UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

OCT 3 0 2019

CERTIFIED MAIL 7018 3090 0002 2526 9932
RETURN RECEIPT REQUESTED

REPLY TO THE ATTENTION OF
ECW-15J

Mr. Robert Maciel
Environmental Manager
ArcelorMittal Burns Harbor, LLC
250 West U.S. Highway 12
Burns Harbor, IN 46304

Subject: August 22, 2019 Reconnaissance Inspection Report for ArcelorMittal Burns Harbor

Dear Mr. Maciel:

Enclosed, please find a copy of the U.S. Environmental Protection Agency Reconnaissance Inspection Report that describes, evaluates, and documents ArcelorMittal Burns Harbor, LLC compliance with the Clean Water Act and its National Pollutant Discharge Elimination System permit IN0000175 at its Burns Harbor, Indiana site on August 22, 2019.

The purpose of the reconnaissance inspection at ArcelorMittal Burns Harbor, LLC was to investigate a release of cyanide and ammonia. During the inspection, EPA observed several areas of concern; these areas are listed in the enclosed report.

If you have any questions or concerns regarding this letter, or the inspection report, please contact Joan Rogers (312) 886-2785 or at rogers.joan@epa.gov.

Sincerely,

Ryan J. Bahr, Chief
Section 2
Water Enforcement and Compliance Assurance Branch

Enclosure

cc: Nicholas Ream, Environmental Engineer
Indiana Department of Environmental Management

Jason House, Branch Chief of Wastewater Compliance
Indiana Department of Environmental Management

CWA RECONNAISSANCE INSPECTION REPORT
U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA), REGION 5

Facility: ArcelorMittal Burns Harbor, LLC
250 West U.S. Highway 12
Burns Harbor, IN 46304

Purpose: Initial investigation related to a fish kill incident in Burns Harbor

Date of Inspection: August 22, 2019
EPA Representatives:

- Sangsook Choi, Environmental Engineer, 312-353-1869
- Joan Rogers, Environmental Scientist, 312-886-2785
- Mark Conti, Team Leader/Environmental Engineer, 440-250-1706

Indiana Department of Environmental Management Representative:

- Nicholas Ream, Environmental Engineer, 219-730-1691

Facility Representatives:

- Teri Kirk, Senior Environmental Engineer, 219-787-4643
- Robert Maciel, Environmental Manager, 219-787-2712
- Rick Balunda, ArcelorMittal, Air, Gas & Water Department, Operations Manager
- Brian Layman, ArcelorMittal, Maintenance, Environmental & Utilities Division, Division Mgr.
- Chad Boettcher, ArcelorMittal, Air, Gas & Water Department, Maintenance Manager
- Brian Eschbach, ArcelorMittal, Iron Producing, Maintenance Manager

Inspector Signature: _____

Inspector Signature: Mark Conti

Approver Name and Title: Ryan Bahr, Chief, Section 2 Water Enforcement Branch

Approver Signature: _____

Approval Date: 10/22/19

INTRODUCTION

On August 22, 2019, representatives from the U.S. Environmental Protection Agency, Region 5 Water Enforcement and Compliance Assurance Branch performed an unannounced Clean Water Act (CWA) Reconnaissance Inspection (RECON) at ArcelorMittal Burns Harbor, LLC (AMBH) in Burns Harbor, Indiana. The inspection was a joint investigation with the Indiana Department of Environmental Management (IDEM). The agencies were investigating a release of cyanide and ammonia.

BACKGROUND

The Indiana Department of Environmental management (IDEM) and Indiana Department of Natural Resources (IDNR) received a citizen compliant of distressed fish in the East Arm of the Little Calumet River on Monday, August 12, 2019. Both IDEM and IDNR responded Monday and confirmed the presence of distressed fish, but no dead fish were observed. On Tuesday evening, August 13, 2019, additional complaints were received identifying the presence of numerous dead fish. Both IDEM and IDNR conducted reconnaissance on Wednesday, August 14, 2019, and observed that a significant fish kill had occurred on the East Arm of the Little Calumet River.

