

# INTERIM RESPONSE CONSTRUCTION SUMMARY REPORT FOR THE COAL DOCK BURN AREA

ABANDONED MINING WASTES – TORCH LAKE NON-SUPERFUND SITE  
HOUGHTON COUNTY, MICHIGAN  
SITE ID# 31000098



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PREPARED FOR:

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## 1.0 INTRODUCTION

The Mannik & Smith Group, Inc. (MSG) has prepared this *Interim Response Construction Summary Report (CSR) for the Coal Dock Burn Area* as part of the Abandoned Mining Wastes – Torch Lake non-Superfund Site (Project) [EGLE Abandoned Mining Waste](#) (Site ID: 31000098). This CSR summarizes the interim response (IR) completed at the Calumet & Hecla Lake Linden Operations Area (CHLL) Hubbell Processing Area Coal Dock Burn Area in Hubbell, Houghton County, Michigan. The IR entailed the removal and disposal of asbestos containing building materials (ACBM) and residual process materials (RPM) containing polychlorinated biphenyls (PCBs) and asbestos, grading to promote and control drainage, capping PCB-contaminated soils, and armoring of drainage channels. The affected area had been contributing soils to runoff into Torch Lake coincident with where PCBs have been detected in lake sediments. This CSR was prepared in accordance with the *Indefinite Scope Indefinite Delivery (ISID) Discretionary Proposal for FS and Remedial Action Activities* (24 February 2016) prepared by MSG in response to a request from the Michigan Department of Environment, Great Lakes, and Energy (formerly the Department of Environmental Quality), Remediation and Redevelopment Division (RRD), Calumet Field Office under MSG's 2015 Environmental Services ISID Contract Number 00538 with the State of Michigan.

### 1.1 Project Location

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

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

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

The Coal Dock Burn Area IR was limited to the southern portion of the Coal Dock property and northern portion of the Mineral Building property in the Hubbell Processing Area. **Figure 2, Drainage Improvements and Capped Area** depicts features and the limits of improvements to abate contaminated soil erosion into Torch Lake as part of this IR effort.

### 1.2 Project Background

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

The environmental legacy resulting from over 100 years of mining and reclamation led to Torch Lake and its western shoreline to be designated as a Superfund site by the United States Environmental Protection Agency (EPA) <https://cumulis.epa.gov/supercpad/cursites/csinfo.cfm?id=0503034> and a Great Lakes Area of Concern (AOC) under the U.S./Canada Great Lakes Water Quality Agreement <https://www.epa.gov/torch->

[lake-aoc](#). The EPA undertook cleanup activities to address some of the byproducts of the mining industry while others were not addressed or left to recover through natural processes.

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

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

PCBs are of particular concern in Torch Lake sediments, surface water, and submerged abandoned container contents, as well as in upland soil, waste, RPM, and abandoned container contents in former industrial areas along the shoreline as they serve as a continuing source of PCBs into the environment. Sediment samples collected from the CHLL contained multiple detections of PCBs that exceeded applicable regulatory criteria. Interpretation of these results clearly demonstrates that there are two distinct groupings of elevated PCB concentrations in sediment: The first located offshore in the Lake Linden Recreation Area and the second located offshore in the Hubbell Processing Area. These source areas, as confirmed by the results of the historical Semi-Permeable Membrane Device (SPMD) and fish tissue studies, are ongoing sources of PCBs that pose both ecological and potential human health risks and continued degradation of the benthos in Torch Lake. For additional detailed information on the condition of Torch Lake and upland areas specifically pertaining to PCBs, please refer to the May 2018 *Distribution of PCBs in the Torch Lake Environment Memorandum* available at [https://www.michigan.gov/documents/deq/deq-rrd-amw-AMWPCBMemorandum5-15-18\\_625028\\_7.pdf](https://www.michigan.gov/documents/deq/deq-rrd-amw-AMWPCBMemorandum5-15-18_625028_7.pdf).

