid ___ Other *If other*, please describe: _____

X Drums (Specify size) X 85 __ 55 __ 30 __ 15 __ 5 ___ Metal ___ Plastic ___ Fiberboard

Is waste a combination package (e.g. Drum with inner containers or skid with cases of consumer products) ___ Yes ___ No

Shipping Frequency: Number of Units _____ Per ___ Month ___ Quarter ___ Year X Other ONCE

H. DOT SHIPPING INFORMATION

Is this a U.S. Department of Transportation (USDOT) Hazardous Material? X Yes ___ No

Shipping Name per 49 CFR 172.101 Hazardous Materials Table: HAZARDOUS WASTE SOLID, NOS

Hazard Class or Division: 9 UN/NA #: 3077 Packing Group: __ I __ II X III ERG #: 171

Technical descriptors if required: _____ RQ if required: _____

DOT Special Permit that may apply (*Include copy of permit*): _____ Inhalation Hazard: Zone _____

I. GENERATOR CERTIFICATION:

I agree by affixing my authorized signature that I hereby certify that the above and attached description is complete and accurate and that no omissions of characteristics, composition or properties exist and that all known or suspected hazards have been disclosed and that all shipments referencing the profile number assigned to the waste stream described herein shall in all respects be consistent with the description. I further certify that each sample provided to Tradebe is representative of the waste material described above and give Tradebe permission and consent to make amendments and corrections and that I am an authorized agent of the Generator.

Name (print): Amy Keranen for MDEQ Title: project manager

Signature: Amy Keranen, MDEQ Date: 7-27-17

INTERNAL USE ONLY: *Please indicate which Tradebe Facility(s) are being utilized for this Profile*

___ TTR, LLC, East Chicago, IN

___ TTR of Bridgeport, LLC, Bridgeport, CT

___ TTR of Stoughton, LLC, Stoughton, MA

___ TTR of TN, LLC, Millington, TN

___ TTR of Northborough, LLC, Northborough, MA

___ TTR of Meriden, LLC, Me

___ TTR of Newington, LLC, Newington, NH

___ Norlite Corp Cohoes, NY

TRADEBE
Environmental Services, LLC

TRADEBE TREATMENT AND RECYCLING, LLC

Profile # _____

GENERATOR WASTE STREAM PROFILE ADDITIONAL INFORMATION SHEET

PLEASE PRINT IN INK OR TYPE

Site Address (if different from generator):

Site Name (if different from generator): ABANDONED MINING WASTES PROJECT—TORCH LAKE

Pick-up Address: **52634 HIGHWAY M-26**

Additional Location Identification: _____

City: **HUBBELL** State: **MI** Zip: **49934**

Contact Name: **Amy Keranen**

Contact Phone: **906-337-0389**

Contact Fax: _____

Generator USEPA/Federal ID # (if different than generators) : MIK193755066

Facility Restrictions (if any): _____

B. WASTE STREAM INFORMATION CONTINUATION

Exemption: The waste described on this profile sheet is exempt/excluded from RCRA regulation under:

(Cite regulation exempting waste from RCRA) _____

D. CHEMICAL COMPOSITION CONTINUATION: Total of Maximum concentration must be > or = to 100%.

Constituents	Min%	Max%	ppm	Constituents	Min%	Max%	ppm

G. R.C.R.A. CHARACTERIZATION CONTINUATION:

Additional characteristic codes (D001-D043): If waste carries a characteristic code, please check all applicable Underlying Hazardous Constituents in Appendix I: _____

List additional F or K codes: _____

List additional U or P codes:

Additional State codes if required: _____

ADDITIONAL INFORMATION

(Use this space to include any other information about this waste)

Tradebe Treatment and Recycling, LLC

4343 KENNEDY AVE; EAST CHICAGO, IN 46312
Ph: 800-388-7242 / Fx: 219-397-6411
5485 VICTORY LANE; MILLINGTON, TN 38053
Ph: 888-724-6366 / Fx: 901-353-9471

TRADEBE™

PCB Certification

The Environmental Protection Agency published its "anti-dilution" provision 40 CFR 761.1(b), which effects the disposal of Polychlorinated Biphenyl (PCBs). The provision states: "No provision specifying a PCB concentration may be avoided as a result of any dilution, unless otherwise specifically provided". Thus, in general, materials are required to be disposed of according to their original concentration.

Any waste stream that is detected with a PCB concentration will be managed as off spec. All containers of the waste stream will be managed as TSCA waste unless otherwise certified by

If there are other waste received that could be associated as TSCA waste, please alert Tradebe's Customer Service Personnel.

Generator Name: MI DEPT of ENVIRONMENTAL Quality Phone: 906-337-0389
Address: 52634 Highway M-26 City: HUBBELL State: MI
Waste Stream Number: _____

*(Please have a **Company Representative** who performs "waste determination" from where the waste was generated certify the following.)*

X I, Amy Keranen, am an authorized represenative of the above named
(Print Name)
Generator. For the waste stream mentioned above I do hereby certify the following:

___ The waste contains no PCB's. This has been verified by:
___ Manufacturer's labeling
___ Analytical *(If verified by analytical please attach)*

___ Contains intact **NON-leaking** TSCA Exempt ballasts

X The resulting PCB concentration (<50ppm) is not a result of dilution, or leaks and spills of PCBs in concentrations equal to or greater than 50ppm. Therefore the waste ***should not*** be managed as a TSCA waste. *(Analytical must be provided to show current PCB levels)*

___ The containers of waste were generated from multiple sources, therefore only containers that contain PCBs greater or equal to 50ppm are TSCA regulated. (Due to Tradebe's Policy containers that contain PCB's in a concentration of >30ppm will be rejected to an alternate facility).

___ The containers of waste were generated from a single source. Therefore all of the containers generated from the same source (i.e. tank clean out) will be managed as TSCA waste regardless of the PCB value. The TSCA containers will be rejected back to the generator or to an alternate facility.

___ If the above choices do not describe your waste please use this space: _____

This document certifies that the above listed material(s) have been properly packaged in accordance to Tradebe Treatment and Recycling, LLC (Tradebe) policies and procedures. We further certify that the material(s) is/are stable for handling and transportation under normal conditions. As indicated by my signature below, the above listed company indemnifies Tradebe Treatment and Recycling, LLC and any disposal outlets used by Tradebe of any and all liability associated with the transportation,handling, and disposal of the materials listed above.

X Name (*Print*): Amy Keranen for MDEQ Title: project manager
Authorized Signature: A Keranen, MDEQ Date: 7-27-17

WASTE MANAGEMENT

EZ Profile™

Requested Facility: K & W LANDFILL ☐ Unsure Profile Number: _____

☐ Multiple Generator Locations (Attach Locations) ☐ Request Certificate of Disposal ☐ Renewal? Original Profile Number: _____

A. GENERATOR INFORMATION (MATERIAL ORIGIN)

1. Generator Name: Michigan Depart. of Environmental Quality
2. Site Address: 52430 Highway M-26 (Duncan Avenue)
   (City, State, ZIP) Hubbell, MI 49934
3. County: Houghton
4. Contact Name: Amy Keranen
5. Email: KERANENA@michigan.gov
6. Phone: 906-337-0389 7. Fax: _____
8. Generator EPA ID: _____ ☑ N/A
9. State ID: _____ ☑ N/A

B. BILLING INFORMATION ☐ SAME AS GENERATOR

1. Billing Name: UP Environmental Services, Inc.
2. Billing Address: P.O. Box 127
   (City, State, ZIP) Bark River, MI 49807
3. Contact Name: Rick Riedy or Wayne Stenberg
4. Email: rick@upenvironmental.com
5. Phone: 906-466-9900 6. Fax: 906-466-2641
7. WM Hauled? ☐ Yes ☑ No
8. P.O. Number: verbal Rick
9. Payment Method: ☐ Credit Account ☐ Cash ☑ Credit Card

C. MATERIAL INFORMATION

1. Common Name: Non-Hazardous Waste
   Describe Process Generating Material: ☐ See Attached

   Excavation of abandoned 55 gallon drums presently stored in 85 gallon drums.

2. Material Composition and Contaminants: ☐ See Attached

1. NON-HAZARDOUS WASTE	0-100 %
2.	
3.	
4.	
Total comp. must be equal to or greater than 100%	≥100%

3. State Waste Codes: _____ ☑ N/A
4. Color: Various
5. Physical State at 70°F: ☑ Solid ☐ Liquid ☐ Other: _____
6. Free Liquid Range Percentage: _____ to _____ ☑ N/A
7. pH: _____ to _____ ☑ N/A
8. Strong Odor: ☐ Yes ☑ No Describe: _____
9. Flash Point: ☐ <140°F ☐ 140°-199°F ☑ ≥200° ☐ N/A

D. REGULATORY INFORMATION

1. EPA Hazardous Waste? ☐ Yes* ☑ No
   Code: _____
2. State Hazardous Waste? ☐ Yes ☑ No
   Code: _____
3. Is this material non-hazardous due to Treatment, Delisting, or an Exclusion? ☐ Yes* ☑ No
4. Contains Underlying Hazardous Constituents? ☐ Yes* ☑ No
5. From an industry regulated under Benzene NESHAP? ☐ Yes* ☑ No
6. Facility remediation subject to 40 CFR 63 GGGGG? ☐ Yes* ☑ No
7. CERCLA or State-mandated clean-up? ☐ Yes* ☑ No
8. NRC or State-regulated radioactive or NORM waste? ☐ Yes* ☑ No

***If Yes, see Addendum (page 2) for additional questions and space.**

9. Contains PCBs? → If Yes, answer a, b and c. ☑ Yes ☐ No
   a. Regulated by 40 CFR 761? ☐ Yes ☑ No
   b. Remediation under 40 CFR 761.61 (a)? ☐ Yes ☑ No
   c. Were PCB imported into the US? ☐ Yes ☑ No
10. Regulated and/or Untreated Medical/Infectious Waste? ☐ Yes ☑ No
11. Contains Asbestos? ☐ Yes ☑ No
    → If Yes: ☐ Non-Friable ☐ Non-Friable – Regulated ☐ Friable

E. ANALYTICAL AND OTHER REPRESENTATIVE INFORMATION

1. Analytical attached ☑ Yes
   Please identify applicable samples and/or lab reports:

   Cont-006, Cont-009, Cont-004, Cont-008 in attached analytical data report.

2. Other information attached (such as MSDS)? ☐ Yes

F. SHIPPING AND DOT INFORMATION

1. ☑ One-Time Event ☐ Repeat Event/Ongoing Business
2. Estimated Quantity/Unit of Measure: Four
   ☐ Tons ☐ Yards ☑ Drums ☐ Gallons ☐ Other: _____
3. Container Type and Size: 85 Gallons Overpack Steel Drums
4. USDOT Proper Shipping Name: ☑ N/A

G. GENERATOR CERTIFICATION (PLEASE READ AND CERTIFY BY SIGNATURE)

By signing this EZ Profile™ form, I hereby certify that all information submitted in this and all attached documents contain true and accurate descriptions of this material, and that all relevant information necessary for proper material characterization and to identify known and suspected hazards has been provided. Any analytical data attached was derived from a sample that is representative as defined in 40 CFR 261 - Appendix 1 or by using an equivalent method. All changes occurring in the character of the material (i.e., changes in the process or new analytical) will be identified by the Generator and be disclosed to Waste Management prior to providing the material to Waste Management.

If I am an agent signing on behalf of the Generator, I have confirmed with the Generator that information contained in this Profile is accurate and complete.

Name (Print): Amy Keranen DEQ Date: 7-25-17

Title: EQA - Project Mgr MDEQ

Company: State of MI DEQ

Certification Signature

Amy Keranen, DEQ

THINK GREEN.®

QUESTIONS? CALL 800 963 4776 FOR ASSISTANCE

Revised June 30, 2015

EZ Profile™ Addendum

Only complete this Addendum if prompted by responses on EZ Profile™ (page 1) or to provide additional information. Sections and question numbers correspond to EZ Profile™.

Profile Number: _____

C. MATERIAL INFORMATION

Describe Process Generating Material (Continued from page 1): If more space is needed, please attach additional pages.

Material Composition and Contaminants (Continued from page 1): If more space is needed, please attach additional pages.

5.	
6.	
7.	
8.	
9.	
Total composition must be equal to or greater than 100%	≥100%

D. REGULATORY INFORMATION

Only questions with a "Yes" response in Section D on the EZ Profile™ form (page 1) need to be answered here.

1. EPA Hazardous Waste
   a. Please list all USEPA listed and characteristic waste code numbers:

   b. Is the material subject to the Alternative Debris standards (40 CFR 268.45)? ❑ Yes ❑ No
   c. Is the material subject to the Alternative Soil standards (40 CFR 268.49)? → If Yes, complete question 4. ❑ Yes ❑ No
   d. Is the material exempt from Subpart CC Controls (40 CFR 264.1083)? ❑ Yes ❑ No
      → If Yes, please check **one** of the following:
      ❑ Waste meets LDR or treatment exemptions for organics (40 CFR 264.1082(c)(2) or (c)(4))
      ❑ Waste contains VOCs that average <500 ppmw (CFR 264.1082(c)(1)) – will require annual update.
2. State Hazardous Waste → Please list all state waste codes: _____
3. For material that is Treated, Delisted, or Excluded → Please indicate the category, below:
   ❑ Delisted Hazardous Waste ❑ Excluded Waste under 40 CFR 261.4 → Specify Exclusion: _____
   ❑ Treated Hazardous Waste Debris ❑ Treated Characteristic Hazardous Waste → If checked, complete question 4.
4. Underlying Hazardous Constituents → Please list all Underlying Hazardous Constituents:

5. Industries regulated under Benzene NESHAP include petroleum refineries, chemical manufacturing plants, coke by-product recovery plants, and TSDFs.
   a. Are you a TSDF? → If yes, please complete Benzene NESHAP questionnaire. If not, continue. ❑ Yes ❑ No
   b. Does this material contain benzene? ❑ Yes ❑ No
      1. If yes, what is the flow weighted average concentration? _____ ppmw
   c. What is your facility's current total annual benzene quantity in Megagrams? ❑ <1 Mg ❑ 1–9.99 Mg ❑ ≥10 Mg
   d. Is this waste soil from a remediation? ❑ Yes ❑ No
      1. If yes, what is the benzene concentration in remediation waste? _____ ppmw
   e. Does the waste contain >10% water/moisture? ❑ Yes ❑ No
   f. Has material been treated to remove 99% of the benzene or to achieve <10 ppmw? ❑ Yes ❑ No
   g. Is material exempt from controls in accordance with 40 CFR 61.342? ❑ Yes ❑ No
      → If yes, specify exemption: _____
   h. Based on your knowledge of your waste and the BWON regulations, do you believe that this waste stream is subject to treatment and control requirements at an off-site TSDF? ❑ Yes ❑ No
6. 40 CFR 63 GGGGG → Does the material contain <500 ppmw VOHAPs at the point of determination? ❑ Yes ❑ No
7. CERCLA or State-Mandated clean up → Please submit the Record of Decision or other documentation with process information to assist others in the evaluation for proper disposal. A "Determination of Acceptability" may be needed for CERCLA wastes not going to a CERCLA approved facility.
8. NRC or state regulated radioactive or NORM Waste → Please identify isotopes and pCi/g: _____

Additional Profile Information

Profile Number: _____

C. MATERIAL INFORMATION

Material Composition and Contaminants (Continued from page 2): If more space is needed, please attach additional pages.

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38.	
39.	
40.	
Total composition must be equal to or greater than 100%	≥100%

D. REGULATORY INFORMATION

1. EPA Hazardous Waste
   a. Please list all USEPA listed and characteristic waste code numbers (Continued from page 2):

MICHIGAN NON-HAZARDOUS WASTE PROFILE ADDENDUM

Profile Number

F. Michigan Addendum

1. Is this Waste to be solidified by WM prior to disposal into the landfill?	❑ Yes	❑ No
2. Does this exhibit any of the reactivity characteristics as defined by MI Part 111 R 299.9212(3)?	❑ Yes	❑ No
3. Does this waste contain any RCRA herbicides or pesticides?	❑ Yes	❑ No
4. Do you generate any regulated Hazardous Waste?	❑ Yes	❑ No
If "Yes," do you have procedures in place to prevent Hazardous Waste from being mixed with this waste?	❑ Yes	❑ No

G. SOLVENTS OR PAINTS:

❑ Not applicable, this waste does not contain any solvents or paints.

What solvent(s), if any, are in use and for what purpose?

If this waste is from a Paint Spray Booth, please explain in detail how the spray guns are cleaned and what is done with that waste?

After a paint line and/or spray gun is cleaned, is the new paint purged through and disposed of separately?

H. Complete this Section ONLY IF THIS WASTE IS PROPOSED FOR DISPOSAL AT WOODLAND MEADOWS

SPECIAL WASTE DECLARATION

(Check below those Special Wastes that are proposed for disposal by Waste Management:)

❑ a. Waste from an industrial process.

❑ b. Waste from a pollution control process.

❑ c. Waste containing free liquids.

❑ d. Residue and debris from a cleanup of a spill of a chemical or commercial product or a waste listed in a.–c. and l.–n. of this form.

❑ e. Contaminated residuals, or articles from the cleanup of a facility generating, storing, treating or recycling or disposing of chemical substances, commercial products or wastes listed in a.–d., f or g of this form.

❑ f. Any waste which is non-hazardous as a result of treatment pursuant to Subtitle C of the Resource Conservation and Recovery Act (R.C.R.A.).

❑ g. Chemical containing equipment removed from service, which the chemical composition and concentration are unknown.

❑ h. Drums, or containers capable of holding greater than 25 gallons, whether empty, partially full or full.

❑ i. Friable or non-friable asbestos containing waste from building demolition or cleanup, including wallboard, wall, ceiling or spray coverings, pipe insulation, etc.

❑ j. Commercial products or chemicals which are off-specification, outdated, unused or banned. Outdated or off specification uncontaminated food or beverage products in original consumer containers are not included in this category, unless management of such containers is restricted by applicable regulations.

❑ k. Treated or untreated medical waste. Any waste which was once capable, or is capable of inducing infection form a bio-medical source.

❑ l. Residue / sludges from septic tanks, food service grease traps, or wash waters and wastewaters from commercial laundries, and private or public wastewater treatment facilities.

❑ m. Chemical containing equipment removed from service, in which the chemical concentrations are known (e.g., acetylene tanks, cathode ray tubes, lab equipment, fluorescent lights, etc.)

❑ n. Waste produced from the dismantling or demolition of industrial process equipment, or facilities contaminated with chemicals from the industrial process.

❑ o. Incinerator ash generated at a Resource Recovery Facility. A facility which burns only non-hazardous household, commercial or industrial and qualifies for the hazardous waste exclusion in 40CFR261.4(b).

❑ p. Other, if not specified above.

BY COMPLETING SECTION H., CUSTOMER WARRANTS THAT HE/SHE HAS DISCLOSED ALL OF THE TYPES OF SPECIAL WASTE PROPOSED TO BE DISPOSED BY WASTE MANAGEMENT

21-Jul-2017

Rick Riedy
U.P. Environmental Services, Inc.
P.O. Box 127
1315 US 2 & 41
Bark River, MI 49807

Re: **CONT** Work Order: **1707480**

Dear Rick,

ALS Environmental received 16 samples on 12-Jul-2017 09:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 59.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Electronically approved by: Bill Carey

Bill Carey
Project Manager

Certificate No: MN 998501

ADDRESS 3352 128th Ave Holland, Michigan 49424 | PHONE (616) 399-6070 | FAX (616) 399-6185
ALS GROUP USA, CORP Part of the ALS Laboratory Group A Campbell Brothers Limited Company

ALS Group, USA

Date: 21-Jul-17

Client: U.P. Environmental Services, Inc.
Project: CONT
Work Order: **1707480**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1707480-01	CONT-010	Soil		7/11/2017 13:30	7/12/2017 09:00	☐
1707480-02	CONT-006	Soil		7/11/2017 13:40	7/12/2017 09:00	☐
1707480-03	CONT-009	Soil		7/11/2017 13:50	7/12/2017 09:00	☐
1707480-04	CONT-004	Soil		7/11/2017 14:00	7/12/2017 09:00	☐
1707480-05	CONT-007	Soil		7/11/2017 14:10	7/12/2017 09:00	☐
1707480-06	CONT-003	Soil		7/11/2017 14:15	7/12/2017 09:00	☐
1707480-07	CONT-008	Soil		7/11/2017 14:20	7/12/2017 09:00	☐
1707480-08	CONT-002	Soil		7/11/2017 14:30	7/12/2017 09:00	☐
1707480-09	CONT-010 (TCLP)	Tclp Extract		7/11/2017 13:30	7/12/2017 09:00	☐
1707480-10	CONT-006 (TCLP)	Tclp Extract		7/11/2017 13:40	7/12/2017 09:00	☐
1707480-11	CONT-009 (TCLP)	Tclp Extract		7/11/2017 13:50	7/12/2017 09:00	☐
1707480-12	CONT-004 (TCLP)	Tclp Extract		7/11/2017 14:00	7/12/2017 09:00	☐
1707480-13	CONT-007 (TCLP)	Tclp Extract		7/11/2017 14:10	7/12/2017 09:00	☐
1707480-14	CONT-003 (TCLP)	Tclp Extract		7/11/2017 14:15	7/12/2017 09:00	☐
1707480-15	CONT-008 (TCLP)	Tclp Extract		7/11/2017 14:20	7/12/2017 09:00	☐
1707480-16	CONT-002 (TCLP)	Tclp Extract		7/11/2017 14:30	7/12/2017 09:00	☐

Qualifier	Description
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte is present at an estimated concentration between the MDL and Report Limit
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
% of sample	Percent of Sample
°F	Degrees Fahrenheit
µg/Kg-dry	Micrograms per Kilogram Dry Weight
µg/L	Micrograms per Liter
mg/Kg-dry	Milligrams per Kilogram Dry Weight
mg/L	Milligrams per Liter
none	
s.u.	Standard Units

Client: U.P. Environmental Services, Inc.
Project: CONT
Work Order: 1707480

Case Narrative

Samples for the above noted Work Order were received on 7/12/2017. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting. A copy of the laboratory's scope of accreditation is available upon request.

