

FINAL

**LAKE LINDEN
CALUMET AND HECLA POWER PLANT SITE**

**POST-CONSTRUCTION REPORT
BUILDING DEMOLITION AND SOIL REMOVAL**

Prepared for:

Honeywell Specialty Materials, LLC

Prepared by:

**Amec Environment & Infrastructure
Novi, Michigan**

August 2015

Project 3293121489



August 18, 2015

Mr. Andrew Maguire
On-scene Coordinator
Region V Emergency Response Branch
United States Environmental Protection Agency
77 W. Jackson (SE-5J)
Chicago, Illinois 60604

Subject: Order On Consent For Removal Action – V-W-12-C-001
Final Post-Construction Report
Former Calumet and Hecla Power Plant Site

Dear Mr. Maguire:

On behalf of Honeywell International Inc., Amec Foster Wheeler Environment and Infrastructure, Inc., is pleased to submit three electronic copies of the final Post-Construction Report for the Former Calumet and Hecla Power Plant Site for your review. The work was completed under the Administration Settlement and Order On Consent For Removal Action signed May 18, 2012 docket No. V-W-12-C-001.

If you have any questions please do not hesitate to call Michael McGowan at 248-313-3665.

Sincerely,

Amec Foster Wheeler Environment and Infrastructure, Inc.

A handwritten signature in blue ink, appearing to read "Michael J. McGowan".

Michael J. McGowan
Project Manager

A handwritten signature in blue ink, appearing to read "Garret E. Bondy".

Garret E. Bondy
Quality Assurance Officer

MJM/sko

Enclosures: Final Post-Construction Report

cc: Chuck Geadelmann (Honeywell)

FINAL

**POST-CONSTRUCTION REPORT
BUILDING DEMOLITION AND SOIL REMOVAL**

**LAKE LINDEN – CALUMET AND HECLA POWER PLANT SITE
TORCH LAKE TOWNSHIP, MICHIGAN
HONEYWELL SITE ID 37156**

Prepared for:
HONEYWELL SPECIALTY MATERIALS, LLC

Prepared by:
**AMEC ENVIRONMENT & INFRASTRUCTURE, INC.
46850 Magellan Drive, Suite 190
Novi, Michigan 48377**

Under penalty of law, I certify that to the best of my knowledge, after appropriate inquiries of all relevant persons involved in the preparation of the report, the information submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature, title and P.E. number

P.E. stamp

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LIST OF ACRONYMS

ABS:	Activity Based Sampling
ACM:	Asbestos Containing Material
ACWM:	Asbestos Containing Waste Material
Amec:	Amec Environment & Infrastructure, Inc.
AOC:	Administrative Settlement and Order on Consent
bgs:	Below Grade Surface
C&H:	Calumet and Hecla
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
cyd:	Cubic Yard
DO :	Dissolved Oxygen
EBCS :	EnviroBlend CS
EMS :	Environmental Management Specialists, Inc.
EQ :	EQ – The Environnemental Quality Company
f/cc:	Fibers per Cubic Centimeter
GAC:	Granular Activated Carbon
GPS:	Global Positioning System
Honeywell:	Honeywell Specialty Materials, LLC.
MDEQ:	Michigan Department of Environmental Quality
MDOT:	Michigan Department of Transportation
MOA:	Memorandum of Agreement
NESHAP:	National Emission Standards for Hazardous Air Pollutants
ng/L:	Nanograms per Liter
NPDES:	National Pollution Discharge Elimination System
NRDCC:	Non-Residential Direct Contact Criteria
PEL:	Permissible Exposure Limit
PCB:	Polychlorinated Biphenyl
PCM:	Phase Contrast Microscopy
Poly:	6-mil polyethylene sheeting
POTW:	Publically Owned Treatment Works
PPE:	Personal Protective Equipment
ppm:	Parts per Million
ProAct:	ProAct Services, Corp.
%	Percent
SESC:	Soil Erosion and Sedimentation Control

SHPO: State Historic Preservation Office
Site: Former Calumet and Hecla Power Plant Site
START: Superfund Technical Assessment and Response Team
SVOC: Semi-Volatile Organic Compound

TCLP: Toxicity Characteristic and Leaching Procedures
TestAmerica: TestAmerica Laboratories, Inc.
Tetra Tech: Tetra Tech, Inc.
TSCA: Toxic Substances Control Act

ug/L: Micrograms per Liter
USEPA: United States Environmental Protection Agency

VOC: Volatile Organic Compound

Zeolite: Zeolite® HS-200 Organoclay

1.0 INTRODUCTION

This Post-Construction Report was prepared by AMEC Environment & Infrastructure, Inc. (Amec) on behalf of Honeywell Specialty Materials, LLC (Honeywell) to document construction activities associated with the remedial action completed at the historic Calumet and Hecla (C&H) Power Plant Site (Site) located at 5371 Highway M-26 in Torch Lake Township, Houghton County, Michigan (Figure 1.1).

The Site occupies approximately 14 acres along the western shoreline of Torch Lake and is located south of the Village of Lake Linden at 5371 Highway M-26 in Torch Lake Township, Houghton County, Michigan (Latitude: 47.1940924 Longitude: -88.4073392) (Figure 1.1). The Site is bounded to the east by Torch Lake; to the north by the Houghton County Historical Society Museum, a public park and marina; to the south by residential properties; and to the west by Highway M-26 followed by residential properties and a grocery store. As of 2012, Torch Lake Township had a population of 1,194.

The Site met the criteria for a time-critical removal action per the May 2012 Enforcement Action Memorandum prepared by the USEPA. The removal action addressed, mitigated, or eliminated:

- Any actual or potential exposure to contaminants by nearby human populations, animals, or the food chain that would have arisen from unauthorized access to the Site or from the activities of the former property owner;
- Any potential threat of release from deteriorating drums and other debris in the flooded Power Plant basement;
- The presence or migration of high levels of contaminants in surficial soils in the vicinity of Torch Lake;
- A moderate threat of fire or explosion due to unrestricted Site access and potential trespassing;
- Physical hazards, such as the dilapidated state of the Power Plant building.

The tasks completed address the activities required in Section VIII “Work to Be Performed” of the Administrative Settlement Agreement and Order on Consent (AOC) between Honeywell and the United States Environmental Protection Agency (USEPA) dated April 13, 2012. Remedial construction activities were initiated on October 9, 2012 and were completed on November 10, 2014.

2.0 SITE CONDITIONS AND BACKGROUND

The Site is the location of a former industrial complex that crushed or “stamped” rock from nearby copper mines. Stamping operations began in 1868 and continued until an employee strike terminated plant operations in 1968. Since then, the Site has been under private ownership and is currently owned by MENINC, Inc.

2.1 INITIAL SITE CONDITIONS

The Site historically housed a number of buildings related to C&H’s operations including a Boiler House, Still House, Filter House, Stamp Mill, and Power Plant. Prior to remedial activities, all buildings on the property (excluding the Power Plant building) had been demolished; however, remnants (i.e., significant foundation components) of those buildings remained (Figure 2.1). A modular home occupied by the property owner was located near the southwest corner of the Site and was serviced by electrical, water, and natural gas utilities. These services were disconnected and the property owner vacated the modular home in response to Site activities.

2.2 LOCATIONS OF HAZARDOUS SUBSTANCES

Previous investigations completed by the USEPA and the Michigan Department of Environmental Quality (MDEQ) identified elevated concentrations of antimony, arsenic, copper, iron, and lead in Site surface soils, as well as asbestos containing materials (ACMs) and miscellaneous debris scattered across the Site. Various debris (drums, metal piping, concrete, wooden timbers, etc.) was also identified in the flooded basement of the Power Plant building. Previous investigations completed by the USEPA and MDEQ also identified select metals, volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) and polychlorinated biphenyls (PCBs) in the flooded Power Plant basement water.

In 2012, a 100-foot (ft) by 100-ft surveyed grid was established across the Site to assist in delineating the extent of contamination. Soil investigations completed by Amec in 2012, 2013, and 2014 identified 25 cells or portions of cells that exceeded one or more of the following criteria:

- State of Michigan Part 201/213 Non-Residential Direct Contact Cleanup Criteria (NRDCC) for arsenic and/or lead in the 0-0.5 foot and/or 0.5-2 foot range (Figure 2.2);
- 1 percent (%) asbestos concentration in the 0-0.5 foot and/or 0.5-2 foot range (Figure 2.3);
- The Site-specific Commercial Worker asbestos remediation goal of 0.00842 fibers per cubic centimeter (f/cc) (Figure 2.4).

A detailed description of the sampling, including analytical results, can be found in the approved Final Lake Linden Calumet and Hecla Power Plant Site Work Plan dated July 2014 (2014 Work Plan).

2.3 CAUSE OF CONTAMINATION

Contaminants, including ACMs, found in Site soils and the standing water in the Power Plant basement were the result of historic metal ore processing operations and the presence of ACMs in onsite buildings.

2.4 ORGANIZATION OF RESPONSE

Remediation was accomplished by addressing the following items:

- Securing the site and providing warning signage, removal of visible ACM;
- Abatement and demolition of the former Power Plant building;
- Removal and treatment of contaminated water in the Power Plant basement; removal of contaminated debris from the Power Plant basement;
- Removal of Site soils with contaminants exceeding NRDCC;
- Removal of Site soils exceeding the Site-specific Commercial Worker asbestos remediation goal of 0.00842 f/cc;
- Cover of Site soils exceeding 1% asbestos concentration with two feet of imported clean fill;
- Cleaning of onsite concrete foundations.

The main project team, including roles, consisted of the companies listed in Table 2.1.

3.0 CHRONOLOGICAL NARRATIVE OF RESPONSE ACTIONS

This response was conducted under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Sections 104, 106(a), 107 and 122. Preliminary remedial activities began on October 23, 2011, prior to the signing of the AOC. Table 3.1 presents a chronological summary of major events related to the soil remediation, building demolition, basement dewatering and cleaning, and foundation cleaning activities at the Site. Construction activities are described in detail in Section 3.1.

3.1 THREAT ABATEMENT ACTIONS TAKEN

This section presents a summary of the construction activities and methodology used to address Site hazards. Figure 3.1 shows all areas where Site soils were remediated (See Sections 3.1.8 through 3.1.10). A photographic log of the activities described in this section is included as Appendix A. During construction activities, Amec provided regular progress reports to the USEPA. Copies of these communications are included in Appendix B.

3.1.1 Preliminary Activities

Under approval from the USEPA, Honeywell completed several preliminary activities at the Site prior to signing the AOC. Preliminary activities began in October 2011 and included ambient air monitoring, a Site survey, perimeter fence installation, exterior ground surface visual asbestos assessment and abatement by hand, and Power Plant basement water sampling. The completed preliminary Site activities, including laboratory analytical results, are presented in the approved Final Lake Linden Calumet and Hecla Power Plant Site Work Plan dated April 2012 (2012 Work Plan).

3.1.2 Support Zone Construction

In October and November 2012, a Support Zone was constructed in the northwest corner of the Site per the 2012 Work Plan. The initial Support Zone design was approximately one acre; however, it was extended approximately 100 feet to create a sufficient roadway for trucks. Details regarding the construction of the Support Zone are presented in the approved Final Lake Linden Calumet and Hecla Power Plant Site Work Plan dated July 2014 (2014 Work Plan).

3.1.3 Interior Power Plant Asbestos Abatement and Decontamination

In October and November 2012, asbestos in the interior of the Power Plant building was abated and the above grade structural elements decontaminated according to the procedures described in the 2012 Work Plan. Completed abatement and decontamination activities are described in the 2014 Work Plan.

3.1.4 Power Plant Demolition

The Power Plant building was demolished in August 2013 per the 2012 Work Plan. Demolition proceeded downward to the concrete floors. Materials were sorted and loaded for disposal offsite. See the approved 2014 Work Plan for further details regarding demolition activities. A copy of the demolition permit is included in Appendix C.

3.1.5 Power Plant Basement Dewatering

A National Pollution Discharge Elimination System (NPDES) permit was not required for this Site; however, the water in the Power Plant basement was removed, treated on-site and initially discharged to Torch Lake in accordance with the substantive requirements of NPDES permit guidelines. Amec contracted ProAct Services Corporation (ProAct) to design a temporary onsite treatment system to remove and treat the contaminated water in the Power Plant basement. The treatment system was commissioned on June 18, 2014. The first 20,000 gallons of treated water was collected in a frac tank and held pending effluent analytical results. Water was pumped from the basement, into an open top weir tank, through two five-micron bag filters, four sand pods, a vessel containing 6,000 pounds of Zeolite® HS-200 organoclay (Zeolite) (Vessel 1), a second vessel containing 6,000 pounds of granular activated carbon (GAC) (Vessel 2), a third vessel containing 6,000 pounds of Zeolite (Vessel 3), two one-micron bag filters, and then discharged.

Amec collected weekly system performance samples via sample ports located at three stages of the treatment system: after the weir tank (influent), after Vessel 2 (mid-stage) and after the last set of bag filters (effluent). Each sample was analyzed for the following parameters according to the MDEQ Water Resources Division:

- Carbon disulfide
- Bis (2-ethylhexyl) phthalate
- Fluoranthene
- Pyrene
- Arsenic
- Barium
- Cadmium
- Chromium
- Copper
- Lead
- Mercury
- Selenium
- Silver
- Zinc
- Aroclor 1254
- Aroclor 1260
- Total suspended solids
- Dissolved oxygen (DO)

Low-level mercury samples were collected using USEPA Method 1669. DO was measured onsite using a Hach® colorimeter due to its short hold-time; the remaining analyses were completed by TestAmerica Laboratories (TestAmerica) in North Canton, Ohio.

Amec received sample results indicating initial effluent levels were below discharge criteria on June 26, 2014 and ProAct began pumping from the basement and directly discharging the treated water at a rate of approximately 100 gallons per minute (gpm). See Table 3.2 for daily discharge volumes. The original intent was to discharge the effluent water directly to Torch Lake via a series of pipes; however, in order to achieve the minimum required DO level, the discharge point was relocated and the treated water was discharged to Torch Lake via a concrete channel along the western Site boundary. To sufficiently oxygenate the water, the discharge line was configured so the water contacted a splash plate prior to entering the channel. Refer to Table 3.3 for a summary of analytical results. Laboratory analytical data are included in Appendix D.

The second set of system samples was collected on June 30, 2014. The system operated until close of business July 2, 2014 when the Site was shut down for the Fourth of July weekend. System operations were resumed on July 8, 2014. On July 9, Amec received analytical results indicating an effluent zinc concentration of 350 micrograms per liter (ug/L), exceeding the 340

ug/L discharge limit. The water treatment system was immediately shut down and the USEPA and MDEQ were notified.

In response to elevated zinc levels in the effluent, an additional 12,000 pounds of Zeolite was added to Vessel 3. This additional Zeolite allowed for increased contact time with the media, thereby increasing the removal of zinc from the water. Additionally, Amec obtained a Hach® DR-890 test kit to monitor daily effluent zinc concentrations. With USEPA approval, ProAct resumed discharging water into the concrete channel on July 14, 2014; however, at a lower flow rate (approximately 70 gpm) to increase contact time with the media. The effluent zinc concentration was below the detection limit at this time per the Hach® kit. Amec continued daily monitoring of effluent zinc concentrations and began requesting 24-hour turnaround for laboratory analysis of effluent metals (excluding low-level mercury, due to its different method of analysis). Zinc concentrations remained below the discharge limit for the remainder of system operations. Daily Hach® zinc readings are presented in Table 3.4.

Amec collected the seventh set of treatment system samples on August 20, 2014 and the eighth set of treatment system samples on August 27, 2014. All Site activities, including the treatment system, were shut down on August 29, 2014 for Labor Day weekend. On August 31, 2014, Amec received results of the August 20 sample indicating an effluent mercury concentration of 1.4 nanograms per liter (ng/L), exceeding the 1.3 ng/L discharge limit. The system was not operating at the time the excursion was discovered. Amec requested rush analysis of the low-level mercury sample collected on August 27. Results of this sample also exceeded the discharge limit at 3.5 ng/L. The last sample indicating mercury levels below the discharge limit was collected on August 12, 2014. From August 12 to August 20, 2014, the system operated for seven days, discharging 214,010 gallons.

In response to the elevated mercury levels in the effluent, ProAct completed a change-out of the Zeolite. The spent Zeolite was extracted from Vessels 1 and 3 and staged in lined super sacks pending waste characterization analysis and offsite disposal. Vessel 1 was filled with 16,000 pounds of new Zeolite and Vessel 3, which originally contained only Zeolite, was filled with 6,000 pounds of new Zeolite and 6,000 pounds of fresh GAC (total of 12,000 lbs of media in Vessel 3). With USEPA approval, ProAct resumed direct discharge of treated water and Amec collected system samples on September 7, 2014. 24-hour turnaround for laboratory analysis of effluent metals and low-level mercury were requested. Results of the September 7 sample showed all effluent concentrations below discharge limits.

Amec collected the 10th set of system samples on September 17, 2014, requesting 24-hour turnaround for laboratory analysis of effluent metals, including low-level mercury. On September 19, 2014, Amec received results indicating elevated mercury levels of 5.2 ng/L. The system was not operating at the time the results were received. ProAct made adjustments to the system to allow for a lower flow rate to increase contact time with the media. On September 22, 2014, Amec collected the 11th set of system samples while the system was operating at approximately 50-60 gpm. Water was recirculated through the system at this time and no water was discharged. Amec again requested 24-hour turnaround for laboratory analysis of effluent metals, including low-level mercury. Results of this sample also exceeded the mercury discharge limit at 4.4 ng/L.

In response to the elevated mercury levels, discharge was suspended and Amec mobilized 14 frac tanks to the Site. The remaining basement water was treated and stored in these frac tanks. Amec received approval from the Portage Lake Water and Sewage Authority to dispose the treated water at the local publically owned treatment works (POTW) in Houghton, MI (See Appendix E). A representative effluent sample was collected for each frac tank. One sample was also analyzed for total nitrogen, total phosphorus, carbonaceous oxygen demand and biochemical oxygen demand at the request of the POTW. Upon receiving analytical results of each frac tank sample (Table 3.5), Amec contracted Terra Contracting, Inc. to transport water from the frac tanks to the POTW. Each load was transported under a uniform hazardous waste manifest. Copies of the manifests are included in Appendix F. A total of 240,342 gallons of water was disposed at the POTW. Basement dewatering activities were completed on October 3, 2014.

Upon completion of dewatering activities, Amec collected one composite sample consisting of media from Vessels 1, 2 and 3, and one composite sample containing media from each sand pod for waste characterization purposes (see Appendix D for laboratory analytical results). ProAct extracted the spent media and then staged it in lined super sacks pending waste approval. A non-hazardous waste profile was completed for the spent media, including the Zeolite previously extracted after the elevated mercury concentrations. A total of 40.28 tons of material, including spent bag filters, was disposed of as non-hazardous ACM at K&W Landfill. A copy of the waste profile can be found in Appendix E and a copy of the manifest in Appendix F.

Amec also collected a sediment sample from the bottom of the weir tank for waste characterization purposes. According to the Toxic Substances Control Act (TSCA), materials containing greater than 50 parts per million (ppm) PCBs are required to be specially handled as a TSCA remediation waste. Results of the sediment sample indicated 320 ppm PCBs (specifically Aroclor 1254); therefore, the weir tank and sediment in the weir tank were managed according to TSCA regulations (see Appendix D for laboratory analytical results). To solidify the saturated sediment for transportation purposes, a combination of cement and sawdust was blended into the sediment which was then transferred to lined super sacks using hand tools, then staged pending offsite disposal. Upon removal of the sediment, the walls and floors of each chamber of the weir tank were wiped with diesel fuel and then rinsed with soapy water. Rinse water was absorbed with sawdust and staged with the sediment pending offsite disposal. Per TSCA regulations, tools used to clean the weir tank were decontaminated using diesel fuel prior to being removed from the tank; spent PPE was disposed with the sediment.

A waste profile was obtained for the TSCA sediment and the staged super sacks were placed in a double lined roll-off and removed from the Site by EQ – The Environmental Quality Company (EQ) for disposal at Wayne Disposal, Inc. in Belleville, MI. A total of 6.82 tons of material was disposed as TSCA remediation waste from the weir tank. A copy of the waste profile can be found in Appendix E, a copy of the manifest in Appendix F, and a copy of the weigh ticket in Appendix G.

3.1.6 Power Plant Basement Cleaning

In July, 2014, once it was safe to enter the basement, Amec contracted Environmental Management Specialists (EMS) to enter the Power Plant basement using permit required confined space entry procedures to locate and sample any intact drums and identify any PCB

sources. Drums that contained only basement water (i.e. drums that had holes in them or were not sealed) were left in the basement to be disposed with the remaining basement debris. EMS located a total of 14 55-gallon drums, four of which were intact. One of the intact drums was labeled as “nonpareil turbine oil”; the other three were not labeled. The intact drums were over-packed and sampled for waste characterization purposes. Due to the unknown contents of the drums, sampling was performed in Level B PPE (full-face, supplied air respirator, Tyvek coveralls, hard hat, safety shoes, safety glasses, boot covers, and nitrile gloves). See Appendix D for analytical results. In November 2014, the four intact drums were removed from the Site by Chief Waste Treatment and disposed of at their Ripon, WI facility. See Appendix E for a copy of the Waste Profile and Appendix F for a copy of the manifest.

After the initial basement entry and assessment, the ground floor of the Power Plant building was demolished using an excavator with a hammer attachment and a ramp was created into the basement using demolition debris. Amec collected a composite sample of sediment from the basement floor for waste characterization purposes on July 30, 2014. Four additional sediment samples were collected and split with Tetra Tech, Inc. (Tetra Tech) (USEPA Superfund Technical Assessment and Response Team [START] Contractor) on August 14, 2014. Results of these samples indicated PCBs, specifically Aroclor 1254, below the TSCA criterion of 50 ppm. A waste profile was obtained to dispose of the basement debris as non-hazardous asbestos containing waste material (ACWM) at K&W Landfill. Laboratory analytical results are included in Appendix D and a copy of the waste profile is included in Appendix E. A total of 3,139 tons of basement debris was transported to K&W landfill between September 3 and October 2, 2014. See Appendix F for copies of the manifests and Appendix G for copies of the weigh tickets. See Section 3.1.11 for loading, transportation, and disposal methods.

The sediment in the main area of the basement floor was extremely saturated, hindering removal activities. With agreement from the USEPA, it was determined that only recoverable sediment and debris was required to be removed. “Recoverable” was defined as material that could be removed with a skid steer or excavator bucket. Recoverable sediment and debris from the main area of the basement was consolidated and removed using skid steers, a front end loader, and an excavator. The walls of the main basement area were washed using portable pressure washers. Recyclable structural materials were removed from the basement, decontaminated and then transported offsite by Schneider’s Trucking for disposal at Schneider’s Iron and Metal. Workers donned Level C PPE while working in the basement and personal and perimeter air monitoring was completed as discussed in Section 3.1.12.

Amec and Tetra Tech worked closely with the USEPA to obtain approval to backfill the main basement area in sections. As the basement was backfilled, water was displaced toward the northeast corner. Prior to backfilling this last section, sawdust was blended into the water/sediment in an attempt to remove as much sediment and debris as possible. Steel plates were used to cover openings in the basement foundation and prevent the fill material from being displaced. Clean fill material was imported from an approved offsite borrow source and compacted to a minimum of 90% of the maximum dry density. See Appendix H for copies of imported fill load tickets, and Appendix I for a copy of the compaction testing results. In order to allow for proper drainage, eight holes were broken in the basement floor using an excavator with a hammer attachment. All areas of the main basement were cleaned as of September 30, 2014 and backfill operations were completed on October 3, 2014. Equipment used to clean the

basement was decontaminated using a pressure washer and the rinse water was directed into the basement prior to completion of backfilling activities.

At the time of the initial basement entry, visibility and access were limited due to construction debris that had fallen through the holes in the ground level floor during building demolition. As demolition of the ground floor progressed, six capacitors were revealed in a previously inaccessible room located along the west side of the basement (see Figure 3.2). The capacitors were carefully removed from the basement and placed in over-pack drums. Amec contracted a representative from EQ to assess the capacitors. According to Mr. Mike Favor of EQ, three of the capacitors were intact with no signs of having released any fluid. The remaining three capacitors were found to have the insulators dislodged, exposing the internal components of the capacitors. Water and sediment were present inside these three capacitors, as well as a small amount of residual oil. Based on the presence of water and sediment in the units, it was determined that these capacitors were likely damaged prior to being placed in storage in the basement, and that this storage likely occurred prior to the basement becoming flooded when Site operations were discontinued in the 1960s. Amec presented these findings to the USEPA and it was agreed that any release of oil contained in the capacitors would likely have occurred prior to 1978; therefore, TSCA regulations were not applied to residual PCB concentrations less than 50 ppm.

On August 29, 2014, Amec and Tetra Tech split sediment samples collected from the room where the capacitors were located. No staining was observed, so samples were not biased. Two samples were collected near where the capacitors were discovered and three additional samples were collected along the remaining length of the room (see Figure 3.2). Results indicated the three samples nearest where the capacitors were located (Samples 3, 4, and 5) exceeded 50 ppm PCBs (specifically, Aroclor 1254). Laboratory analytical is presented in Appendix D. With approval from the USEPA, sediment and debris in the room where the capacitors were found beginning at the location of Sample 2 (which did not exceed 50 ppm PCBs) and extending to the north end of the room were treated as TSCA remediation waste (Figure 3.2).

To solidify the saturated sediment, an excavator bucket was used to blend a combination of cement and sawdust in the area of the basement where the capacitors were found. The majority of the solidified sediment was removed from the basement with the excavator bucket and placed in double lined roll-offs provided by EQ. The remaining sediment was removed using hand tools and a vacuum. The walls and floor were pressure washed to ensure all sediment was removed. This work was performed in Level C PPE and extreme care was taken to prevent cross-contamination between the area where the capacitors were found and the main basement area. Amec and Tetra Tech worked closely with the USEPA remotely via emails and photographs to obtain approval to backfill this area in sections using clean fill material obtained from an approved offsite borrow source. See Appendix D for backfill analytical results. Tools and equipment used to clean this area were either disposed with the TSCA debris or decontaminated using diesel fuel per TSCA regulations. Spent PPE was disposed in the lined roll-offs. Cleaning of this area of the basement was completed between September 30 and October 2, 2014.

A total of 10 roll-off boxes containing approximately 184 tons of sediment and debris from this area of the basement were removed from the Site by EQ for disposal at Wayne Disposal, Inc. in

Belleville, Michigan. A copy of the waste profile is included in Appendix E and copies of the manifests are included in Appendix F.

The capacitors were removed from the Site by EQ and transported to Veolia Environmental Services in Port Arthur, Texas for incineration. A copy of the waste profile is included in Appendix E; a copy of the manifest is included in Appendix F; a copy of the Certificate of Destruction is included in Appendix J.

3.1.7 Berm and Debris Pile Removal

As shown on Figure 2.1, six soil berms were present onsite prior to remedial activities. As part of the remedial activities, these berms, as well as other miscellaneous debris piles, were removed from the Site according to the 2012 Work Plan. Soil erosion and sedimentation controls (SESC) (i.e. silt fence) were installed and an SESC permit was obtained prior to berm and debris pile removal activities. See Appendix C for copies of the SESC permits.

