

## PREASSESSMENT SCREEN AND DETERMINATION

East Branch Little Calumet River / Burns Waterway  
Porter County, Indiana

by

Indiana Department of Environmental Management  
Indiana Department of Natural Resources  
Department of the Interior

**Action:** Preassessment Screen for East Branch Little Calumet River / Burns Waterway in Porter County, Indiana (the Site) by the Indiana Department of Environmental Management (IDEM), the Indiana Department of Natural Resources (IDNR), and the United States Department of the Interior (DOI), as represented by the National Park Service (NPS) and the U.S. Fish and Wildlife Service (FWS).

**Authority:** The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended, 42 U.S.C. §9601 *et seq.*, authorizes the Federal Government, States and Indian tribes to recover, as trustees acting on behalf of the public, damages for injuries to natural resources and their supporting ecosystems, belonging to, managed by, appertaining to, or otherwise controlled by them. In addition, Indiana Code 13-25-4-8 provides that the State can recover damages for injury to, destruction of, or loss of natural resources from a person that is liable under §107(a) of CERCLA (42 U.S.C. §9607(a)).

In accordance with 42 U.S.C. §9607(f)(2)(B) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), the Governor of Indiana designated IDEM and IDNR to act on behalf of the public as trustees for natural resources, including their supporting ecosystems, within the boundary of Indiana or belonging to, managed by, controlled by, or appertaining to Indiana.

The National Contingency Plan (NCP), 40 C.F.R. §300.600 and Executive Order 12580, dated January 23, 1987, designate federal natural resource trustees. Pursuant to the NCP, the Secretary of the DOI acts as a trustee for natural resources and their supporting ecosystems and services, managed or controlled by DOI. In this matter, NPS is a trustee for all natural resources and services associated with Indiana Dunes National Park. The FWS, working in unison with NPS, is acting on behalf of the Secretary of the DOI as the lead federal trustee for natural resources under its jurisdiction. The official authorized to act on behalf of the DOI in the Natural Resource Damage Assessment (NDRA) for this Site is the Regional Director for Interior Region 3.

### **Preassessment Screen**

#### **1. Regulatory Guidance**

The CERCLA regulations applicable to Natural Resource Damage Assessments, 43 C.F.R. Part 11, require that the trustees complete a Preassessment Screen to ensure that there is reasonable probability of making a successful claim for natural resource damages as a result of a release of a hazardous substance before monies are expended in carrying out assessment efforts (see 43 C.F.R. §11.23). This document fulfills that requirement and follows the structure of the CERCLA regulations. Adherence to the methods set forth in these regulations is not mandatory and does not preclude the Trustees' use of alternative methods of assessing damages or arriving at a negotiated settlement with potentially responsible parties.

## **2. Purpose**

The purpose of this preassessment screen is to provide a rapid review of readily available information on the natural resources for which the Federal or State agency may assert trusteeship under S§ 107(f) or 126(d) of CERCLA that have been or are likely to have been adversely affected by the release of hazardous substances (43 C.F.R. §11.23(b)).

## **General Criteria**

### **1. Discharge or Release**

From the period of August 1 through August 31, 2019, ArcelorMittal Burns Harbor (AMBH) experienced exceedances of its National Pollution Discharge Elimination System (NPDES) permitted discharge limitations for Ammonia-Nitrogen. Within that same time frame and beginning on August 12, 2019, AMBH experienced exceedances for Total Cyanide at Outfall 011 and Free Cyanide at Outfall 001. These exceedances resulted in the release of hazardous substances to the East Branch Little Calumet River (EBLCR). AMBH also experienced exceedances for Oil and Grease and Total Cyanide at Outfall 002 within the same period of August 1 through 31, 2019. AMBH's blast furnace gas washing recycle system pump station failure on/around August 11, 2019, resulted in the continuous release of gas washing wastewater that contained pollutants, including Cyanide, to its Secondary Wastewater Treatment Plant (SWTP). These exceedances resulted in the release of hazardous substances.