With the following exceptions, all sample analyses achieved analytical criteria.

Volatile Organics:
No other deviations or anomalies were noted.

Extractable Organics:
Batch 104494, Method PCBLVI_8082_S, Sample 1707480-08A: Low surrogate recovery due to sample matrix effects confirmed by re-extraction.

Batch 104546, Method TCBA_8270_S, Sample 1707480-13A MS: The MS recovery was above the upper control limit. The corresponding result in the parent sample may be biased high for this analyte: 2,4-Dinitrotoluene, m-Cresol, p-Cresol

Batch 104546, Method TCBA_8270_S, Sample 1707480-13A MSD: The MSD recovery was above the upper control limit. The corresponding result in the parent sample may be biased high for this analyte: m-Cresol, p-Cresol

Metals:
Batch 104506, Method TCICP_6010_S, Sample 1707480-13AMS: The MS recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Ba, Cu, Pb, Na, Zn

Batch 104506, Method TCICP_6010_S, Sample 1707480-13AMSD: The MSD recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Cu, Pb, Na

Wet Chemistry:
No other deviations or anomalies were noted.

ALS Group, USA

Date: *21-Jul-17*

Client: U.P. Environmental Services, Inc.
Project: CONT
Work Order: 1707480
Sample ID: CONT-010
Lab ID: 1707480-01
Collection Date: 7/11/2017 01:30 PM
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			**SW8082**	Prep: SW3546 7/14/17 10:37		Analyst: **EB**
Aroclor 1016	ND		80	µg/Kg-dry	1	7/16/2017 09:28 AM
Aroclor 1221	ND		80	µg/Kg-dry	1	7/16/2017 09:28 AM
Aroclor 1232	ND		80	µg/Kg-dry	1	7/16/2017 09:28 AM
Aroclor 1242	ND		80	µg/Kg-dry	1	7/16/2017 09:28 AM
Aroclor 1248	ND		80	µg/Kg-dry	1	7/16/2017 09:28 AM
Aroclor 1254	**340**		**80**	**µg/Kg-dry**	1	7/16/2017 09:28 AM
Aroclor 1260	**310**		**80**	**µg/Kg-dry**	1	7/16/2017 09:28 AM
Aroclor 1262	ND		80	µg/Kg-dry	1	7/16/2017 09:28 AM
Aroclor 1268	**97**		**80**	**µg/Kg-dry**	1	7/16/2017 09:28 AM
Surr: Decachlorobiphenyl	*55.3*		*40-140*	*%REC*	1	7/16/2017 09:28 AM
Surr: Tetrachloro-m-xylene	*58.3*		*45-124*	*%REC*	1	7/16/2017 09:28 AM
CYANIDE, REACTIVE			**SW7.3.3.2**			Analyst: **RZM**
Cyanide, Reactive	ND		120	mg/Kg-dry	1	7/18/2017 10:30 AM
FLASHPOINT/IGNITABILITY ANALYSIS			**SW1010A**			Analyst: **RZM**
Flashpoint/Ignitability	*>200*		1.00	°F	1	7/18/2017 11:30 AM
PAINT FILTER (FREE LIQUIDS)			**SW9095B**			Analyst: **JB**
Free Liquids	**Absent**			**none**	1	7/13/2017 01:30 PM
MOISTURE			**SW3550C**			Analyst: **SBR**
Moisture	**18**		**0.050**	**% of sample**	1	7/13/2017 04:14 PM
PH			**SW9045D**	Prep: EXTRACT 7/13/17 14:46		Analyst: **RZM**
pH	**7.85**		**0.100**	**s.u.**	1	7/14/2017 10:45 AM
SULFIDE, REACTIVE			**SW7.3.4.2**			Analyst: **RZM**
Sulfide, Reactive	ND		120	mg/Kg-dry	1	7/18/2017 09:05 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *21-Jul-17*

Client: U.P. Environmental Services, Inc.
Project: CONT
Work Order: 1707480
Sample ID: CONT-006
Lab ID: 1707480-02
Collection Date: 7/11/2017 01:40 PM
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			**SW8082**	Prep: SW3546 7/14/17 10:37		Analyst: **EB**
Aroclor 1016	ND		81	µg/Kg-dry	1	7/16/2017 09:43 AM
Aroclor 1221	ND		81	µg/Kg-dry	1	7/16/2017 09:43 AM
Aroclor 1232	ND		81	µg/Kg-dry	1	7/16/2017 09:43 AM
Aroclor 1242	ND		81	µg/Kg-dry	1	7/16/2017 09:43 AM
Aroclor 1248	ND		81	µg/Kg-dry	1	7/16/2017 09:43 AM
Aroclor 1254	**320**		**81**	**µg/Kg-dry**	1	7/16/2017 09:43 AM
Aroclor 1260	ND		81	µg/Kg-dry	1	7/16/2017 09:43 AM
Aroclor 1262	ND		81	µg/Kg-dry	1	7/16/2017 09:43 AM
Aroclor 1268	**100**		**81**	**µg/Kg-dry**	1	7/16/2017 09:43 AM
Surr: Decachlorobiphenyl	*62.5*		*40-140*	*%REC*	1	7/16/2017 09:43 AM
Surr: Tetrachloro-m-xylene	*52.9*		*45-124*	*%REC*	1	7/16/2017 09:43 AM
CYANIDE, REACTIVE			**SW7.3.3.2**			Analyst: **RZM**
Cyanide, Reactive	ND		130	mg/Kg-dry	1	7/18/2017 10:30 AM
FLASHPOINT/IGNITABILITY ANALYSIS			**SW1010A**			Analyst: **RZM**
Flashpoint/Ignitability	*>200*		1.00	°F	1	7/18/2017 11:30 AM
PAINT FILTER (FREE LIQUIDS)			**SW9095B**			Analyst: **JB**
Free Liquids	**Absent**			**none**	1	7/13/2017 01:30 PM
MOISTURE			**SW3550C**			Analyst: **SBR**
Moisture	**20**		**0.050**	**% of sample**	1	7/13/2017 04:14 PM
PH			**SW9045D**	Prep: EXTRACT 7/13/17 14:46		Analyst: **RZM**
pH	**8.13**		**0.100**	**s.u.**	1	7/14/2017 10:45 AM
SULFIDE, REACTIVE			**SW7.3.4.2**			Analyst: **RZM**
Sulfide, Reactive	ND		130	mg/Kg-dry	1	7/18/2017 09:05 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *21-Jul-17*

Client: U.P. Environmental Services, Inc.
Project: CONT
Work Order: 1707480
Sample ID: CONT-009
Lab ID: 1707480-03
Collection Date: 7/11/2017 01:50 PM
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			**SW8082**	Prep: SW3546 7/14/17 10:37		Analyst: **EB**
Aroclor 1016	ND		95	µg/Kg-dry	1	7/16/2017 09:57 AM
Aroclor 1221	ND		95	µg/Kg-dry	1	7/16/2017 09:57 AM
Aroclor 1232	ND		95	µg/Kg-dry	1	7/16/2017 09:57 AM
Aroclor 1242	ND		95	µg/Kg-dry	1	7/16/2017 09:57 AM
Aroclor 1248	ND		95	µg/Kg-dry	1	7/16/2017 09:57 AM
Aroclor 1254	**420**		**95**	**µg/Kg-dry**	1	7/16/2017 09:57 AM
Aroclor 1260	**230**		**95**	**µg/Kg-dry**	1	7/16/2017 09:57 AM
Aroclor 1262	ND		95	µg/Kg-dry	1	7/16/2017 09:57 AM
Aroclor 1268	ND		95	µg/Kg-dry	1	7/16/2017 09:57 AM
Surr: Decachlorobiphenyl	*50.6*		*40-140*	*%REC*	1	7/16/2017 09:57 AM
Surr: Tetrachloro-m-xylene	*51.5*		*45-124*	*%REC*	1	7/16/2017 09:57 AM
CYANIDE, REACTIVE			**SW7.3.3.2**			Analyst: **RZM**
Cyanide, Reactive	ND		140	mg/Kg-dry	1	7/18/2017 10:30 AM
FLASHPOINT/IGNITABILITY ANALYSIS			**SW1010A**			Analyst: **RZM**
Flashpoint/Ignitability	*>200*		1.00	°F	1	7/18/2017 11:30 AM
PAINT FILTER (FREE LIQUIDS)			**SW9095B**			Analyst: **JB**
Free Liquids	**Absent**			**none**	1	7/13/2017 01:30 PM
MOISTURE			**SW3550C**			Analyst: **SBR**
Moisture	**31**		**0.050**	**% of sample**	1	7/13/2017 04:14 PM
PH			**SW9045D**	Prep: EXTRACT 7/13/17 14:46		Analyst: **RZM**
pH	**8.00**		**0.100**	**s.u.**	1	7/14/2017 10:45 AM
SULFIDE, REACTIVE			**SW7.3.4.2**			Analyst: **RZM**
Sulfide, Reactive	ND		140	mg/Kg-dry	1	7/18/2017 09:05 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *21-Jul-17*

Client: U.P. Environmental Services, Inc.
Project: CONT
Work Order: 1707480
Sample ID: CONT-004
Lab ID: 1707480-04
Collection Date: 7/11/2017 02:00 PM
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			**SW8082**	Prep: SW3546 7/14/17 10:37		Analyst: **EB**
Aroclor 1016	ND		83	µg/Kg-dry	1	7/16/2017 10:11 AM
Aroclor 1221	ND		83	µg/Kg-dry	1	7/16/2017 10:11 AM
Aroclor 1232	ND		83	µg/Kg-dry	1	7/16/2017 10:11 AM
Aroclor 1242	ND		83	µg/Kg-dry	1	7/16/2017 10:11 AM
Aroclor 1248	ND		83	µg/Kg-dry	1	7/16/2017 10:11 AM
Aroclor 1254	**310**		**83**	**µg/Kg-dry**	1	7/16/2017 10:11 AM
Aroclor 1260	**280**		**83**	**µg/Kg-dry**	1	7/16/2017 10:11 AM
Aroclor 1262	ND		83	µg/Kg-dry	1	7/16/2017 10:11 AM
Aroclor 1268	**93**		**83**	**µg/Kg-dry**	1	7/16/2017 10:11 AM
Surr: Decachlorobiphenyl	*52.9*		*40-140*	*%REC*	1	7/16/2017 10:11 AM
Surr: Tetrachloro-m-xylene	*61.2*		*45-124*	*%REC*	1	7/16/2017 10:11 AM
CYANIDE, REACTIVE			**SW7.3.3.2**			Analyst: **RZM**
Cyanide, Reactive	ND		130	mg/Kg-dry	1	7/18/2017 10:30 AM
FLASHPOINT/IGNITABILITY ANALYSIS			**SW1010A**			Analyst: **RZM**
Flashpoint/Ignitability	*>200*		1.00	°F	1	7/18/2017 11:30 AM
PAINT FILTER (FREE LIQUIDS)			**SW9095B**			Analyst: **JB**
Free Liquids	**Absent**			**none**	1	7/13/2017 01:30 PM
MOISTURE			**SW3550C**			Analyst: **SBR**
Moisture	**20**		**0.050**	**% of sample**	1	7/13/2017 04:14 PM
PH			**SW9045D**	Prep: EXTRACT 7/13/17 14:46		Analyst: **RZM**
pH	**8.17**		**0.100**	**s.u.**	1	7/14/2017 10:45 AM
SULFIDE, REACTIVE			**SW7.3.4.2**			Analyst: **RZM**
Sulfide, Reactive	ND		130	mg/Kg-dry	1	7/18/2017 09:05 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *21-Jul-17*

Client: U.P. Environmental Services, Inc.
Project: CONT
Work Order: 1707480
Sample ID: CONT-007
Lab ID: 1707480-05
Collection Date: 7/11/2017 02:10 PM
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			**SW8082**	Prep: SW3546 7/14/17 10:37		Analyst: **EB**
Aroclor 1016	ND		76	µg/Kg-dry	1	7/16/2017 10:26 AM
Aroclor 1221	ND		76	µg/Kg-dry	1	7/16/2017 10:26 AM
Aroclor 1232	ND		76	µg/Kg-dry	1	7/16/2017 10:26 AM
Aroclor 1242	ND		76	µg/Kg-dry	1	7/16/2017 10:26 AM
Aroclor 1248	ND		76	µg/Kg-dry	1	7/16/2017 10:26 AM
Aroclor 1254	**710**		**76**	**µg/Kg-dry**	1	7/16/2017 10:26 AM
Aroclor 1260	ND		76	µg/Kg-dry	1	7/16/2017 10:26 AM
Aroclor 1262	ND		76	µg/Kg-dry	1	7/16/2017 10:26 AM
Aroclor 1268	**870**		**76**	**µg/Kg-dry**	1	7/16/2017 10:26 AM
Surr: Decachlorobiphenyl	*72.1*		*40-140*	*%REC*	1	7/16/2017 10:26 AM
Surr: Tetrachloro-m-xylene	*56.0*		*45-124*	*%REC*	1	7/16/2017 10:26 AM
CYANIDE, REACTIVE			**SW7.3.3.2**			Analyst: **RZM**
Cyanide, Reactive	ND		120	mg/Kg-dry	1	7/18/2017 10:30 AM
FLASHPOINT/IGNITABILITY ANALYSIS			**SW1010A**			Analyst: **RZM**
Flashpoint/Ignitability	*>200*		1.00	°F	1	7/18/2017 11:30 AM
PAINT FILTER (FREE LIQUIDS)			**SW9095B**			Analyst: **JB**
Free Liquids	**Absent**			**none**	1	7/13/2017 01:30 PM
MOISTURE			**SW3550C**			Analyst: **SBR**
Moisture	**15**		**0.050**	**% of sample**	1	7/13/2017 04:14 PM
PH			**SW9045D**	Prep: EXTRACT 7/13/17 14:46		Analyst: **RZM**
pH	**8.62**		**0.100**	**s.u.**	1	7/14/2017 10:45 AM
SULFIDE, REACTIVE			**SW7.3.4.2**			Analyst: **RZM**
Sulfide, Reactive	ND		120	mg/Kg-dry	1	7/18/2017 09:05 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *21-Jul-17*

Client: U.P. Environmental Services, Inc.
Project: CONT
Work Order: 1707480
Sample ID: CONT-003
Lab ID: 1707480-06
Collection Date: 7/11/2017 02:15 PM
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			**SW8082**	Prep: SW3546 7/14/17 10:37		Analyst: **EB**
Aroclor 1016	ND		83	µg/Kg-dry	1	7/16/2017 10:40 AM
Aroclor 1221	ND		83	µg/Kg-dry	1	7/16/2017 10:40 AM
Aroclor 1232	ND		83	µg/Kg-dry	1	7/16/2017 10:40 AM
Aroclor 1242	ND		83	µg/Kg-dry	1	7/16/2017 10:40 AM
Aroclor 1248	ND		83	µg/Kg-dry	1	7/16/2017 10:40 AM
Aroclor 1254	**260**		**83**	**µg/Kg-dry**	1	7/16/2017 10:40 AM
Aroclor 1260	ND		83	µg/Kg-dry	1	7/16/2017 10:40 AM
Aroclor 1262	ND		83	µg/Kg-dry	1	7/16/2017 10:40 AM
Aroclor 1268	**150**		**83**	**µg/Kg-dry**	1	7/16/2017 10:40 AM
Surr: Decachlorobiphenyl	*69.5*		*40-140*	*%REC*	1	7/16/2017 10:40 AM
Surr: Tetrachloro-m-xylene	*59.3*		*45-124*	*%REC*	1	7/16/2017 10:40 AM
CYANIDE, REACTIVE			**SW7.3.3.2**			Analyst: **RZM**
Cyanide, Reactive	ND		120	mg/Kg-dry	1	7/18/2017 10:30 AM
FLASHPOINT/IGNITABILITY ANALYSIS			**SW1010A**			Analyst: **RZM**
Flashpoint/Ignitability	*>200*		1.00	°F	1	7/19/2017 10:00 AM
PAINT FILTER (FREE LIQUIDS)			**SW9095B**			Analyst: **JB**
Free Liquids	**Absent**			**none**	1	7/13/2017 01:30 PM
MOISTURE			**SW3550C**			Analyst: **SBR**
Moisture	**20**		**0.050**	**% of sample**	1	7/13/2017 04:14 PM
PH			**SW9045D**	Prep: EXTRACT 7/13/17 14:46		Analyst: **RZM**
pH	**8.28**		**0.100**	**s.u.**	1	7/14/2017 10:45 AM
SULFIDE, REACTIVE			**SW7.3.4.2**			Analyst: **RZM**
Sulfide, Reactive	ND		120	mg/Kg-dry	1	7/18/2017 09:05 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *21-Jul-17*

Client: U.P. Environmental Services, Inc.
Project: CONT
Work Order: 1707480
Sample ID: CONT-008
Lab ID: 1707480-07
Collection Date: 7/11/2017 02:20 PM
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			**SW8082**	Prep: SW3546 7/17/17 15:56		Analyst: **EB**
Aroclor 1016	ND		73	µg/Kg-dry	1	7/18/2017 11:29 PM
Aroclor 1221	ND		73	µg/Kg-dry	1	7/18/2017 11:29 PM
Aroclor 1232	ND		73	µg/Kg-dry	1	7/18/2017 11:29 PM
Aroclor 1242	ND		73	µg/Kg-dry	1	7/18/2017 11:29 PM
Aroclor 1248	ND		73	µg/Kg-dry	1	7/18/2017 11:29 PM
Aroclor 1254	**99**		**73**	**µg/Kg-dry**	1	7/18/2017 11:29 PM
Aroclor 1260	ND		73	µg/Kg-dry	1	7/18/2017 11:29 PM
Aroclor 1262	ND		73	µg/Kg-dry	1	7/18/2017 11:29 PM
Aroclor 1268	ND		73	µg/Kg-dry	1	7/18/2017 11:29 PM
Surr: Decachlorobiphenyl	*56.3*		*40-140*	*%REC*	1	7/18/2017 11:29 PM
Surr: Tetrachloro-m-xylene	*62.6*		*45-124*	*%REC*	1	7/18/2017 11:29 PM
CYANIDE, REACTIVE			**SW7.3.3.2**			Analyst: **RZM**
Cyanide, Reactive	ND		110	mg/Kg-dry	1	7/18/2017 10:30 AM
FLASHPOINT/IGNITABILITY ANALYSIS			**SW1010A**			Analyst: **RZM**
Flashpoint/Ignitability	*>200*		1.00	°F	1	7/19/2017 10:00 AM
PAINT FILTER (FREE LIQUIDS)			**SW9095B**			Analyst: **JB**
Free Liquids	**Absent**			**none**	1	7/13/2017 01:30 PM
MOISTURE			**SW3550C**			Analyst: **SBR**
Moisture	**9.8**		**0.050**	**% of sample**	1	7/13/2017 04:14 PM
PH			**SW9045D**	Prep: EXTRACT 7/13/17 14:46		Analyst: **RZM**
pH	**4.92**		**0.100**	**s.u.**	1	7/14/2017 10:45 AM
SULFIDE, REACTIVE			**SW7.3.4.2**			Analyst: **RZM**
Sulfide, Reactive	ND		110	mg/Kg-dry	1	7/18/2017 09:05 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: U.P. Environmental Services, Inc.
Project: CONT **Work Order:** 1707480
Sample ID: CONT-002 **Lab ID:** 1707480-08
Collection Date: 7/11/2017 02:30 PM **Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			**SW8082**	Prep: SW3546 7/17/17 15:56		Analyst: **EB**
Aroclor 1016	ND		87	µg/Kg-dry	1	7/18/2017 11:44 PM
Aroclor 1221	ND		87	µg/Kg-dry	1	7/18/2017 11:44 PM
Aroclor 1232	ND		87	µg/Kg-dry	1	7/18/2017 11:44 PM
Aroclor 1242	ND		87	µg/Kg-dry	1	7/18/2017 11:44 PM
Aroclor 1248	ND		87	µg/Kg-dry	1	7/18/2017 11:44 PM
Aroclor 1254	**960**		**87**	**µg/Kg-dry**	1	7/18/2017 11:44 PM
Aroclor 1260	ND		87	µg/Kg-dry	1	7/18/2017 11:44 PM
Aroclor 1262	ND		87	µg/Kg-dry	1	7/18/2017 11:44 PM
Aroclor 1268	ND		87	µg/Kg-dry	1	7/18/2017 11:44 PM
Surr: Decachlorobiphenyl	*32.2*	S	*40-140*	*%REC*	1	7/18/2017 11:44 PM
Surr: Tetrachloro-m-xylene	*23.0*	S	*45-124*	*%REC*	1	7/18/2017 11:44 PM
CYANIDE, REACTIVE			**SW7.3.3.2**			Analyst: **RZM**
Cyanide, Reactive	ND		140	mg/Kg-dry	1	7/18/2017 10:30 AM
FLASHPOINT/IGNITABILITY ANALYSIS			**SW1010A**			Analyst: **RZM**
Flashpoint/Ignitability	*>200*		1.00	°F	1	7/19/2017 10:00 AM
PAINT FILTER (FREE LIQUIDS)			**SW9095B**			Analyst: **JB**
Free Liquids	**Absent**			**none**	1	7/13/2017 01:30 PM
MOISTURE			**SW3550C**			Analyst: **SBR**
Moisture	**27**		**0.050**	**% of sample**	1	7/13/2017 04:14 PM
PH			**SW9045D**	Prep: EXTRACT 7/13/17 14:46		Analyst: **RZM**
pH	**7.16**		**0.100**	**s.u.**	1	7/14/2017 10:45 AM
SULFIDE, REACTIVE			**SW7.3.4.2**			Analyst: **RZM**
Sulfide, Reactive	ND		140	mg/Kg-dry	1	7/18/2017 09:05 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *21-Jul-17*