In October and November 2012, Berms 1 – 4 and the majority of Berm 5 were removed. The southern portion of Berm 1, Berm 2, and the eastern portion of Berm 4 were removed to grade. The northern portion of Berm 1, Berm 3, and the western portion of Berm 4 were removed for construction of the Support Zone and were excavated two feet below grade surface (bgs) as described in the 2014 Work Plan. Where necessary, remaining excavations beneath the former berm locations were completed in 2014 (see Section 3.1.8). Berm 6 and the remainder of Berm 5 were removed to grade in August and September 2014. Approximately half of Berm 6 consisted of large mine rock. Based on agreement between Amec, Tetra Tech and USEPA, the large mine rock was left onsite and only the soil was removed. The mine rock was placed to create a somewhat level surface. Although the soil beneath Berm 6 did not require remediation, approximately 6 inches of top soil was placed and the area was seeded to prevent erosion of the disturbed ground. See Section 3.1.13 for details regarding Site restoration. Any trees that hindered berm removal activities were cleared, staged, and left onsite. Large pieces of granite and concrete were pressure washed, stockpiled, and left onsite. All personnel in the exclusion zone, including equipment operators, donned Level C PPE. Equipment used for berm and debris removal was decontaminated using a pressure washer. Rinse water was collected and transferred to the Power Plant basement for treatment by the onsite water treatment system. Spent PPE was disposed with the soil and debris at K&W Landfill.

For disposal purposes, soil berms and debris piles were assumed to contain ACM and were therefore managed (excavated and disposed) as ACWM. Copies of the waste profile, manifests and weigh tickets are included in Appendices E, F, and G, respectively. See Section 3.1.11 for loading, transportation, and disposal procedures.

3.1.8 Soil Excavation

In August and September 2014, Site soils with target metals exceeding NRDCC and soils exceeding the Site-specific Commercial Worker asbestos remediation goal based on activity based sampling (ABS) were excavated to a maximum depth of two feet bgs per the 2014 Work Plan. Prior to soil disturbing activities, existing silt fence was repaired, new silt fence was installed, and a new SESC permit was obtained (see Appendix C).

Site soils were excavated to a depth of either six inches or two feet as shown on Figure 3.3. An excavator with global positioning system (GPS) capabilities tied to an onsite base station was used to remove the contaminated soil. Prior to excavation activities, GPS coordinates of existing grades were collected. This GPS data was used to ensure soil was excavated to the appropriate depth. As an additional measure, Amec routinely verified excavation depths by hand. Excavated soils were stockpiled adjacent to the southern edge of the Support Zone pending offsite disposal. See Section 3.1.11 for loading, transportation, and disposal procedures. Copies of the waste profile, manifests and weigh tickets are included in Appendices E, F, and G, respectively.

Soils below the excavations were left in place and covered with Mirafi® 140NL orange demarcation fabric and covered with clean fill to previous grade. See Appendix K for a copy of the demarcation fabric specification sheet. Site soils that were excavated to two feet were replaced with 18 inches of clean fill and 6 inches of topsoil, both obtained from an approved offsite borrow source, and then seeded. Site soils that were excavated to 6 inches were replaced by 6 inches of topsoil and then seeded. Daily imported fill load tickets are included in Appendix H. See Section 3.1.13 for information regarding seeding and Site restoration.

As discussed in the 2014 Work Plan, Site soils were not excavated during the construction of the extended Support Zone. An area located beneath the southeast corner of the Support Zone required excavation based on ABS results (see Figure 3.3). That portion of the Support Zone was removed and the clean material used to create the Support Zone surface was stockpiled. The soil in the area was then excavated, a demarcation layer was placed at the bottom of the excavation, and the stockpiled material was used as backfill.

Soils from Cells 23 and 31 were excavated to two feet (see Figure 3.3); however, for safety reasons, the excavation stopped a minimum of six feet from the steep embankment along the eastern edge of these Cells. Several bags containing copper concentrate were removed from Cell 31 during this excavation. Per the July 10, 2013 Foundation Cleaning Site Walk Meeting Minutes presented in the 2014 Work Plan, five sidewall verification samples were collected from the undisturbed soil adjacent to the steep embankment and four verification samples were collected from the soil beneath the former location of the copper concentrate bags. No staining was noted, thus verification sample locations were not biased.

Results of the verification samples indicated three samples collected along the sidewall exceeded NRDCC for lead and/or arsenic. This area, however, is subject to a restrictive covenant placed on that portion of the Site which lies within 80 feet of the water's edge and requires the property owner to maintain a cover over exposed stamp sands in the manner described in the Torch Lake Record of Decision dated September 30, 1992. Figure 3.4 shows the locations of the verification samples. Results of these verification samples are presented in Table 3.6 and laboratory analytical is included in Appendix D.

Equipment used in the Exclusion Zone was decontaminated using a pressure washer. Rinse water was collected and transferred to the Power Plant basement for treatment by the onsite water treatment system. Spent PPE was disposed with the excavated soil at K&W Landfill.

Per the Michigan State Historic Preservation Office (SHPO) Memorandum of Agreement (MOA), an archaeologist was onsite during soil excavation activities and during foundation cleaning

activities (see Section 3.1.10) to ensure all work was carried out in accordance with the August 28, 2013 Cultural Resources Mitigation Plan. A Recordation Package will be prepared and submitted to the appropriate parties identified in the MOA at a later date.

As discussed in the 2014 Work Plan, in May 2014, samples were collected from 28 cells that previously exceeded the RCRA “20 Times Rule” for lead and/or arsenic (Figure 3.5). These newly collected samples were analyzed for lead and/or arsenic. Results are presented in Table 3.7 and laboratory analytical is included in Appendix D. No samples exceeded the RCRA “20 Times Rule” for arsenic. Those samples with lead concentrations above the RCRA “20 Times Rule” were analyzed by toxicity characteristic leaching procedure (TCLP) analyses for disposal purposes (Figure 3.6). Laboratory results indicated that the top six inches of the southwest corner of Cell 45 (Cell 45SW) exceeded the TCLP criterion for lead (Figure 3.7). No other locations exceeded TCLP criteria. Results are presented in Table 3.8. See Appendix D for laboratory analytical. The bottom 18 inches of Cell 45SW did not exceed TCLP criteria and was disposed according to procedures described in Section 3.1.8.

Based on the bench study results described in the approved amendment to the 2014 Work Plan, a 3% by weight mixture of EnviroBlend CS (EBCS) was applied to the top six inches of Cell 45SW in September 2014. An excavator bucket was used to uniformly blend approximately 2.5 tons of the EBCS amendment into the lead impacted soil. Workers donned Level C PPE during application of the amendment. Dust suppression, personal and perimeter air monitoring were completed as described in Section 3.1.12. The amended soil was left overnight. Four grab samples of the amended soil were collected the following day and sent to TestAmerica for analysis of lead by TCLP. Results indicated the amended soil did not leach lead above the criterion and the soil was disposed as non-hazardous (see Appendix D for laboratory analytical). A separate waste profile was obtained for the amended soil and approximately 61.95 tons of amended soil was disposed in October 2014 as non-hazardous ACWM at K&W Landfill according to the procedures described in Section 3.1.11. Copies of the waste profile, manifests and weigh tickets are included in Appendices E, F, and G, respectively.

Including soil berms, debris piles, soils excavated during Support Zone construction, and the amended soil from Cell 45SW, a total of approximately 11,844 tons of contaminated soil was disposed as non-hazardous ACWM at K&W Landfill.

3.1.9 Soil Cover

Per the approved 2014 Work Plan, a National Emission Standards for Hazardous Air Pollutants (NESHAP) Standard 61.151 compliant cover system was placed over Site soils exceeding 1% asbestos concentration. A demarcation layer consisting of a geotextile fabric and two feet of clean imported soil (18 inches of sand and 6 inches of topsoil) was placed over these soils. Daily imported fill load tickets are included in Appendix H. To account for potential drainage issues, the fill material was extended beyond the covered areas at an approximate 1:5 slope. Cells 6, 54, and 63 did not require remediation; however, cover material was placed to prevent drainage issues. A demarcation layer was not placed beneath these areas. Figure 3.8 shows all areas where the cover system was placed and a final topographic Site survey is included in Appendix L.

The cover system was placed using a bulldozer equipped with a GPS system to ensure the appropriate amount of fill material was placed. In addition, Amec routinely measured the depth of the fill material by hand. Imported sand was compacted with a vibratory roller to a minimum of 90% of the dry density. A third party technician completed compaction testing across the Site. See Appendix I for a copy of the compaction test results.

A drainage ditch traversed an area requiring a two foot cover (Cell 71). A 12-inch diameter culvert was installed in order to facilitate placement of the cover system. HDPE pipe was installed per AASHTO M294 according the specifications outlined in the approved Cell 71 Culvert Installation amendment to the 2014 Work Plan.

A residential trailer located at the southwest end of the Site was located over an area requiring a two foot cover (Cells 5 and 12). The trailer was moved approximately 50 feet to the west to allow for placement of the cover system.

A total of 34,297 cubic yards (cyd) of sand and 8,312 cyd of topsoil were imported, including material used to backfill the Power Plant basement and trenches in the Stamp Mill foundation (see 3.1.10).

3.1.10 Foundation Cleaning

Per the July 10, 2013 Foundation Cleaning Site Walk Meeting Minutes, onsite foundations were cleaned and/or covered with clean fill material. As discussed in Section 3.1.8, an archaeologist was present during foundation cleaning activities per the 2013 Cultural Resources Mitigation Plan.

Soil, vegetation and debris on the surfaces and in trenches/pits of the former building foundations were removed and disposed as ACWM. Small excavation equipment and hand tools were used to remove the soil. The soil/debris was stockpiled adjacent to the southern edge of the Support Zone pending disposal. See Section 3.1.11 for soil loading, transportation, and disposal methods. As the soils were removed, the surfaces of the foundations were washed using a portable pressure washer. Dirt, sediment, and rinse water were directed toward contaminated soil for excavation.

Soils accumulated in trenches and other depressions less than two feet deep in the surface of the Stamp Mill were removed using hand tools. These shallow trenches and depressions were left uncovered. Wooden planks were found in several trenches. Per the onsite archaeologist, this wood was historically significant to the Site and was therefore pressure washed to remove any contamination and left in place.

Visible ACM was removed by hand from trenches and depressions greater than two feet deep. An orange demarcation layer was placed, and the trench backfilled with a minimum of two feet of clean fill. Soil and debris were not removed from these areas unless necessary for placement of the clean fill. Trees were removed from the trenches, stockpiled and left onsite. As described in Section 3.1.13, topsoil and seeding were placed over trenches that were likely to erode; however, fully contained trenches such as the rock bins had only sand placed.

During foundation cleaning, workers kept a minimum of six feet away from the southeast edge of the Stamp Mill foundation that is collapsing into Torch Lake. The crumbling brick foundation

located on the shoreline of Torch Lake (see Figure 2.1) was cleaned to the extent possible, a demarcation layer was laid and the interior backfilled with two feet of clean fill. Due to the historical significance of the bricks and the dilapidated condition of the structure, the adjacent brick piles were left in place.

The southeast portion of the former Boiler House foundation was significantly damaged with numerous holes/cracks. The poor condition of the foundation made cleaning activities extremely difficult. Additionally, any equipment used to clean the foundation would likely cause further damage; therefore, a cover was placed over this area of the former Boiler House foundation. The west and north portions of the foundation, however, were left uncovered, as depicted on the final topographic Site survey included in Appendix L.

As shown of Figure 3.8, a two foot cover system was placed over soils adjacent to the former Still House foundation. The initial intent was to leave this foundation exposed; however, to prevent potential drainage issues, the foundation was cleaned and then covered with two feet of clean fill material, as depicted on the final topographic Site survey included in Appendix L.

Workers donned Level C PPE during foundation cleaning activities. Dust suppression methods and personal and perimeter air monitoring were conducted during these activities as described in Section 3.1.12.

Equipment used for foundation cleaning was decontaminated using a pressure washer. Rinse water was collected and transferred to the Power Plant basement for treatment by the onsite water treatment system prior to basement backfilling activities were complete. Spent PPE was disposed with the cleared material at K&W Landfill.

A total of approximately 2,769 tons of material was removed from the foundations and disposed as non-hazardous ACWM at K&W Landfill. Copies of the waste profile, manifests and weigh tickets are included in Appendices E, F, and G, respectively.

3.1.11 Soil Loading, Transportation and Disposal

Prior to loading ACWM, trucks entered the Support Zone and were lined with 6-mil polyethylene sheeting (poly). An excavator was used to load the material from its staged location into the trucks. Care was taken to not spill contaminated material onto the surface of the Support Zone; however, if this occurred, the spilled material was immediately cleaned up using hand tools. A pressure washer was used to decontaminate the excavator bucket and wash water was either directed to the basement prior to backfill activities, or to contaminated soil for disposal.

To prevent airborne emissions during transit, the poly was folded over the loaded material and secured with adhesive. The tops of the trucks were then tarped and secured. Each truck load was properly labeled, manifested, transported, and disposed of as ACWM at K&W Landfill. Due to the topography of the Support Zone, traffic was stopped when trucks exited the Site. A copy of the Michigan Department of Transportation (MDOT) permit is included in Appendix C.

In total, approximately 27,844 tons of material (including soil, berms, debris piles, demolition debris, basement debris, and spent treatment system media) was disposed at K&W Landfill from

2012 to 2014. Copies of manifests from 2012, 2013 and 2014 are included in Appendix F and weigh tickets are included in Appendix G.

3.1.12 Air Monitoring

Air monitoring, including personal, perimeter and total dust monitoring, was performed during any activities that had the potential to disturb contaminated soil. Total dust monitoring was performed to ensure nuisance dust and lead dust were not generated. Personal asbestos air monitoring was also performed during these activities in 2012 and 2013. In August 2014, with agreement with the USEPA, changes were made to air monitoring procedures to include personal asbestos and personal lead monitoring.

In 2012 and 2013, perimeter air samples were collected and analyzed by phase contrast microscopy (PCM) to detect structures collected on the sampling filters (not asbestos fibers specifically). Results were compared to the Permissible Exposure Limit (PEL) of 0.1 f/cc. No detectable fiber concentrations were ever reported. In August 2014, with agreement with the USEPA, perimeter air sampling procedures were modified to include a higher volume of collection. Samples were analyzed by PCM and compared to the Regional Screening Level of 0.001 f/cc. Samples with PCM results exceeding 0.001 f/cc were then analyzed by transmission electron microscopy to determine the presence or absence of asbestos. No detections of asbestos were reported. See the 2014 Work Plan and 2014 Health and Safety Plan for further details.

Water trucks and portable pressure washers were used to keep materials wetted to minimize/prevent dust. In the event that dust readings began to increase, or if visible dust was observed, work was stopped until water was applied to the material.

Perimeter air monitoring results from 2012, 2013, and 2014 are presented in Tables 3.9, 3.10, and 3.11, respectively. No detections of asbestos were reported. Personal air monitoring results from 2012, 2013, and 2014 are presented in Tables 3.12, 3.13, and 3.14, respectively. Personal air results did not exceed the PEL of 0.1 f/cc. Laboratory analytical results are presented in Appendix D. Dust monitoring records are included in Appendix M.

3.1.13 Site Restoration

As discussed in Section 3.1.8, a minimum of six inches of topsoil was placed over all disturbed areas (excluding the Support Zone and water treatment system staging pad) to allow for grass growth. G&J Site Solutions was contracted to complete Site seeding and mulching. A MDOT Michigan Class A Seed Mix composed of 40% Creeping Red Fescue, 30% Kentucky Bluegrass and 30% Perennial Ryegrass was applied to all disturbed areas. Seeding was completed by rotary tillage across the majority of the Site; however, areas where tillage equipment could not reach, such as small trenches on the Stamp Mill foundation, were hydroseeded. Straw was placed over the seed and a spray tack applied to keep the hay in place. Once the grass is established, the temporary SESC controls will be removed. The chain link fence surrounding the north, west, and south Site perimeter will remain in place.

As discussed in the 2014 Work Plan, a restrictive covenant has been recorded on the deed for the Property by the Owner to ensure that the property is used only for non-residential purposes, to prevent potentially unacceptable exposures to hazardous substances remaining on the

property after the removal action is complete, and to protect elements of the remedy constructed on the site (e.g., engineered barriers) from disturbance or damage which could degrade their performance or effectiveness. In accordance with the restrictive covenant, a final as-built topographic Site survey was completed on November 4, 2014. A copy of this survey is included in Appendix L.

3.1.14 Public Information and Community Relations Activities

Amec posted weekly perimeter air monitoring results and a figure showing where the air samples were collected at the Lake Linden Village Hall to communicate with the community that no asbestos left the Site. An example of the weekly postings can be found in Appendix N.

3.2 TREATMENT, DISPOSAL, OR ALTERNATIVE TECHNOLOGY APPROACHES PURSUED

As discussed in Section 3.1, numerous waste streams were created at the Site. These wastes were incinerated, recycled, and/or disposed of in approved landfills. Table 3.15 summarizes the materials and quantities disposed of, the methods of disposal, and the locations of the disposal facilities. All disposal facilities were approved to receive waste regulated by the CERCLA Off-Site Rule. Copies of waste profiles, manifests, and weigh tickets are included in Appendices E, F, and G, respectively.

3.3 COST INCURRED

The total cost incurred in complying with the AOC was approximately \$7,433,438. Copies of contracts and invoices related to the removal action are included in Appendix O and Appendix P, respectively.

4.0 DIFFICULTIES ENCOUNTERED

This section describes items that affected response actions.

AOC Delay

Preliminary activities were completed at the Site in 2011; however, the AOC between the USEPA and Honeywell was not signed until May 18, 2012. Additional Site investigations were then completed in the summer of 2012 and as a result, construction activities did not begin until October 2012. Due to weather restrictions, Site activities were discontinued the week of November 11, 2012 and did not resume until June 18, 2013.

July 2013 Site Shutdown

Amec submitted the SHPO Section 106 Application to the USEPA in November 2012. The document determined that planned activities could have an adverse effect on the historical structures present at the Site. On July 11, 2013, a few days before the planned demolition of the Power Plant building, the SHPO issued a “cease and desist” order and the USEPA acknowledged the SHPO’s authority. The order stopped all work onsite by banning the building demolition, soil excavation, and foundation cleaning activities that could damage the structures. Amec and Honeywell worked diligently to provide the USEPA and SHPO additional information. On August 5, 2013, SHPO approved the building demolition; however, all other Site activities were not allowed until an MOA was established between the USEPA and SHPO. The Site was shut down for 38 days. The MOA was not finalized until May 2014.

Change in Scope of Work

On July 19, 2012, the USEPA approved the Site Work Plan prepared by Amec on behalf of Honeywell. The Work Plan stated “*The soil removal action for asbestos will be based on ABS sample results. The asbestos in soil sampling will be used to select where ABS sampling will be conducted.*” However, on July 24, 2013, USEPA determined that soil exceeding 1% asbestos concentration should also be addressed. An agreement was reached between the USEPA and Honeywell to cover the 1% asbestos containing soil with a NESHAP compliant 2-foot cover system. Amec prepared a revised Work Plan that was approved by the USEPA on July 25, 2014.

Site Location and Short Work Seasons

Due to the geographic location of the Site, work seasons are relatively short. Weather restrictions precluded basement dewatering activities from beginning in 2013 after the delays caused by the 2013 Site shutdown and change in the scope of work. Basement dewatering and demolition, therefore, was not completed until 2014.

Discovery of PCB-Containing Capacitors

The discovery of PCB containing capacitors in the basement stopped all work activities in the basement until further investigation was completed. As a result, backfilling activities were delayed, resulting in additional days of treatment system operations.

5.0 REFERENCES

Administrative Settlement Agreement and Order on Consent for Removal Action, United States Environmental Protection Agency, May 18, 2012

Cell 45SW Stabilization, Amec Environment and Infrastructure, Inc., September 2014

Cell 71 Culvert Installation, Amec Environment and Infrastructure, Inc., September 2014

Cultural Resources Mitigation Plan for Site Restoration, Amec Environment and Infrastructure, Inc., August 28, 2013

Enforcement Action Memo, United States Environmental Protection Agency, May 21, 2012

EPA Superfund Record of Decision: Torch Lake, OUs 1&3, Houghton County, MI, United States Environmental Protection Agency, September 30, 1992

Final Lake Linden Calumet and Hecla Power Plant Site Work Plan, Amec Environment and Infrastructure, Inc., April 2012

Final Lake Linden Calumet and Hecla Power Plant Site Work Plan, Amec Environment and Infrastructure, Inc., July 2014

Memorandum of Agreement between the United States Environmental Protection Agency and the Michigan State Historic Preservation Officer Regarding the Former Calumet & Hecla, Inc. Power Plant Superfund Site at Torch Lake, Houghton County Michigan and Submitted to the Advisory Council on Historic Preservation Pursuant to 36 C.F.R. §800.6(b)(1), State Historic Preservation Office, May 14, 2014

FIGURES



Legend

 Approximate Property Boundary



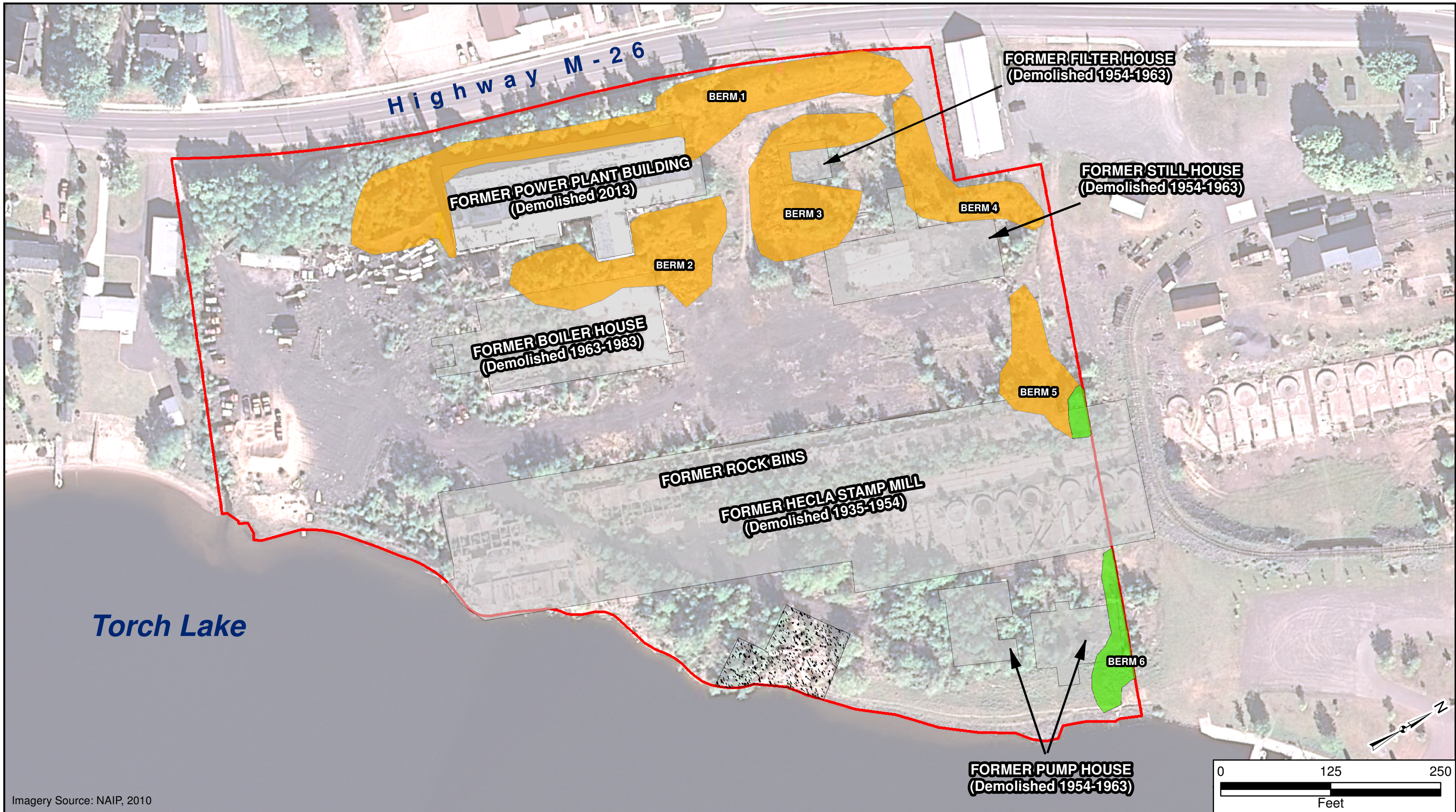
Prepared By: BSM
Checked By: JDG

Approved By: GEB
Date: 3/13/2012

Figure 1.1 Site Location Map

Former C & H POWER PLANT SITE
LAKE LINDEN,
HOUGHTON COUNTY, MICHIGAN
Project 3293-11-1440

Privilege and Confidential



Imagery Source: NAIP, 2010

Legend

- Berms removed in 2012
- Berms removed in 2014
- Brick Foundation/Rubble
- Building Foundation
- Site Boundary



Prepared By: EP
Checked By: EAS

Approved By: DD
Date: 12/8/2014

Figure 2.1 Initial Site Features

Former C & H POWER PLANT SITE
TORCH LAKE TWP, MICHIGAN
Project 3293-11-1440

Privilege and Confidential



Legend

- Site Boundary
- *—* Fence



Building Foundation



100 ft Grid Cell



Areas exceeding NRDCC
for lead and/or arsenic in
the 0-6" range



Approximate Support Zone Area



Extended Support Zone Area



Areas exceeding NRDCC
for lead and/or arsenic in
the 0-2' range



Prepared By: CSK

Checked By: EAS

Approved By: MJM

Date: 12/17/2014

Figure 2.2
Soils Exceeding
Metals Non-Residential
Direct Contact Criteria

Former C & H POWER PLANT SITE
TORCH LAKE TWP, MICHIGAN
Project 3293-12-1489

Privilege and Confidential



Legend

- Site Boundary
- Building Foundation
- 100 ft Grid Cell
- Soils exceeding 1% asbestos concentration in the 0-2' range
- Approximate Support Zone Area
- Extended Support Zone
- Fence



Prepared By: CSK
Checked By: DD
Approved By: MJM
Date: 12/17/2014

Figure 2.3
Soils Exceeding
1% Asbestos Concentration
Former C & H POWER PLANT SITE
LAKE LINDEN,
HOUGHTON COUNTY, MICHIGAN
Project 3293-11-1440
Privilege and Confidential



Notes:
1. Grids 21, 27 and 37 are assumed to be above criteria and were not sampled.
2. Grids 23 and 31 were not sampled but will be removed for metals contamination.
3. Areas within the support zone were not sampled but are under 2 ft of clean fill.