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

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

In the case of the Hubbell Processing Area Coal Dock property, the identified risks posed potential threats to human and ecological receptors, including but not limited to human health risks in the event of direct contact with affected media and inhalation of particulates and asbestos; physical hazards; and, erosion and deposition of PCB-contaminated soils into Torch Lake. Blocked historic drainage pathways and uncontrolled runoff allowed for erosion of PCB-contaminated soils into Torch Lake. Just off shore of the Coal Dock property is an area of sediments that has been identified as an ongoing in-lake source of PCBs, contributing to the Michigan Department of Human Health Services (MDHHS) fish consumption guideline for total PCBs in Torch Lake fish.

Based on these conditions the Upper Peninsula RRD staff commissioned EGLE's Geological Services Unit (GSU) to conduct a topographic survey of the Hubbell Coal Dock and Mineral Building properties. EGLE also commissioned MSG to prepare biddable specifications for drainage improvements and capping of the PCB-contaminated soils. After receiving competitive bids and securing a Trade Contractor (TC), RRD staff completed an IR that removed ACBM and PCB-containing RPM, improved drainage pathways, and capped PCB-contaminated soils to stop the erosion of PCBs into Torch Lake as part of the mitigation of risks to human health and the environment.

## **2.0 OBJECTIVE AND SCOPE OF WORK**

The objective of the IR was to abate the erosion of PCB-contaminated soils into Torch Lake and mitigate risks to human health and the environment. The efforts focused on prevention of soil runoff and capping of soils affected by asbestos and/or PCB residuals which resulted from historic secondary copper recovery processes (i.e. burning of secondary waste materials, specifically the outer sheathings, insulation, and coatings on copper-rich materials, prior to treating the recovered copper in the smelter). This was accomplished by removing ACBM and PCB-containing RPM, improving and armoring drainage pathways, grading to promote positive drainage, and placing a soil cap over PCB-contaminated soils that met EPA capping standards. To meet this objective MSG developed a scope of work that was incorporated into a biddable specifications package to secure a TC. MSG then assisted EGLE with soliciting bids in accordance with EGLE and Michigan Department of Technology, Management and Budget procurement procedures. Refer to **Appendix A**, *Bidding and Contract Document*.

## **3.0 INTERIM RESPONSE ACTIVITIES**

MSG supported the EGLE RRD in the procurement and oversight of a TC during implementation of the IR. The TC selected and retained by the State of Michigan was B&B Contracting, Calumet, Inc. (B&B) of Calumet, Michigan. Refer to **Appendix B**, *Award and Notice to Proceed*. B&B completed the work in accordance with the March 28, 2017 Bidding and Contract Document, as modified, as the work progressed. Refer to **Appendix C**, *Bulletins and Change Orders* for descriptions of changes made to the contract and the corresponding changes in contract value. Refer to **Appendix D**, *Provisional Allowance Change Authorization Request Forms* for changes made to the work that were addressed using the Provisional Allowance within the contract.

Due to the proximity of the work to Torch Lake, Part 91 Soil Erosion and Sedimentation Control (SESC) Permits were required for the earth change activities at the Coal Dock Burn Area and at the borrow pit where the sandy loam cap material was sourced. Refer to **Appendix E**, *Soil Erosion and Sedimentation Control Permits and Releases* for copies of the issued permits and correspondence verifying permit closures.

Permits were also required from the Michigan Department of Transportation (MDOT) to accommodate a new temporary driveway onto highway M-26, temporarily re-route a drainage ditch, and for traffic control during hauling operations. Copies of the issued permits are provided in **Appendix F**, *MDOT Permits*. **Appendix G**, *Access Agreements* contains copies of the access agreements between B&B and the property owners of the borrow pit and land where the temporary drainage ditch re-routing occurred. The *Notification of Intent to Renovate/Demolish* form submitted for the pick-up and removal of ACBM as part of the project is contained in **Appendix H**, *Notification of Intent to Renovate/Demolish Form*.