Client: U.P. Environmental Services, Inc.
Project: CONT
Work Order: 1707480
Sample ID: CONT-010 (TCLP)
Lab ID: 1707480-09
Collection Date: 7/11/2017 01:30 PM
Matrix: TCLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
TCLP MERCURY BY CVAA			**SW7470A**		Prep: SW7470 7/14/17 12:34	Analyst: **RSH**
Mercury	ND		0.0020	mg/L	1	7/14/2017 02:53 PM
TCLP METALS ANALYSIS BY ICP			**SW846 6010C**		Prep: SW3005A 7/14/17 14:18	Analyst: **LR**
Arsenic	ND		0.050	mg/L	1	7/14/2017 06:35 PM
Barium	**5.0**		**0.050**	**mg/L**	1	7/14/2017 06:35 PM
Cadmium	**0.14**		**0.10**	**mg/L**	1	7/14/2017 06:35 PM
Chromium	ND		0.050	mg/L	1	7/14/2017 06:35 PM
Lead	**8.3**	*	**0.050**	**mg/L**	1	7/14/2017 06:35 PM
Selenium	ND		0.10	mg/L	1	7/14/2017 06:35 PM
Silver	ND		0.050	mg/L	1	7/14/2017 06:35 PM
TCLP SEMI-VOLATILE ORGANICS			**SW8270D**		Prep: SW3510 7/14/17 16:19	Analyst: **RM**
1,4-Dichlorobenzene	ND		100	µg/L	1	7/15/2017 12:27 AM
2,4,5-Trichlorophenol	ND		100	µg/L	1	7/15/2017 12:27 AM
2,4,6-Trichlorophenol	ND		100	µg/L	1	7/15/2017 12:27 AM
2,4-Dinitrotoluene	ND		100	µg/L	1	7/15/2017 12:27 AM
Hexachloro-1,3-butadiene	ND		100	µg/L	1	7/15/2017 12:27 AM
Hexachlorobenzene	ND		100	µg/L	1	7/15/2017 12:27 AM
Hexachloroethane	ND		100	µg/L	1	7/15/2017 12:27 AM
m-Cresol	ND		100	µg/L	1	7/15/2017 12:27 AM
Nitrobenzene	ND		100	µg/L	1	7/15/2017 12:27 AM
o-Cresol	ND		100	µg/L	1	7/15/2017 12:27 AM
p-Cresol	ND		100	µg/L	1	7/15/2017 12:27 AM
Pentachlorophenol	ND		100	µg/L	1	7/15/2017 12:27 AM
Pyridine	ND		200	µg/L	1	7/15/2017 12:27 AM
Surr: 2,4,6-Tribromophenol	*61.5*		*32-92*	*%REC*	1	7/15/2017 12:27 AM
Surr: 2-Fluorobiphenyl	*55.8*		*34-98*	*%REC*	1	7/15/2017 12:27 AM
Surr: 2-Fluorophenol	*41.0*		*23-55*	*%REC*	1	7/15/2017 12:27 AM
Surr: 4-Terphenyl-d14	*76.9*		*50-111*	*%REC*	1	7/15/2017 12:27 AM
Surr: Nitrobenzene-d5	*51.8*		*32-89*	*%REC*	1	7/15/2017 12:27 AM
Surr: Phenol-d6	*27.7*		*10-35*	*%REC*	1	7/15/2017 12:27 AM
TCLP VOLATILE ORGANICS			**SW8260B**		Leachate: SW1311 / 7/14/17	Analyst: **BG**
1,1-Dichloroethene	ND		20	µg/L	20	7/18/2017 07:01 AM
1,2-Dichloroethane	ND		20	µg/L	20	7/18/2017 07:01 AM
2-Butanone	ND		100	µg/L	20	7/18/2017 07:01 AM
Benzene	ND		20	µg/L	20	7/18/2017 07:01 AM
Carbon tetrachloride	ND		20	µg/L	20	7/18/2017 07:01 AM
Chlorobenzene	ND		20	µg/L	20	7/18/2017 07:01 AM
Chloroform	ND		20	µg/L	20	7/18/2017 07:01 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: U.P. Environmental Services, Inc.
Project: CONT **Work Order:** 1707480
Sample ID: CONT-010 (TCLP) **Lab ID:** 1707480-09
Collection Date: 7/11/2017 01:30 PM **Matrix:** TCLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Tetrachloroethene	ND		20	µg/L	20	7/18/2017 07:01 AM
Trichloroethene	ND		20	µg/L	20	7/18/2017 07:01 AM
Vinyl chloride	ND		20	µg/L	20	7/18/2017 07:01 AM
Surr: 1,2-Dichloroethane-d4	*106*		*70-130*	*%REC*	20	7/18/2017 07:01 AM
Surr: 4-Bromofluorobenzene	*105*		*70-130*	*%REC*	20	7/18/2017 07:01 AM
Surr: Dibromofluoromethane	*99.6*		*70-130*	*%REC*	20	7/18/2017 07:01 AM
Surr: Toluene-d8	*98.5*		*70-130*	*%REC*	20	7/18/2017 07:01 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: U.P. Environmental Services, Inc.
Project: CONT **Work Order:** 1707480
Sample ID: CONT-006 (TCLP) **Lab ID:** 1707480-10
Collection Date: 7/11/2017 01:40 PM **Matrix:** TCLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
TCLP MERCURY BY CVAA			**SW7470A**		Prep: SW7470 7/14/17 12:34	Analyst: **RSH**
Mercury	ND		0.0020	mg/L	1	7/14/2017 02:55 PM
TCLP METALS ANALYSIS BY ICP			**SW846 6010C**		Prep: SW3005A 7/14/17 14:18	Analyst: **LR**
Arsenic	ND		0.050	mg/L	1	7/14/2017 06:41 PM
Barium	**5.4**		**0.050**	**mg/L**	1	7/14/2017 06:41 PM
Cadmium	ND		0.10	mg/L	1	7/14/2017 06:41 PM
Chromium	ND		0.050	mg/L	1	7/14/2017 06:41 PM
Lead	**3.5**		**0.050**	**mg/L**	1	7/14/2017 06:41 PM
Selenium	ND		0.10	mg/L	1	7/14/2017 06:41 PM
Silver	ND		0.050	mg/L	1	7/14/2017 06:41 PM
TCLP SEMI-VOLATILE ORGANICS			**SW8270D**		Prep: SW3510 7/14/17 16:19	Analyst: **RM**
1,4-Dichlorobenzene	ND		100	µg/L	1	7/15/2017 12:46 AM
2,4,5-Trichlorophenol	ND		100	µg/L	1	7/15/2017 12:46 AM
2,4,6-Trichlorophenol	ND		100	µg/L	1	7/15/2017 12:46 AM
2,4-Dinitrotoluene	ND		100	µg/L	1	7/15/2017 12:46 AM
Hexachloro-1,3-butadiene	ND		100	µg/L	1	7/15/2017 12:46 AM
Hexachlorobenzene	ND		100	µg/L	1	7/15/2017 12:46 AM
Hexachloroethane	ND		100	µg/L	1	7/15/2017 12:46 AM
m-Cresol	ND		100	µg/L	1	7/15/2017 12:46 AM
Nitrobenzene	ND		100	µg/L	1	7/15/2017 12:46 AM
o-Cresol	ND		100	µg/L	1	7/15/2017 12:46 AM
p-Cresol	ND		100	µg/L	1	7/15/2017 12:46 AM
Pentachlorophenol	ND		100	µg/L	1	7/15/2017 12:46 AM
Pyridine	ND		200	µg/L	1	7/15/2017 12:46 AM
Surr: 2,4,6-Tribromophenol	*57.1*		*32-92*	*%REC*	1	7/15/2017 12:46 AM
Surr: 2-Fluorobiphenyl	*58.0*		*34-98*	*%REC*	1	7/15/2017 12:46 AM
Surr: 2-Fluorophenol	*40.4*		*23-55*	*%REC*	1	7/15/2017 12:46 AM
Surr: 4-Terphenyl-d14	*81.1*		*50-111*	*%REC*	1	7/15/2017 12:46 AM
Surr: Nitrobenzene-d5	*52.0*		*32-89*	*%REC*	1	7/15/2017 12:46 AM
Surr: Phenol-d6	*26.0*		*10-35*	*%REC*	1	7/15/2017 12:46 AM
TCLP VOLATILE ORGANICS			**SW8260B**		Leachate: SW1311 / 7/14/17	Analyst: **BG**
1,1-Dichloroethene	ND		20	µg/L	20	7/18/2017 07:28 AM
1,2-Dichloroethane	ND		20	µg/L	20	7/18/2017 07:28 AM
2-Butanone	ND		100	µg/L	20	7/18/2017 07:28 AM
Benzene	ND		20	µg/L	20	7/18/2017 07:28 AM
Carbon tetrachloride	ND		20	µg/L	20	7/18/2017 07:28 AM
Chlorobenzene	ND		20	µg/L	20	7/18/2017 07:28 AM
Chloroform	ND		20	µg/L	20	7/18/2017 07:28 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: U.P. Environmental Services, Inc.
Project: CONT **Work Order:** 1707480
Sample ID: CONT-006 (TCLP) **Lab ID:** 1707480-10
Collection Date: 7/11/2017 01:40 PM **Matrix:** TCLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Tetrachloroethene	ND		20	µg/L	20	7/18/2017 07:28 AM
Trichloroethene	ND		20	µg/L	20	7/18/2017 07:28 AM
Vinyl chloride	ND		20	µg/L	20	7/18/2017 07:28 AM
Surr: 1,2-Dichloroethane-d4	*107*		*70-130*	*%REC*	20	7/18/2017 07:28 AM
Surr: 4-Bromofluorobenzene	*103*		*70-130*	*%REC*	20	7/18/2017 07:28 AM
Surr: Dibromofluoromethane	*98.5*		*70-130*	*%REC*	20	7/18/2017 07:28 AM
Surr: Toluene-d8	*98.4*		*70-130*	*%REC*	20	7/18/2017 07:28 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *21-Jul-17*

Client: U.P. Environmental Services, Inc.
Project: CONT
Work Order: 1707480
Sample ID: CONT-009 (TCLP)
Lab ID: 1707480-11
Collection Date: 7/11/2017 01:50 PM
Matrix: TCLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
TCLP MERCURY BY CVAA			**SW7470A**		Prep: SW7470 7/14/17 12:34	Analyst: **RSH**
Mercury	ND		0.0020	mg/L	1	7/14/2017 03:03 PM
TCLP METALS ANALYSIS BY ICP			**SW846 6010C**		Prep: SW3005A 7/14/17 14:18	Analyst: **LR**
Arsenic	ND		0.050	mg/L	1	7/14/2017 06:47 PM
Barium	**10**		**0.050**	**mg/L**	1	7/14/2017 06:47 PM
Cadmium	**0.28**		**0.10**	**mg/L**	1	7/14/2017 06:47 PM
Chromium	ND		0.050	mg/L	1	7/14/2017 06:47 PM
Lead	**2.1**		**0.050**	**mg/L**	1	7/14/2017 06:47 PM
Selenium	ND		0.10	mg/L	1	7/14/2017 06:47 PM
Silver	ND		0.050	mg/L	1	7/14/2017 06:47 PM
TCLP SEMI-VOLATILE ORGANICS			**SW8270D**		Prep: SW3510 7/14/17 16:19	Analyst: **RM**
1,4-Dichlorobenzene	ND		100	µg/L	1	7/15/2017 01:05 AM
2,4,5-Trichlorophenol	ND		100	µg/L	1	7/15/2017 01:05 AM
2,4,6-Trichlorophenol	ND		100	µg/L	1	7/15/2017 01:05 AM
2,4-Dinitrotoluene	ND		100	µg/L	1	7/15/2017 01:05 AM
Hexachloro-1,3-butadiene	ND		100	µg/L	1	7/15/2017 01:05 AM
Hexachlorobenzene	ND		100	µg/L	1	7/15/2017 01:05 AM
Hexachloroethane	ND		100	µg/L	1	7/15/2017 01:05 AM
m-Cresol	ND		100	µg/L	1	7/15/2017 01:05 AM
Nitrobenzene	ND		100	µg/L	1	7/15/2017 01:05 AM
o-Cresol	ND		100	µg/L	1	7/15/2017 01:05 AM
p-Cresol	ND		100	µg/L	1	7/15/2017 01:05 AM
Pentachlorophenol	ND		100	µg/L	1	7/15/2017 01:05 AM
Pyridine	ND		200	µg/L	1	7/15/2017 01:05 AM
Surr: 2,4,6-Tribromophenol	*53.8*		*32-92*	*%REC*	1	7/15/2017 01:05 AM
Surr: 2-Fluorobiphenyl	*48.7*		*34-98*	*%REC*	1	7/15/2017 01:05 AM
Surr: 2-Fluorophenol	*37.6*		*23-55*	*%REC*	1	7/15/2017 01:05 AM
Surr: 4-Terphenyl-d14	*70.3*		*50-111*	*%REC*	1	7/15/2017 01:05 AM
Surr: Nitrobenzene-d5	*45.8*		*32-89*	*%REC*	1	7/15/2017 01:05 AM
Surr: Phenol-d6	*25.8*		*10-35*	*%REC*	1	7/15/2017 01:05 AM
TCLP VOLATILE ORGANICS			**SW8260B**		Leachate: SW1311 / 7/14/17	Analyst: **BG**
1,1-Dichloroethene	ND		20	µg/L	20	7/18/2017 07:54 AM
1,2-Dichloroethane	ND		20	µg/L	20	7/18/2017 07:54 AM
2-Butanone	ND		100	µg/L	20	7/18/2017 07:54 AM
Benzene	ND		20	µg/L	20	7/18/2017 07:54 AM
Carbon tetrachloride	ND		20	µg/L	20	7/18/2017 07:54 AM
Chlorobenzene	ND		20	µg/L	20	7/18/2017 07:54 AM
Chloroform	ND		20	µg/L	20	7/18/2017 07:54 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: U.P. Environmental Services, Inc.
Project: CONT **Work Order:** 1707480
Sample ID: CONT-009 (TCLP) **Lab ID:** 1707480-11
Collection Date: 7/11/2017 01:50 PM **Matrix:** TCLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Tetrachloroethene	ND		20	µg/L	20	7/18/2017 07:54 AM
Trichloroethene	ND		20	µg/L	20	7/18/2017 07:54 AM
Vinyl chloride	ND		20	µg/L	20	7/18/2017 07:54 AM
Surr: 1,2-Dichloroethane-d4	*109*		*70-130*	*%REC*	20	7/18/2017 07:54 AM
Surr: 4-Bromofluorobenzene	*104*		*70-130*	*%REC*	20	7/18/2017 07:54 AM
Surr: Dibromofluoromethane	*98.5*		*70-130*	*%REC*	20	7/18/2017 07:54 AM
Surr: Toluene-d8	*98.4*		*70-130*	*%REC*	20	7/18/2017 07:54 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *21-Jul-17*