Legend

- Site Boundary
- Building Foundation
- 100 ft Grid Cell



Soils exceeding the Site-Specific Commerical Worker Asbestos Remediation Goal of 0.00842 fibers/cubic centimeter



Approximate Support Zone Area



Extended Support Zone



Fence

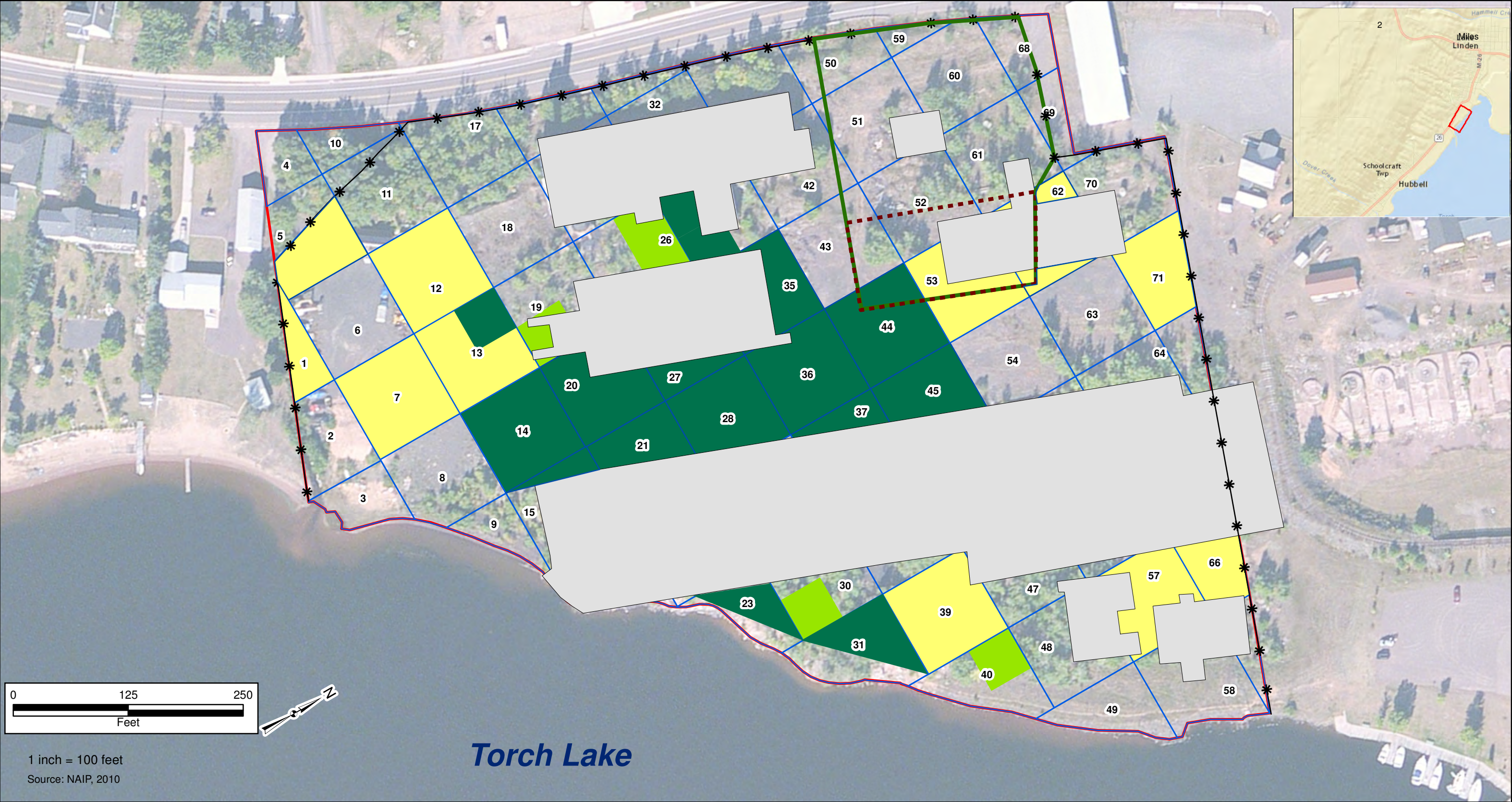


Prepared By: CSK Approved By: MJM
Checked By: DD Date: 12/17/2014

**Figure 2.4
Soils Exceeding
Activity Based Sampling Criteria**

Former C & H POWER PLANT SITE
LAKE LINDEN,
HOUGHTON COUNTY, MICHIGAN
Project 3293-11-1440

Privilege and Confidential



Torch Lake

Legend

- Site Boundary

Building Foundation

20

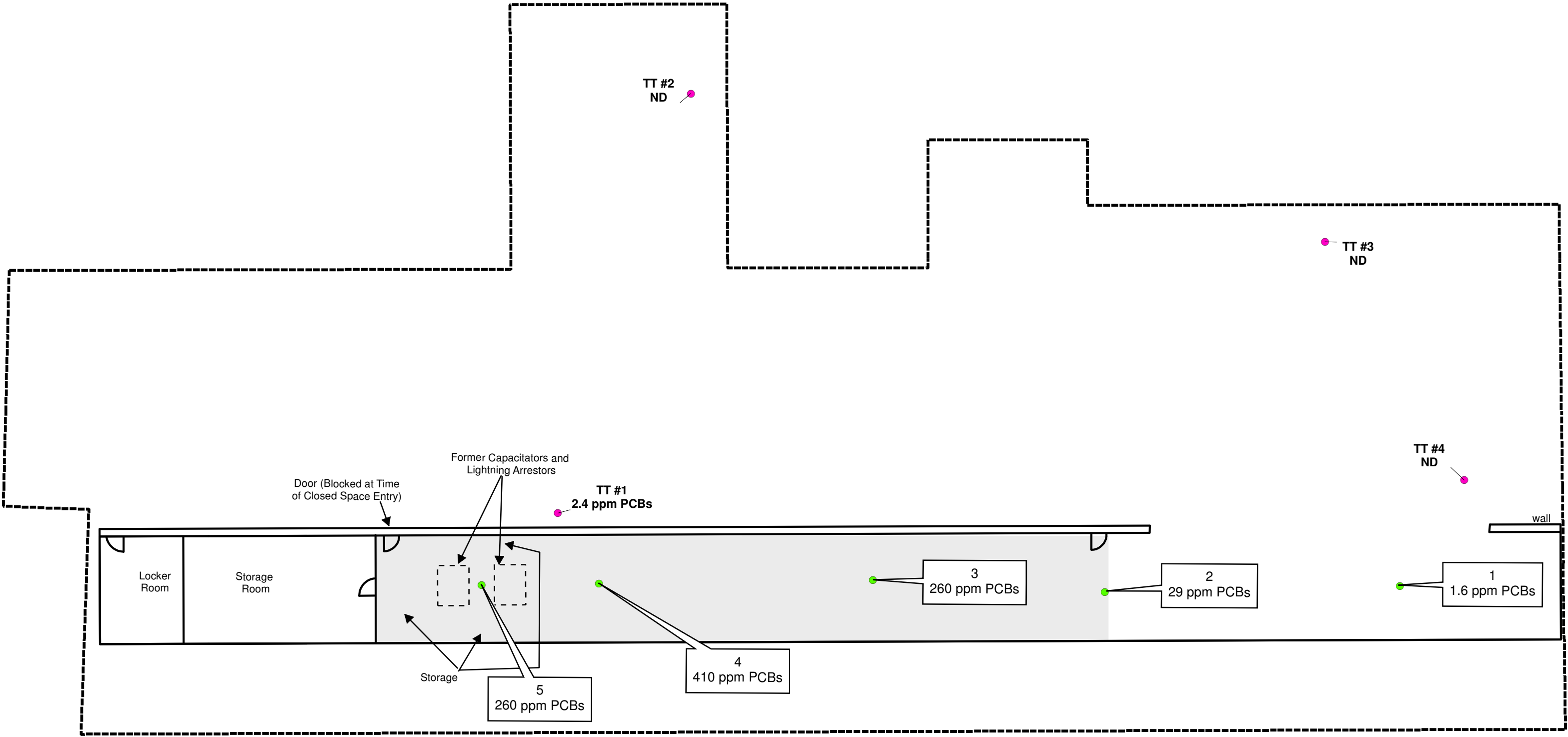
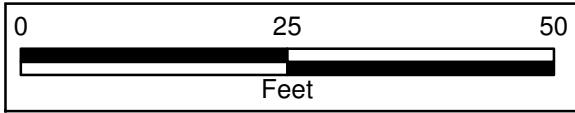
100 ft Grid Cell
- Asbestos in Soil > 1%
- Approximate Support Zone Area
- Extended Support Zone
- *—*

Fence
- 0 - 6" Soil Removal
- 0 - 2' Soil Removal



Prepared By: CSK Approved By: MJM
Checked By: DD Date: 12/17/2014

Figure 3.1
Soil Removal and Cover Locations
Former C & H POWER PLANT SITE
LAKE LINDEN,
HOUGHTON COUNTY, MICHIGAN
Project 3293-11-1440



Legend

- Sample Location
- Tetra Tech (TT) Sample Location
- Building Outline
- TSCA Remediation Waste Area



Prepared By: EP
Checked By: MM

Approved By: MJM
Date: 12/17/2014

Figure 3.2
Capacitor Room Sample Locations
and TSCA Remediation Waste Area

Former C & H POWER PLANT SITE
LAKE LINDEN,
HOUGHTON COUNTY, MICHIGAN
Project 3293-11-1440

Privilege and Confidential



Source: NAIP, 2010

Legend

Site Boundary

Fence

Building Foundation

100 ft Grid Cell

0 - 6" Soil Removal

0 - 2' Soil Removal

Approximate Support Zone Area

Extended Support Zone Area

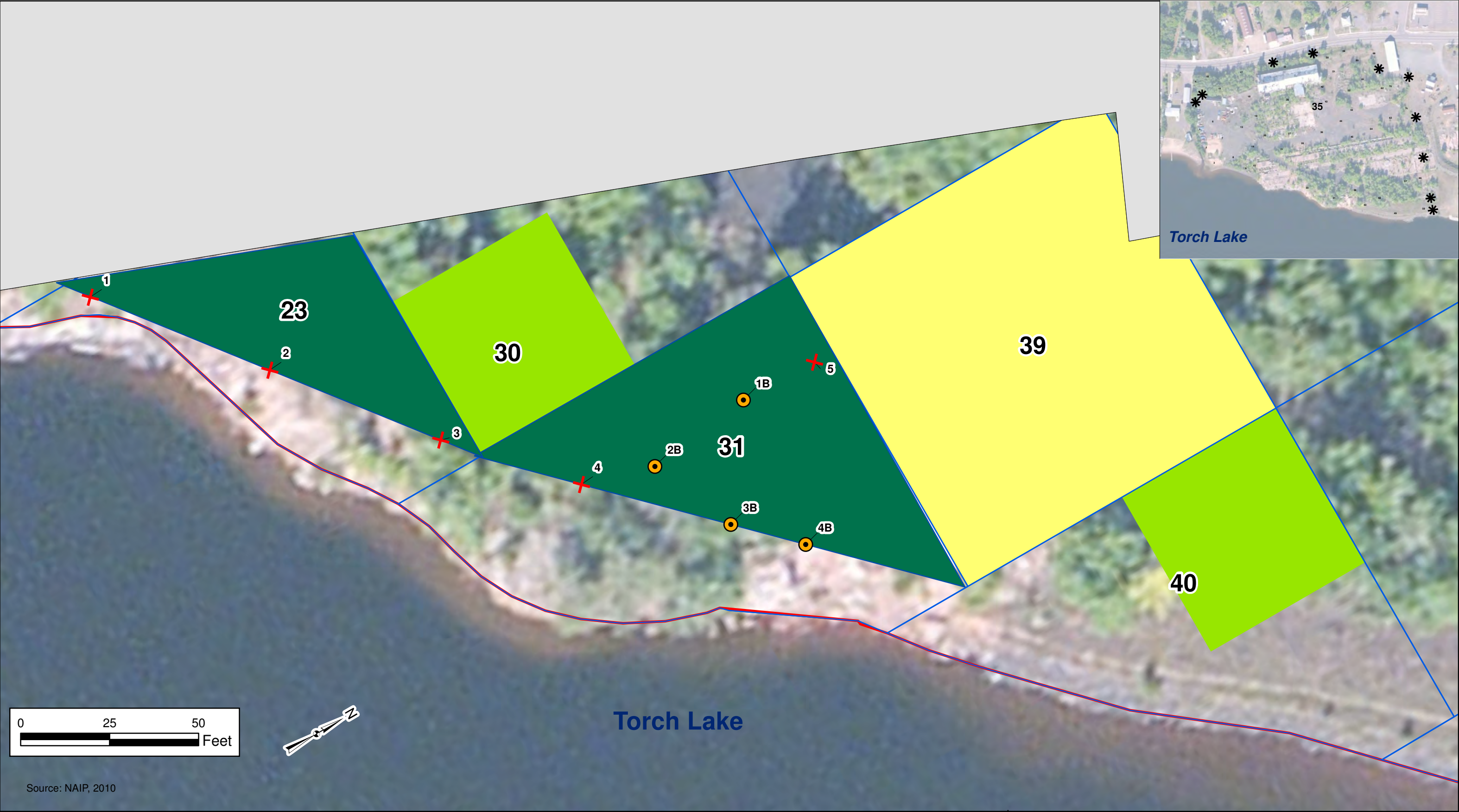
Prepared By: CSK
Checked By: EAS

Approved By: MJM
Date: 12/17/2014

Figure 3.3
Soil Excavation Non-Residential Metals and ABS
Former C & H POWER PLANT SITE
TORCH LAKE TWP, MICHIGAN
Project 3293-12-1489

Privilege and Confidential

Path: \\NVI-FS1\projects\INDUSTRIAL PROJECTS\Honeywell\Lake Linden\GIS\HW_Lake_Linden\l_a_mxd\December 2014 Construction Report Figures\Fig3-3_soil excav nonres metals abs.mxd










Legend				Note: Due to brick foundation, sidewall sample 5 collected at Northwest corner of cell 31.		Figure 3.4 Verification Sample Locations Former C & H POWER PLANT SITE LAKE LINDEN, HOUGHTON COUNTY, MICHIGAN Project 3293-11-1440
Site Boundary	2' Cover	Copper Concentrate Bag Location Sample	Sidewall Sample	Prepared By: EP Checked By: DD		
Building Foundation	Approximate Support Zone Area					
100 ft Grid Cell	0 - 6" Soil Removal					
Extended Support Zone	0 - 2' Soil Removal					



Source: NAIP, 2010

Legend

- | | | |
|--|---|---|
|  Site Boundary |  Building Foundation |  Locations analyzed for lead and/or arsenic in the 0-2' range |
|  Approximate Support Zone Area |  20 100 ft Grid Cell | |
|  Extended Support Zone |  Fence | |

Note:
TCLP Analysis performed
for Lead only.



Prepared By: ST Approved By: MJM
Checked By: BG Date: 12/18/2014

Figure 3.5
2014 Soil Sample Locations
Former C & H POWER PLANT SITE
TORCH LAKE TWP, MICHIGAN
Project 3293-11-1440

Privilege and Confidential



Source: NAIP, 2010

Legend

- Site Boundary

Approximate Support Zone Area

Extended Support Zone
- Building Foundation

20

 100 ft Grid Cell

—

 Fence
- Locations Analyzed by TCLP in the 0-6" Range

Locations Analyzed by TCLP in the 6"-2' Range

Locations Analyzed by TCLP in the 0-2' Range

Note:
TCLP Analysis performed
for Lead only.



Prepared By: ST

Checked By: BG

Approved By: MJM

Date: 12/18/2014

Figure 3.6
TCLP Analysis Locations








Former C & H POWER PLANT SITE
TORCH LAKE TWP, MICHIGAN
Project 3293-11-1440

Privilege and Confidential



Source: NAIP, 2010

Legend

- | | | |
|--|---|---|
|  Site Boundary |  Building Foundation |  TCLP Results Exceed 5.0 mg/L in the 0-6" Range |
|  Approximate Support Zone Area |  20 100 ft Grid Cell | |
|  Extended Support Zone |  Fence | |

Note:
TCLP Analysis performed
for Lead only.



Prepared By: ST
Checked By: BG
Approved By: MJM
Date: 12/17/2014

Figure 3.7
TCLP Exceedance Locations
Former C & H POWER PLANT SITE
TORCH LAKE TWP, MICHIGAN
Project 3293-11-1440

Privilege and Confidential



Legend

- | | | |
|---------------------|--|---|
| Site Boundary | Abover 1% Asbestos;
Cover System Placed | Excavated 2' Prior to Cover System Placement |
| Building Foundation | Approximate Support Zone Area | Excavated 6" Prior to Cover System Placement |
| 100 ft Grid Cell | Extended Support Zone | No Criteria Exceeded; Cover System Installed for Drainage |
| | Fence | |



Prepared By: CSK Approved By: MJM
Checked By: DD Date: 12/17/2014

**Figure 3.8
Cover System Placement**

Former C & H POWER PLANT SITE
LAKE LINDEN,
HOUGHTON COUNTY, MICHIGAN
Project 3293-11-1440
Privilege and Confidential

TABLES

TABLE 2.1 PROJECT TEAM
Lake Linden Calumet and Hecla Power Plant Site
Torch Lake Township, Michigan

Company	Role
USEPA Region V Emergency Response Branch 77 West Jackson (SE-5J) Chicago, IL 60604 (312) 886-0838	Regulatory Agency
MDEQ Upper Peninsula District Office 1504 West Washington Street Marquette, MI 49855 (906) 228-4853	Regulatory Agency
Weston Solutions, Inc. 600 East Lakeshore Drive, Suite 200 Houghton, MI 49931-1871 (906) 482-2310	USEPA START Contractor
Tetra Tech, Inc. 1 S. Wacker Drive, Suite 3700 Chicago, IL 60606 (312) 201-7700	USEPA START Contractor
Honeywell Specialty Materials, LLC 1985 Douglas Drive N Golden Valley, MN 49945 (763) 954-5418	Respondent
AMEC Environment and Infrastructure, Inc. 46850 Magellan Drive, Suite 190 Novi, MI 48377-2448 (248) 926-4008	Prime Contractor
Brandenburg Industrial Service, Co. 2625 South Loomis Street Chicago, IL 60608-5414 (312) 326-5800	Demolition, Excavation, Backfill Contractor
B&B Contracting Calumet, Inc. 55670 Highway M26 Calumet, MI 49913 (906) 337-0017	Transportation Services, Excavation, Backfill Contractor
ProAct Services, Corp. 1140 Conrad Industrial Drive Ludington, MI 49431 (231) 843-2711	Basement Dewatering and Water Treatment Contractor
Coleman Engineering, Co. 635 Circle Drive Iron Mountain, MI 49801 (906) 774-3440	Site Background and Soil Investigation, Surveying

TABLE 2.1 PROJECT TEAM
Lake Linden Calumet and Hecla Power Plant Site
Torch Lake Township, Michigan

Company	Role
Environmental Management Specialists, Inc. 4601 Homer Ohio Lane Groveport, Ohio 43215 (614) 610-4762	Confined Space Entry; Power Plant Basement Drum Sampling
EQ – The Environmental Quality Company 36255 Michigan Avenue Wayne, MI 48184 (734) 329-8000	PCB Containing Capacitor Evaluation
Marquette Fence Co., Inc. 1446 Highway M28 East Marquette, MI 49855 (906) 249-8000	Fence Installation
CR Meyer 895 W 20 th Avenue Oshkosh, WI 54902 (920) 235-3350	Power Plant Basement Safety Cover Installation
U.P. Engineers and Architects 100 Portage Street Houghton, MI 49931 (906) 482-4810	Compaction Testing
G&J Site Solutions 51811 Industrial Drive Calumet, MI 49913 (906) 369-3455	Site Restoration (seed/mulch)
TestAmerica Laboratories, Inc. 4101 Shuffel Street NW North Canton, OH 44720 (330) 497-9396	Soil and Water Analytical Laboratory
QuanTEM Laboratories 2033 Heritage Park Drive Oklahoma City, OK 73120 (405) 755-7272	Asbestos Air Sampling Analytical Laboratory
Galson Laboratories 6601 Kirkville Road East Syracuse, NY 13057 (315) 432-5227	Lead Air Sampling Analytical Laboratory
K&W Landfill, Inc. 1187 State Highway M38 Ontonagon, MI 49953 (906) 883-3504	Disposal Facility for Excavated Soils, Berms, Debris Piles, Demolition Debris, Spent PPE, Spent Treatment System Media

TABLE 2.1 PROJECT TEAM
Lake Linden Calumet and Hecla Power Plant Site
Torch Lake Township, Michigan

Company	Role
Schneider's Iron and Metal 1929 Elmer Street Niagara, WI 54151 (906) 774-0644	Receiving Facility for Recyclable Metal
Wayne Disposal, Inc. 49350 North I-94 Service Drive Belleville, MI 48111 (800) 592-5489	Disposal Facility for TSCA Remediation Waste
Terra Contracting Services, LLC 5787 Stadium Drive Kalamazoo, MI 49009 (269) 375-9595	Power Plant Basement Water Transportation Services
Portage Lake Water & Sewage Authority 100 Princess Point Drive Houghton, MI 49931 (906) 487-9820	Receiving Facility for Treated Water from the Power Plant Basement
Chief Waste Treatment, Corp. 625 S. Douglas Street Ripon, WI 54971 (920) 582-7596	Disposal Facility for Drums Recovered from the Power Plant Basement
Veolia Environmental Services W6490B Specialty Drive Greenville, WI 54942 (920) 757-5265	Disposal Facility for Universal Waste
Veolia ES Technical Solutions, LLC 4732 Highway 73 West Port Arthur, TX 77643 (409) 736-2821	Incineration and Disposal Facility for PCB Containing Capacitors

TABLE 3.1 PROJECT CHRONOLOGY
Lake Linden Calumet and Hecla Power Plant Site
Torch Lake Township, Michigan

Date	Summary of Activities
October 2011	<ul style="list-style-type: none"> Created temporary support zones and decontamination zones in the northeast and southwest corners of the Site Decontaminated and removed stored vehicles and power equipment
November 2011	<ul style="list-style-type: none"> Secured Site perimeter with chain link fence and "No Trespassing" signs Began pickup of surficial ACMs and debris
April 2012	<ul style="list-style-type: none"> Completed pickup of surficial ACMs and debris Completed asbestos and hazardous materials assessment of the Power Plant interior
October 2012	<ul style="list-style-type: none"> Installed silt fence along the north, west, and south Site perimeters Began asbestos abatement of Power Plant interior Began removing soil berms for construction of Support Zone Began transporting asbestos containing waste material (ACWM) to K&W Landfill
November 2012	<ul style="list-style-type: none"> Completed construction of Support Zone Completed asbestos abatement of Power Plant interior Washed down the interior of the Power Plant Building Completed removal of Berms 1-4 and majority of Berm 5 Continued transporting ACWM to K&W Landfill Secured Power Plant building to prevent access over winter months Installed new fence at former Gate B Placed temporary seeding in the Exclusion Zone and Lake Linden Marina
June 2013	<ul style="list-style-type: none"> Backfilled and compacted the excavated areas along the west and south sides of the Power Plant foundation Set up contaminant reduction and equipment decontamination zones Began clearing/grubbing along the Stamp Mill Foundation Began removing ACM impacted soil/debris from the Boiler House and Stamp Mill foundations
July 2013	<ul style="list-style-type: none"> Removed coal pile from the southeast interior of the Power Plant Building Received a stop work order from State Historic Preservation Office (SHPO); Site temporarily shut down
August 2013	<ul style="list-style-type: none"> Demolished the Power Plant Building Loaded and transported scrap metal offsite Began loading and transporting demolition debris offsite (K&W Landfill) Downgraded part of Exclusion Zone from Level C to Level D PPE
September 2013	<ul style="list-style-type: none"> Completed loading and transporting demolition debris and spent PPE offsite Four 5-gallon buckets of universal waste removed from Site Installed six-foot high chain link fence with barbed wire around the Power Plant Foundation to prevent access over winter months
November 2013	<ul style="list-style-type: none"> Installed protective covers over the Power Plant foundation openings to prevent access to the basement over winter months
June 2014	<ul style="list-style-type: none"> Constructed staging pad for water treatment system Mobilized/commissioned temporary onsite water treatment system Began discharging treated water from the Power Plant basement to Torch Lake via concrete channel along west side of Site Industrial archaeologist onsite per SHPO directive to monitor excavation activities and complete Site assessment Resumed clearing soil/debris from Stamp Mill foundation (initiated in 2013)
July 2014	<ul style="list-style-type: none"> Water treatment system temporarily shut down due to high zinc level in effluent Additional Zeolite media added to treatment system Resumed dewatering activities, discharging to Torch Lake

TABLE 3.1 PROJECT CHRONOLOGY
Lake Linden Calumet and Hecla Power Plant Site
Torch Lake Township, Michigan

Date	Summary of Activities
	<ul style="list-style-type: none"> Removed protective coverings from Power Plant foundation Initial basement entry to locate drums and potential PCB sources Began breaking in the ground-level floor of the Power Plant basement Began removing debris from larger openings in basement – debris staged pending waste characterization and disposal
August 2014	<ul style="list-style-type: none"> Installed silt fence along southern and eastern property boundaries Continued concrete cleaning activities Began soil excavation Resumed transporting ACWM to K&W Landfill (initiated in 2013) Began placing demarcation layer over excavated areas Began importing clean fill material Began removing decontaminated steel from Power Plant basement for recycling offsite Located six PCB containing capacitors in previously inaccessible room of Power Plant basement Continued basement dewatering activities
September 2014	<ul style="list-style-type: none"> Began transporting debris from main area of basement to K&W Landfill Completed removal of decontaminated steel for recycling Completed removal of Berm 6 Completed concrete cleaning activities Completed disposal of excavated soil, berms, and debris from Stamp Mill foundation Continued importing and placing clean fill Began importing and placing topsoil Continued foundation cleaning Applied amendment to stabilize top six inches of Cell 45SW in preparation for offsite disposal Continued basement dewatering activities Water treatment system temporarily shut down due to high mercury level in effluent Replaced Zeolite media in water treatment system; resumed dewatering activities Water treatment system temporarily shut down due to second event of high mercury levels in effluent Acquired 14 frac tanks to collect effluent water from treatment system – treated water no longer direct discharged to Torch Lake Removed TSCA debris/sediment from west side of basement Completed backfilling the Power Plant basement Completed compaction testing across the Site Relocated Property Owner's trailer onsite
October 2014	<ul style="list-style-type: none"> Transported and disposed of treated water in frac tanks at Portage Lake Water and Sewage Authority Completed placement of topsoil Completed seeding/mulching across the Site Brandenburg demobilized from Site Completed extraction of spent media from water treatment system Completed onsite archaeological assessment Removed sediment from weir tank of water treatment system Decontaminated weir tank according to TSCA regulations Demobilized water treatment system; ProAct demobilized from Site

TABLE 3.1 PROJECT CHRONOLOGY
Lake Linden Calumet and Hecla Power Plant Site
Torch Lake Township, Michigan

Date	Summary of Activities
November 2014	<ul style="list-style-type: none"> • Disposed of spent media from water treatment system • Disposed of TSCA sediment from weir tank associated with the water treatment system • Disposed of intact drums previously located in the Power Plant basement • Completed final topographic Site survey • Amec demobilized from Site

TABLE 3.2 - VOLUME OF WATER TREATED
Lake Linden Calumet and Hecla Power Plant Site
Torch Lake Township, Michigan