IDEM issued a Notice to Initiate Spill Response to ArcelorMittal Burns Harbor, LLC on August 15, 2019. The Notice was in response to ArcelorMittal's exceedances of ammonia-nitrogen and cyanide in its wastewater discharges to the East Arm of the Little Calumet River and then running into the Burns Ditch Waterway which leads to Lake Michigan. The IDEM Notice requested amongst other things, daily monitoring for cyanide, ammonia, and dissolved oxygen (DO) for discharges from NPDES permitted outfalls 001, 011, and 12 locations in the receiving water; and a spill response monitoring of the receiving water for total and free cyanide, ammonia, pH, temperature, and DO.

US EPA Emergency Response was contacted on August 17, 2019, by IDEM and the United State Coast Guard, requesting technical assistance. A USEPA On-Scene-Coordinator (OSC) responded on August 18 and issued a Notice of Federal Interest to ArcelorMittal Steel Mill.

FACILITY DESCRIPTION

The ArcelorMittal Burns Harbor facility produces coke, molten iron, raw steel, steel slabs, hot-rolled sheet, plate, cold-rolled sheet and hot-dipped galvanized sheet. It is one of the largest fully integrated steel mills in North America, with the capacity to produce approximately 5 million tons of raw steel per year. NPDES Permit No. IN0000175 was issued on May 27, 2016 and expires on June 30, 2021. The facility has three final outfalls (001, 002 and 003) and two internal outfalls (011 and 111).

The discharge from Outfall 001 is comprised of treated wastewater from the Secondary Wastewater Treatment Plant (through Internal Outfall 011), non-contact cooling water, storm water, and Lake Michigan water. Outfall 001 has an average discharge of approximately 135 million gallons per day (MGD). The discharge from Internal Outfall 011 consists of treated wastewater from the Secondary Wastewater Treatment Plant (SWTP) and treated effluent from the Town of Burns Harbor sanitary wastewater treatment plant (NPDES Permit No. INJ060801).

The SWTP (Internal Outfall 011) treats the following process wastewaters: Sintering; Blast Furnace Gas Washing System; Basic Oxygen Furnace Gas Washing and Gas Cooling; Vacuum Degassing; Continuous Casting (casters Nos. 1 and 2); Hot Forming (110" Plate Mill, 160" Plate Mill, and 80" Hot Strip Mill); Acid Pickling (Nos. 1 and 2 Picklers); Cold Rolling (Tandem Mill and Temper Mill); Continuous Heat Treat Line; Galvanizing (Hot Dip Coating); and Landfill leachate from the Deerfield Storage Facility. The SWTP includes pH adjustment, oil separation, flocculation/coagulation, and clarification. The effluent from the SWTP is routed through two polishing lagoons prior to discharge via Internal Outfall 011. The lagoons are equipped with aerators for temperature control. Internal Outfall 011 has an average discharge of approximately 72 MGD.

The blast furnace gas washing system consists of two thickeners, cooling towers and a pump house for recycling blast furnace gas scrubber water for reuse in the blast furnace gas scrubbers.

The discharge from Outfall 002 consists of once-through noncontact cooling water and storm water from the coke plant, sinter plant, blast furnaces, steelmaking area, power station and shop complex. Outfall 002 also receives groundwater from building dewatering at the shop complex, power station, and slab yard. Outfall 002 has an average discharge of approximately 221 MGD.

The discharge from Outfall 003 consists of backwash from the No. 1 and 2 Lake Water Pump Station's traveling screens. Lake Michigan water is used to backwash the traveling screens. Outfall 003 has an average discharge of approximately 1.4 MGD.

SITE INSPECTION

Entry, Opening Conference, and Discussion

EPA representatives arrived at AMBH at 8:40 AM on Thursday, August 22, 2019, badged in and met with Ms. Teri Kirk, ArcelorMittal Burns Harbor representative at the reception desk. EPA presented credentials to Ms. Kirk while at the receptionist desk. We then drove to an office building in the plant to have an opening conference and discussion. At 9:43 AM, Environmental Manager Robert Maciel came into the conference room and was introduced to IDEM and EPA inspectors. When Mr. Maciel arrived, EPA presented credentials to Mr. Maciel. EPA led a short opening conference which covered the purpose and objectives of the investigation. EPA stated

that it wanted to see Outfalls 001, 011, and 002 and the Blast Furnace Area. We requested AMBH to describe what occurred at ArcelorMittal Burns Harbor which may have contributed to the fish kill incident.