Client: U.P. Environmental Services, Inc.
Project: CONT
Work Order: 1707480
Sample ID: CONT-004 (TCLP)
Lab ID: 1707480-12
Collection Date: 7/11/2017 02:00 PM
Matrix: TCLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
TCLP MERCURY BY CVAA			**SW7470A**		Prep: SW7470 7/14/17 12:34	Analyst: **RSH**
Mercury	ND		0.0020	mg/L	1	7/14/2017 03:13 PM
TCLP METALS ANALYSIS BY ICP			**SW846 6010C**		Prep: SW3005A 7/14/17 14:18	Analyst: **LR**
Arsenic	ND		0.050	mg/L	1	7/14/2017 06:54 PM
Barium	**6.4**		**0.050**	**mg/L**	1	7/14/2017 06:54 PM
Cadmium	ND		0.10	mg/L	1	7/14/2017 06:54 PM
Chromium	ND		0.050	mg/L	1	7/14/2017 06:54 PM
Lead	**0.86**		**0.050**	**mg/L**	1	7/14/2017 06:54 PM
Selenium	ND		0.10	mg/L	1	7/14/2017 06:54 PM
Silver	ND		0.050	mg/L	1	7/14/2017 06:54 PM
TCLP SEMI-VOLATILE ORGANICS			**SW8270D**		Prep: SW3510 7/14/17 16:19	Analyst: **RM**
1,4-Dichlorobenzene	ND		100	µg/L	1	7/15/2017 01:24 AM
2,4,5-Trichlorophenol	ND		100	µg/L	1	7/15/2017 01:24 AM
2,4,6-Trichlorophenol	ND		100	µg/L	1	7/15/2017 01:24 AM
2,4-Dinitrotoluene	ND		100	µg/L	1	7/15/2017 01:24 AM
Hexachloro-1,3-butadiene	ND		100	µg/L	1	7/15/2017 01:24 AM
Hexachlorobenzene	ND		100	µg/L	1	7/15/2017 01:24 AM
Hexachloroethane	ND		100	µg/L	1	7/15/2017 01:24 AM
m-Cresol	ND		100	µg/L	1	7/15/2017 01:24 AM
Nitrobenzene	ND		100	µg/L	1	7/15/2017 01:24 AM
o-Cresol	ND		100	µg/L	1	7/15/2017 01:24 AM
p-Cresol	ND		100	µg/L	1	7/15/2017 01:24 AM
Pentachlorophenol	ND		100	µg/L	1	7/15/2017 01:24 AM
Pyridine	ND		200	µg/L	1	7/15/2017 01:24 AM
Surr: 2,4,6-Tribromophenol	*58.1*		*32-92*	*%REC*	1	7/15/2017 01:24 AM
Surr: 2-Fluorobiphenyl	*51.2*		*34-98*	*%REC*	1	7/15/2017 01:24 AM
Surr: 2-Fluorophenol	*39.5*		*23-55*	*%REC*	1	7/15/2017 01:24 AM
Surr: 4-Terphenyl-d14	*80.4*		*50-111*	*%REC*	1	7/15/2017 01:24 AM
Surr: Nitrobenzene-d5	*50.0*		*32-89*	*%REC*	1	7/15/2017 01:24 AM
Surr: Phenol-d6	*26.5*		*10-35*	*%REC*	1	7/15/2017 01:24 AM
TCLP VOLATILE ORGANICS			**SW8260B**		Leachate: SW1311 / 7/14/17	Analyst: **BG**
1,1-Dichloroethene	ND		20	µg/L	20	7/18/2017 08:21 AM
1,2-Dichloroethane	ND		20	µg/L	20	7/18/2017 08:21 AM
2-Butanone	ND		100	µg/L	20	7/18/2017 08:21 AM
Benzene	ND		20	µg/L	20	7/18/2017 08:21 AM
Carbon tetrachloride	ND		20	µg/L	20	7/18/2017 08:21 AM
Chlorobenzene	ND		20	µg/L	20	7/18/2017 08:21 AM
Chloroform	ND		20	µg/L	20	7/18/2017 08:21 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: U.P. Environmental Services, Inc.
Project: CONT **Work Order:** 1707480
Sample ID: CONT-004 (TCLP) **Lab ID:** 1707480-12
Collection Date: 7/11/2017 02:00 PM **Matrix:** TCLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Tetrachloroethene	ND		20	µg/L	20	7/18/2017 08:21 AM
Trichloroethene	ND		20	µg/L	20	7/18/2017 08:21 AM
Vinyl chloride	ND		20	µg/L	20	7/18/2017 08:21 AM
Surr: 1,2-Dichloroethane-d4	*105*		*70-130*	*%REC*	20	7/18/2017 08:21 AM
Surr: 4-Bromofluorobenzene	*103*		*70-130*	*%REC*	20	7/18/2017 08:21 AM
Surr: Dibromofluoromethane	*97.6*		*70-130*	*%REC*	20	7/18/2017 08:21 AM
Surr: Toluene-d8	*97.4*		*70-130*	*%REC*	20	7/18/2017 08:21 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: U.P. Environmental Services, Inc.
Project: CONT **Work Order:** 1707480
Sample ID: CONT-007 (TCLP) **Lab ID:** 1707480-13
Collection Date: 7/11/2017 02:10 PM **Matrix:** TCLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
TCLP MERCURY BY CVAA			**SW7470A**		Prep: SW7470 7/17/17 12:21	Analyst: **JJB**
Mercury	ND		0.0020	mg/L	1	7/18/2017 10:56 AM
TCLP METALS ANALYSIS BY ICP			**SW846 6010C**		Prep: SW3005A 7/17/17 14:30	Analyst: **RH**
Arsenic	ND		0.50	mg/L	1	7/17/2017 07:07 PM
Barium	**9.5**		**0.050**	**mg/L**	1	7/17/2017 07:07 PM
Cadmium	**0.18**		**0.10**	**mg/L**	1	7/17/2017 07:07 PM
Chromium	ND		0.050	mg/L	1	7/17/2017 07:07 PM
Lead	**27**	*	**0.050**	**mg/L**	1	7/17/2017 07:07 PM
Selenium	ND		0.10	mg/L	1	7/17/2017 07:07 PM
Silver	ND		0.050	mg/L	1	7/17/2017 07:07 PM
TCLP SEMI-VOLATILE ORGANICS			**SW8270D**		Prep: SW3510 7/18/17 16:47	Analyst: **RM**
1,4-Dichlorobenzene	ND		100	µg/L	1	7/19/2017 12:49 AM
2,4,5-Trichlorophenol	ND		100	µg/L	1	7/19/2017 12:49 AM
2,4,6-Trichlorophenol	ND		100	µg/L	1	7/19/2017 12:49 AM
2,4-Dinitrotoluene	ND		100	µg/L	1	7/19/2017 12:49 AM
Hexachloro-1,3-butadiene	ND		100	µg/L	1	7/19/2017 12:49 AM
Hexachlorobenzene	ND		100	µg/L	1	7/19/2017 12:49 AM
Hexachloroethane	ND		100	µg/L	1	7/19/2017 12:49 AM
m-Cresol	ND		100	µg/L	1	7/19/2017 12:49 AM
Nitrobenzene	ND		100	µg/L	1	7/19/2017 12:49 AM
o-Cresol	ND		100	µg/L	1	7/19/2017 12:49 AM
p-Cresol	ND		100	µg/L	1	7/19/2017 12:49 AM
Pentachlorophenol	ND		100	µg/L	1	7/19/2017 12:49 AM
Pyridine	ND		200	µg/L	1	7/19/2017 12:49 AM
Surr: 2,4,6-Tribromophenol	*51.5*		*32-92*	*%REC*	1	7/19/2017 12:49 AM
Surr: 2-Fluorobiphenyl	*34.0*		*34-98*	*%REC*	1	7/19/2017 12:49 AM
Surr: 2-Fluorophenol	*32.5*		*23-55*	*%REC*	1	7/19/2017 12:49 AM
Surr: 4-Terphenyl-d14	*73.9*		*50-111*	*%REC*	1	7/19/2017 12:49 AM
Surr: Nitrobenzene-d5	*38.1*		*32-89*	*%REC*	1	7/19/2017 12:49 AM
Surr: Phenol-d6	*22.3*		*10-35*	*%REC*	1	7/19/2017 12:49 AM
TCLP VOLATILE ORGANICS			**SW8260B**		Leachate: SW1311 / 7/15/17	Analyst: **BG**
1,1-Dichloroethene	ND		20	µg/L	20	7/18/2017 08:47 AM
1,2-Dichloroethane	ND		20	µg/L	20	7/18/2017 08:47 AM
2-Butanone	ND		100	µg/L	20	7/18/2017 08:47 AM
Benzene	ND		20	µg/L	20	7/18/2017 08:47 AM
Carbon tetrachloride	ND		20	µg/L	20	7/18/2017 08:47 AM
Chlorobenzene	ND		20	µg/L	20	7/18/2017 08:47 AM
Chloroform	ND		20	µg/L	20	7/18/2017 08:47 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: U.P. Environmental Services, Inc.
Project: CONT **Work Order:** 1707480
Sample ID: CONT-007 (TCLP) **Lab ID:** 1707480-13
Collection Date: 7/11/2017 02:10 PM **Matrix:** TCLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Tetrachloroethene	ND		20	µg/L	20	7/18/2017 08:47 AM
Trichloroethene	ND		20	µg/L	20	7/18/2017 08:47 AM
Vinyl chloride	ND		20	µg/L	20	7/18/2017 08:47 AM
Surr: 1,2-Dichloroethane-d4	*105*		*70-130*	*%REC*	20	7/18/2017 08:47 AM
Surr: 4-Bromofluorobenzene	*101*		*70-130*	*%REC*	20	7/18/2017 08:47 AM
Surr: Dibromofluoromethane	*98.8*		*70-130*	*%REC*	20	7/18/2017 08:47 AM
Surr: Toluene-d8	*96.9*		*70-130*	*%REC*	20	7/18/2017 08:47 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: U.P. Environmental Services, Inc.
Project: CONT **Work Order:** 1707480
Sample ID: CONT-003 (TCLP) **Lab ID:** 1707480-14
Collection Date: 7/11/2017 02:15 PM **Matrix:** TCLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
TCLP MERCURY BY CVAA			**SW7470A**		Prep: SW7470 7/17/17 12:21	Analyst: **JJB**
Mercury	ND		0.0020	mg/L	1	7/18/2017 10:58 AM
TCLP METALS ANALYSIS BY ICP			**SW846 6010C**		Prep: SW3005A 7/17/17 14:30	Analyst: **RH**
Arsenic	ND		0.50	mg/L	1	7/17/2017 07:27 PM
Barium	**7.1**		**0.050**	**mg/L**	1	7/17/2017 07:27 PM
Cadmium	**0.12**		**0.10**	**mg/L**	1	7/17/2017 07:27 PM
Chromium	ND		0.050	mg/L	1	7/17/2017 07:27 PM
Lead	**12**	*	**0.050**	**mg/L**	1	7/17/2017 07:27 PM
Selenium	ND		0.10	mg/L	1	7/17/2017 07:27 PM
Silver	ND		0.050	mg/L	1	7/17/2017 07:27 PM
TCLP SEMI-VOLATILE ORGANICS			**SW8270D**		Prep: SW3510 7/18/17 16:47	Analyst: **RS**
1,4-Dichlorobenzene	ND		100	µg/L	1	7/18/2017 07:38 PM
2,4,5-Trichlorophenol	ND		100	µg/L	1	7/18/2017 07:38 PM
2,4,6-Trichlorophenol	ND		100	µg/L	1	7/18/2017 07:38 PM
2,4-Dinitrotoluene	ND		100	µg/L	1	7/18/2017 07:38 PM
Hexachloro-1,3-butadiene	ND		100	µg/L	1	7/18/2017 07:38 PM
Hexachlorobenzene	ND		100	µg/L	1	7/18/2017 07:38 PM
Hexachloroethane	ND		100	µg/L	1	7/18/2017 07:38 PM
m-Cresol	ND		100	µg/L	1	7/18/2017 07:38 PM
Nitrobenzene	ND		100	µg/L	1	7/18/2017 07:38 PM
o-Cresol	ND		100	µg/L	1	7/18/2017 07:38 PM
p-Cresol	ND		100	µg/L	1	7/18/2017 07:38 PM
Pentachlorophenol	ND		100	µg/L	1	7/18/2017 07:38 PM
Pyridine	ND		200	µg/L	1	7/18/2017 07:38 PM
Surr: 2,4,6-Tribromophenol	*52.5*		*32-92*	*%REC*	1	7/18/2017 07:38 PM
Surr: 2-Fluorobiphenyl	*56.8*		*34-98*	*%REC*	1	7/18/2017 07:38 PM
Surr: 2-Fluorophenol	*40.3*		*23-55*	*%REC*	1	7/18/2017 07:38 PM
Surr: 4-Terphenyl-d14	*79.9*		*50-111*	*%REC*	1	7/18/2017 07:38 PM
Surr: Nitrobenzene-d5	*50.6*		*32-89*	*%REC*	1	7/18/2017 07:38 PM
Surr: Phenol-d6	*22.7*		*10-35*	*%REC*	1	7/18/2017 07:38 PM
TCLP VOLATILE ORGANICS			**SW8260B**		Leachate: SW1311 / 7/15/17	Analyst: **BG**
1,1-Dichloroethene	ND		20	µg/L	20	7/18/2017 09:13 AM
1,2-Dichloroethane	ND		20	µg/L	20	7/18/2017 09:13 AM
2-Butanone	ND		100	µg/L	20	7/18/2017 09:13 AM
Benzene	ND		20	µg/L	20	7/18/2017 09:13 AM
Carbon tetrachloride	ND		20	µg/L	20	7/18/2017 09:13 AM
Chlorobenzene	ND		20	µg/L	20	7/18/2017 09:13 AM
Chloroform	ND		20	µg/L	20	7/18/2017 09:13 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: U.P. Environmental Services, Inc.
Project: CONT **Work Order:** 1707480
Sample ID: CONT-003 (TCLP) **Lab ID:** 1707480-14
Collection Date: 7/11/2017 02:15 PM **Matrix:** TCLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Tetrachloroethene	ND		20	µg/L	20	7/18/2017 09:13 AM
Trichloroethene	ND		20	µg/L	20	7/18/2017 09:13 AM
Vinyl chloride	ND		20	µg/L	20	7/18/2017 09:13 AM
Surr: 1,2-Dichloroethane-d4	*103*		*70-130*	*%REC*	20	7/18/2017 09:13 AM
Surr: 4-Bromofluorobenzene	*102*		*70-130*	*%REC*	20	7/18/2017 09:13 AM
Surr: Dibromofluoromethane	*97.9*		*70-130*	*%REC*	20	7/18/2017 09:13 AM
Surr: Toluene-d8	*99.0*		*70-130*	*%REC*	20	7/18/2017 09:13 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *21-Jul-17*

Client: U.P. Environmental Services, Inc.
Project: CONT
Work Order: 1707480
Sample ID: CONT-008 (TCLP)
Lab ID: 1707480-15
Collection Date: 7/11/2017 02:20 PM
Matrix: TCLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
TCLP MERCURY BY CVAA			**SW7470A**		Prep: SW7470 7/17/17 12:21	Analyst: **JJB**
Mercury	ND		0.0020	mg/L	1	7/18/2017 11:01 AM
TCLP METALS ANALYSIS BY ICP			**SW846 6010C**		Prep: SW3005A 7/17/17 14:30	Analyst: **RH**
Arsenic	ND		0.50	mg/L	1	7/17/2017 07:34 PM
Barium	**0.24**		**0.050**	**mg/L**	1	7/17/2017 07:34 PM
Cadmium	ND		0.10	mg/L	1	7/17/2017 07:34 PM
Chromium	ND		0.050	mg/L	1	7/17/2017 07:34 PM
Lead	ND		0.050	mg/L	1	7/17/2017 07:34 PM
Selenium	ND		0.10	mg/L	1	7/17/2017 07:34 PM
Silver	ND		0.050	mg/L	1	7/17/2017 07:34 PM
TCLP SEMI-VOLATILE ORGANICS			**SW8270D**		Prep: SW3510 7/18/17 16:47	Analyst: **RS**
1,4-Dichlorobenzene	ND		100	µg/L	1	7/18/2017 08:01 PM
2,4,5-Trichlorophenol	ND		100	µg/L	1	7/18/2017 08:01 PM
2,4,6-Trichlorophenol	ND		100	µg/L	1	7/18/2017 08:01 PM
2,4-Dinitrotoluene	ND		100	µg/L	1	7/18/2017 08:01 PM
Hexachloro-1,3-butadiene	ND		100	µg/L	1	7/18/2017 08:01 PM
Hexachlorobenzene	ND		100	µg/L	1	7/18/2017 08:01 PM
Hexachloroethane	ND		100	µg/L	1	7/18/2017 08:01 PM
m-Cresol	ND		100	µg/L	1	7/18/2017 08:01 PM
Nitrobenzene	ND		100	µg/L	1	7/18/2017 08:01 PM
o-Cresol	ND		100	µg/L	1	7/18/2017 08:01 PM
p-Cresol	ND		100	µg/L	1	7/18/2017 08:01 PM
Pentachlorophenol	ND		100	µg/L	1	7/18/2017 08:01 PM
Pyridine	ND		200	µg/L	1	7/18/2017 08:01 PM
Surr: 2,4,6-Tribromophenol	*46.6*		*32-92*	*%REC*	1	7/18/2017 08:01 PM
Surr: 2-Fluorobiphenyl	*45.4*		*34-98*	*%REC*	1	7/18/2017 08:01 PM
Surr: 2-Fluorophenol	*33.0*		*23-55*	*%REC*	1	7/18/2017 08:01 PM
Surr: 4-Terphenyl-d14	*87.0*		*50-111*	*%REC*	1	7/18/2017 08:01 PM
Surr: Nitrobenzene-d5	*40.8*		*32-89*	*%REC*	1	7/18/2017 08:01 PM
Surr: Phenol-d6	*18.4*		*10-35*	*%REC*	1	7/18/2017 08:01 PM
TCLP VOLATILE ORGANICS			**SW8260B**		Leachate: SW1311 / 7/15/17	Analyst: **BG**
1,1-Dichloroethene	ND		20	µg/L	20	7/19/2017 03:54 AM
1,2-Dichloroethane	ND		20	µg/L	20	7/19/2017 03:54 AM
2-Butanone	ND		100	µg/L	20	7/19/2017 03:54 AM
Benzene	ND		20	µg/L	20	7/19/2017 03:54 AM
Carbon tetrachloride	ND		20	µg/L	20	7/19/2017 03:54 AM
Chlorobenzene	ND		20	µg/L	20	7/19/2017 03:54 AM
Chloroform	ND		20	µg/L	20	7/19/2017 03:54 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: U.P. Environmental Services, Inc.
Project: CONT **Work Order:** 1707480
Sample ID: CONT-008 (TCLP) **Lab ID:** 1707480-15
Collection Date: 7/11/2017 02:20 PM **Matrix:** TCLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Tetrachloroethene	ND		20	µg/L	20	7/19/2017 03:54 AM
Trichloroethene	ND		20	µg/L	20	7/19/2017 03:54 AM
Vinyl chloride	ND		20	µg/L	20	7/19/2017 03:54 AM
Surr: 1,2-Dichloroethane-d4	*98.0*		*70-130*	*%REC*	20	7/19/2017 03:54 AM
Surr: 4-Bromofluorobenzene	*95.4*		*70-130*	*%REC*	20	7/19/2017 03:54 AM
Surr: Dibromofluoromethane	*100*		*70-130*	*%REC*	20	7/19/2017 03:54 AM
Surr: Toluene-d8	*92.1*		*70-130*	*%REC*	20	7/19/2017 03:54 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: U.P. Environmental Services, Inc.
Project: CONT **Work Order:** 1707480
Sample ID: CONT-002 (TCLP) **Lab ID:** 1707480-16
Collection Date: 7/11/2017 02:30 PM **Matrix:** TCLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
TCLP MERCURY BY CVAA			**SW7470A**		Prep: SW7470 7/17/17 12:21	Analyst: **JJB**
Mercury	ND		0.0020	mg/L	1	7/18/2017 11:03 AM
TCLP METALS ANALYSIS BY ICP			**SW846 6010C**		Prep: SW3005A 7/17/17 14:30	Analyst: **RH**
Arsenic	ND		0.50	mg/L	1	7/17/2017 07:40 PM
Barium	**2.7**		**0.050**	**mg/L**	1	7/17/2017 07:40 PM
Cadmium	**0.17**		**0.10**	**mg/L**	1	7/17/2017 07:40 PM
Chromium	ND		0.050	mg/L	1	7/17/2017 07:40 PM
Lead	**71**	*	**0.050**	**mg/L**	1	7/17/2017 07:40 PM
Selenium	ND		0.10	mg/L	1	7/17/2017 07:40 PM
Silver	ND		0.050	mg/L	1	7/17/2017 07:40 PM
TCLP SEMI-VOLATILE ORGANICS			**SW8270D**		Prep: SW3510 7/18/17 16:47	Analyst: **RS**
1,4-Dichlorobenzene	ND		100	µg/L	1	7/18/2017 08:24 PM
2,4,5-Trichlorophenol	ND		100	µg/L	1	7/18/2017 08:24 PM
2,4,6-Trichlorophenol	ND		100	µg/L	1	7/18/2017 08:24 PM
2,4-Dinitrotoluene	ND		100	µg/L	1	7/18/2017 08:24 PM
Hexachloro-1,3-butadiene	ND		100	µg/L	1	7/18/2017 08:24 PM
Hexachlorobenzene	ND		100	µg/L	1	7/18/2017 08:24 PM
Hexachloroethane	ND		100	µg/L	1	7/18/2017 08:24 PM
m-Cresol	ND		100	µg/L	1	7/18/2017 08:24 PM
Nitrobenzene	ND		100	µg/L	1	7/18/2017 08:24 PM
o-Cresol	ND		100	µg/L	1	7/18/2017 08:24 PM
p-Cresol	ND		100	µg/L	1	7/18/2017 08:24 PM
Pentachlorophenol	ND		100	µg/L	1	7/18/2017 08:24 PM
Pyridine	ND		200	µg/L	1	7/18/2017 08:24 PM
Surr: 2,4,6-Tribromophenol	*53.1*		*32-92*	*%REC*	1	7/18/2017 08:24 PM
Surr: 2-Fluorobiphenyl	*49.4*		*34-98*	*%REC*	1	7/18/2017 08:24 PM
Surr: 2-Fluorophenol	*34.8*		*23-55*	*%REC*	1	7/18/2017 08:24 PM
Surr: 4-Terphenyl-d14	*86.3*		*50-111*	*%REC*	1	7/18/2017 08:24 PM
Surr: Nitrobenzene-d5	*44.5*		*32-89*	*%REC*	1	7/18/2017 08:24 PM
Surr: Phenol-d6	*18.9*		*10-35*	*%REC*	1	7/18/2017 08:24 PM
TCLP VOLATILE ORGANICS			**SW8260B**		Leachate: SW1311 / 7/15/17	Analyst: **BG**
1,1-Dichloroethene	ND		20	µg/L	20	7/19/2017 04:20 AM
1,2-Dichloroethane	ND		20	µg/L	20	7/19/2017 04:20 AM
2-Butanone	ND		100	µg/L	20	7/19/2017 04:20 AM
Benzene	ND		20	µg/L	20	7/19/2017 04:20 AM
Carbon tetrachloride	ND		20	µg/L	20	7/19/2017 04:20 AM
Chlorobenzene	ND		20	µg/L	20	7/19/2017 04:20 AM
Chloroform	ND		20	µg/L	20	7/19/2017 04:20 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: U.P. Environmental Services, Inc.
Project: CONT **Work Order:** 1707480
Sample ID: CONT-002 (TCLP) **Lab ID:** 1707480-16
Collection Date: 7/11/2017 02:30 PM **Matrix:** TCLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Tetrachloroethene	ND		20	µg/L	20	7/19/2017 04:20 AM
Trichloroethene	ND		20	µg/L	20	7/19/2017 04:20 AM
Vinyl chloride	ND		20	µg/L	20	7/19/2017 04:20 AM
Surr: 1,2-Dichloroethane-d4	*97.7*		*70-130*	*%REC*	20	7/19/2017 04:20 AM
Surr: 4-Bromofluorobenzene	*95.0*		*70-130*	*%REC*	20	7/19/2017 04:20 AM
Surr: Dibromofluoromethane	*101*		*70-130*	*%REC*	20	7/19/2017 04:20 AM
Surr: Toluene-d8	*94.0*		*70-130*	*%REC*	20	7/19/2017 04:20 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Batch ID: **104427** Instrument ID **GC14** Method: **SW8082**

MBLK Sample ID: **PBLKS1-104427-104427** Units: **µg/Kg** Analysis Date: **7/14/2017 01:33 PM**