Date	Daily Volume Treated (gallons)	Total Volume Treated (gallons)	Comments
6/19/2014	20,000	20,000	
6/26/2014	38,870	58,870	
6/27/2014	56,380	115,250	
6/28/2014	56,410	171,660	
6/29/2014	57,740	229,400	
6/30/2014	56,190	285,590	
7/1/2014	53,990	339,580	
7/2/2014	57,050	396,630	Shut down for 4th of July
7/8/2014	60,200	456,830	First day back from 4th of July
7/9/2014	4,330	461,160	Received data indicating Zinc exceedance - system shut down
7/10/2014	0	461,160	
7/11/2014	0	461,160	Discharged water in frac tank from initial 20,000 gallons and water from Zeolite vessel back into the basement.
7/14/2014	6,600	467,760	New media added; system started up again
7/15/2014	116,305	584,065	Begin 24 hour operations. Volume of gallons treated is for 7am 7/15 thru 7am 7/16
7/16/2014	94,243	678,308	Operate until midnight. Volume of gallons treated is for 7am thru midnight
7/17/2014	106,641	784,949	Begin operating 6am to midnight
7/18/2014	95,152	880,101	
7/19/2014	82,218	962,319	Adjusted flow rate to 70 gpm to increase contact time w/media
7/20/2014	41,632	1,003,951	System shut down at 19:30 due to generator failure
7/21/2014	69,878	1,073,829	
7/22/2014	68,759	1,142,588	
7/23/2014	103,082	1,245,670	Adjusted flow rate back to 100 gpm; increased pressure in second zeolite vessel
7/24/2014	107,742	1,353,412	Shut down at 23:20 due to pump sucking air.
7/25/2014	12,992	1,366,404	Shut down at 10:00 due to pump sucking air.
7/28/2014	65,662	1,432,066	Shut down at 14:00 due to pump sucking air
7/29/2014	28,639	1,460,705	Shut down at 12:00 due to pump breaking suction
7/30/2014	34,965	1,495,670	
7/31/2014	6,900	1,502,570	Pumps stopped and removed to avoid damage from basement debris
8/1/2014	32,510	1,535,080	
8/4/2014	52,720	1,587,800	
8/5/2014	54,350	1,642,150	
8/6/2014	39,380	1,681,530	
8/7/2014	23,670	1,705,200	System shut down at 12:00 due to pump sucking air
8/8/2014	25,860	1,731,060	System shut down at 12:00 due to pump sucking air
8/9/2014	23,280	1,754,340	
8/11/2014	53,740	1,808,080	Received more than 0.90 inches of rain throughout the day.
8/12/2014	31,370	1,839,450	System shut down at 14:00 due to pump sucking air
8/13/2014	28,150	1,867,600	System shut down at 12:30 due to pump sucking air
8/14/2014	21,850	1,889,450	System shut down at 11:30 due to pump sucking air
8/15/2014	24,110	1,913,560	System shut down at 13:30 due to pump sucking air (system not started until 8:15)
8/18/2014	51,660	1,965,220	Shut down over weekend - 2 days of recharge.
8/19/2014	33,710	1,998,930	Pumps shut down approx 1 hour to move location. Also received 1.24 inches of rain.
8/20/2014	23,160	2,022,090	
8/21/2014	39,110	2,061,200	Check zinc at 13:40; 20 ug/L
8/22/2014	22,150	2,083,350	System shut down at 11:00 - ProAct offsite until Monday
8/25/2014	43,710	2,127,060	Water level not measured - no place to safely stand
8/26/2014	37,180	2,164,240	
8/27/2014	26,700	2,190,940	
8/28/2014	45,250	2,236,190	
8/29/2014	24,740	2,260,930	System shut down for Labor Day weekend
9/7/2014	37,760	2,298,690	First day of operations after media changeout

TABLE 3.2 - VOLUME OF WATER TREATED
Lake Linden Calumet and Hecla Power Plant Site
Torch Lake Township, Michigan

Date	Daily Volume Treated (gallons)	Total Volume Treated (gallons)	Comments
9/8/2014	65,000	2,363,690	
9/9/2014	65,820	2,429,510	
9/10/2014	20,820	2,450,330	Site shut down at 10:30 due to weather
9/11/2014	66,030	2,516,360	
9/12/2014	68,800	2,585,160	
9/13/2014	53,970	2,639,130	
9/15/2014	57,680	2,696,810	
9/16/2014	25,350	2,722,160	
9/17/2014	24,290	2,746,450	
9/18/2014	30,660	2,777,110	
9/19/2014	20,370	2,797,480	
9/25/2014	7,090	2,804,570	Begin discharging treated water into frac tanks
9/26/2014	39,800	2,844,370	
9/27/2014	50,590	2,894,960	
9/28/2014	49,380	2,944,340	
9/29/2014	3,330	2,947,670	
9/30/2014	47,680	2,995,350	
10/1/2014	11,870	3,007,220	
10/2/2014	9,180	3,016,400	
10/3/2014	13,700	3,030,100	
Total Volume of Water Treated		3,030,100	

TABLE 3.3 - WATER TREATMENT SYSTEM WEEKLY SAMPLE RESULTS
Lake Linden Calumet and Hecla Power Plant Site
Torch Lake Township, Michigan

Field Sample ID: Sample Date: Sample Location:				LLR01-BS21-IN14-WS01 6/19/2014 Influent ¹	LLR01-BS22-MS14-WS01 6/19/2014 Mid-Stage ¹	LLR01-BS23-EF14-WS01 6/19/2014 Effluent	LLR01-BS24-IN14-WS02 6/30/2014 Influent ¹	LLR01-BS25-MS14-WS02 6/30/2014 Mid-Stage ¹	LLR01-BS25-EF14-WS02 6/30/2014 Effluent	LLR01-BS25-EF14-WS02 6/30/2014 Effluent ⁴
PARAMETER	ASSUMED INFLUENT CONCENTRATION	DISCHARGE LIMIT	UNITS							
Carbon disulfide	500	100	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NT
Bis (2-ethylhexyl) phthalate	5,600	285	µg/L	9.5 U	10 U	9.7 U	9.7 U	9.6 U	10 U	NT
Fluoranthene	260	18	µg/L	9.5 U	10 U	0.29 J	9.7 U	9.6 U	10 U	NT
Pyrene	480	28	µg/L	9.5 U	10 U	0.31 J	9.7 U	9.6 U	10 U	NT
Arsenic	500	100	µg/L	10 U	16	16	10 U	10 U	10 U	NT
Barium	500	1,800	µg/L	120 JB	170 JB	61 J	99 J	74 J	32 J	NT
Cadmium	240	11.2	µg/L	1.3 J	2.0 U	2.0 U	1.0 J	2.0 U	2.0 U	NT
Chromium	260	840	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NT
Copper	1,900	27	µg/L	92	25 U	25 U	82	25 U	25 U	NT
Lead	67,000	700	µg/L	16	3.0 U	3.0 U	16	3.0 U	3.0 U	NT
Mercury	25	0.0013	µg/L	0.025	0.00069	0.00066	0.0034	0.0005 U	0.00025 J	NT
Selenium	100	55	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NT
Silver	20	3.3 ²	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NT
Zinc	35,000	340	µg/L	930 B	5.9 JB	6.2 J	490	390	350	390
Aroclor 1254	120	0.000026 ²	µg/L	0.10 U	0.10 U	0.099 U	0.10 U	0.098 U	0.10 U	NT
Aroclor 1260	4.7	0.000026 ²	µg/L	0.10 U	0.10 U	0.099 U	0.10 U	0.098 U	0.10 U	NT
TSS	500	30	mg/L	3.0 J	4.0 U	4.0 U	6.0	2.0 J	4.0 U	NT
Dissolved Oxygen	N/A	4.0 ³	mg/L	NS	NS	6.1	NS	NS	8.4	NT

NOTES:
B - Compound was found in the blank and sample.
J - Analytical result is reported above the Method Detection Limit, but below the Reporting Limit
U - Analytical result is reported below the Method Detection Limit
NS - No sample collected
N/A - Not applicable
NT- Parameter not tested for

10 Analytical result exceeds laboratory Reporting Limit
10 Analytical result exceeds Discharge Limit

¹Influent and Mid-Stage results are not subject to Discharge Limits
²Discharge limit is less than the Method Detection Limit, therefore the Discharge Limit defaults to the Method Detection Limit
³Dissolved Oxygen limit compared to 4.0 mg/L daily minimum
⁴Sample re-analyzed by lab to confirm zinc concentration
⁵New sample collected to confirm zinc concentration
⁶Samples collected 9/7/14 were collected after media changeout.
⁷No water was discharged at the time of this sample; therefore, dissolved oxygen was not tested.

TABLE 3.3 - WATER TREATMENT SYSTEM WEEKLY SAMPLE RESULTS
Lake Linden Calumet and Hecla Power Plant Site
Torch Lake Township, Michigan

Field Sample ID: Sample Date: Sample Location:				LLR01-BR26-IN14-WS01 7/9/2014 Influent ^{1,5}	LLR01-BR27-MS14-WS01 7/9/2014 Mid-Stage ^{1,5}	LLR01-BR28-EF14-WS01 7/9/2014 Effluent ⁵	LLR01-BS29-IN14-WS03 7/15/2014 Influent ¹	LLR01-BS30-MS14-WS03 7/15/2014 Mid-Stage ¹	LLR01-BS31-EF14-WS03 7/15/2014 Effluent
PARAMETER	ASSUMED INFLUENT CONCENTRATION	DISCHARGE LIMIT	UNITS						
Carbon disulfide	500	100	µg/L	NS	NS	NS	5.0 U	5.0 U	5.0 U
Bis (2-ethylhexyl) phthalate	5,600	285	µg/L	NS	NS	NS	9.5 U	9.7 U	9.8 U
Fluoranthene	260	18	µg/L	NS	NS	NS	9.5 U	9.7 U	9.8 U
Pyrene	480	28	µg/L	NS	NS	NS	9.5 U	9.7 U	9.8 U
Arsenic	500	100	µg/L	NS	NS	NS	10 U	10	10 U
Barium	500	1,800	µg/L	NS	NS	NS	81	35	26 J
Cadmium	240	11.2	µg/L	NS	NS	NS	2.0 U	2.0	2.0 U
Chromium	260	840	µg/L	NS	NS	NS	5.0 U	5.0	5.0 U
Copper	1,900	27	µg/L	NS	NS	NS	39	25	25 U
Lead	67,000	700	µg/L	NS	NS	NS	9.3	3.0	3.0 U
Mercury	25	0.0013	µg/L	NS	NS	NS	0.015	0.00095	0.00026 J
Selenium	100	55	µg/L	NS	NS	NS	5.0 U	5.0	5.0 U
Silver	20	3.3 ²	µg/L	NS	NS	NS	5.0 U	5.0	5.0 U
Zinc	35,000	340	µg/L	550 B	370 B	250 B	370	200	190
Aroclor 1254	120	0.000026 ²	µg/L	NS	NS	NS	0.096 U	0.097 U	0.097 U
Aroclor 1260	4.7	0.000026 ²	µg/L	NS	NS	NS	0.096	0.087 U	0.097 U
TSS	500	30	mg/L	NS	NS	NS	5.0	4.0 U	4.0 U
Dissolved Oxygen	N/A	4.0 ³	mg/L	NS	NS	NS	NS	NS	8.4

NOTES:

- B - Compound was found in the blank and sample.
J - Analytical result is reported above the Method Detection Limit, but below the Reporting Limit
U - Analytical result is reported below the Method Detection Limit
NS - No sample collected
N/A - Not applicable
NT- Parameter not tested for

10	Analytical result exceeds laboratory Reporting Limit
10	Analytical result exceeds Discharge Limit

¹Influent and Mid-Stage results are not subject to Discharge Limits
²Discharge limit is less than the Method Detection Limit, therefore the Discharge Limit defaults to the I
³Dissolved Oxygen limit compared to 4.0 mg/L daily minimum
⁴Sample re-analyzed by lab to confirm zinc concentration
⁵New sample collected to confirm zinc concentration
⁶Samples collected 9/7/14 were collected after media changeout.
⁷No water was discharged at the time of this sample; therefore, dissolved oxygen was not tested.

TABLE 3.3 - WATER TREATMENT SYSTEM WEEKLY SAMPLE RESULTS
Lake Linden Calumet and Hecla Power Plant Site
Torch Lake Township, Michigan

Field Sample ID: Sample Date: Sample Location:				LLR01-BS32-IN14-WS04 7/21/2014 Influent ¹	LLR01-BS33-MS14-WS04 7/21/2014 Mid-Stage ¹	LLR01-BS34-EF14-WS04 7/21/2014 Effluent	LLR01-BS37-IN14-WS05 8/7/2014 Influent ¹	LLR01-BS36-MS14-WS05 8/7/2014 Mid-Stage ¹	LLR01-BS35-EF14-WS05 8/7/2014 Effluent
PARAMETER	ASSUMED INFLUENT CONCENTRATION	DISCHARGE LIMIT	UNITS						
Carbon disulfide	500	100	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Bis (2-ethylhexyl) phthalate	5,600	285	µg/L	9.6 U	10 U	10 U	9.6 U	9.6 U	9.7 U
Fluoranthene	260	18	µg/L	9.6 U	10 U	10 U	9.6 U	9.6 U	9.7 U
Pyrene	480	28	µg/L	9.6 U	10 U	10 U	9.6 U	9.6 U	0.10 J
Arsenic	500	100	µg/L	10 U	3.8 J	10 U	10 U	10 U	3.3 J
Barium	500	1,800	µg/L	59 J B	30 J B	26 J B	100 J B	21 J B	17 J B
Cadmium	240	11.2	µg/L	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Chromium	260	840	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Copper	1,900	27	µg/L	35	25 U	25 U	52	25 U	25 U
Lead	67,000	700	µg/L	13	3.0 U	3.0 U	15	3.0 U	3.0 U
Mercury	25	0.0013	µg/L	0.026	0.0005 U	0.0005 U	0.013	0.00066	0.00031 J
Selenium	100	55	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Silver	20	3.3 ²	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Zinc	35,000	340	µg/L	210	120	140	40 J B	27 J B	32 J B
Aroclor 1254	120	0.000026 ²	µg/L	0.096 U	0.10 U	0.096 U	0.099 U	0.096 U	0.099 U
Aroclor 1260	4.7	0.000026 ²	µg/L	0.096 U	0.10 U	0.096 U	0.099 U	0.096 U	0.099 U
TSS	500	30	mg/L	16	2.0 J	4.0 U	42	4.0 U	4.0 U
Dissolved Oxygen	N/A	4.0 ³	mg/L	NS	NS	5.1	NT	NT	5.6

NOTES:

- B - Compound was found in the blank and sample.
J - Analytical result is reported above the Method Detection Limit, but below the Reporting Limit
U - Analytical result is reported below the Method Detection Limit
NS - No sample collected
N/A - Not applicable
NT- Parameter not tested for

10	Analytical result exceeds laboratory Reporting Limit
10	Analytical result exceeds Discharge Limit

¹Influent and Mid-Stage results are not subject to Discharge Limits
²Discharge limit is less than the Method Detection Limit, therefore the Discharge Limit defaults to the I
³Dissolved Oxygen limit compared to 4.0 mg/L daily minimum
⁴Sample re-analyzed by lab to confirm zinc concentration
⁵New sample collected to confirm zinc concentration
⁶Samples collected 9/7/14 were collected after media changeout.
⁷No water was discharged at the time of this sample; therefore, dissolved oxygen was not tested.

TABLE 3.3 - WATER TREATMENT SYSTEM WEEKLY SAMPLE RESULTS
Lake Linden Calumet and Hecla Power Plant Site
Torch Lake Township, Michigan

Field Sample ID: Sample Date: Sample Location:				LLR01-BS38-IN14-WS06 8/12/2014 Influent ¹	LLR01-BS39-MS14-WS06 8/12/2014 Mid-Stage ¹	LLR01-BS40-EF14-WS06 8/12/2014 Effluent	LLR01-BS41-IN14-WS07 8/20/2014 Influent ¹	LLR01-BS42-MS14-WS07 8/20/2014 Mid-Stage ¹	LLR01-BS43-EF14-WS07 8/20/2014 Effluent
PARAMETER	ASSUMED INFLUENT CONCENTRATION	DISCHARGE LIMIT	UNITS						
Carbon disulfide	500	100	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Bis (2-ethylhexyl) phthalate	5,600	285	µg/L	9.6 U	9.6 U	9.6 U	9.5 U	9.5 U	9.6 U
Fluoranthene	260	18	µg/L	9.6 U	9.6 U	9.6 U	9.5 U	9.5 U	9.6 U
Pyrene	480	28	µg/L	9.6 U	9.6 U	9.6 U	9.5 U	9.5 U	9.6 U
Arsenic	500	100	µg/L	10 U	10 U	10 U	3.2 J	10 U	10 U
Barium	500	1,800	µg/L	110 J B	22 J B	21 J B	19 J B	17 J B	13 J B
Cadmium	240	11.2	µg/L	2.0 U	2.0	2.0 U	2.0 U	2.0 U	2.0 U
Chromium	260	840	µg/L	5.4	5.0	5.0 U	5.0 U	5.0 U	5.0 U
Copper	1,900	27	µg/L	140	25	25 U	6.1 J	25 U	25 U
Lead	67,000	700	µg/L	41	3.0	3.0 U	6.3	3.0 U	3.0 U
Mercury	25	0.0013	µg/L	0.05	0.00072	0.00062	0.0042	0.0017	0.0014
Selenium	100	55	µg/L	5.0 U	5.0	5.0 U	5 U	5.0 U	5.0 U
Silver	20	3.3 ²	µg/L	5.0 U	5.0	5.0 U	5 U	5.0 U	5.0 U
Zinc	35,000	340	µg/L	160 B	22 J B	14 J B	41 J B	27 J B	23 J B
Aroclor 1254	120	0.000026 ²	µg/L	0.096 U	0.096 U	0.096 U	0.096 U	0.095 U	0.099 U
Aroclor 1260	4.7	0.000026 ²	µg/L	0.096 U	0.096 U	0.096 U	0.096 U	0.095 U	0.099 U
TSS	500	30	mg/L	50	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Dissolved Oxygen	N/A	4.0 ³	mg/L	NT	NT	7.5	NT	NT	4.7

NOTES:

- B - Compound was found in the blank and sample.
J - Analytical result is reported above the Method Detection Limit, but below the Reporting Limit
U - Analytical result is reported below the Method Detection Limit
NS - No sample collected
N/A - Not applicable
NT- Parameter not tested for

10	Analytical result exceeds laboratory Reporting Limit
10	Analytical result exceeds Discharge Limit

¹Influent and Mid-Stage results are not subject to Discharge Limits
²Discharge limit is less than the Method Detection Limit, therefore the Discharge Limit defaults to the
³Dissolved Oxygen limit compared to 4.0 mg/L daily minimum
⁴Sample re-analyzed by lab to confirm zinc concentration
⁵New sample collected to confirm zinc concentration
⁶Samples collected 9/7/14 were collected after media changeout.
⁷No water was discharged at the time of this sample; therefore, dissolved oxygen was not tested.

TABLE 3.3 - WATER TREATMENT SYSTEM WEEKLY SAMPLE RESULTS
Lake Linden Calumet and Hecla Power Plant Site
Torch Lake Township, Michigan

Field Sample ID: Sample Date: Sample Location:				LLR01-BS44-IN14-WS08 8/27/2014 Influent ¹	LLR01-BS45-MS14-WS08 8/27/2014 Mid-Stage ¹	LLR01-BS46-EF14-WS08 8/27/2014 Effluent	LLR01-BS47-IN14-WS09 9/7/2014 Influent ¹	LLR01-BS48-MS14-WS09 9/7/2014 Mid-Stage ¹	LLR01-BS49-EF14-WS09 9/7/2014 Effluent
PARAMETER	ASSUMED INFLUENT CONCENTRATION	DISCHARGE LIMIT	UNITS						
Carbon disulfide	500	100	µg/L		5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Bis (2-ethylhexyl) phthalate	5,600	285	µg/L	3.6	J	2.7	J	10 U	11 U
Fluoranthene	260	18	µg/L		9.6 U	9.7 U	10 U	9.6 U	11 U
Pyrene	480	28	µg/L		9.6 U	9.7 U	10 U	9.6 U	11 U
Arsenic	500	100	µg/L	5.8	J	6.6	J	26	37
Barium	500	1,800	µg/L	71	J B	26	J B	58	40
Cadmium	240	11.2	µg/L		2.0 U	2.0 U	2.0 U	2.0	2.0 U
Chromium	260	840	µg/L	3.1	J		5.0 U	5.0	5.0 U
Copper	1,900	27	µg/L	66	J	11	J	12	25 U
Lead	67,000	700	µg/L	18	3.0 U		3.0 U	2.8	3.0 U
Mercury	25	0.0013	µg/L	0.033		0.0035	0.011	0.0016	0.00054
Selenium	100	55	µg/L		5.0 U		5.0 U	5.0	5.0 U
Silver	20	3.3 ²	µg/L		5.0 U		5.0 U	5.0	5.0 U
Zinc	35,000	340	µg/L	28	J B	11	J B	7.6	50 U
Aroclor 1254	120	0.000026 ²	µg/L	0.35	0.097 U		0.098 U	0.30	0.095 U
Aroclor 1260	4.7	0.000026 ²	µg/L		0.095 U		0.098 U	0.096 U	0.095 U
TSS	500	30	mg/L	41	4.0 U		4.0 U	3.0	4.0 U
Dissolved Oxygen	N/A	4.0 ³	mg/L	NT	NT	4.4	NT	NT	7.3

NOTES:

- B - Compound was found in the blank and sample.
J - Analytical result is reported above the Method Detection Limit, but below the Reporting Limit
U - Analytical result is reported below the Method Detection Limit
NS - No sample collected
N/A - Not applicable
NT- Parameter not tested for

10	Analytical result exceeds laboratory Reporting Limit
10	Analytical result exceeds Discharge Limit

¹Influent and Mid-Stage results are not subject to Discharge Limits
²Discharge limit is less than the Method Detection Limit, therefore the Discharge Limit defaults to the
³Dissolved Oxygen limit compared to 4.0 mg/L daily minimum
⁴Sample re-analyzed by lab to confirm zinc concentration
⁵New sample collected to confirm zinc concentration
⁶Samples collected 9/7/14 were collected after media changeout.
⁷No water was discharged at the time of this sample; therefore, dissolved oxygen was not tested.

TABLE 3.3 - WATER TREATMENT SYSTEM WEEKLY SAMPLE RESULTS
Lake Linden Calumet and Hecla Power Plant Site
Torch Lake Township, Michigan

Field Sample ID: Sample Date: Sample Location:				LLR01-BS50-IN14-WS10 9/17/2014 Influent ¹	LLR01-BS51-MS14-WS10 9/17/2014 Mid-Stage ¹	LLR01-BS52-EF14-WS10 9/17/2014 Effluent	LLR01-BS53-IN14-WS11 9/22/214 Influent ¹	LLR01-BS54-MS14-WS11 9/22/214 Mid-Stage ¹	LLR01-BS55-EF14-WS11 9/22/214 Effluent
PARAMETER	ASSUMED INFLUENT CONCENTRATION	DISCHARGE LIMIT	UNITS						
Carbon disulfide	500	100	µg/L	Pending	Pending	Pending	5.0 U	5.0 U	5.0 U
Bis (2-ethylhexyl) phthalate	5,600	285	µg/L	Pending	Pending	Pending	3.6 J	3.5 J	2.8 J
Fluoranthene	260	18	µg/L	Pending	Pending	Pending	9.7 U	9.8 U	9.9 U
Pyrene	480	28	µg/L	Pending	Pending	Pending	0.11 J	9.8 U	9.9 U
Arsenic	500	100	µg/L	6.4 J	3.1 J	10 U	11	6.3 J	11
Barium	500	1,800	µg/L	110 J	33 J	27 J	51 J	31 J	34 J
Cadmium	240	11.2	µg/L	0.61 J	2.0 U	0.19 J	2.0 U	2.0 U	2.0 U
Chromium	260	840	µg/L	2.8 J	0.88 J	0.90 J	1.5 J	0.93 J	5.0 U
Copper	1,900	27	µg/L	140	5.0 J	25 U	36	4.5 J	25 U
Lead	67,000	700	µg/L	190	5.2	J	32	3.0 U	3.0 U
Mercury	25	0.0013	µg/L	0.078	0.0058	0.0052	0.034	0.0051	0.0044
Selenium	100	55	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Silver	20	3.3 ²	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Zinc	35,000	340	µg/L	160	13 J	14 J	47 J	16 J	14
Aroclor 1254	120	0.000026 ²	µg/L	Pending	Pending	Pending	1.7	0.10 U	0.099 U
Aroclor 1260	4.7	0.000026 ²	µg/L	Pending	Pending	Pending	0.097	0.10 U	0.099 U
TSS	500	30	mg/L	47	4.0 U	4.0 U	10	J	4.0
Dissolved Oxygen	N/A	4.0 ³	mg/L	NT	NT	7.2	NT	NT	NT ⁷

NOTES:

B - Compound was found in the blank and sample.

J - Analytical result is reported above the Method Detection Limit, but below the Reporting Limit

U - Analytical result is reported below the Method Detection Limit

NS - No sample collected

N/A - Not applicable

NT- Parameter not tested for

10 Analytical result exceeds laboratory Reporting Limit

10 Analytical result exceeds Discharge Limit

¹Influent and Mid-Stage results are not subject to Discharge Limits

²Discharge limit is less than the Method Detection Limit, therefore the Discharge Limit defaults to the

³Dissolved Oxygen limit compared to 4.0 mg/L daily minimum

⁴Sample re-analyzed by lab to confirm zinc concentration

⁵New sample collected to confirm zinc concentration

⁶Samples collected 9/7/14 were collected after media changeout.

⁷No water was discharged at the time of this sample; therefore, dissolved oxygen was not tested.

TABLE 3.3 - WATER TREATMENT SYSTEM WEEKLY SAMPLE RESULTS
Lake Linden Calumet and Hecla Power Plant Site
Torch Lake Township, Michigan

Field Sample ID: Sample Date: Sample Location:				LLR01-BS66-IN14-WS21 9/30/2014 Influent	LLR01-BS67-MS14-WS21 9/30/2014 Mid-Stage
PARAMETER	ASSUMED INFLUENT CONCENTRATION	DISCHARGE LIMIT	UNITS		
Carbon disulfide	500	100	µg/L	5.0 U	5.0 U
Bis (2-ethylhexyl) phthalate	5,600	285	µg/L	9.6 U	9.9 U
Fluoranthene	260	18	µg/L	0.53 J	9.9 U
Pyrene	480	28	µg/L	0.41 J	9.9 U
Arsenic	500	100	µg/L	9.6 J	2.9 J
Barium	500	1,800	µg/L	120 JB	25 JB
Cadmium	240	11.2	µg/L	0.37 J	2.00 U
Chromium	260	840	µg/L	1.6 J	5.0 U
Copper	1,900	27	µg/L	100	1.9 J
Lead	67,000	700	µg/L	160.0	7.7
Mercury	25	0.0013	µg/L	0.27	0.013
Selenium	100	55	µg/L	5.0 U	5.0 U
Silver	20	3.3²	µg/L	5.0 U	5.0 U
Zinc	35,000	340	µg/L	120	12 J
Aroclor 1254	120	0.000026²	µg/L	3.2	0.035 J
Aroclor 1260	4.7	0.000026²	µg/L	0.099 U	0.099 U
TSS	500	30	mg/L	56.0	4.0
Dissolved Oxygen	N/A	4.0³	mg/L	NT⁷	NT⁷

NOTES:
B - Compound was found in the blank and sample.
J - Analytical result is reported above the Method Detection Limit, but below the Reporting Limit
U - Analytical result is reported below the Method Detection Limit
NS - No sample collected
N/A - Not applicable
NT- Parameter not tested for

10	Analytical result exceeds laboratory Reporting Limit
10	Analytical result exceeds Discharge Limit

¹Influent and Mid-Stage results are not subject to Discharge Limits
²Discharge limit is less than the Method Detection Limit, therefore the Discharge Limit defaults to the |
³Dissolved Oxygen limit compared to 4.0 mg/L daily minimum
⁴Sample re-analyzed by lab to confirm zinc concentration
⁵New sample collected to confirm zinc concentration
⁶Samples collected 9/7/14 were collected after media changeout.
⁷No water was discharged at the time of this sample; therefore, dissolved oxygen was not tested.