Mr. Maciel stated it was a "Catastrophic Failure." He explained that in the early evening on Sunday, August 11, the Blast Furnace water pumping station flooded. As a result, once-through water was used for the gas washing system. This led to once-through gas washing water becoming contaminated with cyanide. The once through water went to their Secondary Wastewater Treatment Plant, then the detention lagoons, and through Outfall 001. Outfall 001 later exceeded the NPDES permit limit for cyanide. On Monday, August 12, AMBH had an ammonia exceedance that appeared to AMBH to be coming from the storm water ditch, so AMBH sampled the storm water ditch. On Wednesday, August 14, AMBH deployed a boom for an oil spill in the harbor and IDNR alerted AMBH that dead fish were observed in the harbor. On Wednesday evening, total Cyanide sampling results from Outfall 011 were 0.24 and 0.26 mg/l or 188 lb./day. At 2 PM Thursday, August 15, 2019, the pumps were back on and working.

The Agencies requested a process diagram and flow diagram. AMBH provided a copy of "Discharge Flow Diagram - Water Discharge, Burns Harbor Plant" schematic and "Process Flow Diagram: Secondary Wastewater Treatment Plant" (see Attachments 1 and 2). The following AMBH managers involved in the incident joined the meeting to provide details regarding the process and this incident: Rick Balunda, Operations Manager; Brian Layman, Division Manager; Chad Boettcher, Maintenance Manager; and Brian Eschbach, Iron Producing, Maintenance Manager.

Technical discussions covered the following topics: ArcelorMittal's Blast Furnace Gas Closed Water Recycle System; Power Failure and Operating Adjustments; Previous Operation with Once-Through Cooling Water; and Cyanide Destruction System.

ARCELORMITTAL'S BLAST FURNACE GAS CLOSED WATER RECYCLE SYSTEM DURING NORMAL OPERATION

The following description was provided by Mr. Balunda during the inspection. Cary Matthias, ArcelorMittal, Regional Waste Manager, provided clarifying information by E-mail on September 4, 2019.

ArcelorMittal has two blast furnaces: C Furnace and D Furnace. Each furnace has a dust catcher and wet scrubber to clean blast furnace gas. Scrubber water is clarified in a pair of thickeners. Each scrubber has its own thickener. Thickener sludge is dewatered, and the water is sent to the secondary wastewater treatment plant. Thickener effluent flows by gravity to the hot well of the cooling towers. There are three hot well lift pumps. Two pumps are typically operated with one in standby mode. Hot well water is pumped to five parallel cooling towers. Cooled water flows

by gravity to the cold well. There are four cold well pumps. One pump is typically operated with three in standby mode. Cold-well water is pumped to the "C" and "D" scrubber pump houses to complete the recycle loop. Between the cooling tower cold well and scrubber pump houses is a recirculated side stream for quenching blast furnace slag. Slag quench water is pumped to the slag pits as needed.

Two hundred to 300 gallons per minute of recycle water is blown down from the cold well to the secondary wastewater treatment plant to maintain chemical and hydraulic balances. Up to 5,300 gallons per minute of lake make-up water is pumped to the cooling tower hot and cold wells to replace water evaporated in cooling towers and slag pits, blowdown, and moisture in thickener sludge. The overall recirculation rate through the system is about 14,000 gallons per minute (20 million gallons per day). The recirculation rate is a function of the amount of water needed for the scrubbers, which is about 7,000 gallons per minute each. The cooling tower hot and cold wells can overflow to each other through cutouts. Makeup water to the hot and cold wells is controlled automatically with level controllers.

POWER FAILURE AND OPERATING ADJUSTMENTS

Mr. Layman provided information regarding power failure and Mr. Balunda provided information regarding operating adjustments.