Client ID: Run ID: **GC14_170713A** SeqNo: **4532118** Prep Date: **7/14/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	ND	67								
Aroclor 1221	ND	67								
Aroclor 1232	ND	67								
Aroclor 1242	ND	67								
Aroclor 1248	ND	67								
Aroclor 1254	ND	67								
Aroclor 1260	ND	67								
Aroclor 1262	ND	67								
Aroclor 1268	ND	67								
Surr: Decachlorobiphenyl	*25.65*	0	*33.3*	0	*77*	*40-140*	0			
Surr: Tetrachloro-m-xylene	*24.05*	0	*33.3*	0	*72.2*	*45-124*	0			

LCS Sample ID: **PLCSS1-104427-104427** Units: **µg/Kg** Analysis Date: **7/14/2017 01:47 PM**

Client ID: Run ID: **GC14_170713A** SeqNo: **4532119** Prep Date: **7/14/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	748.8	67	833	0	89.9	50-130	0			
Aroclor 1260	767.9	67	833	0	92.2	50-130	0			
Surr: Decachlorobiphenyl	*25.09*	0	*33.3*	0	*75.3*	*40-140*	0			
Surr: Tetrachloro-m-xylene	*22.46*	0	*33.3*	0	*67.5*	*45-124*	0			

MS Sample ID: **1707517-05B MS** Units: **µg/Kg** Analysis Date: **7/14/2017 02:16 PM**

Client ID: Run ID: **GC14_170713A** SeqNo: **4532122** Prep Date: **7/14/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	745.2	65	813	0	91.7	40-140	0			
Aroclor 1260	794.4	65	813	0	97.7	40-140	0			
Surr: Decachlorobiphenyl	*24.8*	0	*32.5*	0	*76.3*	*40-140*	0			
Surr: Tetrachloro-m-xylene	*21.3*	0	*32.5*	0	*65.5*	*45-124*	0			

MSD Sample ID: **1707517-05B MSD** Units: **µg/Kg** Analysis Date: **7/14/2017 02:30 PM**

Client ID: Run ID: **GC14_170713A** SeqNo: **4532123** Prep Date: **7/14/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	711	65	815.8	0	87.2	40-140	745.2	4.69	50	
Aroclor 1260	754.8	65	815.8	0	92.5	40-140	794.4	5.12	50	
Surr: Decachlorobiphenyl	*23.48*	0	*32.61*	0	*72*	*40-140*	24.8	*5.49*	*50*	
Surr: Tetrachloro-m-xylene	*20.19*	0	*32.61*	0	*61.9*	*45-124*	21.3	*5.37*	*50*	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: U.P. Environmental Services, Inc.
Work Order: 1707480
Project: CONT

QC BATCH REPORT

Batch ID: **104427** Instrument ID **GC14** Method: **SW8082**

The following samples were analyzed in this batch:

1707480-01A	1707480-02A	1707480-03A
1707480-04A	1707480-05A	1707480-06A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: U.P. Environmental Services, Inc.
Work Order: 1707480
Project: CONT

QC BATCH REPORT

Batch ID: **104494** Instrument ID **GC14** Method: **SW8082**

MBLK Sample ID: **PBLKS1-104494-104494** Units: **µg/Kg** Analysis Date: **7/18/2017 10:18 PM**
Client ID: Run ID: **GC14_170719B** SeqNo: **4538020** Prep Date: **7/17/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	ND	67								
Aroclor 1221	ND	67								
Aroclor 1232	ND	67								
Aroclor 1242	ND	67								
Aroclor 1248	ND	67								
Aroclor 1254	ND	67								
Aroclor 1260	ND	67								
Aroclor 1262	ND	67								
Aroclor 1268	ND	67								
Surr: Decachlorobiphenyl	*22.68*	0	*33.3*	0	*68.1*	*40-140*	0			
Surr: Tetrachloro-m-xylene	*25.63*	0	*33.3*	0	*77*	*45-124*	0			

LCS Sample ID: **PLCSS1-104494-104494** Units: **µg/Kg** Analysis Date: **7/18/2017 10:32 PM**
Client ID: Run ID: **GC14_170719B** SeqNo: **4538021** Prep Date: **7/17/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	*723.5*	67	833	0	86.9	50-130	0			
Aroclor 1260	655	67	833	0	78.6	50-130	0			
Surr: Decachlorobiphenyl	*22.38*	0	*33.3*	0	*67.2*	*40-140*	0			
Surr: Tetrachloro-m-xylene	*21.67*	0	*33.3*	0	*65.1*	*45-124*	0			

MS Sample ID: **1707739-05A MS** Units: **µg/Kg** Analysis Date: **7/18/2017 11:01 PM**
Client ID: Run ID: **GC14_170719B** SeqNo: **4538023** Prep Date: **7/17/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	475.1	66	828.2	0	57.4	40-140	0			
Aroclor 1260	717.2	66	828.2	0	86.6	40-140	0			
Surr: Decachlorobiphenyl	*24.18*	0	*33.11*	0	*73*	*40-140*	0			
Surr: Tetrachloro-m-xylene	*11.18*	0	*33.11*	0	*33.8*	*45-124*	0			*S*

MSD Sample ID: **1707739-05A MSD** Units: **µg/Kg** Analysis Date: **7/18/2017 11:15 PM**
Client ID: Run ID: **GC14_170719B** SeqNo: **4538024** Prep Date: **7/17/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	318.9	66	819.2	0	38.9	40-140	475.1	39.3	50	S
Aroclor 1260	593.2	66	819.2	0	72.4	40-140	717.2	18.9	50	
Surr: Decachlorobiphenyl	*17.64*	0	*32.75*	0	*53.9*	*40-140*	24.18	*31.3*	*50*	
Surr: Tetrachloro-m-xylene	*8.485*	0	*32.75*	0	*25.9*	*45-124*	11.18	*27.4*	*50*	*S*

The following samples were analyzed in this batch: 1707480-07A 1707480-08A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: U.P. Environmental Services, Inc.
Work Order: 1707480
Project: CONT

QC BATCH REPORT

Batch ID: **104646** Instrument ID **GC14** Method: **SW8082**

MBLK Sample ID: **PBLKS1-104646-104646** Units: **µg/Kg** Analysis Date: **7/19/2017 11:07 PM**
Client ID: Run ID: **GC14_170719C** SeqNo: **4540386** Prep Date: **7/19/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	ND	67								
Aroclor 1221	ND	67								
Aroclor 1232	ND	67								
Aroclor 1242	ND	67								
Aroclor 1248	ND	67								
Aroclor 1254	ND	67								
Aroclor 1260	ND	67								
Aroclor 1262	ND	67								
Aroclor 1268	ND	67								
Surr: Decachlorobiphenyl	*23.99*	0	*33.3*	0	*72*	*40-140*	0			
Surr: Tetrachloro-m-xylene	*24.02*	0	*33.3*	0	*72.1*	*45-124*	0			

LCS Sample ID: **PLCSS1-104646-104646** Units: **µg/Kg** Analysis Date: **7/19/2017 11:21 PM**
Client ID: Run ID: **GC14_170719C** SeqNo: **4540387** Prep Date: **7/19/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	688.2	67	833	0	82.6	50-130	0			
Aroclor 1260	658.3	67	833	0	79	50-130	0			
Surr: Decachlorobiphenyl	*21.84*	0	*33.3*	0	*65.6*	*40-140*	0			
Surr: Tetrachloro-m-xylene	*22.86*	0	*33.3*	0	*68.6*	*45-124*	0			

MS Sample ID: **1707617-16A MS** Units: **µg/Kg** Analysis Date: **7/20/2017 12:18 AM**
Client ID: Run ID: **GC14_170719C** SeqNo: **4540394** Prep Date: **7/19/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	571.8	64	801.8	0	71.3	40-140	0			
Aroclor 1260	522.9	64	801.8	0	65.2	40-140	0			
Surr: Decachlorobiphenyl	*17.18*	0	*32.05*	0	*53.6*	*40-140*	0			
Surr: Tetrachloro-m-xylene	*18.6*	0	*32.05*	0	*58*	*45-124*	0			

MSD Sample ID: **1707617-16A MSD** Units: **µg/Kg** Analysis Date: **7/20/2017 12:33 AM**
Client ID: Run ID: **GC14_170719C** SeqNo: **4540395** Prep Date: **7/19/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	688.7	66	818.8	0	84.1	40-140	571.8	18.6	50	
Aroclor 1260	634.8	66	818.8	0	77.5	40-140	522.9	19.3	50	
Surr: Decachlorobiphenyl	*19.11*	0	*32.73*	0	*58.4*	*40-140*	17.18	*10.6*	*50*	
Surr: Tetrachloro-m-xylene	*20.24*	0	*32.73*	0	*61.8*	*45-124*	18.6	*8.48*	*50*	

The following samples were analyzed in this batch: 1707480-08A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: U.P. Environmental Services, Inc.
Work Order: 1707480
Project: CONT

QC BATCH REPORT

Batch ID: **104448** Instrument ID **HG1** Method: **SW7470A**

MBLK Sample ID: **MBLK-104448-104448** Units: **mg/L** Analysis Date: **7/14/2017 02:43 PM**
Client ID: Run ID: **HG1_170714A** SeqNo: **4533180** Prep Date: **7/14/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: **LCS-104448-104448** Units: **mg/L** Analysis Date: **7/14/2017 02:45 PM**
Client ID: Run ID: **HG1_170714A** SeqNo: **4533181** Prep Date: **7/14/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00195	0.00020	0.002	0	97.5	80-120	0			

MS Sample ID: **1707480-10AMS** Units: **mg/L** Analysis Date: **7/14/2017 02:58 PM**
Client ID: **CONT-006 (TCLP)** Run ID: **HG1_170714A** SeqNo: **4533186** Prep Date: **7/14/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.0196	0.0020	0.02	-0.00015	98.8	75-125	0			

MSD Sample ID: **1707480-10AMSD** Units: **mg/L** Analysis Date: **7/14/2017 03:00 PM**
Client ID: **CONT-006 (TCLP)** Run ID: **HG1_170714A** SeqNo: **4533187** Prep Date: **7/14/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.0196	0.0020	0.02	-0.00015	98.8	75-125	0.0196	0	20	

The following samples were analyzed in this batch: 1707480-09A 1707480-10A 1707480-11A 1707480-12A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: U.P. Environmental Services, Inc.
Work Order: 1707480
Project: CONT

QC BATCH REPORT

Batch ID: **104505** Instrument ID **HG1** Method: **SW7470A**

MBLK Sample ID: **MBLK-104505-104505** Units: **mg/L** Analysis Date: **7/17/2017 01:53 PM**
Client ID: Run ID: **HG1_170717A** SeqNo: **4534252** Prep Date: **7/17/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: **LCS-104505-104505** Units: **mg/L** Analysis Date: **7/17/2017 01:55 PM**
Client ID: Run ID: **HG1_170717A** SeqNo: **4534253** Prep Date: **7/17/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00208	0.00020	0.002	0	104	80-120	0			

MS Sample ID: **1707164-07AMS** Units: **mg/L** Analysis Date: **7/17/2017 02:00 PM**
Client ID: Run ID: **HG1_170717A** SeqNo: **4534255** Prep Date: **7/17/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.0221	0.0020	0.02	-0.00027	112	75-125	0			

MSD Sample ID: **1707164-07AMSD** Units: **mg/L** Analysis Date: **7/17/2017 02:03 PM**
Client ID: Run ID: **HG1_170717A** SeqNo: **4534256** Prep Date: **7/17/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.0219	0.0020	0.02	-0.00027	111	75-125	0.0221	0.909	20	

The following samples were analyzed in this batch: 1707480-13A 1707480-14A 1707480-15A 1707480-16A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: U.P. Environmental Services, Inc.
Work Order: 1707480
Project: CONT

QC BATCH REPORT

Batch ID: **104444** Instrument ID **ICP2** Method: **SW846 6010C**

MBLK Sample ID: **MBLK-104444-104444** Units: **mg/L** Analysis Date: **7/14/2017 06:15 PM**
Client ID: Run ID: **ICP2_170714A** SeqNo: **4532994** Prep Date: **7/14/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Cadmium	ND	0.010								
Chromium	ND	0.0050								
Lead	ND	0.0050								
Selenium	ND	0.010								
Silver	ND	0.0050								

LCS Sample ID: **LCS-104444-104444** Units: **mg/L** Analysis Date: **7/14/2017 06:22 PM**
Client ID: Run ID: **ICP2_170714A** SeqNo: **4532995** Prep Date: **7/14/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.1003	0.0050	0.1	0	100	80-120	0			
Barium	0.09949	0.0050	0.1	0	99.5	80-120	0			
Cadmium	0.1004	0.010	0.1	0	100	80-120	0			
Chromium	0.1019	0.0050	0.1	0	102	80-120	0			
Lead	0.1046	0.0050	0.1	0	105	80-120	0			
Selenium	0.09364	0.010	0.1	0	93.6	80-120	0			
Silver	0.106	0.0050	0.1	0	106	80-120	0			

MS Sample ID: **1707480-12AMS** Units: **mg/L** Analysis Date: **7/14/2017 07:00 PM**
Client ID: **CONT-004 (TCLP)** Run ID: **ICP2_170714A** SeqNo: **4533001** Prep Date: **7/14/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	1.077	0.050	1	-0.002001	108	75-125	0			
Barium	7.332	0.050	1	6.449	88.2	75-125	0			O
Cadmium	1.118	0.10	1	0.06678	105	75-125	0			
Chromium	1.038	0.050	1	-0.000366	104	75-125	0			
Lead	1.874	0.050	1	0.8588	102	75-125	0			
Selenium	0.9915	0.10	1	-0.002543	99.4	75-125	0			
Silver	1.072	0.050	1	-0.003449	108	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: U.P. Environmental Services, Inc.
Work Order: 1707480
Project: CONT

QC BATCH REPORT

Batch ID: **104444** Instrument ID **ICP2** Method: **SW846 6010C**

MSD Sample ID: **1707480-12AMSD** Units: **mg/L** Analysis Date: **7/14/2017 07:06 PM**

Client ID: **CONT-004 (TCLP)** Run ID: **ICP2_170714A** SeqNo: **4533002** Prep Date: **7/14/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	1.083	0.050	1	-0.002001	109	75-125	1.077	0.619	20	
Barium	7.371	0.050	1	6.449	92.2	75-125	7.332	0.54	20	O
Cadmium	1.126	0.10	1	0.06678	106	75-125	1.118	0.72	20	
Chromium	1.045	0.050	1	-0.000366	105	75-125	1.038	0.72	20	
Lead	1.886	0.050	1	0.8588	103	75-125	1.874	0.614	20	
Selenium	0.9696	0.10	1	-0.002543	97.2	75-125	0.9915	2.23	20	
Silver	1.069	0.050	1	-0.003449	107	75-125	1.072	0.276	20	

The following samples were analyzed in this batch: 1707480-09A 1707480-10A 1707480-11A 1707480-12A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: U.P. Environmental Services, Inc.
Work Order: 1707480
Project: CONT

QC BATCH REPORT

Batch ID: **104506** Instrument ID **ICP2** Method: **SW846 6010C**

MBLK Sample ID: **MBLK-104495-104506** Units: **mg/L** Analysis Date: **7/17/2017 06:23 PM**
Client ID: Run ID: **ICP2_170717A** SeqNo: **4535312** Prep Date: **7/17/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Cadmium	0.001781	0.010								J
Chromium	ND	0.0050								
Lead	ND	0.0050								
Selenium	ND	0.010								
Silver	ND	0.0050								

MBLK Sample ID: **MBLK-104506-104506** Units: **mg/L** Analysis Date: **7/17/2017 06:55 PM**
Client ID: Run ID: **ICP2_170717A** SeqNo: **4535317** Prep Date: **7/17/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Barium	ND	0.0050								
Cadmium	0.001779	0.010								J
Chromium	ND	0.0050								
Lead	ND	0.0050								
Selenium	ND	0.010								
Silver	ND	0.0050								

MBLK Sample ID: **MBLK-104506-104506** Units: **mg/L** Analysis Date: **7/18/2017 01:14 PM**
Client ID: Run ID: **ICP2_170718A** SeqNo: **4536378** Prep Date: **7/17/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	ND	0.0050								

LCS Sample ID: **LCS-104495-104506** Units: **mg/L** Analysis Date: **7/17/2017 06:49 PM**
Client ID: Run ID: **ICP2_170717A** SeqNo: **4535316** Prep Date: **7/17/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.1063	0.0050	0.1	0	106	80-120	0			
Barium	0.1053	0.0050	0.1	0	105	80-120	0			
Cadmium	0.1084	0.010	0.1	0	108	80-120	0			
Chromium	0.109	0.0050	0.1	0	109	80-120	0			
Lead	0.1038	0.0050	0.1	0	104	80-120	0			
Selenium	0.09864	0.010	0.1	0	98.6	80-120	0			
Silver	0.1125	0.0050	0.1	0	113	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: U.P. Environmental Services, Inc.
Work Order: 1707480
Project: CONT

QC BATCH REPORT

Batch ID: **104506** Instrument ID **ICP2** Method: **SW846 6010C**

LCS Sample ID: **LCS-104506-104506** Units: **mg/L** Analysis Date: **7/17/2017 07:01 PM**
Client ID: Run ID: **ICP2_170717A** SeqNo: **4535318** Prep Date: **7/17/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.1067	0.0050	0.1	0	107	80-120	0			
Barium	0.1052	0.0050	0.1	0	105	80-120	0			
Cadmium	0.1088	0.010	0.1	0	109	80-120	0			
Chromium	0.1093	0.0050	0.1	0	109	80-120	0			
Lead	0.1034	0.0050	0.1	0	103	80-120	0			
Selenium	0.1009	0.010	0.1	0	101	80-120	0			
Silver	0.1127	0.0050	0.1	0	113	80-120	0			

MS Sample ID: **1707480-13AMS** Units: **mg/L** Analysis Date: **7/17/2017 07:14 PM**
Client ID: **CONT-007 (TCLP)** Run ID: **ICP2_170717A** SeqNo: **4535320** Prep Date: **7/17/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	1.154	0.050	1	0.01116	114	75-125	0			
Barium	10.17	0.050	1	9.478	69.5	75-125	0			SO
Cadmium	1.307	0.10	1	0.1831	112	75-125	0			
Chromium	1.111	0.050	1	-0.000886	111	75-125	0			
Lead	27.47	0.050	1	27.45	1.05	75-125	0			SO
Selenium	1.045	0.10	1	-0.02069	107	75-125	0			
Silver	1.126	0.050	1	0.000996	112	75-125	0			

MSD Sample ID: **1707480-13AMSD** Units: **mg/L** Analysis Date: **7/17/2017 07:21 PM**
Client ID: **CONT-007 (TCLP)** Run ID: **ICP2_170717A** SeqNo: **4535321** Prep Date: **7/17/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	1.143	0.050	1	0.01116	113	75-125	1.154	0.976	20	
Barium	10.33	0.050	1	9.478	85.2	75-125	10.17	1.53	20	O
Cadmium	1.292	0.10	1	0.1831	111	75-125	1.307	1.17	20	
Chromium	1.097	0.050	1	-0.000886	110	75-125	1.111	1.27	20	
Lead	27.91	0.050	1	27.45	45.3	75-125	27.47	1.6	20	SO
Selenium	1.032	0.10	1	-0.02069	105	75-125	1.045	1.32	20	
Silver	1.119	0.050	1	0.000996	112	75-125	1.126	0.547	20	

The following samples were analyzed in this batch: 1707480-13A 1707480-14A 1707480-15A
1707480-16A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: U.P. Environmental Services, Inc.
Work Order: 1707480
Project: CONT

QC BATCH REPORT

Batch ID: **104432** Instrument ID **SVMS8** Method: **SW8270D**

MBLK Sample ID: **SBLKW1-104432-104432** Units: **µg/L** Analysis Date: **7/14/2017 06:22 PM**
Client ID: Run ID: **SVMS8_170714A** SeqNo: **4533969** Prep Date: **7/14/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2,4-Dinitrotoluene	ND	5.0								
Hexachloro-1,3-butadiene	ND	5.0								
Hexachlorobenzene	ND	5.0								
Hexachloroethane	ND	5.0								
m-Cresol	ND	5.0								
Nitrobenzene	ND	5.0								
o-Cresol	ND	5.0								
p-Cresol	ND	5.0								
Pentachlorophenol	ND	5.0								
Pyridine	ND	10								
Surr: 2,4,6-Tribromophenol	*27.11*	0	*50*	0	*54.2*	*32-92*	0			
Surr: 2-Fluorobiphenyl	*28.22*	0	*50*	0	*56.4*	*34-98*	0			
Surr: 2-Fluorophenol	*20.2*	0	*50*	0	*40.4*	*23-55*	0			
Surr: 4-Terphenyl-d14	*41.04*	0	*50*	0	*82.1*	*50-111*	0			
Surr: Nitrobenzene-d5	*26.92*	0	*50*	0	*53.8*	*32-89*	0			
Surr: Phenol-d6	*13.69*	0	*50*	0	*27.4*	*10-35*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: U.P. Environmental Services, Inc.
Work Order: 1707480
Project: CONT