In accordance with the *Bidding and Contract Document*, B&B prepared and submitted a number of pre-work submittals along with additional submittals as the work progressed, including:

- Imported Cap Material Sampling Plan;
- Air Monitoring Plan;
- Project Schedule;
- Cap Material, Gravel, and Rip Rap Test Reports;
- Geotextiles Product Data;

- Submittal Register;
- Schedule of Values;
- Site-Specific Health and Safety Plan;
- Work Plan;
- Concrete Mix Design;
- Erosion Control Materials Product Data;
- Seed, Fertilizer, and Mulch Product Data;
- Imported Soil Lab Analytical Data;
- Culvert and End Section Product Data; and,
- Concrete Load Ticket.

Copies of the approved submittals as returned to B&B are provided in **Appendix I, Submittals**.

On-site work at the Coal Dock Burn Area commenced on July 6, 2017.

IR actions undertaken at the Hubbell Coal Dock property included:

- Improvement of existing internal roads to support truck traffic and limit dust generation;
- Construction and eventual removal of a temporary haul road entrance;
- Improvement and armoring of 750 feet of drainage ditch, including removal of trees and debris, grading, and placement of geotextile and rip rap;
- Plugging of a rectangular opening through the bulkhead with concrete to eliminate a migration pathway;
- Grading of the Coal Dock Burn Area to promote controlled positive drainage toward rip rap armored outlets to Torch Lake;
- Capping in accordance with EPA capping standards of 6.7-acres of PCB-contaminated soils in the Coal Dock Burn Area to stop water and wind erosion and inhibit direct contact;
- Replacement of approximately 170 feet of failing culverts;
- Removal and disposal of 320 pounds of ACBM and one drum of PCB-contaminated residual process materials (RPM) that were picked up as the work progressed;
- Removal and disposal of 117.9 tons of hazardous waste soil, identified as waste pile WP-11, contaminated with PCBs and lead. The PCB concentration in WP-11 was 100 parts per million (ppm), thus it required management as a Toxic Substances Control Act (TSCA) PCB remediation regulated waste. TSCA addresses the production, importation, use, and disposal of PCBs based on origin, date of generation, and concentration. In the case of WP-11, it was determined the PCBs were released prior to 1978 and were present at a concentration greater than 50 ppm, a regulatory trigger. Waste Pile WP-11 also required management as a Resource Conservation and Recovery Act (RCRA) hazardous waste due to the results of a Toxicity Characteristic Leaching Procedure (TCLP) test for lead. TCLP testing identifies wastes likely to leach concentrations of contaminants that may be harmful to human health or the environment. Thus WP-11 required disposal at a TSCA and RCRA hazardous waste regulated facility; and,
- Site restoration including application of seed, fertilizer, organic matter, and mulch atop the capped area.

Photographs of representative portions of the drainage improvements and capping activities are included in **Appendix J, Photographic Log**. Documentation for the disposal of ACBM, drum of PCB-contaminated RPM, and hazardous waste soils is included in **Appendix K, Waste Management Records**. The as-built survey, reduced to an 11x17 paper size for inclusion in this report, is provided in **Appendix L, As-Built Survey**.

Dust control was an important component of the completed activities and was primarily accomplished through the application of water to maintain a moist surface condition during earth-moving activities and while material was being transported on the haul road. In addition, vehicle speeds were managed. Air monitoring was conducted as the work progressed, including visual assessment for visible dust and monitoring using a Thermo DataRam pDR aerosol monitor. Any observances of visible dust were immediately reported to the TC for correction. Air sampling for

asbestos fibers was also conducted, including personnel air sampling and sampling at upwind and downwind stations around the perimeter of the work area. Results are provided in **Appendix M, Air Monitoring Data**. The data indicates that dust levels remained below the action level of 2.5 milligrams per cubic meter (mg/m<sup>3</sup>). Similarly, the asbestos fiber count was below detection limits at the perimeter of the work area and the personnel monitoring results were below the action level of 0.05 fibers per cubic centimeter (f/cc), which was one-half of the Occupational Safety and Health Administration (OSHA) permissible exposure limit (PEL) of 0.1 f/cc as an 8-hour time weighted average.