### **2. Affected Natural Resources**

Natural resources affected or potentially affected under the trusteeship of the State of Indiana may include, but are not limited to, the following: fish, benthic invertebrates, amphibians, and reptiles; lands owned and/or managed by the state of Indiana, including Indiana Dunes State Park, wetlands, shorelines, soil, geologic resources, and other features of those lands; aquatic and terrestrial plants and microorganisms; surface waters and sediments; and loss of recreational use including fishing and boating.

The NPS asserts trusteeship under CERCLA for natural resources owned, managed by or appertaining to Indiana Dunes National Park which have been or are likely to have been adversely affected by the release. This includes biological, soil, geologic, surface water resources, and the ecological and recreational services these resources support.

The FWS shares trustee responsibilities with Indiana and NPS for the following resources, which have been or are likely to have been adversely affected by the release: migratory birds, threatened and endangered species, and their supporting habitats.

### **3. Identification and concentrations of hazardous substances**

On August 12, 13, 14, 15 and 16, 2019, AMBH reported NPDES permit limitation exceedances of 136 lbs, 188 lbs, 128 lbs, 110 lbs, and 35 lbs for Total Cyanide from Outfall 011. AMBH also reported exceedances for Free Cyanide of 160 µg/l, 220 µg/l, 106 µg/l, 125.2 µg/l, and 11.9 µg/l on August 12, 13, 14, 15, and 16, 2019. Additionally, NPDES effluent limitation exceedances of 0.92 mg/l, 0.92 mg/l, 1.0 mg/l, 0.57 mg/l, 0.81 mg/l, and 0.53 mg/l were reported for Ammonia-Nitrogen.

These exceedances killed approximately 2,900 fish. Under controlled conditions, fish are the most sensitive aquatic organisms to cyanide exposure. At lethal doses, around 20 to 76 mg/l,

cyanide is a fast acting asphyxiant, producing death within seconds when fish are exposed. At non-lethal doses of 5 to 7.2 µg/l, cyanide can inhibit reproduction and reduce swimming performance. The lethal dose for macro-invertebrates is 30-100 µg/l, with non-lethal doses between 18-43 µg/l causing adverse effects.

Ammonia in excess of standards and limitations can cause harm to aquatic life. The lethal dose for most fish species ranges between 0.2 to 2.0 mg/l. Ammonia exposure at varying concentrations and conditions can result in loss of equilibrium; increased respiratory activity or oxygen uptake; increased heart rate; kidney, liver, skin, eye, and gill damage; reduction in growth rate and hatching success; as well as coma, convulsions, or death. Ammonia will accumulate in fish and suppress normal ammonia excretion from the gills causing an increase in blood ammonia levels and damage to organs. Ammonia toxicity in macroinvertebrates can affect nymphal survival rates and emergence of adults.

#### **4. Availability of data for a reasonable cost damage assessment**

Beginning on August 15, 2019 at the direction of IDEM, AMBH conducted daily monitoring of Outfall 001 and 011 for all parameters listed in its NPDES permit and at Outfall 002 for Oil and Grease, and Total Cyanide. Supporting documentation includes: the NPDES Permit; discharge monitoring reports (DMRS); IDEM's Office of Water Quality October 21, 2019 Inspection Report/Enforcement Referral; IDEM water quality, fish tissue, fish community, and macro-invertebrate community data for Burns Waterway and portions of the EBLCR and adjoining tributaries; EBLCR watershed management plan; as well as Indiana NRDA Trustees' monitoring data summarized in a report "Contaminants and Toxicity Monitoring on the Grand Calumet River and Indiana Harbor Ship Canal Area of Concern, 2013" where Burns Waterway has often been used as a reference / background site for northwestern Indiana river monitoring. Although there is some data available on aquatic habitat conditions of the EBLCR, additional data will be relatively easy to obtain at reasonable cost in order to assess natural resource injuries.