QC BATCH REPORT

Batch ID: **104432** Instrument ID **SVMS8** Method: **SW8270D**

LCS Sample ID: **SLCSW1-104432-104432** Units: **µg/L** Analysis Date: **7/14/2017 06:41 PM**
Client ID: Run ID: **SVMS8_170714A** SeqNo: **4533971** Prep Date: **7/14/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	13.05	5.0	20	0	65.2	26-96	0			
2,4,5-Trichlorophenol	15.11	5.0	20	0	75.6	45-104	0			
2,4,6-Trichlorophenol	15.25	5.0	20	0	76.2	41-102	0			
2,4-Dinitrotoluene	16.15	5.0	20	0	80.8	52-106	0			
Hexachloro-1,3-butadiene	13.1	5.0	20	0	65.5	21-99	0			
Hexachlorobenzene	15.01	5.0	20	0	75	52-104	0			
Hexachloroethane	12.86	5.0	20	0	64.3	19-99	0			
m-Cresol	11.51	5.0	20	0	57.6	31-81	0			
Nitrobenzene	13.64	5.0	20	0	68.2	41-101	0			
o-Cresol	14.08	5.0	20	0	70.4	32-87	0			
p-Cresol	11.51	5.0	20	0	57.6	31-81	0			
Pentachlorophenol	15.56	5.0	20	0	77.8	30-104	0			
Pyridine	8.35	10	20	0	41.8	11-60	0			J
Surr: 2,4,6-Tribromophenol	*35.65*	0	*50*	0	*71.3*	*32-92*	0			
Surr: 2-Fluorobiphenyl	*33.84*	0	*50*	0	*67.7*	*34-98*	0			
Surr: 2-Fluorophenol	*22.22*	0	*50*	0	*44.4*	*23-55*	0			
Surr: 4-Terphenyl-d14	*40.26*	0	*50*	0	*80.5*	*50-111*	0			
Surr: Nitrobenzene-d5	*31.39*	0	*50*	0	*62.8*	*32-89*	0			
Surr: Phenol-d6	*16.29*	0	*50*	0	*32.6*	*10-35*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: U.P. Environmental Services, Inc.
Work Order: 1707480
Project: CONT

QC BATCH REPORT

Batch ID: **104432** Instrument ID **SVMS8** Method: **SW8270D**

MS Sample ID: **1707480-12A MS** Units: **µg/L** Analysis Date: **7/14/2017 07:00 PM**
Client ID: **CONT-004 (TCLP)** Run ID: **SVMS8_170714A** SeqNo: **4533972** Prep Date: **7/14/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	228.2	100	400	0	57	26-96	0			
2,4,5-Trichlorophenol	268.8	100	400	0	67.2	45-104	0			
2,4,6-Trichlorophenol	267.2	100	400	0	66.8	41-102	0			
2,4-Dinitrotoluene	264.8	100	400	0	66.2	52-106	0			
Hexachloro-1,3-butadiene	241.8	100	400	0	60.4	21-99	0			
Hexachlorobenzene	292.6	100	400	0	73.2	52-104	0			
Hexachloroethane	232.6	100	400	0	58.2	19-99	0			
m-Cresol	192.8	100	400	0	48.2	31-81	0			
Nitrobenzene	241.6	100	400	0	60.4	41-101	0			
o-Cresol	239.4	100	400	0	59.8	32-87	0			
p-Cresol	192.8	100	400	0	48.2	31-81	0			
Pentachlorophenol	301.6	100	400	0	75.4	30-104	0			
Pyridine	118.6	200	400	0	29.6	11-60	0			J
Surr: 2,4,6-Tribromophenol	*671*	0	*1000*	0	*67.1*	*32-92*	0			
Surr: 2-Fluorobiphenyl	*613.2*	0	*1000*	0	*61.3*	*34-98*	0			
Surr: 2-Fluorophenol	*390.6*	0	*1000*	0	*39.1*	*23-55*	0			
Surr: 4-Terphenyl-d14	*846*	0	*1000*	0	*84.6*	*50-111*	0			
Surr: Nitrobenzene-d5	*554.2*	0	*1000*	0	*55.4*	*32-89*	0			
Surr: Phenol-d6	*265.4*	0	*1000*	0	*26.5*	*10-35*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: U.P. Environmental Services, Inc.
Work Order: 1707480
Project: CONT

QC BATCH REPORT

Batch ID: **104432** Instrument ID **SVMS8** Method: **SW8270D**

MSD Sample ID: **1707480-12A MSD** Units: **µg/L** Analysis Date: **7/14/2017 07:20 PM**
Client ID: **CONT-004 (TCLP)** Run ID: **SVMS8_170714A** SeqNo: **4533974** Prep Date: **7/14/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	213.2	100	400	0	53.3	26-96	228.2	6.8	30	
2,4,5-Trichlorophenol	291	100	400	0	72.8	45-104	268.8	7.93	30	
2,4,6-Trichlorophenol	281	100	400	0	70.2	41-102	267.2	5.03	30	
2,4-Dinitrotoluene	308.4	100	400	0	77.1	52-106	264.8	15.2	30	
Hexachloro-1,3-butadiene	212.4	100	400	0	53.1	21-99	241.8	12.9	30	
Hexachlorobenzene	293.8	100	400	0	73.4	52-104	292.6	0.409	30	
Hexachloroethane	204.2	100	400	0	51	19-99	232.6	13	30	
m-Cresol	209.2	100	400	0	52.3	31-81	192.8	8.16	30	
Nitrobenzene	259.8	100	400	0	65	41-101	241.6	7.26	30	
o-Cresol	261.2	100	400	0	65.3	32-87	239.4	8.71	30	
p-Cresol	209.2	100	400	0	52.3	31-81	192.8	8.16	30	
Pentachlorophenol	317	100	400	0	79.2	30-104	301.6	4.98	30	
Pyridine	167.8	200	400	0	42	11-60	118.6	0	30	J
Surr: 2,4,6-Tribromophenol	*675.8*	0	*1000*	0	*67.6*	*32-92*	671	*0.713*	*40*	
Surr: 2-Fluorobiphenyl	*600.6*	0	*1000*	0	*60.1*	*34-98*	613.2	*2.08*	*40*	
Surr: 2-Fluorophenol	*418.6*	0	*1000*	0	*41.9*	*23-55*	390.6	*6.92*	*40*	
Surr: 4-Terphenyl-d14	*862.6*	0	*1000*	0	*86.3*	*50-111*	846	*1.94*	*40*	
Surr: Nitrobenzene-d5	*593.6*	0	*1000*	0	*59.4*	*32-89*	554.2	*6.87*	*40*	
Surr: Phenol-d6	*289.6*	0	*1000*	0	*29*	*10-35*	265.4	*8.72*	*40*	

The following samples were analyzed in this batch: 1707480-09A 1707480-10A 1707480-11A 1707480-12A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: U.P. Environmental Services, Inc.
Work Order: 1707480
Project: CONT

QC BATCH REPORT

Batch ID: **104546** Instrument ID **SVMS8** Method: **SW8270D**

MBLK Sample ID: **SBLKW1-104546-104546** Units: **µg/L** Analysis Date: **7/18/2017 10:54 PM**
Client ID: Run ID: **SVMS8_170718A** SeqNo: **4538577** Prep Date: **7/18/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2,4-Dinitrotoluene	ND	5.0								
Hexachloro-1,3-butadiene	ND	5.0								
Hexachlorobenzene	ND	5.0								
Hexachloroethane	ND	5.0								
m-Cresol	ND	5.0								
Nitrobenzene	ND	5.0								
o-Cresol	ND	5.0								
p-Cresol	ND	5.0								
Pentachlorophenol	ND	5.0								
Pyridine	ND	10								
Surr: 2,4,6-Tribromophenol	*19.75*	0	*50*	0	*39.5*	*32-92*	0			
Surr: 2-Fluorobiphenyl	*16.78*	0	*50*	0	*33.6*	*34-98*	0			*S*
Surr: 2-Fluorophenol	*13.06*	0	*50*	0	*26.1*	*23-55*	0			
Surr: 4-Terphenyl-d14	*32.05*	0	*50*	0	*64.1*	*50-111*	0			
Surr: Nitrobenzene-d5	*17.3*	0	*50*	0	*34.6*	*32-89*	0			
Surr: Phenol-d6	*9.43*	0	*50*	0	*18.9*	*10-35*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: U.P. Environmental Services, Inc.
Work Order: 1707480
Project: CONT

QC BATCH REPORT

Batch ID: **104546** Instrument ID **SVMS8** Method: **SW8270D**

LCS Sample ID: **SLCSW1-104546-104546** Units: **µg/L** Analysis Date: **7/18/2017 10:35 PM**
Client ID: Run ID: **SVMS8_170718A** SeqNo: **4538575** Prep Date: **7/18/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	5.64	5.0	10	0	56.4	26-96	0			
2,4,5-Trichlorophenol	7.44	5.0	10	0	74.4	45-104	0			
2,4,6-Trichlorophenol	7.81	5.0	10	0	78.1	41-102	0			
2,4-Dinitrotoluene	8.95	5.0	10	0	89.5	52-106	0			
Hexachloro-1,3-butadiene	5.27	5.0	10	0	52.7	21-99	0			
Hexachlorobenzene	9	5.0	10	0	90	52-104	0			
Hexachloroethane	5.35	5.0	10	0	53.5	19-99	0			
m-Cresol	7.45	5.0	10	0	74.5	31-81	0			
Nitrobenzene	6.9	5.0	10	0	69	41-101	0			
o-Cresol	7.63	5.0	10	0	76.3	32-87	0			
p-Cresol	7.45	5.0	10	0	74.5	31-81	0			
Pentachlorophenol	7.75	5.0	10	0	77.5	30-104	0			
Pyridine	4.5	10	10	0	45	11-60	0			J
Surr: 2,4,6-Tribromophenol	*23.81*	0	*50*	0	*47.6*	*32-92*	0			
Surr: 2-Fluorobiphenyl	*17.82*	0	*50*	0	*35.6*	*34-98*	0			
Surr: 2-Fluorophenol	*13.29*	0	*50*	0	*26.6*	*23-55*	0			
Surr: 4-Terphenyl-d14	*27.64*	0	*50*	0	*55.3*	*50-111*	0			
Surr: Nitrobenzene-d5	*16.92*	0	*50*	0	*33.8*	*32-89*	0			
Surr: Phenol-d6	*9.19*	0	*50*	0	*18.4*	*10-35*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: U.P. Environmental Services, Inc.
Work Order: 1707480
Project: CONT

QC BATCH REPORT

Batch ID: **104546** Instrument ID **SVMS8** Method: **SW8270D**

MS Sample ID: **1707480-13A MS** Units: **µg/L** Analysis Date: **7/19/2017 12:10 AM**
Client ID: **CONT-007 (TCLP)** Run ID: **SVMS8_170718A** SeqNo: **4538579** Prep Date: **7/18/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	113.6	100	200	0	56.8	26-96	0			
2,4,5-Trichlorophenol	166.6	100	200	0	83.3	45-104	0			
2,4,6-Trichlorophenol	161.6	100	200	0	80.8	41-102	0			
2,4-Dinitrotoluene	216.2	100	200	0	108	52-106	0			S
Hexachloro-1,3-butadiene	100.4	100	200	0	50.2	21-99	0			
Hexachlorobenzene	205	100	200	0	102	52-104	0			
Hexachloroethane	104.4	100	200	0	52.2	19-99	0			
m-Cresol	164.2	100	200	0	82.1	31-81	0			S
Nitrobenzene	140.4	100	200	0	70.2	41-101	0			
o-Cresol	165.6	100	200	0	82.8	32-87	0			
p-Cresol	164.2	100	200	0	82.1	31-81	0			S
Pentachlorophenol	200.2	100	200	0	100	30-104	0			
Pyridine	60.4	200	200	0	30.2	11-60	0			J
Surr: 2,4,6-Tribromophenol	*551.4*	0	*1000*	0	*55.1*	*32-92*	0			
Surr: 2-Fluorobiphenyl	*361.2*	0	*1000*	0	*36.1*	*34-98*	0			
Surr: 2-Fluorophenol	*287.6*	0	*1000*	0	*28.8*	*23-55*	0			
Surr: 4-Terphenyl-d14	*636.8*	0	*1000*	0	*63.7*	*50-111*	0			
Surr: Nitrobenzene-d5	*343*	0	*1000*	0	*34.3*	*32-89*	0			
Surr: Phenol-d6	*213*	0	*1000*	0	*21.3*	*10-35*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: U.P. Environmental Services, Inc.
Work Order: 1707480
Project: CONT

QC BATCH REPORT

Batch ID: **104546** Instrument ID **SVMS8** Method: **SW8270D**

MSD Sample ID: **1707480-13A MSD** Units: **µg/L** Analysis Date: **7/19/2017 12:30 AM**
Client ID: **CONT-007 (TCLP)** Run ID: **SVMS8_170718A** SeqNo: **4538580** Prep Date: **7/18/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	113	100	200	0	56.5	26-96	113.6	0.53	30	
2,4,5-Trichlorophenol	171.2	100	200	0	85.6	45-104	166.6	2.72	30	
2,4,6-Trichlorophenol	173.8	100	200	0	86.9	41-102	161.6	7.27	30	
2,4-Dinitrotoluene	202.4	100	200	0	101	52-106	216.2	6.59	30	
Hexachloro-1,3-butadiene	113.8	100	200	0	56.9	21-99	100.4	12.5	30	
Hexachlorobenzene	192.8	100	200	0	96.4	52-104	205	6.13	30	
Hexachloroethane	101.6	100	200	0	50.8	19-99	104.4	2.72	30	
m-Cresol	166.2	100	200	0	83.1	31-81	164.2	1.21	30	S
Nitrobenzene	157.2	100	200	0	78.6	41-101	140.4	11.3	30	
o-Cresol	168.8	100	200	0	84.4	32-87	165.6	1.91	30	
p-Cresol	166.2	100	200	0	83.1	31-81	164.2	1.21	30	S
Pentachlorophenol	196.8	100	200	0	98.4	30-104	200.2	1.71	30	
Pyridine	79.2	200	200	0	39.6	11-60	60.4	0	30	J
Surr: 2,4,6-Tribromophenol	*518.4*	0	*1000*	0	*51.8*	*32-92*	551.4	*6.17*	*40*	
Surr: 2-Fluorobiphenyl	*369.4*	0	*1000*	0	*36.9*	*34-98*	361.2	*2.24*	*40*	
Surr: 2-Fluorophenol	*298.2*	0	*1000*	0	*29.8*	*23-55*	287.6	*3.62*	*40*	
Surr: 4-Terphenyl-d14	*596.6*	0	*1000*	0	*59.7*	*50-111*	636.8	*6.52*	*40*	
Surr: Nitrobenzene-d5	*381.6*	0	*1000*	0	*38.2*	*32-89*	343	*10.7*	*40*	
Surr: Phenol-d6	*209.6*	0	*1000*	0	*21*	*10-35*	213	*1.61*	*40*	

The following samples were analyzed in this batch: 1707480-13A 1707480-14A 1707480-15A 1707480-16A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: U.P. Environmental Services, Inc.
Work Order: 1707480
Project: CONT

QC BATCH REPORT

Batch ID: **R215964a** Instrument ID **VMS6** Method: **SW8260B**

MBLK Sample ID: **VBLKW2-170717-R215964a** Units: **µg/L** Analysis Date: **7/18/2017 01:19 AM**
Client ID: Run ID: **VMS6_170717B** SeqNo: **4536088** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	ND	1.0								
1,2-Dichloroethane	ND	1.0								
2-Butanone	ND	5.0								
Benzene	ND	1.0								
Carbon tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroform	ND	1.0								
Tetrachloroethene	ND	1.0								
Trichloroethene	ND	1.0								
Vinyl chloride	ND	1.0								
Surr: 1,2-Dichloroethane-d4	*21.16*	0	*20*	0	*106*	*75-120*	0			
Surr: 4-Bromofluorobenzene	*20.44*	0	*20*	0	*102*	*80-110*	0			
Surr: Dibromofluoromethane	*20.03*	0	*20*	0	*100*	*85-115*	0			
Surr: Toluene-d8	*20.24*	0	*20*	0	*101*	*85-110*	0			

LCS Sample ID: **VLCSW2-170717-R215964a** Units: **µg/L** Analysis Date: **7/18/2017 12:27 PM**
Client ID: Run ID: **VMS6_170717B** SeqNo: **4536094** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	25.29	1.0	20	0	126	70-145	0			
1,2-Dichloroethane	21.31	1.0	20	0	107	78-125	0			
2-Butanone	20.61	5.0	20	0	103	55-150	0			
Benzene	21.67	1.0	20	0	108	85-125	0			
Carbon tetrachloride	21.44	1.0	20	0	107	65-140	0			
Chlorobenzene	20.4	1.0	20	0	102	80-120	0			
Chloroform	23.17	1.0	20	0	116	80-130	0			
Tetrachloroethene	20.13	1.0	20	0	101	68-166	0			
Trichloroethene	20.68	1.0	20	0	103	84-130	0			
Vinyl chloride	22.6	1.0	20	0	113	50-136	0			
Surr: 1,2-Dichloroethane-d4	*20.32*	0	*20*	0	*102*	*75-120*	0			
Surr: 4-Bromofluorobenzene	*21.75*	0	*20*	0	*109*	*80-110*	0			
Surr: Dibromofluoromethane	*20.08*	0	*20*	0	*100*	*85-115*	0			
Surr: Toluene-d8	*20.23*	0	*20*	0	*101*	*85-110*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: U.P. Environmental Services, Inc.
Work Order: 1707480
Project: CONT

QC BATCH REPORT

Batch ID: **R215964a** Instrument ID **VMS6** Method: **SW8260B**

MS Sample ID: **1707602-07A MS** Units: **µg/L** Analysis Date: **7/18/2017 10:32 AM**
Client ID: Run ID: **VMS6_170717B** SeqNo: **4536092** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	509.2	10	200	0	255	70-145	0			S
1,2-Dichloroethane	213.6	10	200	0	107	78-125	0			
2-Butanone	261	50	200	0	130	55-150	0			
Benzene	227.8	10	200	12	108	85-125	0			
Carbon tetrachloride	227.8	10	200	0	114	65-140	0			
Chlorobenzene	208.5	10	200	0	104	80-120	0			
Chloroform	216.3	10	200	71.2	72.6	80-130	0			S
Tetrachloroethene	362.4	10	200	0	181	68-166	0			S
Trichloroethene	554.2	10	200	0	277	84-130	0			S
Vinyl chloride	251.9	10	200	0	126	50-136	0			
Surr: 1,2-Dichloroethane-d4	*202.3*	0	*200*	0	*101*	*75-120*	0			
Surr: 4-Bromofluorobenzene	*216.2*	0	*200*	0	*108*	*80-110*	0			
Surr: Dibromofluoromethane	*32.6*	0	*200*	0	*16.3*	*85-115*	0			*S*
Surr: Toluene-d8	*198.6*	0	*200*	0	*99.3*	*85-110*	0			

MSD Sample ID: **1707602-07A MSD** Units: **µg/L** Analysis Date: **7/18/2017 10:59 AM**
Client ID: Run ID: **VMS6_170717B** SeqNo: **4536093** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	462.8	10	200	0	231	70-145	509.2	9.55	30	S
1,2-Dichloroethane	200.9	10	200	0	100	78-125	213.6	6.13	30	
2-Butanone	252.9	50	200	0	126	55-150	261	3.15	30	
Benzene	211.4	10	200	12	99.7	85-125	227.8	7.47	30	
Carbon tetrachloride	207.1	10	200	0	104	65-140	227.8	9.52	30	
Chlorobenzene	192.8	10	200	0	96.4	80-120	208.5	7.82	30	
Chloroform	189.6	10	200	71.2	59.2	80-130	216.3	13.2	30	S
Tetrachloroethene	330.4	10	200	0	165	68-166	362.4	9.24	30	
Trichloroethene	501.3	10	200	0	251	84-130	554.2	10	30	S
Vinyl chloride	234.2	10	200	0	117	50-136	251.9	7.28	30	
Surr: 1,2-Dichloroethane-d4	*204.4*	0	*200*	0	*102*	*75-120*	202.3	*1.03*	*30*	
Surr: 4-Bromofluorobenzene	*212.3*	0	*200*	0	*106*	*80-110*	216.2	*1.82*	*30*	
Surr: Dibromofluoromethane	*32.3*	0	*200*	0	*16.2*	*85-115*	32.6	*0.924*	*30*	*S*
Surr: Toluene-d8	*195.4*	0	*200*	0	*97.7*	*85-110*	198.6	*1.62*	*30*	

The following samples were analyzed in this batch: 1707480-09B 1707480-10B 1707480-11B 1707480-12B 1707480-13B 1707480-14B 1707480-15B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: U.P. Environmental Services, Inc.
Work Order: 1707480
Project: CONT