TABLE 3.4 - WATER TREATMENT SYSTEM HACH KIT ZINC RESULTS
Lake Linden Calumet and Hecla Power Plant Site
Torch Lake Township, Michigan

Date	Time	Mid-Stage (ug/L)	Effluent (ug/L)	Comments:
7/14/2014	18:45	NT	U	Used ProAct's pH meter which does not measure down to the recommended 4-5 range, it is likely the pH was lower than recommended
7/15/2014	18:30	NT	250	Received pH meter from Pine, however it does not seem to be working properly. Only Effluent sample measured.
7/16/2014	16:45	170	120	pH meter not working, tried to locate new pH meter, but was not able to obtain one until late in the day, so zinc only measured once.
7/17/2014	8:00	210	90	
7/17/2014	16:00	170	220	System being backwashed and re-circulated into Weir tank at time of sample
7/18/2014	10:30	170	140	
7/18/2014	17:00	330	300	
7/18/2014	20:00	NT	220	
7/19/2014	6:30	650	220	
7/19/2014	7:30	570	200	
7/19/2014	10:00	NT	310	ProAct will backwash system and re-circ through Wier tank. Also lowered rate to 70 gpm to increase contact time.
7/19/2014	12:00	NT	100	
7/19/2014	14:15	440	100	
7/19/2014	18:45	NT	30	
7/20/2014	7:15	290	290	ProAct will backwash system, and also increase pressure in first zeolite vessel to increase contact time w/media.
7/20/2014	10:15	NT	140	
7/20/2014	13:30	NT	100	
7/20/2014	18:30	NT	70	System shut down at approx 17:30 d/t generator not running properly
7/21/2014	10:45	340	210	ProAct will backwash system and re-circ through Weir tank.
7/21/2014	12:45	NT	240	
7/21/2014	17:10	NT	120	
7/22/2014	11:15	460	250	
7/22/2014	17:10	NT	190	
7/23/2014	7:30	130	100	ProAct increased flow back to 100 gpm; also increased pressure in second zeolite tank
7/23/2014	11:45	NT	40	
7/23/2014	17:45	NT	10	
7/24/2014	7:00	210	100	
7/24/2014	13:00	NT	30	
7/24/2014	17:45	NT	70	
7/25/2014	9:10	50	200	
7/25/2014	16:45	NT	110	
7/28/2014	9:45	NT	140	
8/1/2014	15:45	NT	70	
8/4/2014	14:20	NT	140	
8/5/2014	14:00	NT	120	
8/6/2014	9:45	NT	130	
8/7/2014	10:20	NT	U	Reading taken just prior to collecting samples for lab analysis
8/8/2014	11:30	NT	20	
8/9/2014	11:00	NT	190	

Notes:

U - Result is below equipment detection limit

NT - Not Tested

TABLE 3.4 - WATER TREATMENT SYSTEM HACH KIT ZINC RESULTS
Lake Linden Calumet and Hecla Power Plant Site
Torch Lake Township, Michigan

Date	Time	Mid-Stage (ug/L)	Effluent (ug/L)	Comments:
8/11/2014	10:15	NT	20	
8/12/2014	10:30	NT	220	Reading taken just prior to collecting samples for lab analysis
8/13/2014	10:45	NT	30	
8/14/2014	10:45	NT	90	
8/15/2014	11:45	NT	120	
8/18/2014	10:00	NT	U	
8/19/2014	13:15	NT	120	
8/20/2014	11:30	NT	40	Reading taken just prior to collecting samples for lab analysis
8/21/2014	13:40	NT	20	
8/22/2014	11:00	NT	90	
8/25/2014	14:40	NT	10	
8/26/2014	15:15	NT	30	
8/27/2014	11:00	NT	110	Reading taken just prior to collecting samples for lab analysis
8/28/2014	15:30	NT	140	
8/29/2014	10:30	NT	120	
9/7/2014	12:15	NT	ND	First reading taken after media changeout. Reading taken just prior to collecting samples for lab analysis.
9/8/2014	13:30	NT	40	
9/9/2014	14:30	NT	40	
9/11/2014	15:15	NT	ND	
9/12/2014	15:00	NT	ND	
9/13/2014	16:15	NT	ND	
9/15/2014	16:45	NT	ND	
9/16/2014	-	NT	NT	Not tested due to minimal water treated
9/17/2014	9:30	NT	ND	
9/18/2014	14:30	NT	ND	
9/19/2014	16:30	NT	ND	
9/22/2014	11:45	NT	ND	Reading taken just prior to collecting samples for lab analysis

Notes:

U - Result is below equipment detection limit

NT - Not Tested

TABLE 3.5 - WATER TREATMENT SYSTEM FRAC TANK SAMPLE RESULTS
Lake Linden Calumet and Hecla Power Plant Site
Torch Lake Township, Michigan

Field Sample ID: Sample Date: Sample Location:				LLR01-BS56-T1XX-WS12 9/26/2014 Effluent - Tank 1	LLR01-BS58-T2XX-WS14 9/26/2014 Effluent - Tank 2	LLR01-BS59-T3XX-WS15 9/27/2014 Effluent - Tank 3	LLR01-BS57-T4XX-WS13 9/26/2014 Effluent - Tank 4	LLR01-BS60-T5XX-WS16 9/27/2014 Effluent - Tank 5	LLR01-BS61-T6XX-WS17 9/28/2014 Effluent - Tank 6	LLR01-BS63-T7XX-WS19 9/28/2014 Effluent - Tank 7	LLR01-BS62-T8XX-WS18 9/28/2014 Effluent - Tank 8	LLR01-BS65-T9XX-WS21 9/30/2014 Effluent - Tank 9
PARAMETER	ASSUMED INFLUENT CONCENTRATION	DISCHARGE LIMIT	UNITS									
Carbon disulfide	500	100	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Bis (2-ethylhexyl) phthalate	5,600	285	µg/L	9.9 U	10 U	11 U	10 U	11 U	11 U	11 U	11 U	9.7 U
Fluoranthene	260	18	µg/L	9.9 U	10 U	11 U	10 U	11 U	11 U	11 U	11 U	9.7 U
Pyrene	480	28	µg/L	9.9 U	10 U	11 U	10 U	11 U	11 U	11 U	11 U	9.7 U
Arsenic	500	100	µg/L	15	10	7.9 J	11	9.4 J	6.9 J	3.9 J	6.3 J	10 U
Barium	500	1,800	µg/L	25 J	20 J	35 J	23 J	40 J	36 J	31 J	29 J	26 JB
Cadmium	240	11.2	µg/L	0.24 J	0.17 J	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	0.15 J
Chromium	260	840	µg/L	1.3 J	0.99 J	1.5 U	1.0 J	1.7 J	1.5 J	1.4 J	3.6 J	5.0 U
Copper	1,900	27	µg/L	5.6 J	4.6 J	3.5 J	4.8 J	3.7 J	5.4 J	2.9 J	5.5 J	25 U
Lead	67,000	700	µg/L	3.0 U	3.0 U	4.8	3.0 U	5.2 J	9.2	6.0	6.9	5.9
Mercury	25	0.0013	µg/L	0.0059	0.0024	0.0091	0.0031	0.014	0.017	0.013	0.014	0.011
Selenium	100	55	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Silver	20	3.3 ²	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Zinc	35,000	340	µg/L	14 JB	11 JB	12 J	11 JB	13 J	13 J	11 J	32 J	50 U
Aroclor 1254	120	0.000026 ²	µg/L	0.098 U	0.10 U	0.11 U	0.10 U	0.11 U	0.11 U	0.11 U	0.11 U	0.099 U
Aroclor 1260	4.7	0.000026 ²	µg/L	0.098 U	0.10 U	0.11 U	0.10 U	0.11 U	0.11 U	0.11 U	0.11 U	0.099 U
TSS	500	30	mg/L	4.0	2.0 J	4.0 U	3.0 J	6.0	5.0	3.0 J	4.0 U	2.0 J
Dissolved Oxygen	N/A	4.0 ³	mg/L	NT ⁷	NT ⁷	NT ⁷	NT ⁷	NT ⁷	NT ⁷	NT ⁷	NT ⁷	NT ⁷
BOD ⁸	N/A	N/A	mg/L	NT	NT	NT	NT	NT	NT	NT	NT	9.4 B
COD ⁸	N/A	N/A	mg/L	NT	NT	NT	NT	NT	NT	NT	NT	18
Phosphorus ⁸	N/A	N/A	mg/L	NT	NT	NT	NT	NT	NT	NT	NT	0.18
Nitrogen, Kjeldahl ⁸	N/A	N/A	mg/L	NT	NT	NT	NT	NT	NT	NT	NT	5.0 U
Nitrate/Nitrite as N ⁸	N/A	N/A	mg/L	NT	NT	NT	NT	NT	NT	NT	NT	0.050 U
Total Nitrogen ⁸	N/A	N/A	mg/L	NT	NT	NT	NT	NT	NT	NT	NT	5.0 U

NOTES:
B - Compound was found in the blAnalytical result exceeds laboratory Reporting Limit
J - Analytical result is reported abcAnalytical result exceeds Discharge Limit
U - Analytical result is reported below the Method Detection Limit
NS - No sample collected
N/A - Not applicable
NT- Parameter not tested for

10 Analytical result exceeds laboratory Reporting Limit
¹Influent and Mid-Stage results are not subject to Discharge Limits
²Discharge limit is less than the Method Detection Limit, therefore the Discharge Limit defaults to the Method Detection Limit
³Dissolved Oxygen limit compared to 4.0 mg/L daily minimum
⁴Sample re-analyzed by lab to confirm zinc concentration
⁵New sample collected to confirm zinc concentration
⁶Samples collected 9/7/14 were collected after media changeout.
⁷No water was discharged at the time of this sample; therefore, dissolved oxygen was not tested.
⁸Parameter analyzed for on from one tank (Tank 9) per request of POTW for disposal purposes
Tank 13 was not used; therefore, no sample was collected

TABLE 3.5 - WATER TREATMENT SYSTEM FRAC TANK SAMPLE RESULTS
Lake Linden Calumet and Hecla Power Plant Site
Torch Lake Township, Michigan

Field Sample ID: Sample Date: Sample Location:				LLR01-BS68-T10X-WS22 9/30/2014 Tank 10	LLR01-BS69-T11X-WS23 10/2/2014 Tank 11	LLR01-BS70-T12X-WS24 10/3/2014 Tank 12	LLR01-BS64-T14X-WS20 9/30/2014 Effluent - Tank 14	LLR01-BSXX-FB01-XXXX 9/26/2014 Field Blank
PARAMETER	ASSUMED INFLUENT CONCENTRATION	DISCHARGE LIMIT	UNITS					
Carbon disulfide	500	100	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Bis (2-ethylhexyl) phthalate	5,600	285	µg/L	9.9 U	9.8 U	12 U	11 U	10 U
Fluoranthene	260	18	µg/L	9.9 U	9.8 U	J	11 U	10 U
Pyrene	480	28	µg/L	9.9 U	9.8 U	J	11 U	10 U
Arsenic	500	100	µg/L	10 U	10 U	10 U	10 U	10 U
Barium	500	1,800	µg/L	23 J	18 J	17 JB	24 JB	200 U
Cadmium	240	11.2	µg/L	2.00 U	2.00 U	2.00 U	2.00 U	2.0 U
Chromium	260	840	µg/L	0.98 J	0.82 J	1.00 J	5.0 U	5.00 U
Copper	1,900	27	µg/L	6.0 J	3.3 J	3.1 J	25 U	25 U
Lead	67,000	700	µg/L	4.3	5.3	4.5	3.1	3.0 U
Mercury	25	0.0013	µg/L	0.0078	0.0069	0.0064	0.0043	0.0005 U
Selenium	100	55	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Silver	20	3.3²	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Zinc	35,000	340	µg/L	9.6 J	50 U	20 J	5.0 U	50 U
Aroclor 1254	120	0.000026²	µg/L	0.037 J	0.04 J	0.11 U	0.11 U	0.11 U
Aroclor 1260	4.7	0.000026²	µg/L	0.1 U	0.098 U	0.11 U	0.11 U	0.11 U
TSS	500	30	mg/L	3.0 J	4.0 U	4.0	3.0 J	4.0 U
Dissolved Oxygen	N/A	4.0³	mg/L	NT⁷	NT⁷	NT⁷	NT⁷	NT⁷
BOD⁸	N/A	N/A	mg/L	NT	NT	NT	NT	NT
COD⁸	N/A	N/A	mg/L	NT	NT	NT	NT	NT
Phosphorus⁸	N/A	N/A	mg/L	NT	NT	NT	NT	NT
Nitrogen, Kjeldahl⁸	N/A	N/A	mg/L	NT	NT	NT	NT	NT
Nitrate/Nitrite as N⁸	N/A	N/A	mg/L	NT	NT	NT	NT	NT
Total Nitrogen⁸	N/A	N/A	mg/L	NT	NT	NT	NT	NT

NOTES:
B - Compound was found in the blAnalytical result exceeds laboratory Reporting Limit
J - Analytical result is reported abxAnalytical result exceeds Discharge Limit
U - Analytical result is reported below the Method Detection Limit
NS - No sample collected
N/A - Not applicable
NT- Parameter not tested for

10 Analytical result exceeds laboratory Reporting Limit

¹Influent and Mid-Stage results are not subject to Discharge Limits
²Discharge limit is less than the Method Detection Limit, therefore the Discharge Limit defaults to the l
³Dissolved Oxygen limit compared to 4.0 mg/L daily minimum
⁴Sample re-analyzed by lab to confirm zinc concentration
⁵New sample collected to confirm zinc concentration
⁶Samples collected 9/7/14 were collected after media changeout.
⁷No water was discharged at the time of this sample; therefore, dissolved oxygen was not tested.
⁸Parameter analyzed for on from one tank (Tank 9) per request of POTW for disposal purposes
Tank 13 was not used; therefore, no sample was collected

TABLE 3.6 - VERIFICATION SAMPLE RESULTS SUMMARY
Lake Linden Calumet and Hecla Power Plant Site
Torch Lake Township, Michigan

Field Sample ID: Sample Type: Sample Date: Sample Location:			LLR01-23SW-01CS-SSXX Sidewall ¹ 8/28/2014 Grid 23	LLR01-23CE-01CS-SSXX Sidewall ¹ 8/28/2014 Grid 23	LLR01-23NE-01CS-SSXX Sidewall ¹ 8/28/2014 Grid 23	LLR01-31SW-01CS-SSXX Sidewall ¹ 8/28/2014 Grid 31	LLR01-31NW-01CS-SSXX Sidewall ¹ 8/28/2014 Grid 31	LLR01-BANW-02CS-SSXX Copper Concentrate Bag ² 8/28/2014 Grid 31	LLR01-BASO-01CS-SSXX Copper Concentrate Bag ² 8/28/2014 Grid 31	LLR01-BACE-01CS-SSXX Copper Concentrate Bag ² 8/28/2014 Grid 31	LLR01-BAWE-00CS-SSXX Copper Concentrate Bag ² 8/28/2014 Grid 31
ANALYTE	NONRESIDENTIAL DIRECT CONTACT CRITERIA*	UNITS									
Antimony	670,000	µg/kg	1,100 U	1,300 U	210,000	1,200 U	930 U	1,400 U	1,200 U	1,500 U	24,000 U
Arsenic	37,000	µg/kg	150,000	26,000	500,000	4,800	480 J	6,400	2,700	6,200	72,000
Copper	73,000,000	µg/kg	1,500,000	3,500,000	42,000,000	6,500,000	990,000	1,200,000	540,000	2,600,000	240,000,000
Iron	580,000,000	µg/kg	16,000,000 B	21,000,000 B	130,000,000 B	16,000,000 B	14,000,000 B	32,000,000 B	15,000,000 B	27,000,000 B	18,000,000 B
Lead	900,000	µg/kg	190,000	45,000	15,000,000	23,000	2,100	26,000	4,600	38,000	750,000

NOTES:
Per the approved July 10, 2013 Foundation Cleaning Site Walk Meeting Minutes, due to the steep shoreline and health and safety concerns, soils in this area were left in place.
¹Sidewall samples collected along the sidewall excavations of Grids 23 and 31
²Copper Concentrate Bag samples collected from beneath former location of copper concentrate bags
B - Analytical result is reported above the Method Detection Limit or Reporting Limit, and the associated method blank sample result is reported above the Reporting Limit
J - Analytical result is reported above the Method Detection Limit, but below the Reporting Limit
U - Analytical result is reported below the Method Detection Limit
25,000 Analytical result exceeds laboratory Reporting Limit
25,000 Analytical result exceeds direct contact criteria
* State of Michigan Part 201 Risked Based NonResidential Direct Contact Criteria (March 25, 2011)

TABLE 3.7 - 2014 METALS SOIL SAMPLING RESULTS
Lake Linden Calumet and Hecla Power Plant Site
Torch Lake Township, Michigan

Field Sample ID:			LLI01-01NE-0005-0521	LLI01-12SE-0005-0521	LLI01-19SE-0005-0521	LLI01-20SE-0005-0521	LLI01-24SE-0005-1519	LLI01-26NE-0005-0519	LLI01-26SW-0005-0519
Sample Date:			5/21/2014	5/21/2014	5/21/2014	5/21/2014	5/19/2014	5/19/2014	5/19/2014
Sample Location:			Grid Cell 1 (0' - 0.5')	Grid Cell 12 (0' - 0.5')	Grid Cell 19 (0' - 0.5')	Grid Cell 20 (0' - 0.5')	Grid Cell 24 (0' - 0.5')	Grid Cell 26 (0' - 0.5')	Grid Cell 26 (0' - 0.5')
ANALYTE	RCRA 20X Rule	UNITS							
Arsenic	100,000	µg/kg	NS	NS	NS	NS	NS	NS	NS
Lead	100,000	µg/kg	15,000	56,000	380,000	160,000	6,100	360,000	34,000

Field Sample ID:			LLI01-01NE-0502-0521	LLI01-12SE-0502-0521	LLI01-19SE-0502-0521	LLI01-20SE-0502-0521	LLI01-24SE-0502-0519	LLI01-26NE-0502-0519	LLI01-26SW-0502-0519
Sample Date:			5/21/2014	5/21/2014	5/21/2014	5/21/2014	5/19/2014	5/19/2014	5/19/2014
Sample Location:			Grid Cell 1 (0.5' - 2')	Grid Cell 12 (0.5' - 2')	Grid Cell 19 (0.5' - 2')	Grid Cell 20 (0.5' - 2')	Grid Cell 24 (0.5' - 2')	Grid Cell 26 (0.5' - 2')	Grid Cell 26 (0.5' - 2')
ANALYTE	RCRA 20X Rule	UNITS							
Arsenic	100,000	µg/kg	NS	NS	NS	NS	NS	NS	NS
Lead	100,000	µg/kg	1,400 U	620,000	560,000	39,000	100,000	24,000	24,000

NOTES:
B - Analytical result is reported above the Method Detection Limit or Reporting Limit, and the associated method blank sample result is reported above the Reporting Limit
J - Analytical result is reported above the Method Detection Limit, but below the Reporting Limit
U - Analytical result is reported below the Method Detection Limit

25,000

Analytical result exceeds laboratory Reporting Limit

25,000

Analytical result exceeds RCRA 20X Rule

TABLE 3.7 - 2014 METALS SOIL SAMPLING RESULTS
Lake Linden Calumet and Hecla Power Plant Site
Torch Lake Township, Michigan

Field Sample ID:			LLI01-27SE-0005-0521	LLI01-30SE-0005-0520	LLI01-31SW-0005-0520	LLI01-32SE-0005-0519	LLI01-34NE-0005-0519	LLI01-34SE-0005-1519	LLI01-35NW-0005-0520
Sample Date:			5/21/2014	5/20/2014	5/20/2014	5/19/2014	5/19/2014	5/19/2014	5/20/2014
Sample Location:			Grid Cell 27 (0' - 0.5')	Grid Cell 30 (0' - 0.5')	Grid Cell 31 (0' - 0.5')	Grid Cell 32 (0' - 0.5')	Grid Cell 34 (0' - 0.5')	Grid Cell 34 (0' - 0.5')	Grid Cell 35 (0' - 0.5')
ANALYTE	RCRA 20X Rule	UNITS							
Arsenic	100,000	µg/kg	NS	NS	NS	NS	NS	NS	NS
Lead	100,000	µg/kg	230,000	200,000	610,000	4,700	150,000	57,000	110,000

Field Sample ID:			LLI01-27SE-0502-0521	LLI01-30SE-0502-0520	LLI01-31SW-0502-0520	LLI01-32SE-0502-0519	LLI01-34NE-0502-0519	LLI01-34SE-0502-0519	LLI01-35NW-0502-0520
Sample Date:			5/21/2014	5/20/2014	5/20/2014	5/19/2014	5/19/2014	5/19/2014	5/20/2014
Sample Location:			Grid Cell 27 (0.5' - 2')	Grid Cell 30 (0.5' - 2')	Grid Cell 31 (0.5' - 2')	Grid Cell 32 (0.5' - 2')	Grid Cell 34 (0.5' - 2')	Grid Cell 34 (0.5' - 2')	Grid Cell 35 (0.5' - 2')
ANALYTE	RCRA 20X Rule	UNITS							
Arsenic	100,000	µg/kg	NS	NS	NS	NS	NS	NS	NS
Lead	100,000	µg/kg	490,000	140,000	1,200,000	7,600	69,000	26,000	83,000

NOTES:
B - Analytical result is reported above the Method Detection Limit or Reporting Lir
J - Analytical result is reported above the Method Detection Limit, but below the Reporting Limit
U - Analytical result is reported below the Method Detection Limit

25,000

Analytical result exceeds laboratory Reporting Limit

25,000

Analytical result exceeds RCRA 20X Rule

TABLE 3.7 - 2014 METALS SOIL SAMPLING RESULTS
Lake Linden Calumet and Hecla Power Plant Site
Torch Lake Township, Michigan

Field Sample ID:			LLI01-35NE-0005-0520	LLI01-36NW-0005-0520	LLI01-36NE-0005-0520	LLI01-39NE-0005-0520	LLI01-39SW-0005-0520	LLI01-40NW-0005-0520	LLI01-41NE-0005-0519
Sample Date:			5/20/2014	5/20/2014	5/20/2014	5/20/2014	5/20/2014	5/20/2014	5/19/2014
Sample Location:			Grid Cell 35 (0' - 0.5')	Grid Cell 36 (0' - 0.5')	Grid Cell 36 (0' - 0.5')	Grid Cell 39 (0' - 0.5')	Grid Cell 39 (0' - 0.5')	Grid Cell 40 (0' - 0.5')	Grid Cell 41 (0' - 0.5')
ANALYTE	RCRA 20X Rule	UNITS							
Arsenic	100,000	µg/kg	NS	NS	46,000	NS	NS	NS	NS
Lead	100,000	µg/kg	160,000	95,000	340,000	26,000	56,000	1,600	13,000

Field Sample ID:			LLI01-35NE-0502-0520	LLI01-36NW-0502-0520	LLI01-36NE-0502-0520	LLI01-39NE-0502-0520	LLI01-39SW-0502-0520	LLI01-40NW-0602-0520	LLI01-41NE-0502-0519
Sample Date:			5/20/2014	5/20/2014	5/20/2014	5/20/2014	5/20/2014	5/20/2014	5/19/2014
Sample Location:			Grid Cell 35 (0.5' - 2')	Grid Cell 36 (0.5' - 2')	Grid Cell 36 (0.5' - 2')	Grid Cell 39 (0.5' - 2')	Grid Cell 39 (0.5' - 2')	Grid Cell 40 (0.5' - 2')	Grid Cell 41 (0.5' - 2')
ANALYTE	RCRA 20X Rule	UNITS							
Arsenic	100,000	µg/kg	NS	NS	14,000	NS	NS	NS	NS
Lead	100,000	µg/kg	87,000	180,000	120,000	68,000	79,000	3,500	31,000

NOTES:
B - Analytical result is reported above the Method Detection Limit or Reporting Lir
J - Analytical result is reported above the Method Detection Limit, but below the Reporting Limit
U - Analytical result is reported below the Method Detection Limit

25,000

Analytical result exceeds laboratory Reporting Limit

25,000

Analytical result exceeds RCRA 20X Rule

TABLE 3.7 - 2014 METALS SOIL SAMPLING RESULTS
Lake Linden Calumet and Hecla Power Plant Site
Torch Lake Township, Michigan

Field Sample ID:			LLI01-44NW-0005-0520	LLI01-44SW-0005-0520	LLI01-45NW-0005-0520	LLI01-45SW-0005-0520	LLI01-57SE-0005-0520	LLI01-64NW-0005-0519	LLI01-66SE-0005-0520
Sample Date:			5/20/2014	5/20/2014	5/20/2014	5/20/2014	5/20/2014	5/19/2014	5/20/2014
Sample Location:			Grid Cell 44 (0' - 0.5')	Grid Cell 44 (0' - 0.5')	Grid Cell 45 (0' - 0.5')	Grid Cell 45 (0' - 0.5')	Grid Cell 57 (0' - 0.5')	Grid Cell 64 (0' - 0.5')	Grid Cell 66 (0' - 0.5')
ANALYTE	RCRA 20X Rule	UNITS							
Arsenic	100,000	µg/kg	NS	NS	NS	NS	NS	NS	NS
Lead	100,000	µg/kg	160,000	160,000	580,000	930,000	140,000	90,000	150,000

Field Sample ID:			LLI01-44NW-0502-0520	LLI01-44SW-0502-0520	LLI01-45NW-0502-0520	LLI01-45SW-0502-0520	LLI01-57SE-0502-0520	LLI01-64NW-0502-0519	LLI01-66SE-0502-0520
Sample Date:			5/20/2014	5/20/2014	5/20/2014	5/20/2014	5/20/2014	5/19/2014	5/20/2014
Sample Location:			Grid Cell 44 (0.5' - 2')	Grid Cell 44 (0.5' - 2')	Grid Cell 45 (0.5' - 2')	Grid Cell 45 (0.5' - 2')	Grid Cell 57 (0.5' - 2')	Grid Cell 64 (0.5' - 2')	Grid Cell 66 (0.5' - 2')
ANALYTE	RCRA 20X Rule	UNITS							
Arsenic	100,000	µg/kg	NS	NS	NS	NS	NS	NS	NS
Lead	100,000	µg/kg	15,000	26,000	17,000	50,000	260,000	75,000	77,000

NOTES:
B - Analytical result is reported above the Method Detection Limit or Reporting Lir
J - Analytical result is reported above the Method Detection Limit, but below the Reporting Limit
U - Analytical result is reported below the Method Detection Limit

25,000

Analytical result exceeds laboratory Reporting Limit

25,000

Analytical result exceeds RCRA 20X Rule

TABLE 3.8 - 2014 TCLP SAMPLE RESULTS
Lake Linden Calumet and Hecla Power Plant Site
Torch Lake Township, Michigan

Field Sample ID:			LLI01-27SE-0005-SSXX	LLI01-27SE-0502-SSXX	LLI01-20SE-0005SSXX	LLI01-19SE-0502-SSXX	LLI01-26NE-0005-SSXX	LLI01-31SW-0005-SSXX	LLI01-31SW-0502-SSXX	LLI01-30SE-0005-SSXX	LLI01-30SE-0502-SSXX
Sample Date:			5/21/2014	5/21/2014	5/21/2014	5/21/2014	5/19/2014	5/20/2014	5/20/2014	5/20/2014	5/20/2014
Sample Location:			Grid Cell 27 (0' - 0.5')	Grid Cell 27 (0.5' - 2')	Grid Cell 20 (0' - 0.5')	Grid Cell 19 (0.5' - 2')	Grid Cell 26 (0' - 0.5')	Grid Cell 31 (0' - 0.5')	Grid Cell 31 (0.5' - 2')	Grid Cell 30 (0' - 0.5')	Grid Cell 30 (0.5' - 2')
ANALYTE	TCLP Maximum Concentration	UNITS									
Lead	5.0	mg/L	0.039 J	0.72 J	0.50	1.2	0.49	0.37	0.41	0.081 J	0.10 U

Field Sample ID:			LLI01-45SW-0005-SSXX	LLI01-45NW-0005-SSXX	LLI01-44NW-0005-SSXX	LLI01-44SW-0005-SSXX	LLI01-36NE-0005-SSXX	LLI01-36NE-0502-SSXX	LLI01-36NW-0502-SSXX	LLI01-35NE-0005-SSXX	LLI01-35NW-0005-SSXX
Sample Date:			5/20/2014	5/20/2014	5/20/2014	5/20/2014	5/20/2014	5/20/2014	5/20/2014	5/20/2014	5/20/2014
Sample Location:			Grid Cell 45 (0' - 0.5')	Grid Cell 45 (0' - 0.5')	Grid Cell 44 (0' - 0.5')	Grid Cell 44 (0' - 0.5')	Grid Cell 36 (0' - 0.5')	Grid Cell 36 (0.5' - 2')	Grid Cell 36 (0.5' - 2')	Grid Cell 35 (0' - 0.5')	Grid Cell 35 (0' - 0.5')
ANALYTE	TCLP Maximum Concentration	UNITS									
Lead	5.0	mg/L	8.3	1.6	0.23 J	0.44 J	1.20 J	0.022 J	1.4 J	0.26 J	0.12