There was closure of the waterways and beaches to boats and people. The National Park Service closed to public access the portion of the EBLCR from its crossing with State Highway 149 to its crossing with State Highway 249, along with the Portage Lakefront and Riverwalk beach area and adjacent waters of Lake Michigan out to 300 feet, at the Indiana Dunes National Park on August 15 and re-opened them on August 22, 2019. Local boat marinas adjacent to Burns Waterway and the EBLCR remained closed during this time frame as did recreational fishing pending the results of the investigation into the cause of the fish kill.

#### **5. Response Actions**

Any response actions by regulatory agencies to resolve violations of clean water regulations under the state and federal law will serve to remediate, penalize, and require plans for prevention of future releases. These actions do not or will not sufficiently remedy the injury to natural resources without further action. The NRDA by the natural resource trustees will remedy the injury to natural resources and their services. The NRDAR will aid in recovery of the injured resources and provide compensation to the public for natural resources and their services which have been or may have been affected by the release.

### **Information on the Site and on the Discharge**

#### **1. Time, quantity, duration, and frequency of the discharge**

On August 11, 2019, AMBH's blast furnace gas washing recycle hot and cold well pump valves stopped working. Between August 11, 2019, until the gas washing recycle system was returned

to service on August 15, 2019, approximately 2 million gallons of gas wash water in the recycle system at the time of the failure, the pump station flood waters, and the continuously generated once-through gas wash water was released at a rate of thousands of gallons per minute through Outfall 011 and ultimately Outfall 001 and EBLCR. AMBH exceeded numeric effluent limitations of its NPDES permit for Ammonia-Nitrogen as well as Total and Free Cyanide. The Daily Maximum effluent limit for Free Cyanide is 9.9 lbs/day or 8.8 µg/l, for Total Cyanide is 21 lbs/day, and for Ammonia-Nitrogen is 540 lbs/day or 0.52 mg/l. During this same time period, AMBH exceeded effluent limitations for Total Cyanide and Oil and Grease at NPDES permitted Outfall 002, which discharges to Lake Michigan. The releases are infrequent and the investigation into the cause is still ongoing.

## **2. The name of the hazardous substance(s)**

Ammonia (CAS 7664417) and cyanide (CAS 57-12-5) have been emitted, emptied, discharged, allowed to escape, disposed, or otherwise released into the EBLCR. Ammonia and cyanide are both listed as hazardous substances pursuant to the CERCLA regulations at 43 C.F.R. §11.14 (u), and related authorities including CERCLA §101(14); Clean Water Act (CWA) §311(b)(2)(A); CWA §307(a); 40 C.F.R. §116.4(A); and 40 C.F.R. §401.15.

## **3. History of the Site**

Bethlehem Steel Corporation, a fully integrated steel mill located on the southern shore of Lake Michigan, Burns Harbor, Porter County, Indiana, was constructed and began operations in the early 1960s. In 2001, Bethlehem Steel Corporation went bankrupt, the company dissolved, and assets were acquired in 2007 by ArcelorMittal. With Lake Michigan to its north, Burns waterway to the west and the EBLCR to the South, the ArcelorMittal Burns Harbor facility sits on approximately 2,200 acres. ArcelorMittal Burns Harbor is an iron and steel producing facility with 2 coke ovens, 2 blast furnaces, a sinter plant, 80” hot strip mill, as well as finishing (pickle) and plate operations. The ArcelorMittal Burns Harbor facility’s main products include hot and cold rolled steel sheet, coated sheet product, as well as carbon and alloy heat treated steel plate. ArcelorMittal’s primary customer is the automotive industry.

## **4. Relevant operations occurring at or near the Site**

The ArcelorMittal Burns Harbor facility has three outfalls that discharge to surface waters and one internal outfall. Outfalls 002 and 003 discharge to Lake Michigan, while Outfall 001 discharges to EBLCR. With an average discharge of 135 million gallons per day (MGD), outfall 001 consists of treated wastewater from ArcelorMittal’s secondary wastewater treatment plant (SWTP), non-contact cooling water, stormwater, and Lake Michigan water. Internal Outfall 011 discharges to Outfall 001 and consists of treated wastewater from the SWTP as well as treated effluent from the Town of Burns Harbor sanitary wastewater treatment plant.