QC BATCH REPORT

Batch ID: **R216030a** Instrument ID **VMS5** Method: **SW8260B**

MBLK Sample ID: **VBLKW2-170718-R216030a** Units: **µg/L** Analysis Date: **7/19/2017 12:55 PM**
Client ID: Run ID: **VMS5_170718B** SeqNo: **4537966** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	ND	1.0								
1,2-Dichloroethane	ND	1.0								
2-Butanone	ND	5.0								
Benzene	ND	1.0								
Carbon tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroform	ND	1.0								
Tetrachloroethene	ND	1.0								
Trichloroethene	ND	1.0								
Vinyl chloride	ND	1.0								
Surr: 1,2-Dichloroethane-d4	*17.83*	0	*20*	0	*89.2*	*75-120*	0			
Surr: 4-Bromofluorobenzene	*18.89*	0	*20*	0	*94.4*	*80-110*	0			
Surr: Dibromofluoromethane	*18.94*	0	*20*	0	*94.7*	*85-115*	0			
Surr: Toluene-d8	*18.57*	0	*20*	0	*92.8*	*85-110*	0			

LCS Sample ID: **VLCSW2-170718-R216030a** Units: **µg/L** Analysis Date: **7/19/2017 12:04 PM**
Client ID: Run ID: **VMS5_170718B** SeqNo: **4537965** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	21.14	1.0	20	0	106	70-145	0			
1,2-Dichloroethane	18.43	1.0	20	0	92.2	78-125	0			
2-Butanone	17.73	5.0	20	0	88.6	55-150	0			
Benzene	20.67	1.0	20	0	103	85-125	0			
Carbon tetrachloride	21.59	1.0	20	0	108	65-140	0			
Chlorobenzene	20.2	1.0	20	0	101	80-120	0			
Chloroform	17.88	1.0	20	0	89.4	80-130	0			
Tetrachloroethene	21.69	1.0	20	0	108	68-166	0			
Trichloroethene	22.3	1.0	20	0	112	84-130	0			
Vinyl chloride	13.35	1.0	20	0	66.8	50-136	0			
Surr: 1,2-Dichloroethane-d4	*17.3*	0	*20*	0	*86.5*	*75-120*	0			
Surr: 4-Bromofluorobenzene	*20.39*	0	*20*	0	*102*	*80-110*	0			
Surr: Dibromofluoromethane	*18.75*	0	*20*	0	*93.8*	*85-115*	0			
Surr: Toluene-d8	*19.03*	0	*20*	0	*95.2*	*85-110*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: U.P. Environmental Services, Inc.
Work Order: 1707480
Project: CONT

QC BATCH REPORT

Batch ID: **R216030a** Instrument ID **VMS5** Method: **SW8260B**

MS Sample ID: **1707827-35B MS** Units: **µg/L** Analysis Date: **7/19/2017 09:54 AM**
Client ID: Run ID: **VMS5_170718B** SeqNo: **4537963** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	24.55	1.0	20	0	123	70-145	0			
1,2-Dichloroethane	19.7	1.0	20	0	98.5	78-125	0			
2-Butanone	17.69	5.0	20	0	88.4	55-150	0			
Benzene	23.32	1.0	20	0	117	85-125	0			
Carbon tetrachloride	24.86	1.0	20	0	124	65-140	0			
Chlorobenzene	22.55	1.0	20	0	113	80-120	0			
Chloroform	19.91	1.0	20	0	99.6	80-130	0			
Tetrachloroethene	25.96	1.0	20	0	130	68-166	0			
Trichloroethene	25.57	1.0	20	0	128	84-130	0			
Vinyl chloride	15.72	1.0	20	0	78.6	50-136	0			
Surr: 1,2-Dichloroethane-d4	*16.83*	0	*20*	0	*84.2*	*75-120*	0			
Surr: 4-Bromofluorobenzene	*20.55*	0	*20*	0	*103*	*80-110*	0			
Surr: Dibromofluoromethane	*18.56*	0	*20*	0	*92.8*	*85-115*	0			
Surr: Toluene-d8	*19.15*	0	*20*	0	*95.8*	*85-110*	0			

MSD Sample ID: **1707827-35B MSD** Units: **µg/L** Analysis Date: **7/19/2017 10:20 AM**
Client ID: Run ID: **VMS5_170718B** SeqNo: **4537964** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	23.8	1.0	20	0	119	70-145	24.55	3.1	30	
1,2-Dichloroethane	19.43	1.0	20	0	97.2	78-125	19.7	1.38	30	
2-Butanone	18.79	5.0	20	0	94	55-150	17.69	6.03	30	
Benzene	22.72	1.0	20	0	114	85-125	23.32	2.61	30	
Carbon tetrachloride	24.5	1.0	20	0	122	65-140	24.86	1.46	30	
Chlorobenzene	21.85	1.0	20	0	109	80-120	22.55	3.15	30	
Chloroform	19.23	1.0	20	0	96.2	80-130	19.91	3.47	30	
Tetrachloroethene	25.32	1.0	20	0	127	68-166	25.96	2.5	30	
Trichloroethene	25.03	1.0	20	0	125	84-130	25.57	2.13	30	
Vinyl chloride	15.87	1.0	20	0	79.4	50-136	15.72	0.95	30	
Surr: 1,2-Dichloroethane-d4	*16.3*	0	*20*	0	*81.5*	*75-120*	16.83	*3.2*	*30*	
Surr: 4-Bromofluorobenzene	*20.21*	0	*20*	0	*101*	*80-110*	20.55	*1.67*	*30*	
Surr: Dibromofluoromethane	*18.31*	0	*20*	0	*91.6*	*85-115*	18.56	*1.36*	*30*	
Surr: Toluene-d8	*18.58*	0	*20*	0	*92.9*	*85-110*	19.15	*3.02*	*30*	

The following samples were analyzed in this batch: 1707480-15B 1707480-16B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: U.P. Environmental Services, Inc.
Work Order: 1707480
Project: CONT

QC BATCH REPORT

Batch ID: **104408** Instrument ID **WETCHEM** Method: **SW9045D**

LCS Sample ID: **LCS-104408-104408** Units: **s.u.** Analysis Date: **7/14/2017 10:45 AM**
Client ID: Run ID: **WETCHEM_170714B** SeqNo: **4531608** Prep Date: **7/13/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	3.96	0.10	4	0	99	90-110	0			

DUP Sample ID: **1707411-01A DUP** Units: **s.u.** Analysis Date: **7/14/2017 10:45 AM**
Client ID: Run ID: **WETCHEM_170714B** SeqNo: **4531612** Prep Date: **7/13/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.63	0.10	0	0	0	0-0	6.53	1.52	20	H

DUP Sample ID: **1707480-01A DUP** Units: **s.u.** Analysis Date: **7/14/2017 10:45 AM**
Client ID: **CONT-010** Run ID: **WETCHEM_170714B** SeqNo: **4531618** Prep Date: **7/13/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	8.14	0.10	0	0	0	0-0	7.85	3.63	20	

The following samples were analyzed in this batch:

1707480-01A	1707480-02A	1707480-03A
1707480-04A	1707480-05A	1707480-06A
1707480-07A	1707480-08A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: U.P. Environmental Services, Inc.
Work Order: 1707480
Project: CONT

QC BATCH REPORT

Batch ID: **R215798** Instrument ID **MOIST** Method: **SW3550C**

MBLK Sample ID: **WBLKS-R215798** Units: **% of sample** Analysis Date: **7/13/2017 04:14 PM**
Client ID: Run ID: **MOIST_170713C** SeqNo: **4531363** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	ND	0.050								

LCS Sample ID: **LCS-R215798** Units: **% of sample** Analysis Date: **7/13/2017 04:14 PM**
Client ID: Run ID: **MOIST_170713C** SeqNo: **4531362** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **1707538-01B DUP** Units: **% of sample** Analysis Date: **7/13/2017 04:14 PM**
Client ID: Run ID: **MOIST_170713C** SeqNo: **4531349** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	17.84	0.050	0	0	0	0-0	18.28	2.44	5	

DUP Sample ID: **1707538-06B DUP** Units: **% of sample** Analysis Date: **7/13/2017 04:14 PM**
Client ID: Run ID: **MOIST_170713C** SeqNo: **4531355** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	16.7	0.050	0	0	0	0-0	15.91	4.85	5	

The following samples were analyzed in this batch:

1707480-01A	1707480-02A	1707480-03A
1707480-04A	1707480-05A	1707480-06A
1707480-07A	1707480-08A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: U.P. Environmental Services, Inc.
Work Order: 1707480
Project: CONT

QC BATCH REPORT

Batch ID: **R215977** Instrument ID **WETCHEM** Method: **SW7.3.4.2**

MBLK Sample ID: **MB-R215977-R215977** Units: **mg/Kg** Analysis Date: **7/18/2017 09:05 AM**
Client ID: Run ID: **WETCHEM_170718A** SeqNo: **4535550** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide, Reactive	ND	100								

LCS Sample ID: **LCS-R215977-R215977** Units: **mg/Kg** Analysis Date: **7/18/2017 09:05 AM**
Client ID: Run ID: **WETCHEM_170718A** SeqNo: **4535551** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide, Reactive	1608	100	2149	0	74.8	60-120	0			

The following samples were analyzed in this batch:

1707480-01A	1707480-02A	1707480-03A
1707480-04A	1707480-05A	1707480-06A
1707480-07A	1707480-08A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: U.P. Environmental Services, Inc.
Work Order: 1707480
Project: CONT

QC BATCH REPORT

Batch ID: **R215982** Instrument ID **WETCHEM** Method: **SW7.3.3.2**

MBLK Sample ID: **MB-R215982-R215982** Units: **mg/Kg** Analysis Date: **7/18/2017 10:30 AM**
Client ID: Run ID: **WETCHEM_170718C** SeqNo: **4535762** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	ND	100								

LCS Sample ID: **LCS-R215982-R215982** Units: **mg/Kg** Analysis Date: **7/18/2017 10:30 AM**
Client ID: Run ID: **WETCHEM_170718C** SeqNo: **4535763** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	124.8	100	125	0	99.8	84-112	0			

MS Sample ID: **1707467-02A MS** Units: **mg/Kg** Analysis Date: **7/18/2017 10:30 AM**
Client ID: Run ID: **WETCHEM_170718C** SeqNo: **4535765** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	249.1	100	250	0	99.6	84-112	0			

MSD Sample ID: **1707467-02A MSD** Units: **mg/Kg** Analysis Date: **7/18/2017 10:30 AM**
Client ID: Run ID: **WETCHEM_170718C** SeqNo: **4535766** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	234.9	100	250	0	94	84-112	249.1	5.86	8	

The following samples were analyzed in this batch:

1707480-01A	1707480-02A	1707480-03A
1707480-04A	1707480-05A	1707480-06A
1707480-07A	1707480-08A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: U.P. Environmental Services, Inc.
Work Order: 1707480
Project: CONT

QC BATCH REPORT

Batch ID: **R216024** Instrument ID **WETCHEM** Method: **SW1010A**

LCS Sample ID: **LCS-R216024-R216024** Units: **°F** Analysis Date: **7/18/2017 11:30 AM**
Client ID: Run ID: **WETCHEM_170718L** SeqNo: **4536938** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Flashpoint/Ignitability	83	1.0	81	0	102	97-103	0			

DUP Sample ID: **1707602-09C DUP** Units: **°F** Analysis Date: **7/18/2017 11:30 AM**
Client ID: Run ID: **WETCHEM_170718L** SeqNo: **4536948** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Flashpoint/Ignitability	ND	1.0	0	0	0	0-0	0	0	10	

The following samples were analyzed in this batch:

1707480-01A	1707480-02A	1707480-03A
1707480-04A	1707480-05A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: U.P. Environmental Services, Inc.
Work Order: 1707480
Project: CONT

QC BATCH REPORT

Batch ID: **R216104** Instrument ID **WETCHEM** Method: **SW1010A**

LCS Sample ID: **LCS-R216104-R216104** Units: **°F** Analysis Date: **7/19/2017 10:00 AM**
Client ID: Run ID: **WETCHEM_170719L** SeqNo: **4538858** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Flashpoint/Ignitability	83	1.0	81	0	102	97-103	0			

DUP Sample ID: **1707602-13C DUP** Units: **°F** Analysis Date: **7/19/2017 10:00 AM**
Client ID: Run ID: **WETCHEM_170719L** SeqNo: **4538855** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Flashpoint/Ignitability	ND	1.0	0	0	0	0-0	0	0	10	

The following samples were analyzed in this batch: 1707480-06A 1707480-07A 1707480-08A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Cincinnati, OH
+1 513 733 5336

Fort Collins, CO
+1 970 490 1511

Everett, WA
+1 425 356 2600

Holland, MI
+1 616 399 6070

Houston, TX
+1 281 530 5656

Middletown, PA
+1 717 944 5541

Chain of Custody Form

Page ___ of ___

COC ID: 44313

ALS Project Manager:

Customer Information		Project Information			Parameter/Me
Purchase Order		Project Name		A	TCLP, Wa
Work Order		Project Number		B	TCLP, Jac
Company Name	U P. Environmental Services, Inc.	Bill To Company	U P. Environmental Services, Inc.	C	
Send Report To	Rick Riedy	Invoice Attn	Accounts Payable	D	
Address	P.O Box 127	Address	P.O. Box 127	E	
				F	
City/State/Zip	Bark River, MI 49807	City/State/Zip	Bark River, MI 49807	G	
Phone	(906) 466-9900	Phone	(906) 466-9900	H	
Fax	(906) 466-2641	Fax	(906) 466-2641	I	
e-Mail Address	rick@upenvironmental.com	e-Mail Address		J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E
1	CONT-010	7-11-17	1:30p		N/A	2	X	X	TCLP -9		
2	CONT-006	7-11-17	1:40p		N/A	2	X	X	-10		
3	CONT-009	7-11-17	1:50p		N/A	2	X	X	-11		

ALS Group, USA

Sample Receipt Checklist

Client Name: **UP ENVIRONMENTAL** Date/Time Received: **12-Jul-17 09:00**

Work Order: **1707480** Received by: **KRW**

Checklist completed by Keith Wierenga (eSignature) 12-Jul-17 (Date) Reviewed by: Bill Carey (eSignature) 13-Jul-17 (Date)

Matrices: Soil

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	6.0/6.0 C	SR2	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	7/12/2017 2:25:52 PM		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

Tradebe Environmental Services
Land Disposal Restriction Notification Form

TRADEBE

The waste described on waste stream profile 1000161621 is not regulated under RCRA 40 CFR.

x The waste described on waste stream profile 1000161621 does not meet the applicable treatment standards in 40 CFR 268 Subpart D.

TREATABILITY GROUP

This is a wastewater stream. x This is a non-wastewater stream.

CODE	SUBCATEGORY/CONSTITUENTS	CODE	SUBCATEGORY/CONSTITUENTS	CODE	SUBCATEGORY/CONSTITUENTS
D001	Ignitable Wastes (TOC>10%)	D010*	Selenium	D025*	p-Cresol
D001*	Ignitable Wastes (TOC<10%) Managed in Non-CWA or equivalent/Non-Class 1 SDWA System			D026*	Cresol (Total)
D001*	Ignitable Wastes (TOC<10%) Managed in CWA or equivalent/Class 1 SDWA System			D027*	p-Dichlorobenzene
D002*	Corrosive Wastes Managed in Non-CWA or Equivalent/Non-Class 1 SDWA System			D028*	1,2-Dichloroethane
D002*	Corrosive Wastes Managed in CWA or Equivalent/Class 1 SDWA System			D029*	1,1-Dichloroethylene
D003	Reactive sulfides based on 261.23(a)(5)	D011*	Silver	D030*	2,4-Dinitrotoluene
D003*	Other Reactive based on 261.23(a)(1)	D012*	Endrin	D031*	Heptachlor
D003*	Water Reactive based on 261.23(a)(2),(3),(4)	D013*	Lindane	D032*	Hexachlorobenzene
D003	Reactive Cyanides based on 261.23(a)(5)	D014*	Methoxychlor	D033*	Hexachlorobutadiene
D004*	Arsenic	D015*	Toxaphone	D034*	Hexachloroethane
D005*	Barium	D016*	2,4-D	D035*	Methyl ethyl ketone
D006*	Cadmium	D017*	2,4,5-TP (Silvex)	D036*	Nitrobenzene
D006*	Cadmium Containing Batteries	D018*	Benzene	D037*	Pentachlorophenol
D007*	Chromium	D019*	Carbon Tetrachloride	D038*	Pyridine
x D008*	Lead	D020*	Chlordane	D039*	Tetrachloroethylene
D008*	Lead Acid Batteries	D021*	Chlorobenzene	D040*	Trichloroethylene
D009*	High Mercury-Organic>260ppm Hg	D022*	Chloroform	D041*	2,4,5-Trichlorophenol
D009*	High Mercury-Inorganic<260ppm Hg	D023*	o-Cresol	D042*	2,4,6-Trichlorophenol
D009*	Low Mercury <260ppm	D024*	m-Cresol	D043*	Vinyl chloride
D009*	Mercury Wastewater				

If the waste identified by an asterisk(*) contain any Underlying Hazardous Constituents (see APPENDIX I) per 268.7(a)(1)

F001 - F005 LISTED WASTE

CODE	CONSTITUENTS	CODE	CONSTITUENTS	CODE	CONSTITUENTS	CODE	CONSTITUENTS
F001	Carbon tetrachloride	F002	Tetrachloroethylene	F003	Ethyl ether	F004	Nitrobenzene
F001	Chlorinated Flurocarbons	F002	1,1,1-Trichloroethane	F003	Methanol	F005	Benzene
F001	Methylene chloride	F002	Trichloroethylene	F003	Methyl isobutyl ketone	F005	Carbon disulfide
F001	Tetrachloroethylene	F002	1,1,2-Trichloro-1,2,2-trifluoroethane	F003	Xylenes	F005	2-Ethoxyethanol Only
F001	1,1,1-Trichloroethane	F002	Trichlorofluoromethane	F003	Contains any combination of following:Carbon Disulfide,Cyclohexanone and Methanol (F003/F005 ONLY)	F005	Isobutanol
F001	Trichloroethylene	F003	Acetone	F004	O-Cresol	F005	Mathyl ethyl ketone
F002	Chlorobenzene	F003	n-Butyl alcobol	F004	M-Cresol	F005	2-Nitropropane Only
F002	o-Dichlorobenzene	F003	Cyclohexanone	F004	P-Cresol	F005	Pyridine
F002	Methylene chloride	F003	Ethyl acetate	F004	Cresol Mixed Isomers(Cresylic acid)	F005	Toluene
F002	1,1,2-Trichloroethane	F003	Ethylbenzene			F005	Contains any combination of following:Carbon Disulfide,Cyclohexanone and Methanol(F003/F005 ONLY)

CODE	SUBCATEGORY/CONSTITUENTS
F025	Light Ends
F025	Spent filters/aids and desalcants
K006	Anhydrous
K006	Hydrated
K069	Low Lead
K069	High Lead
K071	Non wastewaters that are residues from RMERC
K071	Non wastewaters not residues from RMERC
K071	All K071 wastewaters
K106	Non wastewaters that contain > 260ppm Hg
K106	Non wastewaters that contain < 260ppm Hg from RMERC
K106	Other non wastewaters that contain <260ppm Hg
K106	All K106 wastewaters
K175	Non wastewaters
K175	All K175 wastewaters
P047	4,6 dinitro-o-cresol

CODE	SUBCATEGORY/CONSTITUENTS
P047	4,6-dinitro-o-cresol salts
P065	Non Wastewater, not incinerator or RMERC residue
P065	Non Wastewaters from RMERC<260ppm Hg
P065	Non wastewater Incinerator residue <260ppm
P065	All P065 wastewaters
P065	Non wastewaters from incinerator or RMERC residue w/ >260ppm Hg
P092	Non Wastewater, not incinerator or RMERC residue
P092	Non Wastewaters from RMERC <260ppm Hg
P092	Non wastewater Incinerator residue <260ppm
P092	All P092 wastewaters
P092	Non wastewaters incinerator or RMERC residues >260ppm Hg
U151	Non wastewaters >260ppm total Hg
U151	Non wastewaters from RMERC residues w/ <260ppm Hg
U151	Non wastewaters from not RMERC residues w/ <260ppm Hg
U151	All U151 (mercury) wastewaters
U240	2,4-D
U240	2,4-D salts and esters

OTHER WASTE CODES For all other waste codes please use continuation page

CERTIFICATION

certify under penalty of law that I am familiar with this waste and all information is true and accurate and in compliance with the standards specified in 40CFR Part 268 SubpartD and all applicable prohibitions set forth in 40 CFR 268.32 or RCRA Section 3004(d).