NOTES:
B - Analytical result is reported above the Method Detection Limit or Reporting Limit, and the associated method blank sample result is reported above the Reporting Limit
J - Analytical result is reported above the Method Detection Limit, but below the Reporting Limit
U - Analytical result is reported below the Method Detection Limit
25,000 Analytical result exceeds laboratory Reporting Limit
25,000 Analytical result exceeds TCLP Maximum Concentration

TABLE 3.9 - 2012 PERIMETER AMBIENT AIR SAMPLING RESULTS

**C&H Power Plant Site
Torch Lake Township, MI**

Date	Sample ID	Sample Location	Fiber Concentration (f/cc) (PCM Analysis)	Asebstos PEL (f/cc)
10/12/2012	LLR12-01XX-AB01	Mailbox 1	<0.0051	<0.1
10/12/2012	LLR12-02XX-AB02	Mailbox 2	<0.0051	<0.1
10/12/2012	LLR12-04XX-AB03	Mailbox 4	<0.0052	<0.1
10/12/2012	LLR12-06XX-AB04	Mailbox 6	<0.0053	<0.1
10/12/2012	LLR12-MUXX-AB05	Museum	<0.0049	<0.1
10/12/2012	LLR12-BLXX-AB06	Boat Launch	<0.0049	<0.1

10/15/2012	LLR12-MUXX-AB01	Museum	<0.0030	<0.1
10/15/2012	LLR12-BLXX-AB02	Boat Launch	<0.0031	<0.1
10/15/2012	LLR12-01XX-AB03	Mailbox 1	<0.0030	<0.1
10/15/2012	LLR12-02XX-AB04	Mailbox 2	<0.0031	<0.1
10/15/2012	LLR12-05XX-AB05	Mailbox 5	<0.0033	<0.1
10/15/2012	LLR12-06XX-AB06	Mailbox 6	<0.0031	<0.1

10/16/2012	LLR12-BLXX-AB01	Boat Launch	<0.0024	<0.1
10/16/2012	LLR12-01XX-AB02	Mailbox 1	<0.0023	<0.1
10/16/2012	LLR12-MUXX-AB03	Museum	<0.0023	<0.1
10/16/2012	LLR12-02XX-AB04	Mailbox 2	<0.0026	<0.1
10/16/2012	LLR12-04XX-AB05	Mailbox 4	<0.0027	<0.1
10/16/2012	LLR12-06XX-AB06	Mailbox 6	<0.0030	<0.1

10/17/2012	LLR12-BLXX-AB01	Boat Launch	<0.0027	<0.1
10/17/2012	LLR12-01XX-AB02	Mailbox 1	<0.0024	<0.1
10/17/2012	LLR12-MUXX-AB03	Museum	<0.0029	<0.1
10/17/2012	LLR12-02XX-AB04	Mailbox 2	<0.0026	<0.1
10/17/2012	LLR12-04XX-AB05	Mailbox 4	<0.0022	<0.1
10/17/2012	LLR12-06XX-AB06	Mailbox 6	<0.0029	<0.1

10/18/2012	LLR12-26XX-AB01	Highway M-26	<0.0038	<0.1
10/18/2012	LLR12-01XX-AB02	Mailbox 1	<0.0040	<0.1
10/18/2012	LLR12-MUXX-AB03	Museum	<0.0038	<0.1
10/18/2012	LLR12-02XX-AB04	Mailbox 2	<0.0042	<0.1
10/18/2012	LLR12-04XX-AB05	Mailbox 4	<0.0041	<0.1
10/18/2012	LLR12-06XX-AB06	Mailbox 6	<0.0039	<0.1

10/19/2012	LLR12-01XX-AB01	Mailbox 1	<0.0023	<0.1
10/19/2012	LLR12-MUXX-AB02	Museum	<0.0023	<0.1
10/19/2012	LLR12-02XX-AB03	Mailbox 2	<0.0022	<0.1
10/19/2012	LLR12-04XX-AB04	Mailbox 4	<0.0027	<0.1
10/19/2012	LLR12-26XX-AB05	Highway M-26	<0.0029	<0.1
10/19/2012	LLR12-06XX-AB06	Mailbox 6	<0.0023	<0.1

10/20/2012	LLR12-01XX-AB01	Mailbox 1	<0.0043	<0.1
10/20/2012	LLR12-MUXX-AB02	Museum	<0.0043	<0.1
10/20/2012	LLR12-02XX-AB03	Mailbox 2	<0.0044	<0.1
10/20/2012	LLR12-04XX-AB04	Mailbox 4	<0.0043	<0.1
10/20/2012	LLR12-26XX-AB05	Highway M-26	<0.0044	<0.1
10/20/2012	LLR12-06XX-AB06	Mailbox 6	<0.0046	<0.1

Notes:

f/cc = fibers per cubic centimeter

PEL = Permissible Exposure Limit

TABLE 3.9 - 2012 PERIMETER AMBIENT AIR SAMPLING RESULTS

**C&H Power Plant Site
Torch Lake Township, MI**

Date	Sample ID	Sample Location	Fiber Concentration (f/cc) (PCM Analysis)	Asebstos PEL (f/cc)
10/22/2012	LLR12-01XX-AB01	Mailbox 1	<0.0026	<0.1
10/22/2012	LLR12-MUXX-AB02	Museum	<0.0028	<0.1
10/22/2012	LLR12-02XX-AB03	Mailbox 2	<0.0027	<0.1
10/22/2012	LLR12-04XX-AB04	Mailbox 4	<0.0030	<0.1
10/22/2012	LLR12-26XX-AB05	Highway M-26	<0.0027	<0.1
10/22/2012	LLR12-06XX-AB06	Mailbox 6	<0.0031	<0.1

10/23/2012	LLR12-01XX-AB01	Mailbox 1	<0.0034	<0.1
10/23/2012	LLR12-MUXX-AB02	Museum	<0.0036	<0.1
10/23/2012	LLR12-02XX-AB03	Mailbox 2	<0.0034	<0.1
10/23/2012	LLR12-04XX-AB04	Mailbox 4	<0.0035	<0.1
10/23/2012	LLR12-26XX-AB05	Highway M-26	<0.0035	<0.1
10/23/2012	LLR12-06XX-AB06	Mailbox 6	<0.0035	<0.1

10/24/2012	LLR12-01XX-AB01	Mailbox 1	<0.0027	<0.1
10/24/2012	LLR12-MUXX-AB02	Museum	<0.0029	<0.1
10/24/2012	LLR12-02XX-AB03	Mailbox 2	<0.0028	<0.1
10/24/2012	LLR12-04XX-AB04	Mailbox 4	<0.0027	<0.1
10/24/2012	LLR12-26XX-AB05	Highway M-26	<0.0028	<0.1
10/24/2012	LLR12-06XX-AB06	Mailbox 6	<0.0029	<0.1

10/25/2012	LLR12-BLXX-AB01	Boat Launch	<0.0047	<0.1
10/25/2012	LLR12-01XX-AB02	Mailbox 1	<0.0047	<0.1
10/25/2012	LLR12-MUXX-AB03	Museum	<0.0050	<0.1
10/25/2012	LLR12-02XX-AB04	Mailbox 2	<0.0048	<0.1
10/25/2012	LLR12-04XX-AB05	Mailbox 4	<0.0047	<0.1
10/25/2012	LLR12-06XX-AB06	Mailbox 6	<0.0050	<0.1

10/26/2012	LLR12-BLXX-AB01	Boat Launch	<0.0030	<0.1
10/26/2012	LLR12-01XX-AB02	Mailbox 1	<0.0030	<0.1
10/26/2012	LLR12-MUXX-AB03	Museum	<0.0032	<0.1
10/26/2012	LLR12-02XX-AB04	Mailbox 2	<0.0031	<0.1
10/26/2012	LLR12-04XX-AB05	Mailbox 4	<0.0030	<0.1
10/26/2012	LLR12-06XX-AB06	Mailbox 6	<0.0031	<0.1

10/29/2012	LLR12-01XX-AB01	Mailbox 1	<0.0032	<0.1
10/29/2012	LLR12-MUXX-AB02	Museum	<0.0030	<0.1
10/29/2012	LLR12-02XX-AB03	Mailbox 2	<0.0028	<0.1
10/29/2012	LLR12-04XX-AB04	Mailbox 4	<0.0035	<0.1
10/29/2012	LLR12-26XX-AB05	Highway M-26	<0.0031	<0.1
10/29/2012	LLR12-06XX-AB06	Mailbox 6	<0.0037	<0.1

10/30/2012	LLR12-01XX-AB01	Mailbox 1	<0.0028	<0.1
10/30/2012	LLR12-MUXX-AB02	Museum	<0.0029	<0.1
10/30/2012	LLR12-02XX-AB03	Mailbox 2	<0.0029	<0.1
10/30/2012	LLR12-04XX-AB04	Mailbox 4	<0.0029	<0.1
10/30/2012	LLR12-26XX-AB05	Highway M-26	<0.0031	<0.1
10/30/2012	LLR12-06XX-AB06	Mailbox 6	<0.0030	<0.1

Notes:

f/cc = fibers per cubic centimeter

PEL = Permissible Exposure Limit

TABLE 3.9 - 2012 PERIMETER AMBIENT AIR SAMPLING RESULTS

**C&H Power Plant Site
Torch Lake Township, MI**

Date	Sample ID	Sample Location	Fiber Concentration (f/cc) (PCM Analysis)	Asebstos PEL (f/cc)
10/31/2012	LLR12-01XX-AB01	Mailbox 1	<0.0032	<0.1
10/31/2012	LLR12-MUXX-AB02	Museum	<0.0037	<0.1
10/31/2012	LLR12-02XX-AB03	Mailbox 2	<0.0032	<0.1
10/31/2012	LLR12-04XX-AB04	Mailbox 4	<0.0030	<0.1
10/31/2012	LLR12-26XX-AB05	Highway M-26	<0.0038	<0.1
10/31/2012	LLR12-06XX-AB06	Mailbox 6	<0.0031	<0.1

11/1/2012	LLR12-01XX-AB01	Mailbox 1	<0.0032	<0.1
11/1/2012	LLR12-MUXX-AB02	Museum	<0.0032	<0.1
11/1/2012	LLR12-02XX-AB03	Mailbox 2	<0.0030	<0.1
11/1/2012	LLR12-04XX-AB04	Mailbox 4	<0.0030	<0.1
11/1/2012	LLR12-26XX-AB05	Highway M-26	<0.0033	<0.1
11/1/2012	LLR12-06XX-AB06	Mailbox 6	<0.0032	<0.1

11/2/2012	LLR12-BLXX-AB01	Boat Launch	<0.0026	<0.1
11/2/2012	LLR12-01XX-AB02	Mailbox 1	<0.0028	<0.1
11/2/2012	LLR12-MUXX-AB03	Museum	<0.0027	<0.1
11/2/2012	LLR12-02XX-AB04	Mailbox 2	<0.0029	<0.1
11/2/2012	LLR12-04XX-AB05	Mailbox 4	<0.0028	<0.1
11/2/2012	LLR12-06XX-AB06	Mailbox 6	<0.0028	<0.1

11/3/2012	LLR12-BLXX-AB01	Boat Launch	<0.0039	<0.1
11/3/2012	LLR12-01XX-AB02	Mailbox 1	<0.0035	<0.1
11/3/2012	LLR12-MUXX-AB03	Museum	<0.0037	<0.1
11/3/2012	LLR12-02XX-AB04	Mailbox 2	<0.0038	<0.1
11/3/2012	LLR12-04XX-AB05	Mailbox 4	<0.0037	<0.1
11/3/2012	LLR12-06XX-AB06	Mailbox 6	<0.0037	<0.1
11/3/2012	LLR12-BLANK-AB08	Blank	N/A	<0.1

11/5/2012	LLR12-01XX-AB01	Mailbox 1	<0.0030	<0.1
11/5/2012	LLR12-MUXX-AB02	Museum	<0.0029	<0.1
11/5/2012	LLR12-02XX-AB03	Mailbox 2	<0.0029	<0.1
11/5/2012	LLR12-04XX-AB04	Mailbox 4	<0.0030	<0.1
11/5/2012	LLR12-26XX-AB05	Highway M-26	<0.0029	<0.1
11/5/2012	LLR12-06XX-AB06	Mailbox 6	<0.0030	<0.1

11/6/2012	LLR12-01XX-AB01	Mailbox 1	<0.0033	<0.1
11/6/2012	LLR12-MUXX-AB02	Museum	<0.0029	<0.1
11/6/2012	LLR12-02XX-AB03	Mailbox 2	<0.0034	<0.1
11/6/2012	LLR12-04XX-AB04	Mailbox 4	<0.0035	<0.1
11/6/2012	LLR12-26XX-AB05	Highway M-26	<0.0031	<0.1
11/6/2012	LLR12-06XX-AB06	Mailbox 6	<0.0031	<0.1

11/7/2012	LLR12-BLXX-AB01	Boat Launch	<0.0039	<0.1
11/7/2012	LLR12-01XX-AB02	Mailbox 1	<0.0030	<0.1
11/7/2012	LLR12-MUXX-AB03	Museum	<0.0035	<0.1
11/7/2012	LLR12-02XX-AB04	Mailbox 2	<0.0030	<0.1
11/7/2012	LLR12-04XX-AB05	Mailbox 4	<0.0031	<0.1
11/7/2012	LLR12-06XX-AB06	Mailbox 6	<0.0030	<0.1

Notes:

f/cc = fibers per cubic centimeter

PEL = Permissible Exposure Limit

TABLE 3.9 - 2012 PERIMETER AMBIENT AIR SAMPLING RESULTS

**C&H Power Plant Site
Torch Lake Township, MI**

Date	Sample ID	Sample Location	Fiber Concentration (f/cc) (PCM Analysis)	Asebstos PEL (f/cc)
11/8/2012	LLR12-01XX-AB01	Mailbox 1	<0.0031	<0.1
11/8/2012	LLR12-MUXX-AB02	Museum	<0.0030	<0.1
11/8/2012	LLR12-02XX-AB03	Mailbox 2	<0.0030	<0.1
11/8/2012	LLR12-04XX-AB04	Mailbox 4	<0.0031	<0.1
11/8/2012	LLR12-26XX-AB05	Highway M-26	<0.0031	<0.1
11/8/2012	LLR12-06XX-AB06	Mailbox 6	<0.0031	<0.1

11/9/2012	LLR12-01XX-AB01	Mailbox 1	<0.0031	<0.1
11/9/2012	LLR12-MUXX-AB02	Museum	<0.0031	<0.1
11/9/2012	LLR12-02XX-AB03	Mailbox 2	<0.0032	<0.1
11/9/2012	LLR12-04XX-AB04	Mailbox 4	<0.0032	<0.1
11/9/2012	LLR12-26XX-AB05	Highway M-26	<0.0032	<0.1
11/9/2012	LLR12-06XX-AB06	Mailbox 6	<0.0032	<0.1

Notes:

f/cc = fibers per cubic centimeter
PEL = Permissible Exposure Limit

TABLE 3.10 - 2013 PERIMETER AMBIENT AIR SAMPLING RESULTS

**C&H Power Plant Site
Torch Lake Township, MI**

Date	Sample ID	Sample Location	Fiber Concentration (f/cc) (PCM Analysis)	Asebstos PEL (f/cc)
5/21/2013	LLI01-AB01-0521-ASXX	Mailbox 1	<0.0052	<0.1
5/21/2013	LLI01-AB02-0521-ASXX	Mailbox 2	<0.0055	<0.1
5/21/2013	LLI01-AB04-0521-ASXX	Mailbox 4	<0.0056	<0.1
5/21/2013	LLI01-AB05-0521-ASXX	Mailbox 5	<0.0050	<0.1
5/21/2013	LLI01-AB06-0521-ASXX	Mailbox 6	<0.0056	<0.1
5/21/2013	LLI01-HW25-0521-ASXX	Highway M-26	<0.0056	<0.1
5/22/2013	LLI01-AB01-0522-ASXX	Mailbox 1	<0.0018	<0.1
5/22/2013	LLI01-AB02-0522-ASXX	Mailbox 2	<0.0017	<0.1
5/22/2013	LLI01-AB04-0522-ASXX	Mailbox 4	<0.0017	<0.1
5/22/2013	LLI01-AB05-0522-ASXX	Mailbox 5	<0.0016	<0.1
5/22/2013	LLI01-AB06-0522-ASXX	Mailbox 6	<0.0018	<0.1
5/22/2013	LLI01-HW25-0522-ASXX	Highway M-26	<0.0016	<0.1
6/11/2013	LLI01-01XX-AB01	Mailbox 1	<0.0019	<0.1
6/11/2013	LLI01-MUXX-AB02	Mailbox 2	<0.0019	<0.1
6/11/2013	LLI01-03XX-AB03	Mailbox 3	<0.0023	<0.1
6/11/2013	LLI01-05XX-AB04	Mailbox 5	<0.0024	<0.1
6/11/2013	LLI01-26XX-AB05	Highway M-26	<0.0033	<0.1
6/11/2013	LLI01-06XX-AB06	Mailbox 6	<0.0020	<0.1
6/12/2013	LLI01-BLXX-AB01	Boat Launch	<0.0030	<0.1
6/12/2013	LLI01-01XX-AB02	Mailbox 1	<0.0021	<0.1
6/12/2013	LLI01-MUXX-AB03	Museum	<0.0021	<0.1
6/12/2013	LLI01-09XX-AB04		<0.0023	<0.1
6/12/2013	LLI01-05XX-AB05	Mailbox 5	<0.0024	<0.1
6/12/2013	LLI01-06XX-AB06	Mailbox 6	<0.0022	<0.1
6/20/2013	LLR01-01XX-AB01	Mailbox 1	<0.0029	<0.1
6/20/2013	LLR01-MUXX-AB01	Museum	<0.0039	<0.1
6/20/2013	LLR01-02XX-AB01	Mailbox 2	<0.0030	<0.1
6/20/2013	LLR01-03XX-AB01	Mailbox 3	<0.0036	<0.1
6/20/2013	LLR01-04XX-AB01	Mailbox 4	<0.0031	<0.1
6/20/2013	LLR01-06XX-AB01	Mailbox 6	<0.0034	<0.1
6/24/2013	LLR01-01XX-AB02	Mailbox 1	<0.0030	<0.1
6/24/2013	LLR01-MUXX-AB02	Museum	<0.0027	<0.1
6/24/2013	LLR01-02XX-AB02	Mailbox 2	<0.0031	<0.1
6/24/2013	LLR01-03XX-AB02	Mailbox 3	<0.0036	<0.1
6/24/2013	LLR01-04XX-AB02	Mailbox 4	<0.0037	<0.1
6/24/2013	LLR01-06XX-AB02	Mailbox 6	<0.0031	<0.1
6/25/2013	LLR01-01XX-AB03	Mailbox 1	<0.0031	<0.1
6/25/2013	LLR01-MUXX-AB03	Museum	<0.0030	<0.1
6/25/2013	LLR01-02XX-AB03	Mailbox 2	<0.0030	<0.1
6/25/2013	LLR01-03XX-AB03	Mailbox 3	<0.0030	<0.1
6/25/2013	LLR01-05XX-AB03	Mailbox 5	<0.0047	<0.1
6/25/2013	LLR01-06XX-AB03	Mailbox 6	<0.0035	<0.1

Notes:

f/cc = fibers per cubic centimeter

PEL = Permissible Exposure Limit

TABLE 3.10 - 2013 PERIMETER AMBIENT AIR SAMPLING RESULTS

**C&H Power Plant Site
Torch Lake Township, MI**

Date	Sample ID	Sample Location	Fiber Concentration (f/cc) (PCM Analysis)	Asebstos PEL (f/cc)
6/26/2013	LLR01-01XX-AB04	Mailbox 1	<0.0032	<0.1
6/26/2013	LLR01-MUXX-AB04	Museum	<0.0029	<0.1
6/26/2013	LLR01-03XX-AB04	Mailbox 3	<0.0029	<0.1
6/26/2013	LLR01-03XX-AB04	Mailbox 4	<0.0033	<0.1
6/26/2013	LLR01-04XX-AB04	Mailbox 5	<0.0031	<0.1
6/26/2013	LLR01-06XX-AB04	Mailbox 6	<0.0037	<0.1
6/27/2013	LLR01-01XX-AB05	Mailbox 1	<0.0037	<0.1
6/27/2013	LLR01-MUXX-AB05	Museum	<0.0029	<0.1
6/27/2013	LLR01-03XX-AB05	Mailbox 3	<0.0038	<0.1
6/27/2013	LLR01-04XX-AB05	Mailbox 4	<0.0027	<0.1
6/27/2013	LLR01-05XX-AB05	Mailbox 5	<0.0033	<0.1
6/27/2013	LLR01-06XX-AB05	Mailbox 6	<0.0029	<0.1
6/28/2013	LLR01-01XX-AB06	Mailbox 1	<0.0071	<0.1
6/28/2013	LLR01-MUXX-AB06	Museum	<0.0063	<0.1
6/28/2013	LLR01-02XX-AB06	Mailbox 2	<0.0062	<0.1
6/28/2013	LLR01-03XX-AB06	Mailbox 3	<0.0064	<0.1
6/28/2013	LLR01-04XX-AB06	Mailbox 4	<0.0065	<0.1
6/28/2013	LLR01-05XX-AB06	Mailbox 5	<0.0065	<0.1
7/9/2013	LLR01-01XX-AB01	Mailbox 1	<0.0030	<0.1
7/9/2013	LLR01-MUXX-AB02	Museum	<0.0030	<0.1
7/9/2013	LLR01-03XX-AB03	Mailbox 3	<0.0039	<0.1
7/9/2013	LLR01-04XX-AB04	Mailbox 4	<0.0036	<0.1
7/9/2013	LLR01-07XX-AB05	Mailbox 7	<0.0031	<0.1
7/9/2013	LLR01-06XX-AB06	Mailbox 6	<0.0033	<0.1
7/10/2013	LLR01-BLXX-AB01	Boat Launch	<0.0032	<0.1
7/10/2013	LLR01-01XX-AB02	Mailbox 1	<0.0031	<0.1
7/10/2013	LLR01-MUXX-AB03	Museum	<0.0034	<0.1
7/10/2013	LLR01-04XX-AB04	Mailbox 4	<0.0036	<0.1
7/10/2013	LLR01-07XX-AB05	Mailbox 7	<0.0034	<0.1
7/10/2013	LLR01-06XX-AB06	Mailbox 6	<0.0033	<0.1
7/11/2013	LLR01-BLXX-AB01	Boat Launch	<0.0032	<0.1
7/11/2013	LLR01-01XX-AB02	Mailbox 1	<0.0031	<0.1
7/11/2013	LLR01-MUXX-AB03	Museum	<0.0034	<0.1
7/11/2013	LLR01-04XX-AB04	Mailbox 4	<0.0031	<0.1
7/11/2013	LLR01-07XX-AB05	Mailbox 7	<0.0031	<0.1
7/11/2013	LLR01-06XX-AB06	Mailbox 6	<0.0032	<0.1
7/12/2013	LLR01-BLXX-AB01	Boat Launch	<0.0035	<0.1
7/12/2013	LLR01-01XX-AB02	Mailbox 1	<0.0035	<0.1
7/12/2013	LLR01-MUXX-AB03	Museum	<0.0035	<0.1
7/12/2013	LLR01-04XX-AB04	Mailbox 4	<0.0035	<0.1
7/12/2013	LLR01-07XX-AB05	Mailbox 7	<0.0049	<0.1
7/12/2013	LLR01-06XX-AB06	Mailbox 6	<0.0039	<0.1

Notes:

f/cc = fibers per cubic centimeter

PEL = Permissible Exposure Limit

TABLE 3.10 - 2013 PERIMETER AMBIENT AIR SAMPLING RESULTS

**C&H Power Plant Site
Torch Lake Township, MI**

Date	Sample ID	Sample Location	Fiber Concentration (f/cc) (PCM Analysis)	Asebstos PEL (f/cc)
8/20/2013	LLR01-09XX-AB01	Mailbox 9	<0.0038	<0.1
8/20/2013	LLR01-MUXX-AB02	Museum	<0.0029	<0.1
8/20/2013	LLR01-02XX-AB03	Mailbox 2	<0.0036	<0.1
8/20/2013	LLR01-05XX-AB04	Mailbox 5	<0.0029	<0.1
8/20/2013	LLR01-07XX-AB05	Mailbox 7	<0.0030	<0.1
8/20/2013	LLR01-06XX-AB06	Mailbox 6	<0.0039	<0.1
8/21/2013	LLR01-01XX-AB01	Mailbox 1	<0.0035	<0.1
8/21/2013	LLR01-MUXX-AB02	Museum	<0.0034	<0.1
8/21/2013	LLR01-02XX-AB03	Mailbox 2	<0.0034	<0.1
8/21/2013	LLR01-05XX-AB04	Mailbox 5	<0.0030	<0.1
8/21/2013	LLR01-07XX-AB05	Mailbox 7	<0.0030	<0.1
8/21/2013	LLR01-06XX-AB06	Mailbox 6	<0.0044	<0.1
8/22/2013	LLR01-01XX-AB01	Mailbox 1	<0.0029	<0.1
8/22/2013	LLR01-MUXX-AB02	Museum	<0.0030	<0.1
8/22/2013	LLR01-03XX-AB03	Mailbox 3	<0.0030	<0.1
8/22/2013	LLR01-05XX-AB04	Mailbox 5	<0.0029	<0.1
8/22/2013	LLR01-07XX-AB05	Mailbox 7	<0.0037	<0.1
8/22/2013	LLR01-06XX-AB06	Mailbox 6	<0.0031	<0.1
8/23/2013	LLR01-01XX-AB01	Mailbox 1	<0.0036	<0.1
8/23/2013	LLR01-MUXX-AB02	Museum	<0.0032	<0.1
8/23/2013	LLR01-03XX-AB03	Mailbox 3	<0.0031	<0.1
8/23/2013	LLR01-05XX-AB04	Mailbox 5	<0.0039	<0.1
8/23/2013	LLR01-07XX-AB05	Mailbox 7	<0.0040	<0.1
8/23/2013	LLR01-06XX-AB06	Mailbox 6	<0.0030	<0.1
8/24/2013	LLR01-09XX-AB01	Mailbox 9	<0.0047	<0.1
8/24/2013	LLR01-MUXX-AB02	Museum	<0.0045	<0.1
8/24/2013	LLR01-03XX-AB03	Mailbox 3	<0.0047	<0.1
8/24/2013	LLR01-26XX-AB04	Mailbox 26	<0.0044	<0.1
8/24/2013	LLR01-07XX-AB05	Mailbox 7	<0.0045	<0.1
8/24/2013	LLR01-06XX-AB06	Mailbox 6	<0.0045	<0.1
8/26/2013	LLR01-09XX-AB01	Mailbox 9	<0.0034	<0.1
8/26/2013	LLR01-MUXX-AB02	Museum	<0.0036	<0.1
8/26/2013	LLR01-03XX-AB03	Mailbox 3	<0.0032	<0.1
8/26/2013	LLR01-26XX-AB04	Mailbox 26	<0.0035	<0.1
8/26/2013	LLR01-07XX-AB05	Mailbox 7	<0.0045	<0.1
8/26/2013	LLR01-06XX-AB06	Mailbox 6	<0.0034	<0.1
8/27/2013	LLR01-09XX-AB01	Mailbox 9	<0.0038	<0.1
8/27/2013	LLR01-MUXX-AB02	Museum	<0.0037	<0.1
8/27/2013	LLR01-03XX-AB03	Mailbox 3	<0.0041	<0.1
8/27/2013	LLR01-26XX-AB04	Mailbox 26	<0.0038	<0.1
8/27/2013	LLR01-07XX-AB05	Mailbox 7	<0.0050	<0.1
8/27/2013	LLR01-06XX-AB06	Mailbox 6	<0.0037	<0.1