At about 6:36 AM on August 11, 2019, the bank of batteries that supplies power to the blast furnace gas water recycling system cooling tower pump motors and some equipment in the cooling tower pump room dropped to a level inadequate to operate the equipment. The batteries were not equipped with an alarm system to alert operators that voltage was dropping to a level that would shut down equipment. At the time of the inspection, the cause was attributed to either a failed battery charger or blown fuses. The battery charger was replaced. The transformer that supplies power to the battery charger is protected by fuses. Three fuses were blown, and they were replaced. The cause of the blown fuses was under investigation.

With the cooling tower pumps not operating, recirculated water was not being pumped to "C" and "D" scrubber pump houses. AMBH has lake water piping at the scrubber pump houses. Valves were manually opened to supply water to the scrubbers. Level controllers for the hot and cold wells would normally close the valves at high levels, but they failed, which caused the makeup valves to fail in the open position, flooding the hot and cold wells with lake water. The cause for the loss of level indication was not explained. At about 7:00 AM August 11, 2019, operators went to manually close block valves to stop lake makeup water flowing into the hot and cold wells. The single block valve to shut off lake makeup water to the hot and cold wells is outside the pump room and below grade. It had also flooded. Since some other equipment in the block valve pit was still energized, there was an electrical hazard that prevented them from entering the area and closing the valves. The pit was dewatered and the valve was closed at about 11:30 AM on August 11, 2019.

With the pump room flooded, bearing cooling water pumps and motors and control boxes were damaged, and they were replaced. In addition, conduit needed to be dried out. This was a significant factor in the amount of time needed to resume operation of the cooling tower pumps. The cooling tower pumps and motors were not damaged by the loss of power or the flooded pump room. Power to the cooling tower pumps was restored at about 2:00 PM August 15, 2019.

While the cooling tower pumps were unavailable, 100% of the water used for the scrubbers was fresh lake water. When the cooling tower is isolated, thickener effluent is diverted to the secondary wastewater treatment plant.

PREVIOUS OPERATION WITH ONCE-THROUGH COOLING WATER

We were told that the last time once-through water was used in the gas cleaning system was in May 2015. The specific date(s) was not given. It was done for one scrubber, and approximately 8,000 gallons per minute were diverted to the secondary wastewater treatment plant. ArcelorMittal submitted an NPDES permit renewal application on August 27, 2015. Attachment 3 of the application includes sampling results. On May 5, 2015, the total cyanide result at Outfall 011 was 0.120 mg/L. The average monthly flow in the May 2015 discharge monitoring report was 75 million gallons per day. Using the measured value on May 5 and the average monthly flow gives a loading for the day of 75 pounds cyanide. This is in line with ArcelorMittal's self-monitoring for August 13, 2019, when both furnace's scrubbers were using once-through cooling water and the loading at Outfall 011 was 188 pounds cyanide. Two scrubbers using once-through cooling water would be expected to discharge twice as much cyanide as one scrubber using once-through cooling water.

CYANIDE DESTRUCTION SYSTEM

Blowdown from the recycle system can be treated for cyanide by alkaline chlorination. The treatment unit is sized for 300 gallons per minute. The treatment unit is located between the cooling tower and secondary wastewater treatment plant. The treatment unit is not normally used. It would typically be used when a furnace is brought back online after an extended outage, which can result in higher concentrations of cyanide in Blast Furnace Gas (BFG) during the startup period.

Operators of the secondary wastewater treatment plant sample and analyze blowdown from the gas washing recycle system for free cyanide every eight hours. According to Mr. Mathias, the handheld instrument is a Hach HI 93714.[1] The spectrophotometer method is an adaptation of the *Standard Methods for the Examination of Water and Wastewater*, 18th edition, Pyridine-Pyrazalone method.

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[1] An online search found a Hanna Instruments HI 93734. No information on a similar Hach instrument was found.

We were told cyanide analysis is done because their environmental department wants to see the data and decide whether the cyanide destruction system should be used. None of the ArcelorMittal participants could recall a recent time the cyanide destruction system was used any time other than following startup of a blast furnace.