The date of substantial completion for the work was November 14, 2017, which is when disposal documentation was received for the WP-11 materials. Refer to **Appendix N, Substantial and Final Completion** for a copy of the executed document. Work by the TC to complete the punch-list items identified at the time of Substantial Completion continued through 2018, with the following completed by October 2018:

- Silt fence removal along the drainage ditch;
- Adjustment of grades to improve water flow near the outlet of the drainage ditch;
- Placement of stone cover over most of the bare soil areas where standing water had previously been present near the outlet of the drainage ditch;
- Provision of documentation that the Houghton County Drain Commissioner accepted the borrow pit and site restoration; and,
- Filling and seeding of scattered bare spots within the capped area and re-seeding of one area outside of the capped area.

In 2019, the following was completed:

- Placement of additional soil and seed in scattered bare spots within the capped area;
- Ditch maintenance outside the capped area;
- Placement of crushed stone in areas that had eroded in the southern drainage swales; and,
- Final vegetation and project acceptance.

#### **4.0 SUMMARY AND CONCLUSIONS**

Completed IR operations at the CHLL Hubbell Processing Area Coal Dock Burn Area included removal of ACBM and PCB-containing RPM, improving and armoring drainage pathways, grading to promote positive drainage, placement of a soil cap meeting EPA capping standards for the Torch Lake Superfund site, and restoration to stabilize newly capped and disturbed areas.

The completed IR operations met the objective of safely abating ACBM and the erosion of PCB-contaminated soils and RPM into Torch Lake and mitigating potential risks to human health and the environment.

#### **5.0 RECOMMENDATIONS**

MSG has the following recommendations:

- Implementation of the Operation and Maintenance (O&M) Plan is recommended to assess soil cover and structure conditions, along with vegetation establishment, drainage ditches, and other features and conditions in a repeatable, objective manner on a routine inspection basis. Based on the findings and recommendations from the inspections, necessary repairs and/or amendments can be performed to support their continued functioning as designed.

**FIGURES**





## APPENDICES

PROVIDED ON CD AS SEPARATE FILES

<b>APPENDIX A</b>	<b>BIDDING AND CONTRACT DOCUMENT</b>
<b>APPENDIX B</b>	<b>AWARD AND NOTICE TO PROCEED</b>
<b>APPENDIX C</b>	<b>BULLETINS AND CHANGE ORDERS</b>
<b>APPENDIX D</b>	<b>PROVISIONAL ALLOWANCE CHANGE AUTHORIZATION REQUEST FORMS</b>
<b>APPENDIX E</b>	<b>SOIL EROSION AND SEDIMENTATION CONTROL PERMITS AND RELEASES</b>
<b>APPENDIX F</b>	<b>MDOT PERMITS</b>
<b>APPENDIX G</b>	<b>ACCESS AGREEMENTS</b>
<b>APPENDIX H</b>	<b>NOTIFICATION OF INTENT TO RENOVATE/DEMOLISH FORM</b>
<b>APPENDIX I</b>	<b>SUBMITTALS</b>
<b>APPENDIX J</b>	<b>PHOTOGRAPHIC LOG</b>
<b>APPENDIX K</b>	<b>WASTE MANAGEMENT RECORDS</b>
<b>APPENDIX L</b>	<b>AS-BUILT SURVEY</b>
<b>APPENDIX M</b>	<b>AIR MONITORING DATA</b>
<b>APPENDIX N</b>	<b>SUBSTANTIAL AND FINAL COMPLETION</b>



ADDENDUM A

## Bidding and Contract Document



**ADDENDUM D**

**Award and Notice to Proceed**



APPENDIX C

## Bulletins and Change Orders



**APPENDIX D**

**Provisional Allowance Change Authorization Request Forms**



## APPENDIX E

### Control Permits and Releases



APPENDIX E

## MDOT Permits



## APPENDIX G

### Access Agreements





APPENDIX U

## Notification of Intent to Renovate/Demolish Form



# APPENDIX I

## Submittals



## APPENDIX J

### Photographic Log



## APPENDIX K

### Waste Management Records



## APPENDIX L

### AS-BUILT SURVEY



## APPENDIX M

### AIR MONITORING DATA



## APPENDIX N

### SUBSTANTIAL AND FINAL COMPLETION