Notes:

f/cc = fibers per cubic centimeter

PEL = Permissible Exposure Limit

TABLE 3.10 - 2013 PERIMETER AMBIENT AIR SAMPLING RESULTS

**C&H Power Plant Site
Torch Lake Township, MI**

Date	Sample ID	Sample Location	Fiber Concentration (f/cc) (PCM Analysis)	Asebstos PEL (f/cc)
8/28/2013	LLR01-09XX-AB01	Mailbox 9	<0.0040	<0.1
8/28/2013	LLR01-MUXX-AB02	Museum	<0.0041	<0.1
8/28/2013	LLR01-03XX-AB03	Mailbox 3	<0.0061	<0.1
8/28/2013	LLR01-26XX-AB04	Mailbox 26	<0.0042	<0.1
8/28/2013	LLR01-07XX-AB05	Mailbox 7	<0.0038	<0.1
8/28/2013	LLR01-06XX-AB06	Mailbox 6	<0.0039	<0.1
8/29/2013	LLR01-09XX-AB01	Mailbox 9	<0.0044	<0.1
8/29/2013	LLR01-MUXX-AB02	Museum	<0.0042	<0.1
8/29/2013	LLR01-03XX-AB03	Mailbox 3	<0.0042	<0.1
8/29/2013	LLR01-26XX-AB04	Mailbox 26	<0.0040	<0.1
8/29/2013	LLR01-07XX-AB05	Mailbox 7	<0.0043	<0.1
8/29/2013	LLR01-06XX-AB06	Mailbox 6	<0.0041	<0.1
8/30/2013	LLR01-01XX-AB01	Mailbox 1	<0.0130	<0.1
8/30/2013	LLR01-MUXX-AB02	Museum	<0.0057	<0.1
8/30/2013	LLR01-03XX-AB03	Mailbox 3	<0.0060	<0.1
8/30/2013	LLR01-26XX-AB04	Mailbox 26	<0.0056	<0.1
8/30/2013	LLR01-07XX-AB05	Mailbox 7	<0.0059	<0.1
8/30/2013	LLR01-06XX-AB06	Mailbox 6	<0.0058	<0.1
9/4/2013	LLR01-09XX-AB01	Mailbox 9	<0.0042	<0.1
9/4/2013	LLR01-MUXX-AB02	Museum	<0.0046	<0.1
9/4/2013	LLR01-03XX-AB03	Mailbox 3	<0.0043	<0.1
9/4/2013	LLR01-26XX-AB04	Mailbox 26	<0.0043	<0.1
9/4/2013	LLR01-07XX-AB05	Mailbox 7	<0.0044	<0.1
9/4/2013	LLR01-06XX-AB06	Mailbox 6	<0.0044	<0.1
9/5/2013	LLR01-09XX-AB01	Mailbox 9	<0.0054	<0.1
9/5/2013	LLR01-MUXX-AB02	Museum	<0.0053	<0.1
9/5/2013	LLR01-03XX-AB03	Mailbox 3	<0.0056	<0.1
9/5/2013	LLR01-26XX-AB04	Mailbox 26	<0.0053	<0.1
9/5/2013	Only 4 samples collected d/t minimal activity in the exclusion zone.			
9/6/2013	No samples collected d/t no activity in the exclusion zone.			
11/5/2013	LLR01-WSXX-AB01	Weather Station	<0.0019	<0.1
11/5/2013	LLR01-03XX-AB02	Mailbox 3	<0.0021	<0.1
11/5/2013	LLR01-05XX-AB03	Mailbox 5	<0.0022	<0.1
11/5/2013	LLR01-06XX-AB04	Mailbox 6	<0.0021	<0.1
Only 4 samples collected d/t minimal activity in the exclusion zone.				
11/7/2013	LLR01-WSXX-AB01	Weather Station	<0.0026	<0.1
11/7/2013	LLR01-03XX-AB02	Mailbox 3	<0.0022	<0.1
11/7/2013	LLR01-05XX-AB03	Mailbox 5	<0.0040	<0.1
11/7/2013	LLR01-06XX-AB04	Mailbox 6	<0.0025	<0.1
Only 4 samples collected d/t minimal activity in the exclusion zone.				

Notes:

f/cc = fibers per cubic centimeter

PEL = Permissible Exposure Limit

TABLE 3.11 - 2014 PERIMETER AMBIENT AIR SAMPLING RESULTS
C&H Power Plant Site
Torch Lake Township, MI

Date	Sample ID	Sample Location	Fiber Concentration (f/cc) (PCM Analysis)	Fraction Asbestos (%)	Asbestos Concentration (f/cc) (TEM Analysis)	Asebstos RSL (f/cc)	Notes
5/19/2014	LLI01-AB01-01XX-0519	Mailbox 1	<0.0030	<0.1	NA	NA	
5/19/2014	LLI01-AB02-MUXX-0519	Museum	<0.0026	<0.1	NA	NA	
5/19/2014	LLI01-AB03-03XX-0519	Mailbox 3	<0.0034	<0.1	NA	NA	
5/19/2014	LLI01-AB04-26XX-0519	Highway M-26	<0.0030	<0.1	NA	NA	
5/19/2014	LLI01-AB05-05XX-0519	Mailbox 5	<0.0029	<0.1	NA	NA	
5/19/2014	LLI01-AB06-06XX-0519	Mailbox 6	<0.0029	<0.1	NA	NA	
5/20/2014	LLI01-AB01-01XX-0520	Mailbox 1	<0.0042	<0.1	NA	NA	
5/20/2014	LLI01-AB02-MUXX-0520	Museum	<0.0038	<0.1	NA	NA	
5/20/2014	LLI01-AB03-03XX-0520	Mailbox 3	<0.0040	<0.1	NA	NA	
5/20/2014	LLI01-AB04-05XX-0520	Mailbox 5	<0.0033	<0.1	NA	NA	
5/20/2014	LLI01-AB05-26XX-0520	Highway M-26	<0.0035	<0.1	NA	NA	
5/20/2014	LLI01-AB06-06XX-0520	Mailbox 6	<0.0033	<0.1	NA	NA	
5/21/2014	LLI01-AB01-MUXX-0521	Museum	<0.0041	<0.1	NA	NA	
5/21/2014	LLI01-AB02-02XX-0521	Mailbox 2	<0.0038	<0.1	NA	NA	
5/21/2014	LLI01-AB03-05XX-0521	Mailbox 5	<0.0036	<0.1	NA	NA	
5/21/2014	LLI01-AB04-26XX-0521	Highway M-26	<0.0036	<0.1	NA	NA	
5/21/2014	LLI01-AB05-07XX-0521	Mailbox 7	<0.0039	<0.1	NA	NA	
5/21/2014	LLI01-AB06-06XX-0521	Mailbox 6	<0.0037	<0.1	NA	NA	
6/18/2014	LLI01-AB01-0114-0618	Mailbox 1	<0.0061	<0.1	NA	NA	
6/18/2014	LLI01-AB02-MU14-0618	Museum	<0.0070	<0.1	NA	NA	
6/18/2014	LLI01-AB03-0314-0618	Mailbox 3	<0.0018	<0.1	NA	NA	
6/18/2014	LLI01-AB04-0414-0618	Mailbox 4	<0.0043	<0.1	NA	NA	
6/18/2014	LLI01-AB05-2614-0618	Highway M-26	<0.0065	<0.1	NA	NA	
6/18/2014	LLI01-AB06-0614-0618	Mailbox 6	<0.0038	<0.1	NA	NA	
6/19/2014	LLI01-AB01-0114-0619	Mailbox 1	<0.0053	<0.1	NA	NA	
6/19/2014	LLI01-AB02-MU14-0619	Museum	<0.0047	<0.1	NA	NA	
6/19/2014	LLI01-AB03-0214-0619	Mailbox 3	<0.0058	<0.1	NA	NA	
6/19/2014	LLI01-AB04-0514-0619	Mailbox 5	<0.0055	<0.1	NA	NA	
6/19/2014	LLI01-AB05-2614-0619	Highway M-26	<0.0049	<0.1	NA	NA	
6/19/2014	LLI01-AB06-0614-0619	Mailbox 6	<0.0053	<0.1	NA	NA	
6/30/2014	LLI01-AB01-0914-0630	Mailbox 9	<0.0055	<0.1	NA	NA	
6/30/2014	LLI01-AB02-MU14-0630	Museum	<0.0049	<0.1	NA	NA	
6/30/2014	LLI01-AB03-0214-0630	Mailbox 2	<0.0057	<0.1	NA	NA	
6/30/2014	LLI01-AB04-0514-0630	Mailbox 5	<0.0058	<0.1	NA	NA	
6/30/2014	LLI01-AB05-2614-0630	Highway M-26	<0.0052	<0.1	NA	NA	
6/30/2014	LLI01-AB06-0614-0630	Mailbox 6	<0.0048	<0.1	NA	NA	

Notes:
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TABLE 3.11 - 2014 PERIMETER AMBIENT AIR SAMPLING RESULTS
C&H Power Plant Site
Torch Lake Township, MI

Date	Sample ID	Sample Location	Fiber Concentration (f/cc) (PCM Analysis)	Fraction Asbestos (%)	Asbestos Concentration (f/cc) (TEM Analysis)	Asebstos RSL (f/cc)	Notes
8/2/2014	LLI01-AB01-0914-0802	Mailbox 9	<0.000923	<0.001	NA	NA	
8/2/2014	LLI01-AB02-MU14-0802	Museum	<0.00170	<0.001	NA	NA	
8/2/2014	LLI01-AB03-0214-0802	Mailbox 2	<0.000917	<0.001	NA	NA	
8/2/2014	LLI01-AB04-2614-0802	Highway M-26	<0.000910	<0.001	NA	NA	
8/2/2014	LLI01-AB05-0614-0802	Mailbox 5	<0.000960	<0.001	NA	NA	
8/2/2014	LLI01-AB06-0314-0802	Mailbox 3	<0.000768	<0.001	NA	NA	
8/6/2014	LLI01-AB01-0914-0806	Mailbox 9	0.00162	0.0	<0.009	<0.001	TEM analysis completed
8/6/2014	LLI01-AB02-BL14-0806	Boat Launch	<0.000779	NA	NA	<0.001	
8/6/2014	LLI01-AB03-MU14-0806	Museum	<0.000872	NA	NA	<0.001	
8/6/2014	LLI01-AB04-0214-0806	Mailbox 2	<0.000780	NA	NA	<0.001	
8/6/2014	LLI01-AB05-0514-0806	Mailbox 5	0.00133	0.0	<0.007	<0.001	TEM analysis completed
8/6/2014	LLI01-AB06-0614-0806	Mailbox 6	<0.000734	NA	NA	<0.001	
8/7/2014	LLI01-AB01-0914-0807	Mailbox 9	0.000958	NA	NA	<0.001	
8/7/2014	LLI01-AB02-MU14-0807	Boat Launch	<0.000837	NA	NA	<0.001	
8/7/2014	LLI01-AB03-0214-0807	Museum	<0.000779	NA	NA	<0.001	
8/7/2014	LLI01-AB04-2614-0807	Mailbox 2	0.00087	NA	NA	<0.001	
8/7/2014	LLI01-AB05-0614-0807	Mailbox 5	<0.000810	NA	NA	<0.001	
8/7/2014	LLI01-AB06-0314-0807	Mailbox 6	<0.000910	NA	NA	<0.001	
8/8/2014	LLI01-AB01-0914-0808	Mailbox 9	<0.000868	NA	NA	<0.001	
8/8/2014	LLI01-AB02-MU14-0808	Museum	<0.000852	NA	NA	<0.001	
8/8/2014	LLI01-AB03-0214-0808	Mailbox 2	<0.000790	NA	NA	<0.001	
8/8/2014	LLI01-AB04-2614-0808	Mailbox 5	<0.000779	NA	NA	<0.001	
8/8/2014	LLI01-AB05-0614-0808	Highway M-26	<0.000800	NA	NA	<0.001	
8/8/2014	LLI01-AB06-0314-0808	Mailbox 6	<0.000889	NA	NA	<0.001	
8/9/2014	LLI01-AB01-0914-0809	Mailbox 9	<0.00108	NA	NA	<0.001	
8/9/2014	LLI01-AB02-MU14-0809	Museum	<0.00104	NA	NA	<0.001	
8/9/2014	LLI01-AB03-0214-0809	Mailbox 2	<0.00102	NA	NA	<0.001	
8/9/2014	LLI01-AB04-2614-0809	Mailbox 5	<0.00103	NA	NA	<0.001	
8/9/2014	LLI01-AB05-0614-0809	Highway M-26	<0.00102	NA	NA	<0.001	
8/9/2014	LLI01-AB06-0314-0809	Mailbox 6	<0.00102	NA	NA	<0.001	
8/11/2014	LLR01-AB01-0114-0811	Mailbox 1	0.00102	0.0	<0.0009	<0.001	
8/11/2014	LLR01-AB02-MU14-0811	Museum	<0.000887	NA	NA	<0.001	
8/11/2014	LLR01-AB03-0214-0811	Mailbox 2	<0.000859	NA	NA	<0.001	
8/11/2014	LLR01-AB04-0514-0811	Mailbox 5	<0.000969	NA	NA	<0.001	
8/11/2014	LLR01-AB05-2614-0811	Highway M-26	<0.000864	NA	NA	<0.001	
8/11/2014	LLR01-AB06-0614-0811	Mailbox 6	<0.00119	NA	NA	<0.001	Pump kept dying, unable to get 3,000 L

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TABLE 3.11 - 2014 PERIMETER AMBIENT AIR SAMPLING RESULTS
C&H Power Plant Site
Torch Lake Township, MI

Date	Sample ID	Sample Location	Fiber Concentration (f/cc) (PCM Analysis)	Fraction Asbestos (%)	Asbestos Concentration (f/cc) (TEM Analysis)	Asebstos RSL (f/cc)	Notes
8/12/2014	LLR01-AB01-0114-0812	Mailbox 1	<0.000879	NA	NA	<0.001	
8/12/2014	LLR01-AB02-MU14-0812	Museum	<0.000851	NA	NA	<0.001	
8/12/2014	LLR01-AB03-0214-0812	Mailbox 2	<0.000920	NA	NA	<0.001	
8/12/2014	LLR01-AB04-0514-0812	Mailbox 5	<0.000911	NA	NA	<0.001	
8/12/2014	LLR01-AB05-2614-0812	Highway M-26	<0.000924	NA	NA	<0.001	
8/12/2014	LLR01-AB06-0614-0812	Mailbox 6	0.00113	0.0	<0.0009	<0.001	TEM analysis completed
8/13/2014	LLR01-AB01-0114-0813	Mailbox 1	<0.000889	NA	NA	<0.001	
8/13/2014	LLR01-AB02-MU14-0813	Museum	<0.000782	NA	NA	<0.001	
8/13/2014	LLR01-AB03-0214-0813	Mailbox 2	<0.000820	NA	NA	<0.001	
8/13/2014	LLR01-AB04-0514-0813	Mailbox 5	<0.000851	NA	NA	<0.001	
8/13/2014	LLR01-AB05-2614-0813	Highway M-26	<0.000920	NA	NA	<0.001	
8/13/2014	LLR01-AB06-0614-0813	Mailbox 6	<0.000866	NA	NA	<0.001	
8/14/2014	LLR01-AB01-0114-0814	Mailbox 1	<0.00120	NA	NA	<0.001	
8/14/2014	LLR01-AB02-MU14-0814	Museum	<0.00118	NA	NA	<0.001	
8/14/2014	LLR01-AB03-0214-0814	Mailbox 2	<0.00106	NA	NA	<0.001	
8/14/2014	LLR01-AB04-0514-0814	Mailbox 5	<0.00110	NA	NA	<0.001	
8/14/2014	LLR01-AB05-2614-0814	Highway M-26	<0.00118	NA	NA	<0.001	
8/14/2014	LLR01-AB06-0614-0814	Mailbox 6	Bad	NA	NA	<0.001	Spider web in cassette and on filtere.
8/15/2014	LLR01-AB01-0114-0815	Mailbox 1	<0.000831	NA	NA	<0.001	
8/15/2014	LLR01-AB02-MU14-0815	Museum	<0.000846	NA	NA	<0.001	
8/15/2014	LLR01-AB03-0214-0815	Mailbox 2	0.00086	NA	NA	<0.001	
8/15/2014	LLR01-AB04-0514-0815	Mailbox 5	<0.000894	NA	NA	<0.001	
8/15/2014	LLR01-AB05-2614-0815	Highway M-26	<0.000869	NA	NA	<0.001	
8/15/2014	LLR01-AB06-0614-0815	Mailbox 6	0.000957	NA	NA	<0.001	
8/18/2014	LLR01-AB01-0114-0818	Mailbox 1	0.00123	0.0	<0.0011	<0.001	TEM analysis completed
8/18/2014	LLR01-AB02-MU14-0818	Museum	<0.000863	NA	NA	<0.001	
8/18/2014	LLR01-AB03-0214-0818	Mailbox 2	Occulded	NA	NA	<0.001	
8/18/2014	LLR01-AB04-0514-0818	Mailbox 5	Occulded	NA	NA	<0.001	
8/18/2014	LLR01-AB05-2614-0818	Highway M-26	0.000977	NA	NA	<0.001	
8/18/2014	LLR01-AB06-0614-0818	Mailbox 6	<0.000833	NA	NA	<0.001	
8/19/2014	LLR01-AB01-0114-0819	Mailbox 1	<0.00196	NA	NA	<0.001	
8/19/2014	LLR01-AB02-MU14-0819	Museum	0.0015	0.0	<0.0008	<0.001	TEM analysis completed
8/19/2014	LLR01-AB03-0214-0819	Mailbox 2	Occluded	NA	NA	<0.001	
8/19/2014	LLR01-AB04-0514-0819	Mailbox 5	<0.00142	NA	NA	<0.001	
8/19/2014	LLR01-AB05-2614-0819	Highway M-26	0.00199	0.0	<0.0008	<0.001	TEM analysis completed
8/19/2014	LLR01-AB06-0614-0819	Mailbox 6	0.00132	0.0	<0.0008	<0.001	TEM analysis completed

Notes:
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TABLE 3.11 - 2014 PERIMETER AMBIENT AIR SAMPLING RESULTS
C&H Power Plant Site
Torch Lake Township, MI

Date	Sample ID	Sample Location	Fiber Concentration (f/cc) (PCM Analysis)	Fraction Asbestos (%)	Asbestos Concentration (f/cc) (TEM Analysis)	Asebstos RSL (f/cc)	Notes
8/20/2014	LLR01-AB01-0114-0820	Mailbox 1	<0.00127	NA	NA	<0.001	
8/20/2014	LLR01-AB02-MU14-0820	Museum	0.00124	0.0	<0.0011	<0.001	TEM analysis completed
8/20/2014	LLR01-AB03-0314-0820	Mailbox 3	0.00198	0.0	<0.0010	<0.001	TEM analysis completed
8/20/2014	LLR01-AB04-2614-0820	Highway M-26	<0.00170	NA	NA	<0.001	
8/20/2014	LLR01-AB05-0514-0820	Mailbox 5	<0.000983	NA	NA	<0.001	
8/20/2014	LLR01-AB06-0614-0820	Mailbox 6	<0.000889	NA	NA	<0.001	
8/21/2014	LLR01-AB01-0114-0821	Mailbox 1	<0.000932	NA	NA	<0.001	
8/21/2014	LLR01-AB02-MU14-0821	Museum	<0.00105	NA	NA	<0.001	
8/21/2014	LLR01-AB03-0314-0821	Mailbox 3	<0.000971	NA	NA	<0.001	
8/21/2014	LLR01-AB04-2614-0821	Highway M-26	<0.00165	NA	NA	<0.001	
8/21/2014	LLR01-AB05-0514-0821	Mailbox 5	<0.00102	NA	NA	<0.001	
8/21/2014	LLR01-AB06-0614-0821	Mailbox 6	<0.00245	NA	NA	<0.001	
8/22/2014	LLR01-AB01-0114-0821	Mailbox 1	0.00135	0.0	<0.0009	<0.001	TEM analysis completed
8/22/2014	LLR01-AB02-MU14-0821	Museum	<0.000931	NA	NA	<0.001	
8/22/2014	LLR01-AB03-0314-0821	Mailbox 3	0.00136	0.0	<0.0012	<0.001	TEM analysis completed
8/22/2014	LLR01-AB04-2614-0821	Highway M-26	0.00247	0.0	<0.0017	<0.001	TEM analysis completed
8/22/2014	LLR01-AB05-0514-0821	Mailbox 5	0.00111	0.0	<0.0010	<0.001	TEM analysis completed
8/22/2014	LLR01-AB06-0614-0821	Mailbox 6	<0.000101	NA	NA	<0.001	
8/23/2014	LLR01-AB01-0914-0821	Mailbox 9	0.00174	0.0	<0.0013	<0.001	TEM analysis completed
8/23/2014	LLR01-AB02-MU14-0821	Museum	0.00201	0.0	<0.0014	<0.001	
8/23/2014	LLR01-AB03-0314-0821	Mailbox 3	0.00173	0.0	<0.0014	<0.001	TEM analysis completed
8/23/2014	LLR01-AB04-2614-0821	Highway M-26	<0.00136	NA	NA	<0.001	
8/23/2014	LLR01-AB05-0514-0821	Mailbox 5	0.00302	0.0	<0.0018	<0.001	TEM analysis completed
8/23/2014	LLR01-AB06-0614-0821	Mailbox 6	0.00251	0.0	<0.0015	<0.001	TEM analysis completed
8/25/2014	No samples collected due to rain						
8/26/2014	LLR01-AB01-0914-0826	Mailbox 9	<0.000921	NA	NA	<0.001	
8/26/2014	LLR01-AB02-MU14-0826	Museum	<0.000897	NA	NA	<0.001	
8/26/2014	LLR01-AB03-0214-0826	Mailbox 2	0.00129	0.0	<0.0009	<0.001	TEM Analysis Completed
8/26/2014	LLR01-AB04-0514-0826	Mailbox 5	0.00123	0.0	<0.0008	<0.001	TEM Analysis Completed
8/26/2014	LLR01-AB05-2614-0826	Highway M-26	<0.000872	NA	NA	<0.001	
8/26/2014	LLR01-AB06-0614-0826	Mailbox 6	0.00134	0.0	<0.0009	<0.001	TEM Analysis Completed
8/27/2014	LLR01-AB01-0914-0827	Mailbox 9	<0.000923	NA	NA	<0.001	
8/27/2014	LLR01-AB02-MU14-0827	Museum	<0.000867	NA	NA	<0.001	
8/27/2014	LLR01-AB03-0214-0827	Mailbox 2	<0.000973	NA	NA	<0.001	
8/27/2014	LLR01-AB04-0514-0827	Mailbox 5	<0.000860	NA	NA	<0.001	
8/27/2014	LLR01-AB05-2614-0827	Highway M-26	<0.000832	NA	NA	<0.001	
8/27/2014	LLR01-AB06-0614-0827	Mailbox 6	<0.00103	NA	NA	<0.001	

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C&H Power Plant Site
Torch Lake Township, MI

Date	Sample ID	Sample Location	Fiber Concentration (f/cc) (PCM Analysis)	Fraction Asbestos (%)	Asbestos Concentration (f/cc) (TEM Analysis)	Asebstos RSL (f/cc)	Notes
8/28/2014	LLR01-AB01-0914-0828	Mailbox 9	<0.000921	NA	NA	<0.001	
8/28/2014	LLR01-AB02-MU14-0828	Museum	<0.000874	NA	NA	<0.001	
8/28/2014	LLR01-AB03-0214-0828	Mailbox 2	<0.000771	NA	NA	<0.001	
8/28/2014	LLR01-AB04-0514-0828	Mailbox 5	<0.000829	NA	NA	<0.001	
8/28/2014	LLR01-AB05-2614-0828	Highway M-26	<0.000811	NA	NA	<0.001	
8/28/2014	LLR01-AB06-0614-0828	Mailbox 6	<0.000979	NA	NA	<0.001	
8/29/2014	LLR01-AB01-0914-0829	Mailbox 9	<0.00182	NA	NA	<0.001	
8/29/2014	LLR01-AB02-MU14-0829	Museum	<0.00169	NA	NA	<0.001	
8/29/2014	LLR01-AB03-0214-0829	Mailbox 2	<0.00147	NA	NA	<0.001	
8/29/2014	LLR01-AB04-0514-0829	Mailbox 5	<0.00154	NA	NA	<0.001	
8/29/2014	LLR01-AB05-2614-0829	Highway M-26	<0.00156	NA	NA	<0.001	
8/29/2014	LLR01-AB06-0614-0829	Mailbox 6	<0.00153	NA	NA	<0.001	
9/3/2014	LLR01-AB01-0914-0903	Mailbox 9	0.00111	0.0	<0.0009	<0.001	TEM analysis completed
9/3/2014	LLR01-AB02-MU14-0903	Museum	<0.000849	NA	NA	<0.001	
9/3/2014	LLR01-AB03-0214-0903	Mailbox 2	0.00131	0.0	<0.0008	<0.001	TEM analysis completed
9/3/2014	LLR01-AB04-0514-0903	Mailbox 5	0.00146	0.0	<0.0007	<0.001	TEM analysis completed
9/3/2014	LLR01-AB05-2614-0903	Highway M-26	0.000979	NA	NA	<0.001	
9/3/2014	LLR01-AB06-0614-0903	Mailbox 6	0.000964	NA	NA	<0.001	
9/4/2014	LLR01-AB01-0914-0904	Mailbox 9	0.000973	NA	NA	<0.001	
9/4/2014	LLR01-AB02-MU14-0904	Museum	<0.000903	NA	NA	<0.001	
9/4/2014	LLR01-AB03-0214-0904	Mailbox 2	0.00147	0.0	<0.0010	<0.001	TEM analysis completed
9/4/2014	LLR01-AB04-0514-0904	Mailbox 5	<0.000999	NA	NA	<0.001	
9/4/2014	LLR01-AB05-2614-0904	Highway M-26	<0.00107	NA	NA	<0.001	
9/4/2014	LLR01-AB06-0614-0904	Mailbox 6	0.00142	0.0	<0.0011	<0.001	TEM analysis completed
9/5/2014	LLR01-AB01-0914-0905	Mailbox 9	<0.000833	NA	NA	<0.001	
9/5/2014	LLR01-AB02-MU14-0905	Museum	<0.000966	NA	NA	<0.001	
9/5/2014	LLR01-AB03-0214-0905	Mailbox 2	<0.000961	NA	NA	<0.001	
9/5/2014	LLR01-AB04-0514-0905	Mailbox 5	<0.000852	NA	NA	<0.001	
9/5/2014	LLR01-AB05-2614-0905	Highway M-26	<0.00101	NA	NA	<0.001	
9/5/2014	LLR01-AB06-0614-0905	Mailbox 6	<0.00105	NA	NA	<0.001	
9/6/2014	LLR01-AB01-0914-0906	Mailbox 9	0.00112	0.0	<0.0008	<0.001	TEM analysis completed
9/6/2014	LLR01-AB02-MU14-0906	Museum	<0.000880	NA	NA	<0.001	
9/6/2014	LLR01-AB03-0214-0906	Mailbox 2	0.00128	0.0	<0.0008	<0.001	TEM analysis completed
9/6/2014	LLR01-AB04-0514-0906	Mailbox 5	<0.000872	NA	NA	<0.001	
9/6/2014	LLR01-AB05-2614-0906	Highway M-26	<0.000913	NA	NA	<0.001	
9/6/2014	LLR01-AB06-0614-0906	Mailbox 6	<0.000901	NA	NA	<0.001	