IRON PRODUCTION

During the inspection, Mr. Conti requested daily iron production data, blast furnace wind rate, scrubber water usage (both scrubbers), and slag quenching water usage beginning one week prior to August 11, 2019 through August 21. Mr. Eschbach said he would get that data and provide it to Ms. Kirk. On a phone call with Mr. Mathias on September 4, he said some of the data I requested may be confidential business information. He was still gathering data.

Site Inspection

Around 1:20 p.m., Ms. Kirk, Mr. Layman, EPA inspectors and the IDEM inspector began a tour of the plant to observe the Secondary Wastewater Treatment Plant, the Lagoons, Stormwater Ditch, some outfalls and some sampling locations. We walked and observed the Secondary Wastewater Treatment Plant (Photo 4), Influent Channel to the Lagoons (photos 5 and 6), North Lagoon (Photo 7), Overflow from the North Lagoon and the South Lagoon (Photos 8 and 9), Monitoring Station 011 (Photo 10) and Sampling Equipment and the Intake tube for Monitoring Station 011 (Photos 11 and 12), Sampling Location at Outfall 001 and Outfall Channel 001 (Photos 13 and 14), Sampling Equipment at Outfall 001 (Photo 15), Parshall Flumes for Outfall 001 (Photo 17), Pilings on either side of Outfall 002 and permanent Boom installed at the end of Outfall 002 (Photos 18 and 19), and Sampling Equipment, Control Panel, and the Flow Meter for Outfall 002 (Photos 21, 22, and 23). Observations are documented in the photolog.

The sampling at Outfall 011 for total residual chlorine and the method for collecting oil and grease were questioned. Ms. Kirk stated that total residual chlorine is not analyzed within the required holding time. For Outfall 011, ArcelorMittal collects a grab sample for oil and grease by pumping effluent through plastic tubing to the collection jar. The flow head is only measured at the south Parshall flume for Outfall 001. The total flow is assumed to be twice the flow rate through the south flume. The ultrasonic flow gauge at Outfall 002 showed "out of range." When EPA asked Ms. Kirk about this, she stated flow was being calculated from the combined input of multiple sources, because the gauge was not working. At Outfall 002, samples for oil and grease are pumped through plastic tubing to the collection jar rather than being collected directly in a sample container.

Closing Conference

EPA completed the site inspection tour at approximately 3:20 PM on August 22, 2019. A brief closing conference was held. EPA discussed Confidential Business Information (CBI) and asked

for AMBH to identify if any of the information collected was CBI. AMBH did not identify any information as CBI at that time. Ms. Rogers explained the timelines for completing the inspection report and that the facility would receive a copy once it was completed. EPA left the facility around 4 PM.

Field Observations of East Arm of the Little Calumet River

Mr. Ream, the IDEM inspector, received a call to inspect the East Arm of the Little Calumet River to observe any dead fish. EPA accompanied IDEM to the river. We saw a dead fish (see Photo 24) and a Beach Closure notice (see Photo 25) at the Portage Lakefront river walk.

SUMMARY OF FINDINGS, OBSERVATIONS, AND CONCERNS:

NPDES Permit Exceedances

Permit limits exceeded for cyanide and ammonia-nitrogen.

Operation and Maintenance

NPDES permit No. IN0000175 Part II.B.1. requires the permittee shall at all times maintain in good working order and efficiently operate all facilities and systems (and related appurtenances) for the collection and treatment which are installed or used by the permittee and which are necessary for achieving compliance with the terms and conditions of this permit in accordance with 327 IAC 5-2-8(9).

The Blast Furnaces' Recirculation System was not maintained to efficiently operate its related systems to achieve compliance with permitted discharge limitations for cyanide and ammonia-nitrogen.

During our partial plant walk-through with Terri Kirk, EPA also noted the following areas of concern with the company's self-monitoring.