The SWTP treats process wastewaters from the following operations: Sintering, Blast furnaces, Vacuum degassing, Continuous casting, Hot plate and strip mills, Acid pickling, Cold rolling, Heat treat and hot dip coating lines, Galvanizing, and Landfill leachate (Deerfield storage facility). There are 276 acres of impervious surface and 3,724 acres of pervious surface on site; stormwater is directed to Outfalls 001 and 002.

## **5. Additional oil or hazardous substances potentially discharged from the Site**

The trustees are uncertain at this time whether or not, or the degree to which, additional hazardous substances have potentially been discharged to the Site, which includes the EBLCR and Burns Waterway.

## **6. Potentially Responsible Parties (PRPs)**

ArcelorMittal Burns Harbor, LLC  
250 W. U.S. Hwy 12  
Burns Harbor, IN 46304

### **Statutory Limitations**

No statutory exclusions from liability under CERCLA apply at this Site. Damages resulting from the discharge or release of the hazardous substances at the Site were not identified as an irreversible and irretrievable commitment of natural resources in any environmental impact statement or other comparable environmental analysis. ArcelorMittal's NPDES permit does not authorize such a commitment of natural resources and the AMBH was not operating within the terms of its NPDES permit or other authorization.

The release of the hazardous substances at the Site did not occur wholly before enactment of CERCLA. Injuries to natural resources and resultant damages to the public from the release or discharge of the hazardous substances did not occur wholly before enactment of CERCLA.

The hazardous substances at the Site are not pesticide products registered under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) (7 U.S.C. 135). Damages resulting from the release or discharge of the hazardous substances at the Site did not result from any federally permitted release as defined in CERCLA §101 (10). Damages resulting from the discharge or release of the hazardous substances at the Site did not result from the release of a recycled oil product as described in CERCLA §107 (a)(3) or (4).

### **Preliminary Identification of Resources Potentially at Risk**

#### **1. Identification of pathway**

The cyanide release which contributed to the fish kill was due to the catastrophic failure of the blast furnace's gas washing recycle system pump station. Ammonia-Nitrogen also exceeded effluent limits at Outfall 001. Ammonia will cause harm, including death, to fish. A petroleum sheen was noted on August 14, 2019, near Outfall 002.

As noted previously, the receiving stream for Outfall 001 is the EBLCR. Both EBLCR and Burns Waterway are designated as capable of supporting salmonid fisheries.

The EBLCR enters the Indiana Dunes National Park upstream of Outfall 001 at S.R. 20 and leaves the Park at its confluence with Burns Waterway. All waters in this stretch are designated as an Outstanding State Resource Water.

#### **2. Exposed areas**

The waters, banks, wetlands, shorelines, sediments, and biota of the EBLCR and Burns waterway as well as near shore Lake Michigan have been exposed to the discharge of hazardous substances in exceedance of the NPDES permit and water quality limitations.

#### **3. Estimated stream miles exposed**

From Outfall 001 to Lake Michigan, over 5.3 km of stream miles and 140 acres of wetland habitat along the EBLCR were impacted by the releases from ArcelorMittal Burns Harbor.