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C&H Power Plant Site
Torch Lake Township, MI

Date	Sample ID	Sample Location	Fiber Concentration (f/cc) (PCM Analysis)	Fraction Asbestos (%)	Asbestos Concentration (f/cc) (TEM Analysis)	Asebstos RSL (f/cc)	Notes
9/8/2014	LLR01-AB01-0914-0908	Mailbox 9	<0.000950	NA	NA	<0.001	TEM analysis requested
9/8/2014	LLR01-AB02-MU14-0908	Museum	<0.000800	NA	NA	<0.001	
9/8/2014	LLR01-AB03-0214-0908	Mailbox 2	<0.000959	NA	NA	<0.001	TEM analysis requested
9/8/2014	LLR01-AB04-0514-0908	Mailbox 5	<0.000956	NA	NA	<0.001	TEM analysis requested
9/8/2014	LLR01-AB05-2614-0908	Highway M-26	<0.00103	NA	NA	<0.001	
9/8/2014	LLR01-AB06-0614-0908	Mailbox 6	<0.000870	NA	NA	<0.001	
9/9/2014	LLR01-AB01-0914-0909	Mailbox 9	<0.000970	NA	NA	<0.001	
9/9/2014	LLR01-AB02-MU14-0909	Museum	<0.000764	NA	NA	<0.001	
9/9/2014	LLR01-AB03-0214-0909	Mailbox 2	<0.000944	NA	NA	<0.001	TEM analysis requested
9/9/2014	LLR01-AB04-0514-0909	Mailbox 5	<0.000997	NA	NA	<0.001	
9/9/2014	LLR01-AB05-2614-0909	Highway M-26	<0.000788	NA	NA	<0.001	TEM analysis requested
9/9/2014	LLR01-AB06-0614-0909	Mailbox 6	<0.000841	NA	NA	<0.001	TEM analysis requested
9/10/2014	Air monitoring not completed due to heavy rain						
9/11/2014	LLR01-AB01-0914-0911	Mailbox 9	<0.00153	NA	NA	<0.001	TEM analysis requested
9/11/2014	LLR01-AB02-MU14-0911	Museum	<0.000793	NA	NA	<0.001	
9/11/2014	LLR01-AB03-0214-0911	Mailbox 2	<0.000960	NA	NA	<0.001	TEM analysis requested
9/11/2014	LLR01-AB04-0514-0911	Mailbox 5	<0.00127	NA	NA	<0.001	
9/11/2014	LLR01-AB05-2614-0911	Highway M-26	<0.000826	NA	NA	<0.001	
9/11/2014	LLR01-AB06-0614-0911	Mailbox 6	<0.000853	NA	NA	<0.001	
9/12/2014	LLR01-AB01-0914-0912	Mailbox 9	<0.00177	NA	NA	<0.001	TEM analysis requested
9/12/2014	LLR01-AB02-MU14-0912	Museum	<0.000850	NA	NA	<0.001	
9/12/2014	LLR01-AB03-0214-0912	Mailbox 2	<0.00112	NA	NA	<0.001	TEM analysis requested
9/12/2014	LLR01-AB04-0514-0912	Mailbox 5	<0.00258	NA	NA	<0.001	
9/12/2014	LLR01-AB05-2614-0912	Highway M-26	<0.00130	NA	NA	<0.001	
9/12/2014	LLR01-AB06-0614-0912	Mailbox 6	<0.000898	NA	NA	<0.001	
9/15/2014	LLR01-AB01-0914-0915	Mailbox 1	<0.000878	NA	NA	<0.001	
9/15/2014	LLR01-AB02-MU14-0915	Museum	<0.00097	NA	NA	<0.001	
9/15/2014	LLR01-AB03-0214-0915	Mailbox 2	<0.000537	NA	NA	<0.001	
9/15/2014	LLR01-AB04-0514-0915	Mailbox 5	<0.00130	NA	NA	<0.001	
9/15/2014	LLR01-AB05-2614-0915	Highway M-26	<0.00102	NA	NA	<0.001	
9/15/2014	LLR01-AB06-0614-0915	Mailbox 6	<0.000863	NA	NA	<0.001	
9/16/2014	LLR01-AB01-0914-0916	Mailbox 1	<0.000859	NA	NA	<0.001	
9/16/2014	LLR01-AB02-MU14-0916	Museum	<0.000938	NA	NA	<0.001	
9/16/2014	LLR01-AB03-0214-0916	Mailbox 2	<0.0126	NA	NA	<0.001	
9/16/2014	LLR01-AB04-0514-0916	Mailbox 5	<0.000879	NA	NA	<0.001	
9/16/2014	LLR01-AB05-2614-0916	Highway M-26	0.00108	0.0	<0.0010	<0.001	TEM Analysis Complete
9/16/2014	LLR01-AB06-0614-0916	Mailbox 6	<0.000990	NA	NA	<0.001	

Notes:
f/cc = fibers per cubic centimeter
NA = Not analyzed
RSL = Regional Screening Level

TABLE 3.11 - 2014 PERIMETER AMBIENT AIR SAMPLING RESULTS
C&H Power Plant Site
Torch Lake Township, MI

Date	Sample ID	Sample Location	Fiber Concentration (f/cc) (PCM Analysis)	Fraction Asbestos (%)	Asbestos Concentration (f/cc) (TEM Analysis)	Asebstos RSL (f/cc)	Notes
9/17/2014	No samples collected due to heavy rains						
9/18/2014	LLR01-AB01-0914-0918	Mailbox 9	<0.000778	NA	NA	<0.001	
9/18/2014	LLR01-AB02-MU14-0918	Museum	<0.000813	NA	NA	<0.001	
9/18/2014	LLR01-AB03-0214-0918	Mailbox 2	<0.00164	NA	NA	<0.001	
9/18/2014	LLR01-AB04-0514-0918	Mailbox 5	<0.000922	NA	NA	<0.001	
9/18/2014	LLR01-AB05-2614-0918	Highway M-26	<0.00100	NA	NA	<0.001	
9/18/2014	LLR01-AB06-0614-0918	Mailbox 6	<0.000776	NA	NA	<0.001	
9/19/2014	LLR01-AB01-0914-0919	Mailbox 9	<0.000923	NA	NA	<0.001	
9/19/2014	LLR01-AB02-MU14-0919	Museum	<0.00130	NA	NA	<0.001	
9/19/2014	LLR01-AB03-0214-0919	Mailbox 2	0.00142	0.0	<0.0009	<0.001	TEM Analysis Completed
9/19/2014	LLR01-AB04-0514-0919	Mailbox 5	<0.000928	NA	NA	<0.001	
9/19/2014	LLR01-AB05-2614-0919	Highway M-26	<0.00101	NA	NA	<0.001	
9/19/2014	LLR01-AB06-0614-0919	Mailbox 6	<0.00241	NA	NA	<0.001	
9/22/2014	LLR01-AB01-0914-0922	Mailbox 1	<0.00862	NA	NA	<0.001	
9/22/2014	LLR01-AB02-MU14-0922	Museum	<0.000900	NA	NA	<0.001	
9/22/2014	LLR01-AB03-0214-0922	Mailbox 2	<0.00138	NA	NA	<0.001	
9/22/2014	LLR01-AB04-0514-0922	Mailbox 5	<0.000817	NA	NA	<0.001	
9/22/2014	LLR01-AB05-2614-0922	Highway M-26	<0.000978	NA	NA	<0.001	
9/22/2014	LLR01-AB06-0614-0922	Mailbox 6	<0.000902	NA	NA	<0.001	
9/23/2014	LLR01-AB01-0914-0923	Mailbox 1	<0.000956	NA	NA	<0.001	
9/23/2014	LLR01-AB02-MU14-0923	Museum	<0.00181	NA	NA	<0.001	
9/23/2014	LLR01-AB03-0214-0923	Mailbox 2	<0.00181	NA	NA	<0.001	
9/23/2014	LLR01-AB04-0514-0923	Mailbox 5	<0.00101	NA	NA	<0.001	
9/23/2014	LLR01-AB05-2614-0923	Highway M-26	<0.000991	NA	NA	<0.001	
9/23/2014	LLR01-AB06-0614-0923	Mailbox 6	<0.00145	NA	NA	<0.001	
9/24/2014	LLR01-AB01-0914-0924	Mailbox 1	<0.000833	NA	NA	<0.001	
9/24/2014	LLR01-AB02-MU14-0924	Museum	<0.000897	NA	NA	<0.001	
9/24/2014	LLR01-AB03-0214-0924	Mailbox 2	<0.00106	NA	NA	<0.001	
9/24/2014	LLR01-AB04-0514-0924	Mailbox 5	<0.00154	NA	NA	<0.001	
9/24/2014	LLR01-AB05-2614-0924	Highway M-26	<0.000861	NA	NA	<0.001	
9/24/2014	LLR01-AB06-0614-0924	Mailbox 6		NA	NA	<0.001	
9/25/2014	LLR01-AB01-0914-0925	Mailbox 1	<0.000869	NA	NA	<0.001	
9/25/2014	LLR01-AB02-MU14-0925	Museum	0.00149	0.0	<0.0014	<0.001	TEM Analysis Completed
9/25/2014	LLR01-AB03-0214-0925	Mailbox 2	0.00079	NA	NA	<0.001	
9/25/2014	LLR01-AB04-0514-0925	Mailbox 5	<0.000716	NA	NA	<0.001	
9/25/2014	LLR01-AB05-2614-0925	Highway M-26	<0.000762	NA	NA	<0.001	
9/25/2014	LLR01-AB06-0614-0925	Mailbox 6	<0.00124	NA	NA	<0.001	

Notes:
f/cc = fibers per cubic centimeter
NA = Not analyzed
RSL = Regional Screening Level

TABLE 3.11 - 2014 PERIMETER AMBIENT AIR SAMPLING RESULTS
C&H Power Plant Site
Torch Lake Township, MI

Date	Sample ID	Sample Location	Fiber Concentration (f/cc) (PCM Analysis)	Fraction Asbestos (%)	Asbestos Concentration (f/cc) (TEM Analysis)	Asebstos RSL (f/cc)	Notes
9/26/2014	LLR01-AB01-0914-0926	Mailbox 1	<0.000839	NA	NA	<0.001	
9/26/2014	LLR01-AB02-MU14-0926	Museum	0.00148	0.0	<0.0014	<0.001	TEM Analysis Completed
9/26/2014	LLR01-AB03-0214-0926	Mailbox 2	0.00146	0.0	<0.0008	<0.001	TEM Analysis Completed
9/26/2014	LLR01-AB04-0514-0926	Mailbox 5	0.000882	NA	NA	<0.001	
9/26/2014	LLR01-AB05-2614-0926	Highway M-26	<0.00153	NA	NA	<0.001	
9/26/2014	LLR01-AB06-0614-0926	Mailbox 6	<0.000851	NA	NA	<0.001	
9/27/2014	LLR01-AB01-0914-0927	Mailbox 1	<0.00151	NA	NA	<0.001	
9/27/2014	LLR01-AB02-MU14-0927	Museum	<0.000830	NA	NA	<0.001	
9/27/2014	LLR01-AB03-0214-0927	Mailbox 2	<0.000916	NA	NA	<0.001	
9/27/2014	LLR01-AB04-0514-0927	Mailbox 5	0.000978	NA	NA	<0.001	
9/27/2014	LLR01-AB05-2614-0927	Highway M-26	<0.000854	NA	NA	<0.001	
9/27/2014	LLR01-AB06-0614-0927	Mailbox 6	<0.00135	NA	NA	<0.001	
9/28/2014	LLR01-AB01-0914-0928	Mailbox 1	0.00175	0.0	<0.0008	<0.001	TEM Analysis Completed
9/28/2014	LLR01-AB02-MU14-0928	Museum	<0.00152	NA	NA	<0.001	
9/28/2014	LLR01-AB03-0214-0928	Mailbox 2	<0.000944	NA	NA	<0.001	
9/28/2014	LLR01-AB04-0514-0928	Mailbox 5	<0.00134	NA	NA	<0.001	
9/28/2014	LLR01-AB05-2614-0928	Highway M-26	<0.000890	NA	NA	<0.001	
9/28/2014	LLR01-AB06-0614-0928	Mailbox 6	0.00155	0.0	<0.0008	<0.001	TEM Analysis Completed
9/29/2014	No sample colected due to minimal work					<0.001	
9/30/2014	LLR01-AB01-0914-0930	Mailbox 1	<.00154	NA	NA	<0.001	
9/30/2014	LLR01-AB02-MU14-0930	Museum	<.0012	NA	NA	<0.001	
9/30/2014	LLR01-AB03-0214-0930	Mailbox 2	<.000827	NA	NA	<0.001	
9/30/2014	LLR01-AB04-0514-0930	Mailbox 5	0.00126	0.0	<0.001	<0.001	TEM Analysis Completed
9/30/2014	LLR01-AB05-2614-0930	Highway M-26	<00077	NA	NA	<0.001	
9/30/2014	LLR01-AB06-0614-0930	Mailbox 6	<.000848	NA	NA	<0.001	
10/1/2014	LLR01-AB01-0914-1002	Mailbox 1	<.000860	NA	NA	<0.001	
10/1/2014	LLR01-AB02-MU14-1002	Museum	<.000863	NA	NA	<0.001	
10/1/2014	LLR01-AB03-0214-1002	Mailbox 2	<.00137	NA	NA	<0.001	
10/1/2014	LLR01-AB04-0514-1002	Mailbox 5	<.00136	NA	NA	<0.001	
10/1/2014	LLR01-AB05-2614-1002	Highway M-26	<.000897	NA	NA	<0.001	
10/1/2014	LLR01-AB06-0614-1002	Mailbox 6	<.00121	NA	NA	<0.001	
10/2/2014	LLR01-AB01-0914-1002	Mailbox 1	<0.000860	NA	NA	<0.001	
10/2/2014	LLR01-AB02-MU14-1002	Museum	<0.000863	NA	NA	<0.001	
10/2/2014	LLR01-AB03-0214-1002	Mailbox 2	<0.00137	NA	NA	<0.001	
10/2/2014	LLR01-AB04-0514-1002	Mailbox 5	<0.00136	NA	NA	<0.001	
10/2/2014	LLR01-AB05-2614-1002	Highway M-26	<0.000897	NA	NA	<0.001	
10/2/2014	LLR01-AB06-0614-1002	Mailbox 6	<0.00121	NA	NA	<0.001	

Notes:
f/cc = fibers per cubic centimeter
NA = Not analyzed
RSL = Regional Screening Level

TABLE 3.12 - 2012 PERSONAL AIR SAMPLING RESULTS
Lake Linden Calumet and Hecla Power Plant Site
Torch Lake Township, Michigan

Date	Sample ID	Person Wearing Sampler	Fiber Concentration (f/cc)	Comments
10/15/2012	LLR12-KCXX-PM01	K. Cunningham	<0.00240	
10/18/2012	LLR12-KCXX-PM01	K. Cunningham	<0.00633	
10/19/2012	LLR12-KCXX-PM01	K. Cunningham	<0.00745	
10/20/2012	LLR12-KCXX-PM01	K. Cunningham	<0.0056	
10/22/2012	LLR12-KCXX-PM01	K. Cunningham	<0.00497	
10/23/2012	LLR12-KCXX-PM01	K. Cunningham	<0.0117	
10/24/2012	LLR12-KCXX-PM01	K. Cunningham	<0.0194	
10/29/2012	LLR12-KCXX-PM01	K. Cunningham	0.000	
10/30/2012	LLR12-KCXX-PM01	K. Cunningham	<0.00739	
11/2/2012	LLR12-KCXX-PM07	K. Cunningham	<0.00298	
11/3/2012	LLR12-LSXX-PM07	E. Stieber	<0.00429	
11/5/2012	LLR12-KCXX-PM07	K. Cunningham	<0.00327	
11/6/2012	LLR12-ESXX-PM07	E. Stieber	<0.00443	
11/7/2012	LLR12-KCXX-PM07	K. Cunningham	<0.00294	
11/8/2012	LLR12-BGXX-PM01	B. Gibney	<0.00297	
11/9/2012	LLR12-KCXX-PM01	K. Cunningham	<0.00313	

Notes:

f/cc = fibers per cubic centimeter

TABLE 3.13 - 2013 PERSONAL AIR SAMPLING RESULTS
Lake Linden Calumet and Hecla Power Plant Site
Torch Lake Township, Michigan

Date	Sample ID	Person Wearing Sampler	Fiber Concentration (f/cc)	Comments
5/21/2013	LLI01-PM01-0521-ASXX	K. Cunningham	<0.00226	Metals Soil Investigation
5/22/2013	LLI01-PM01-0522-ASXX	K. Cunningham	<0.00179	Metals Soil Investigation
6/24/2013	No Sample Collected	-	-	Minimal soil disturbance
6/25/2013	LLR01-0625-PM01	D. Saigh	<0.00553	
6/26/2013	LLR01-0626-PM02	D. Saigh	<0.00354	
6/27/2013	LLR01-0627-PM03	D. Saigh	<0.00467	
6/28/2013	No Sample Collected	-	-	Minimal soil disturbance
8/20/2013	LLR01-KCXX-PM01	K. Cunningham	0.0193	Building Demo
8/21/2013	LLR01-KCXX-PM01	K. Cunningham	0.00886	Building Demo
8/22/2013	LLR01-KCXX-PM01	K. Cunningham	0.0149	
8/23/2013	LLR01-KCXX-PM01	K. Cunningham	0.0128	
8/24/2013	LLR01-KCXX-PM01	K. Cunningham	0.0386	
8/26/2013	LLR01-KCXX-PM01	K. Cunningham	0.0207	
8/27/2013	LLR01-KCXX-PM01	K. Cunningham	0.0118	
8/28/2013	LLR01-KCXX-PM01	K. Cunningham	0.0229	
8/29/2013	LLR01-KCXX-PM01	K. Cunningham	0.0184	
8/30/2013	LLR01-KCXX-PM01	K. Cunningham	<0.00539	
9/4/2013	LLR01-KCXX-PM02	K. Cunningham	<0.00404	
9/5/2013	No Sample Collected	-	-	No soil disturbance
9/6/2013	No Sample Collected	-	-	No activity in the exclusion zone.
11/7/2013	LLR01-KCXX-PM01	K. Cunningham	<0.00253	

Notes:

f/cc = fibers per cubic centimeter

TABLE 3.14 - 2014 PERSONAL AIR SAMPLING RESULTS
Lake Linden Calumet and Hecla Power Plant Site
Torch Lake Township, Michigan

Date	Sample ID	Person Wearing Sampler	Fiber Concentration (f/cc) (analyzed by PCM)	Asbestos Concentration (f/cc) (analyzed by TEM)	Lead Concentration (mg/m ³)	Comments
5/19/2014	LLI01-PM01-KCXX-0519	K. Cunningham	<0.00414	-	NS	Metals/asbestos soil sampling
5/20/2014	LLI01-PM01-KCXX-0520	K. Cunningham	0.0175	-	NS	Metals/asbestos soil sampling
5/21/2014	LLI01-PM01-KCXX-0521	K. Cunningham	0.0611	-	NS	Metals/asbestos soil sampling
8/6/2014	LLR01-PM01-MF14-0806	M. French	<0.00276	-	NS	Soil excavation and loading
8/7/2014	LLR01-PM01-MF14-0807	M. French	0.00934	-	NS	Soil excavation and loading
8/8/2014	LLR01-PM01-MF14-0808	M. French	0.00234	-	NS	Soil excavation and loading
8/9/2014	LLR01-PM01-MF14-0809	M. French	<0.00272	-	NS	Soil excavation and loading
8/11/2014	LLR01-PM01-SZ14-0811	Support Zone	<0.00186	-	NS	Set up on scaffolding in Support area
8/13/2014	LLR01-PM01-SZ14-0813	Support Zone	0.00188	-	NS	Set up on scaffolding in Support area
8/13/2014	LLR01-PM02-MF14-0813	M. French	N/A	-	<0.0032	
8/14/2014	LLR01-PM01-MF14-0814	Support Zone	0.00673	-	<0.0021	Set up on scaffolding in Support area
8/14/2014	LLR01-PM02-MF14-0814	M. French	N/A	-	<0.0021	
8/15/2014	LLR01-PM01-SZ14-0815	Support Zone	0.00555	-	N/A	Set up on scaffolding in Support area
8/15/2014	LLR01-PM02-MF14-0815	M. French	N/A	-	<0.0017	
8/18/2014	LLR01-PM01-SZ14-0818	Support Zone	<0.00307	-	N/A	
8/18/2014	LLR01-PM02-MF14-0818	M. French	N/A	-	<0.0023	
8/19/2014	LLR01-PM01-SZ14-0819	Support Zone	<0.00255	-	N/A	
8/19/2014	LLR01-PM02-MF14-0819	M. French	N/A	-	<0.0028	
8/20/2014	LLR01-PM01-SZ14-0820	Support Zone	<0.00231	-	NS	No lead sample collected d/t no work in lead contaminated area
8/20/2014	LLR01-PM02-MF14-0820	M. French	N/A	-	NS	No lead sample collected d/t no work in lead contaminated area
8/21/2014	LLR01-PM01-SZ14-0821	Support Zone	<0.00245	-	NS	No lead sample collected d/t no work in lead contaminated area
8/22/2014	LLR01-PM01-SZ14-0822	Support Zone	N/A	-	NS	No lead sample collected d/t no work in lead contaminated area
8/26/2014	LLR01-PM01-MF14-0826	M. French	<0.0047	-	NS	No lead sample collected d/t no work in lead contaminated area
8/27/2014	LLR01-PM01-KC14-0827	K. Cunningham	<0.0028	-	NS	No lead sample collected d/t no work in lead contaminated area
8/28/2014	LLR01-PM01-MF14-0828	M. French	0.011	<0.0027	NS	TEM analysis completed
8/29/2014	LLR01-PM01-KC14-0829	K. Cunningham	0.012	<0.0049	NS	TEM analysis completed
9/3/2014	LLR01-PM01-KC14-0903	K. Cunningham	<0.00253	-	NS	No lead sample collected d/t no work in lead contaminated area
9/4/2014	LLR01-PM01-KC14-0904	K. Cunningham	0.00448	-	NS	No lead sample collected d/t no work in lead contaminated area
9/5/2014	LLR01-PM01-MF14-0905	M. French	<0.00348	-	NS	No lead sample collected d/t no work in lead contaminated area
9/6/2014	LLR01-PM01-KC14-0906	K. Cunningham	0.00846	-	NS	No lead sample collected d/t no work in lead contaminated area
9/8/2014	LLR01-PM01-SR14-0908	S. Rought	<0.00253	-	NS	No lead sample collected d/t no work in lead contaminated area
9/9/2014	LLR01-PM01-SR14-0909	S. Rought	0.00284	-	NS	No lead sample collected d/t no work in lead contaminated area
9/11/2014	LLR01-PM01-SR14-0911	S. Rought	<0.00253	-	NS	No lead sample collected d/t no work in lead contaminated area
9/12/2014	LLR01-PM01-SR14-0912	S. Rought	<0.00256	-	NS	No lead sample collected d/t no work in lead contaminated area
9/15/2014	LLR01-PM01-SR14-0915	S. Rought	<0.00263	-	NS	No lead sample collected d/t no work in lead contaminated area
9/16/2014	LLR01-PM01-KC14-0916	K. Cunningham	0.0114	-	NS	No lead sample collected d/t no work in lead contaminated area
9/17/2014	No Sample Rain					
9/18/2014	LLR01-PM01-MF14-0918	M. French	0.00808	-	NS	No lead sample collected d/t no work in lead contaminated area
9/19/2014	LLR01-PM01-KC14-0919	K. Cunningham	0.00657	-	NS	No lead sample collected d/t no work in lead contaminated area
9/22/2014	LLR01-PM01-KC14-0922	K. Cunningham	0.0037	-	NS	No lead sample collected d/t no work in lead contaminated area
9/23/2014	LLR01-PM01-KC14-0923	K. Cunningham	<0.00244	-	NS	No lead sample collected d/t no work in lead contaminated area

Notes:
f/cc = fibers per cubic centimeter
NS - No sample collected
mg/m³ = milligrams lead per cubic meter

TABLE 3.14 - 2014 PERSONAL AIR SAMPLING RESULTS
Lake Linden Calumet and Hecla Power Plant Site
Torch Lake Township, Michigan

9/24/2014	LLR01-PM01-MF14-0924	M. French	0.00336	-		
9/24/2014	LLR01-PM02-KC14-0924	K. Cunningham	NA		<0.00066	
9/25/2014	LLR01-PM01-KC14-0925	K. Cunningham	<0.00218	-	NS	No lead sample collected d/t no work in lead contaminated area
9/26/2014	LLR01-PM01-KC14-0926	K. Cunningham	<0.00224	-	NS	No lead sample collected d/t no work in lead contaminated area
9/27/2014	LLR01-PM01-KC14-0927	K. Cunningham	0.00503	-	NS	No lead sample collected d/t no work in lead contaminated area
9/28/2014	LLR01-PM01-KC14-0928	K. Cunningham	0.00237	-	NS	No lead sample collected d/t no work in lead contaminated area
9/29/2014	LLR01-PM01-KC14-0929	K. Cunningham	<0.00286	-	NS	No lead sample collected d/t no work in lead contaminated area
9/30/2014	LLR01-PM01-KC14-0930	K. Cunningham	0.0115	-	NS	No lead sample collected d/t no work in lead contaminated area
10/2/2014	LLR01-PM01-KC14-1002	K. Cunningham	0.0110	-	NS	No lead sample collected d/t no work in lead contaminated area

Notes:

f/cc = fibers per cubic centimeter

NS - No sample collected

mg/m³ = milligrams lead per cubic meter

TABLE 3.15 MATERIALS AND DISPOSITION
Lake Linden Calumet and Hecla Power Plant Site
Torch Lake Township, Michigan

Material	Amount	Method	Location
Berms, Debris Piles, Excavated Soils (non-hazardous)	11,843.85 tons	Landfill	K&W Landfill Ontonagon, MI
Concrete Foundation Debris (non-hazardous)	2,768.75 tons	Landfill	K&W Landfill Ontonagon, MI
Basement Debris (non-hazardous)	3,138.92 tons	Landfill	K&W Landfill Ontonagon, MI
Non-Friable C&D (non-hazardous)	808.78 tons	Landfill	K&W Landfill Ontonagon, MI
Friable C&D (non-hazardous)	186.10 tons	Landfill	K&W Landfill Ontonagon, MI
Bulk Asbestos (non-hazardous)	4 roll-offs (9,057.43 tons)	Landfill	K&W Landfill Ontonagon, MI
Spent Media (non-hazardous)	40.28 tons	Landfill	K&W Landfill Ontonagon, MI
TSCA Basement Debris (hazardous)	10 roll-offs (184 tons)	Landfill	Wayne Disposal, Inc Belleville, MI
TSCA Sediment (hazardous)	1 roll-off (6.82 tons)	Landfill	Wayne Disposal, Inc Belleville, MI
Capacitors (hazardous)	3 capacitors	Incineration	Veolia ES Technical Solutions Port Arthur, TX
Scrap Metal (non-hazardous)	1,106.69 tons	Recycle	Schneider's Iron and Metal Niagara, WI
Universal Waste (non-hazardous)	Four 5-gallon buckets	Recycle	Veolia Environmental Services Greenville, WI
Unknown Drums (non-hazardous)	Four 55-gallon Drums	Recycle	Chief Waste Treatment Corp Ripon, WI