Outfall 011

Total residual chlorine is not analyzed within the required holding time. This was stated by Ms. Kirk when EPA questioned how long it took to transport a sample from the remote sampling location to their lab. 40 CFR 136.3 requires analysis within 15 minutes. Chlorine in aqueous solution is not stable, and the chlorine content of samples or solutions, particularly weak solutions, will decrease rapidly.

ArcelorMittal collects a grab sample for oil and grease by pumping effluent through plastic tubing to the collection jar. EPA Method 1664 Rev. A includes the following statement, "The high probability that extractable matter may adhere to sampling equipment and result in measurements that are biased low precludes the collection of composite samples for determination of oil and grease. Therefore, samples must be collected as grab samples." Drawing a sample through 30 feet of tubing may result in

measurements that are biased low.

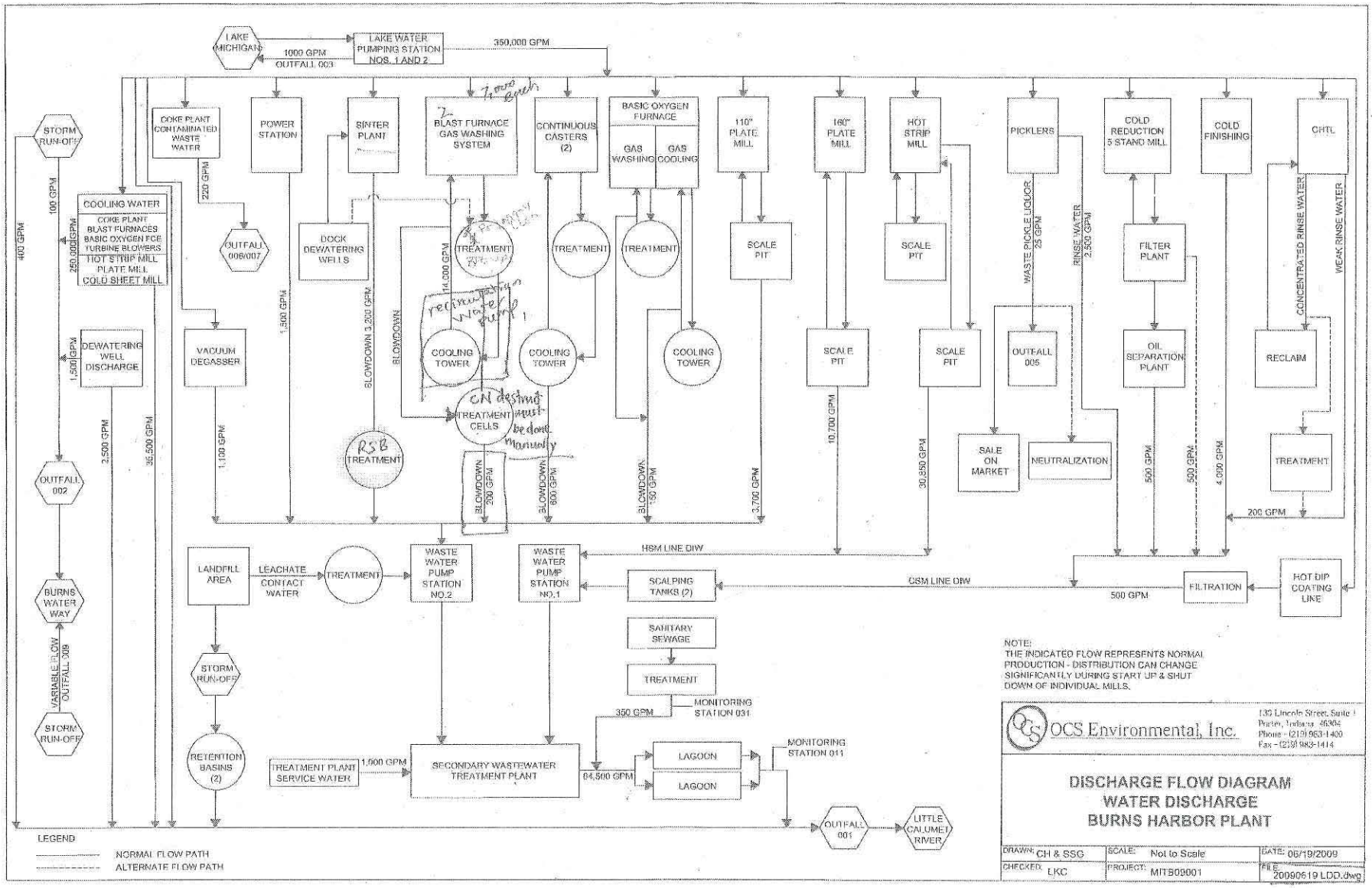
Outfall 001
Effluent flows through two parallel 7-foot Parshall flumes. Head is only measured at the south flume, and total flow is assumed to be twice the flow rate through the south flume.