#### **4. Estimates of concentrations**

From August 1 through August 31, 2019, per discharge monitoring reports as well as daily monitoring following the release, AMBH exceeded their NPDES numeric effluent limitations for Ammonia-Nitrogen as well as Free and Total Cyanide. Per the NPDES Permit, the Daily Maximum effluent limit for Free Cyanide is 8.8 µg/l, the Daily Maximum effluent limit for Total Cyanide is 21 lbs/day, and the Daily Maximum effluent limit for Ammonia-Nitrogen is 0.52 mg/l. On August 12, 13, 14, 15, and 16, 2019, the reported Free Cyanide concentrations at Outfall 001 were 160 µg/l, 220 µg/l, 106 µg/l, 125.2 µg/l, and 11.9 µg/l, respectively. On August 5, 11, 12, 13, 14, 15, and 16, 2019, the reported Ammonia-Nitrogen concentrations were 0.92 mg/L, 0.92 mg/L, 1.0 mg/L, 0.8 mg/l, 0.57 mg/l, 0.81 mg/l, and 0.53 mg/l, respectively. The Total Cyanide concentrations at Outfall 011 on August 12, 13, 14, 15, and 16, 2019, were 136 lbs, 188 lbs, 138 lbs, 110 lbs, and 35 lbs, respectively.

Immediately following and determining the source of the release, IDEM Office of Water Quality required AMBH to conduct daily monitoring, using approved analytical methods and as per their NPDES permit, for all parameters listed in its permit at Outfalls 001 and 011, which discharges to EBLCR. AMBH was also directed to increase monitoring for Oil and Grease at Outfall 002, which discharges to Lake Michigan. Additionally, AMBH was directed to monitor the EBLCR for Total and Free Cyanide, Ammonia-Nitrogen, pH, Temperature, and Dissolved Oxygen.

#### **5. Potentially affected resources**

The following natural resources are potentially or have been affected by the release: surface water, sediments, state and federal lands, and biota including fish and macroinvertebrates. The following services to the public are potentially affected: sport fishing, boating, other recreational uses, tourism, and passive values provided by wildlife areas, parks, waterways, and a healthy ecosystem.

The National Park Service closed a portion of the EBLCR, beach areas, and adjacent waters out to 300 feet in Lake Michigan at Indiana Dunes National Park. Marinas adjacent to Burns Waterway and along the EBLCR were closed or had reduced services while agencies investigated the cause of the fish kill. The State also limited access to recreational fishing in the area of the release along the river and Lake Michigan.

Prior to industry and development, the area was characterized by a diverse ecosystem that included coastal dunes, river corridors, and wetlands. Currently, these diverse habitats are interspersed among industrial, urban, and agricultural development. The Indiana Dunes National Park and State Park are home to globally rare habitats, state and federally endangered plants and animals, and close to 1200 plant species.

There are five categories of natural resources used by the Natural Resource Trustees for which natural resource damages may be sought: surface water resources, groundwater resources, air resources, geologic resources, and biologic resources.

Surface water resources include both the water column and associated bed and bank sediments of the EBLCR, Burns Waterway, Salt Creek, and nearshore Lake Michigan. These resources are particularly important as they were the principal receptors of cyanide and ammonia from ArcelorMittal. Sediments can serve as a source of continuing releases of hazardous substances to the water column. The contamination of these resources has both direct and indirect impacts on the health of biological resources. Contaminated sediments can cause injury to benthic invertebrate populations, which in turn result in injury to fish populations that rely on macroinvertebrates as a source of food.

Geologic resources include soils and sediments that are not otherwise accounted for under the definition of surface water resources. In this pre-assessment, geologic resources include the soils and sediments located in upland and wetland areas closely associated with EBLCR, Burns Waterway, and soils of lands within the Indiana Dunes National Park and State Park.

Biologic resources include plants, benthic invertebrates, fish, amphibians, reptiles, migratory birds, and threatened and endangered species. Benthic invertebrates are often used to assess environmental quality of aquatic ecosystems because they are sensitive to both chemical and physical stressors. Fish communities depend on benthic organisms as a source of food, and can also be an indication of environmental quality of aquatic ecosystems (as some species are more sensitive to water quality than others). Migratory birds can feed on insects that have aquatic life stages as well as fish.