Name Printed : _____ Title : _____

Authorized Signature: _____ Date : _____

TRADEBE ENVIRONMENTAL SERVICES LDR CONTINUATION

Waste Stream Profile 1000161621

ALL OTHER WASTE CODES

CODE **SUBCATEGORY/CONSTITUENTS**

TRADEBE

APPENDIX I - LDR - UNIVERSAL TREATMENT STANDARDS: REGULATED CONSTITUENTS D001,D002,D012-D043

CHEMICALS THAT ARE PRESENT IN AMOUNTS GREATER THAN TREATMENT STANDARDS IN WASTE STREAM PROFILE 1000161621

APPENDIX II

EPCRA and Homeland Security Chemicals of Interest Declaration

Waste Stream Profile 1000161621

Constituents	Min	Max	UoM	EPCRA 313	DHS

Tradebe Environmental Services, LLC
1433 E 83rd Ave, Suite 200
Merrillville, IN 46410
www.tradebeusa.com

TRADEBE

Waste Stream Profile Approval Letter

July 31, 2017

UP Environmental Services, Inc.
PO Box 127
Bark River MI 49807

Dear Valued Customer,

Tradebe Environmental Services wishes to inform you that the waste stream profile(s) below has been approved for shipment into TRADEBE TREATMENT AND RECYCLING, LLC located in East Chicago, IN, Millington, TN, and Milwaukee, WI.

Profile Number:	1000161621
Profile Name:	abandoned containters
Generator Name:	MI Dept of Environmental Quality 42634 Highway M-26, Hubbell, MI 49934
DOT Description:	NA3077 HAZARDOUS WASTE, SOLIDS, N.O.S. (lead sludge) 9 III
Waste Codes:	D008
EPA Management Code:	H141
Process Code:	SM

Special Requirements:

Terms:

In accordance with 40 CFR 264.12(b) "Required Notice" and the Stato's equivalent regulation, Tradebe Environmental Services, LLC is informing the Generator, Tradebe's designated Facilities have the appropriate permit(s) for the approved listed waste stream profile and will accept the waste stream as described by the Generator/Broker, including but not limited to the Generator's Waste Stream Profile Sheet that was completed in accordance with 40 CFR 262.11 "Hazardous Waste Determination" and/or their State's regulatory equivalent. If at any time the waste is found to contain constituents, properties, or concentrations inconsistent with the information supplied by the Generator/Broker, title to such waste shall not pass to Tradebe Environmental Services, LLC and in addition to a Rejection of the non-conforming waste, you shall be liable for all direct, indirect, and consequential damages incurred by Tradebe Environmental Services, LLC. Tradebe Environmental Services, LLC reserves the right, in its sole discretion, te utilize processes within RCRA environmental standards alternate to the process code stated above to process the waste listed on this approval letter.

To facilitate the expedited receipt and processing of the above waste, Tradebe Environmental Services, LLC requires that the above listed Waste Stream Number appear on each shipping document (Block 14 on the Uniform Hazardous Waste Manifest, Block 13 on the Nonhazardous Waste Manifest, or Description of Articles on a Bill of Lading).

Please contact our Customer Service Department at (800) 388-7242 to schedule or if you have any questions or comments regarding your waste stream.

Thank you for the opportunity to serve your environmental needs.

Kirk McCracken

Kirk McCracken, Approvals Manager

Non-Hazardous WAM Approval

Requested Management Facility: K&W Landfill

Profile Number: 120806MI Waste Approval Expiration Date: 07/26/2018

APPROVAL DETAILS

Approval Decision: ☑ Approved ☐ Not Approved Profile Renewal: ☐ Yes ☑ No

Management Method: Direct Landfill

Generator Name: Michigan Dept of Environmental Quality

Material Name: Non-Hazardous Waste.

Management Facility Precautions, Special Handling Procedures or Limitation on approval:

Generator Conditions

- Shipment must be scheduled into the disposal facility at least 24 hours in advance. Contact information will be provided by your TSR.
- The waste profile number must appear on the shipping papers.

WM Authorization Name: Ben Dahlby Title: Waste Approval Manager

WM Authorization Signature: Ben Dahlby Date: 07/26/2017

Agency Authorization (if Required): _____ Date: _____

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: MIK193755056
2. Page 1 of: 1
3. Emergency Response Phone: 800-633-8253
4. Manifest Tracking Number: 016948331 JJK

GENERATOR

5. Generator's Name and Mailing Address
MI Dept. of Environmental Quality
55195 US 41, Calumet, MI 49913
Generator's Phone: 906-337-0389

Generator's Site Address (if different than mailing address)
52634 Hwy. M-26
Hubbell, MI 49934

6. Transporter 1 Company Name: U. P. Environmental Services, Inc.
U.S. EPA ID Number: MID985635846

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
TRADEBE Treatment and Recycling of WI, LLC
5611 W. Hemlock St., Milwaukee, WI 53223
Facility's Phone: 414-760-9175
U.S. EPA ID Number: WID988580056

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
	1. UN 3077, Hazardous Waste, Solid, n.o.s., 9, PG III	4	DM	1	Y	D008		
	2.							
	3.							
	4.							

14. Special Handling Instructions and Additional Information
Approval #: 1000161621 ERG - # 171

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Amy Kerantz MDEQ
Signature: [signature]
Month: 8 Day: 11 Year: 17

INTL

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Neil Larson
Signature: [signature]
Month: 8 Day: 11 Year: 17

Transporter 2 Printed/Typed Name
Signature
Month Day Year

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:

18c. Signature of Alternate Facility (or Generator)
Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H141			

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name: Denise Michalski
Signature: [signature]
Month: 8 Day: 21 Year: 17

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO GENERATOR

Tradebe Environmental Services
Land Disposal Restriction Notification Form

The waste described on waste stream profile 1000161621 is not regulated under RCRA 40 CFR.

x The waste described on waste stream profile 1000161621 does not meet the applicable treatment standards in 40 CFR 268 Subpart D.

TREATABILITY GROUP

This is a wastewater stream. x This is a non-wastewater stream.

CODE	SUBCATEGORY/CONSTITUENTS	CODE	SUBCATEGORY/CONSTITUENTS	CODE	SUBCATEGORY/CONSTITUENTS
D001	Ignitable Wastes (TOC>10%)	D010*	Selenium	D025*	p-Cresol
D001*	Ignitable Wastes (TOC<10%) Managed in Non-CWA or equivalent/Non-Class 1 SDWA System			D026*	Cresol (Total)
D001*	Ignitable Wastes (TOC<10%) Managed in CWA or equivalent/Class 1 SDWA System			D027*	p-Dichlorobenzene
D002*	Corrosive Wastes Managed in Non-CWA or Equivalent/Non-Class 1 SDWA System			D028*	1,2-Dichloroethane
D002*	Corrosive Wastes Managed in CWA or Equivalent/Class 1 SDWA System			D029*	1,1-Dichloroethylene
D003	Reactive sulfides based on 261.23(a)(5)	D011*	Silver	D030*	2,4-Dinitrotoluene
D003*	Other Reactive based on 261.23(a)(1)	D012*	Endrin	D031*	Heptachlor
D003*	Water Reactive based on 261.23(a)(2),(3),(4)	D013*	Lindane	D032*	Hexachlorobenzene
D003	Reactive Cyanides based on 261.23(a)(5)	D014*	Methoxychlor	D033*	Hexachlorobutadiene
D004*	Arsenic	D015*	Toxaphone	D034*	Hexachloroethane
D005*	Barium	D016*	2,4-D	D035*	Methyl ethyl ketone
D006*	Cadmium	D017*	2,4,5-TP (Silvex)	D036*	Nitrobenzene
D006*	Cadmium Containing Batteries	D018*	Benzene	D037*	Pentachlorophenol
D007*	Chromium	D019*	Carbon Tetrachloride	D038*	Pyridine
x D008*	Lead	D020*	Chlordane	D039*	Tetrachloroethylene
D008*	Lead Acid Batteries	D021*	Chlorobenzene	D040*	Trichloroethylene
D009*	High Mercury-Organic>260ppm Hg	D022*	Chloroform	D041*	2,4,5-Trichlorophenol
D009*	High Mercury-Inorganic<260ppm Hg	D023*	o-Cresol	D042*	2,4,6-Trichlorophenol
D009*	Low Mercury <260ppm	D024*	m-Cresol	D043*	Vinyl chloride
D009*	Mercury Wastewater				

If the waste identified by an asterisk(*) contain any Underlying Hazardous Constituents (see APPENDIX I) per 268.7(a)(1)

F001 - F005 LISTED WASTE

CODE	CONSTITUENTS	CODE	CONSTITUENTS
F001	Carbon tetrachloride	F002	Tetrachloroethylene
F001	Chlorinated Flurocarbons	F002	1,1,1-Trichloroethane
F001	Methylene chloride	F002	Trichloroethylene
F001	Tetrachloroethylene	F002	1,1,2-Trichloro-1,2,2-trifluoroethane
F001	1,1,1-Trichloroethane	F002	Trichlorofluoromethane
F001	Trichloroethylene	F003	Acetone
F002	Chlorobenzene	F003	n-Butyl alcobol
F002	o-Dichlorobenzene	F003	Cyclohexenone
F002	Methylene chloride	F003	Ethyl acetate
F002	1,1,2-Trichloroethane	F003	Ethylbenzene

CODE	CONSTITUENTS	CODE	CONSTITUENTS
F003	Ethyl ether	F004	Nitrobenzene
F003	Methanol	F005	Benzene
F003	Methyl isobutyl ketone	F005	Carbon disulfide
F003	Xylenes	F005	2-Ethoxyethanol Only
F003	Contains any combination of following:Carbon Disulfide,Cyclohexanone and Methanol (F003/F005 ONLY)	F005	Isobutanol
F004	O-Cresol	F005	Methyl ethyl ketone
F004	M-Cresol	F005	2-Nitropropane Only
F004	P-Cresol	F005	Pyridine
F004	Cresol Mixed Isomers(Cresylic acid)	F005	Toluene
		F005	Contains any combination of following:Carbon Disulfide,Cyclohexanone and Methanol(F003/F005 ONLY)

CODE	SUBCATEGORY/CONSTITUENTS
F025	Light Ends
F025	Spent filters/aids and dessicants
K006	Anhydrous
K006	Hydrated
K069	Low Lead
K069	High Lead
K071	Non wastewaters that are residues from RMERC
K071	Non wastewaters not residues from RMERC
K071	All K071 wastewaters
K106	Non wastewaters that contain > 260ppm Hg
K106	Non wastewaters that contain < 260ppm Hg from RMERC
K106	Other non wastewaters that contain <260ppm Hg
K106	All K106 wastewaters
K175	Non wastewaters
K175	All K175 wastewaters
P047	4,6 dinitro-o-cresol

CODE	SUBCATEGORY/CONSTITUENTS
P047	4,6-dinitro-o-cresol salts
P065	Non Wastewater, not incinerator or RMERC residue
P065	Non Wastewaters from RMERC<260ppm Hg
P065	Non wastewater incinerator residue <260ppm
P065	All P065 wasteweters
P065	Non wastewaters from incinerator or RMERC residue w/ >260ppm Hg
P092	Non Wastewater, not incinerator or RMERC residue
P092	Non Wastewaters from RMERC <260ppm Hg
P092	Non wastewater incinerator residue <260ppm
P092	All P092 wastewaters
P092	Non wastewaters incinerator or RMERC residues >260ppm Hg
U151	Non wastewaters >260ppm total Hg
U151	Non wastewaters from RMERC residues w/ <260ppm Hg
U151	Non wastewaters from not RMERC residues w/ <260ppm Hg
U151	All U151 (mercury) wastewaters
U240	2,4-D
U240	2,4-D salts and esters

OTHER WASTE CODES For all other waste codes please use continuation page

CERTIFICATION

certify under penalty of law that I am familiar with this waste and all information is true and accurate and in compliance with the standards specified in 40CFR Part 268 SubpartD and all applicable prohibitions set forth in 40 CFR 268.32 or RCRA Section 3004(d).

Name Printed : Amy Keranen, MDEQ

Title : Project mgr MDEQ

Authorized Signature: Amy Keranen

Date : 8-11-17

TRADEBE ENVIRONMENTAL SERVICES LDR CONTINUATION

Waste Stream Profile 1000161621

ALL OTHER WASTE CODES

CODE **SUBCATEGORY/CONSTITUENTS**

TRADEBE

APPENDIX I - LDR - UNIVERSAL TREATMENT STANDARDS: REGULATED CONSTITUENTS D001,D002,D012-D043

CHEMICALS THAT ARE PRESENT IN AMOUNTS GREATER THAN TREATMENT STANDARDS IN WASTE STREAM PROFILE 1000161621

APPENDIX II

EPCRA and Homeland Security Chemicals of Interest Declaration

Waste Stream Profile 1000161621

Constituents	Min	Max	UoM	EPCRA 313	DHS

NON-HAZARDOUS MANIFEST

WASTE MANAGEMENT

NON-HAZARDOUS MANIFEST	1. Generator's US EPA ID No.	Manifest Doc No.	2. Page 1 of
	M I K 1 9 3 7 5 5 0 6 6	1 7 0 7 0 0 6	1

3. Generator's Mailing Address:
MICHIGAN DEPT OF ENVIRONMENTAL QUALITY
55195 US-41
CALUMET, MI 49913

4. Generator's Phone 906-337-0389

Generator's Site Address (If different than mailing):
52430 HWY M-26 (DUNCAN AVE)
HUBBELL, MI 49934

A. Manifest Number WMNA: 0811171

B. State Generator's ID:

5. Transporter 1 Company Name: UP ENVIRONMENTAL SERVICES, INC.	6. US EPA ID Number	C. State Transporter's ID D. Transporter's Phone 906-466-9900
7. Transporter 2 Company Name	8. US EPA ID Number	E. State Transporter's ID F. Transporter's Phone
9. Designated Facility Name and Site Address: K&W Landfill, 11877 State Highway M38, Ontonagon, MI 49953	10. US EPA ID Number	G. State Facility ID H. State Facility Phone 906-883-3504

GENERATOR

11. Description of Waste Materials	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt./Vol.	I. Misc. Comments
a. Non-Hazardous Waste WM Profile # 120806MI	4	DM	1	Y	1.92 Tons
b. WM Profile #					
c. WM Profile #					
d. WM Profile #					

J. Additional Descriptions for Materials Listed Above

BILL TO:

K. Disposal Location
Cell | Level
Grid

15. Special Handling Instructions and Additional Information

Purchase Order #

EMERGENCY CONTACT / PHONE NO.: Amy Keranen 906-337-0389

16. GENERATOR'S CERTIFICATE:
I hereby certify that the above-described materials are not hazardous wastes as defined by CFR Part 261 or any applicable state law, have been fully and accurately described, classified and packaged and are in proper condition for transportation according to applicable regulations.

Printed Name	Signature "On behalf of"	Month	Day	Year
Amy Keranen, MDEQ	Amy Keranen, MDEQ	8	11	17

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed Name	Signature	Month	Day	Year
Neil Larson	Neil Larson	8	11	17

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed Name	Signature	Month	Day	Year

FACILITY

19. Certificate of Final Treatment/Disposal
I certify, on behalf of the above listed treatment facility, that to the best of my knowledge, the above-described waste was managed in compliance with all applicable laws, regulations, permits and licenses on the dates listed above.

20. Facility Owner or Operator: Certification of receipt of non-hazardous materials covered by this manifest.

Printed Name	Signature	Month	Day	Year
Linda Thoreson Operations Specialist	Linda Thoreson	8	11	17

White- TREATMENT, STORAGE, DISPOSAL FACILITY COPY
Blue- GENERATOR #2 COPY
Yellow- GENERATOR #1 COPY
Pink- FACILITY USE ONLY
Gold- TRANSPORTER #1 COPY

JULIO MARINE & SALVAGE CO.

1116 Royce Road (Ripley) Hancock, MI 49930
Ph: 906/482-1380 and 482-2650

Name U.P Environmental

Date 7-12-17

2 drums

LBS	MATERIAL	AMOUNT
	Disposal of Pickup Load Scrap Steel	
	GROSS	
	TARE	
	NET Mark R Johnson	
	47 TOTAL	

Thank You!

GREENLEE PRINTING - CALUMET, MI 49913 25651-AO B-2

APPENDIX H

Photographic Log

Photo 1: View from shoreline of drum location, prior to excavation activities. Photo taken July 10, 2017.

Photo 2: View from shoreline of partially exposed drum, prior to excavation activities. Photo taken July 10, 2017.

Photo 3: View looking southwest to excavation area with boom in place. Photo taken July 10, 2017.

Photo 4: View of submerged Container #1 (DM-04) being removed from shoreline during excavation. Photo taken July 10, 2017.

Photo 5: View looking southwest during drum excavation (Container #4). Photo taken July 11, 2017.

Photo 6: View of drum (Container #6) removed from shoreline area. Photo taken July 11, 2017.

Photo 7: Green, copper material observed in test pit near Container #4 excavation site.
Photo taken July 11, 2017.

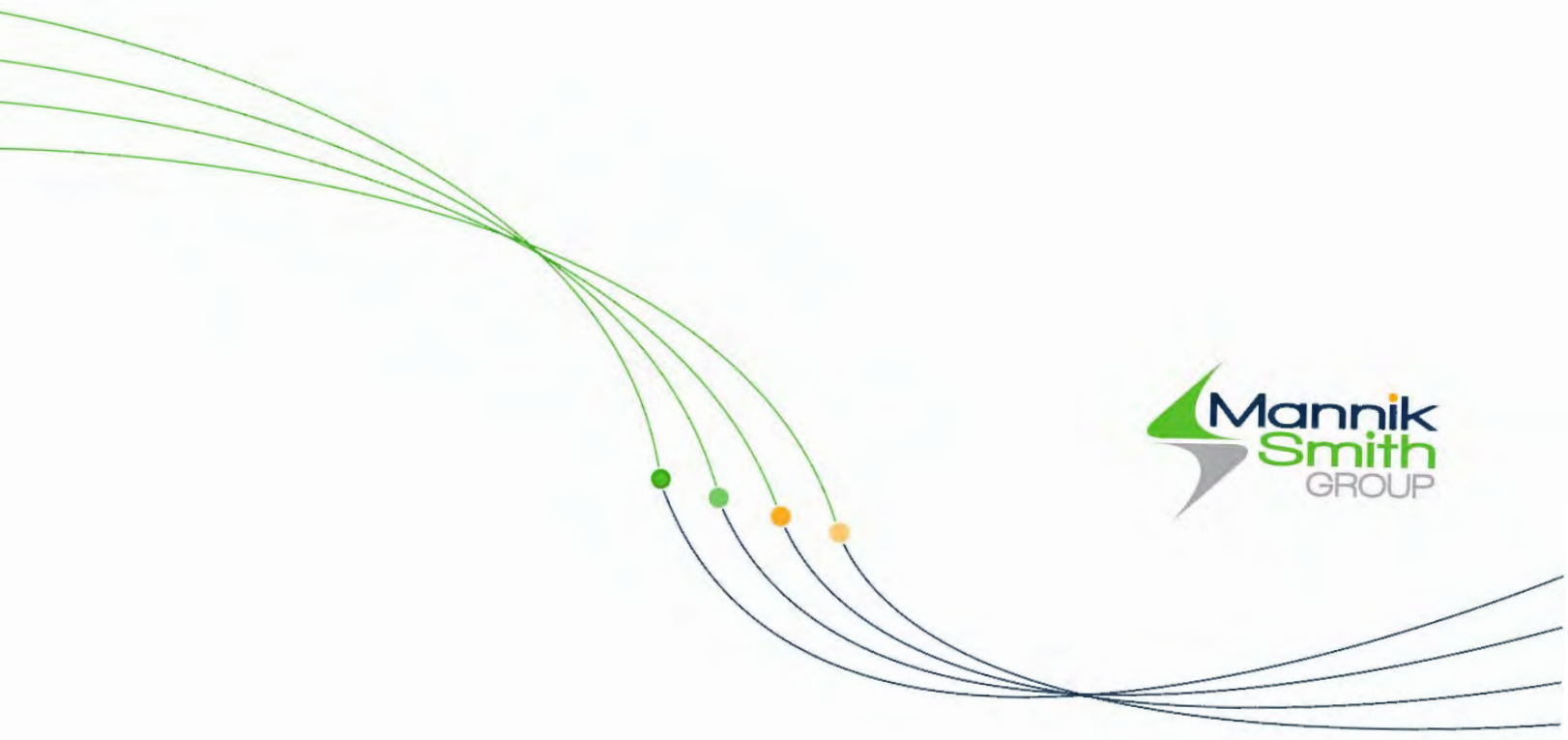
Photo 8: View of white sludge material mixed with sediment, excavated from shoreline as part of Container #10.
Photo taken July 11, 2017.

Photo 9: Container #5 with metal scrap removed from shoreline, staged for transport and disposal.
Photo taken July 11, 2017.

Photo 10: View of partial drum and hardened contents removed from shoreline during excavation.
Photo taken on July 11, 2017.

Photo 11: View looking southeast at backfilled excavation site, prior to complete restoration.
Photo taken on July 11, 2017.

Photo 12: View looking southwest at completed site restoration.
Photo taken on July 11, 2017.


Mannik
Smith
GROUP