Outfall 002
The readout on the ultrasonic flow gauge showed "out of range". When EPA asked Ms. Kirk about this, she stated flow was being calculated from the combined input of multiple sources, because the gauge was not working.

ArcelorMittal collects a grab sample for oil and grease by pumping effluent through an undetermined length of plastic tubing to the collection jar. EPA Method 1664 Rev. A includes the following statement, "The high probability that extractable matter may adhere to sampling equipment and result in measurements that are biased low precludes the collection of composite samples for determination of oil and grease. Therefore, samples must be collected as grab samples." Drawing a sample through tubing may result in measurements that are biased low. In addition, their sampling location is in a pipe about 100 feet upstream of the discharge to the harbor. The sampling location does not allow the sampler to note whether a sheen is present at the outfall.

LIST OF ATTACHMENTS:

1. Discharge Flow Diagram - Water Discharge, Burns Harbor Plant
2. Process Flow Diagram: Secondary Wastewater Treatment Plant
3. Photo Log



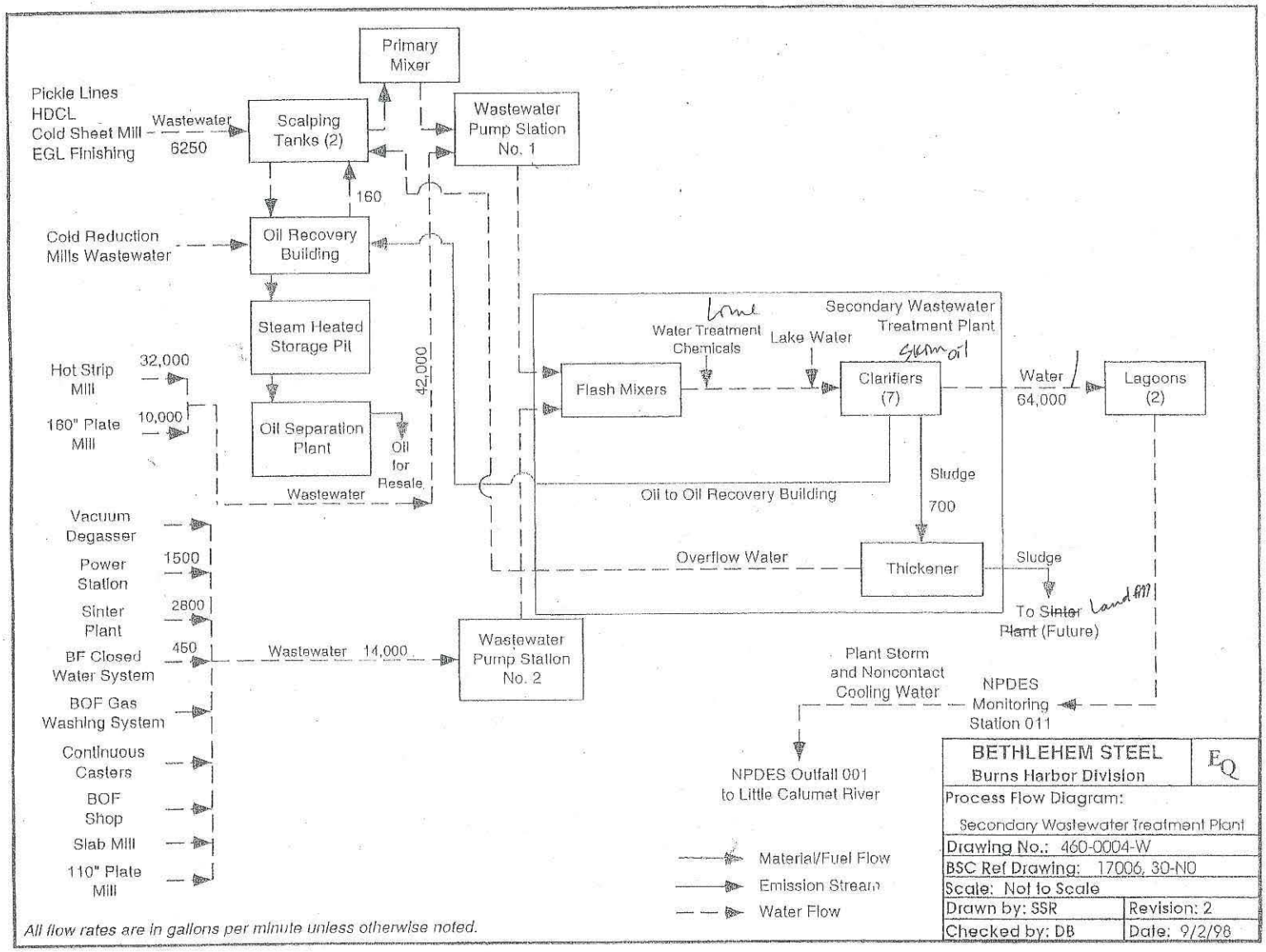
NOTE:
THE INDICATED FLOW REPRESENTS NORMAL PRODUCTION - DISTRIBUTION CAN CHANGE SIGNIFICANTLY DURING START UP & SHUT DOWN OF INDIVIDUAL MILLS.