## **References**

Eisler R, Wiemeyer SN (2004) Cyanide Hazards to Plants and Animals from Gold Mining and Related Water Issues. *Reviews of Environmental Contamination and Toxicology* 183:21-54

Eisler R (1991) Cyanide Hazards to Fish, Wildlife, and Invertebrates: A Synoptic Review. *Biological Report* 85 (1.23)

Office of Water Quality, Indiana Department of Environmental Management, Indianapolis, IN (2019) Inspection Summary/Enforcement Referral ArcelorMittal Burns Harbor, Burns Harbor Porter County, Indiana

Office of Water Quality, Indiana Department of Environmental Management, Indianapolis, IN (2016) Final NPDES Permit NO. IN0000175 ArcelorMittal Burns Harbor, Burns Harbor Porter County, Indiana

Indiana Department of Natural Resources, Indianapolis, IN August 12, 2019, Law Enforcement Incident Report

## **PREASSESSMENT SCREEN DETERMINATION**

Based on a review of readily available data and an evaluation of the Preassessment Screen criteria summarized in this document, the Trustees have reached the following conclusions with regard to the EBLC and Burns Harbor Site:

Releases of hazardous substances have occurred;

Natural resources for which the Trustees may assert trusteeship under CERCLA are present;

The quantity and concentration of the released hazardous substances are sufficient to potentially cause injury to natural resources and their services;

Data sufficient to pursue an assessment are readily available or likely to be obtained at a reasonable cost; and

Planned response actions are unlikely to sufficiently restore, replace, or provide compensation for injured natural resources and their services without further action.

The Trustees hereby determine that further investigation and assessment is warranted at this site in accordance with Federal Regulations at 43 C.F.R. Part 11. The Trustees further determine that current information indicates that there is a reasonable probability of making a successful natural resource damage claim pursuant to §107 of CERCLA and that all criteria and requirements pertaining to the Preassessment Phase, as set forth in 43 C.F.R. Part 11, Subpart B, have been satisfied.

The information provided and conclusions made in this Preassessment Screen shall be used to direct further investigations and assessments and are not intended to preclude consideration of other resources later found to be affected or other parties found to be responsible for releases.



**SIGNATURES**

This Preassessment Screen may be executed in counterparts. A copy with all of the original executed signature pages affixed shall constitute the Preassessment Screen. The date of execution shall be the date of the final Trustee signature.

INDIANA DEPARTMENT OF NATURAL RESOURCES

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By: John M. Davis, IDNR

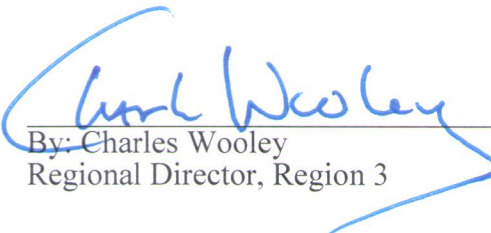
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INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

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By: Elizabeth Admire, IDEM

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Date

DEPARTMENT OF INTERIOR  
U.S. FISH AND WILDLIFE SERVICE

  
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By: Charles Wooley  
Regional Director, Region 3

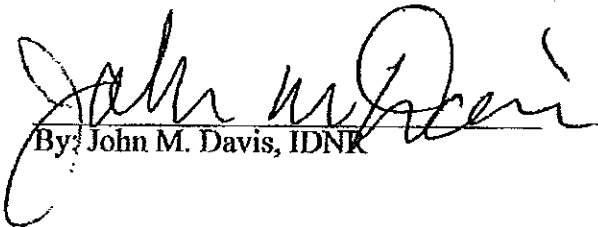
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**SIGNATURES**

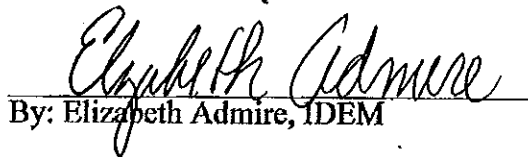
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DATED this 18<sup>th</sup> day of August, 2020

INDIANA DEPARTMENT OF NATURAL RESOURCES

  
By: John M. Davis, IDNR

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

  
By: Elizabeth Admire, IDEM

DEPARTMENT OF INTERIOR  
U.S. FISH AND WILDLIFE SERVICE

By: Charles Wooley, Regional Director, Region 3