OCS Environmental, Inc.
132 Lincoln Street, Suite 1
Porter, Indiana 46304
Phone - (219) 983-1400
Fax - (219) 983-1414

DISCHARGE FLOW DIAGRAM
WATER DISCHARGE
BURNS HARBOR PLANT

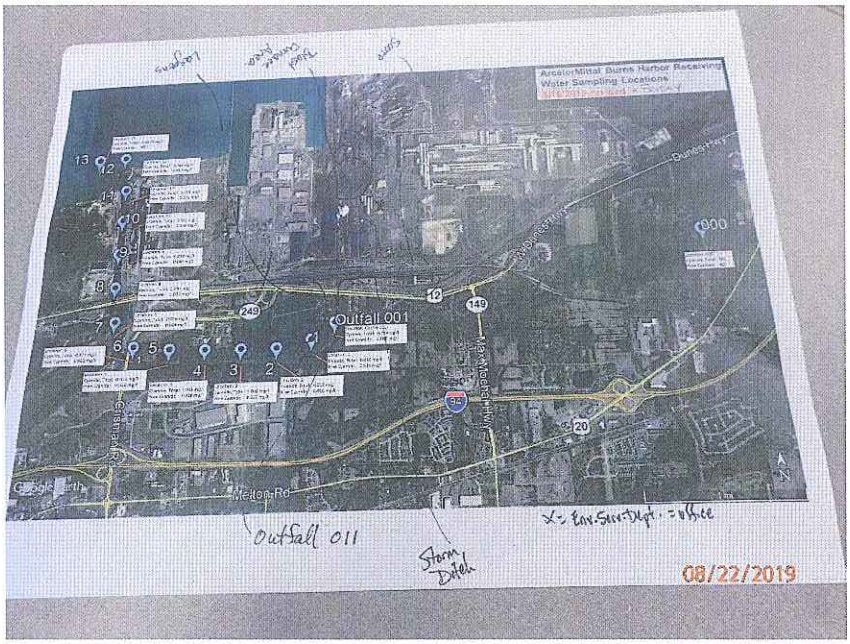
DRAWN: CH & SSG	SCALE: Not to Scale	DATE: 06/19/2009
CHECKED: LKC	PROJECT: MITB09001	FILE: 20090619 LDD.dwg

Att. 1

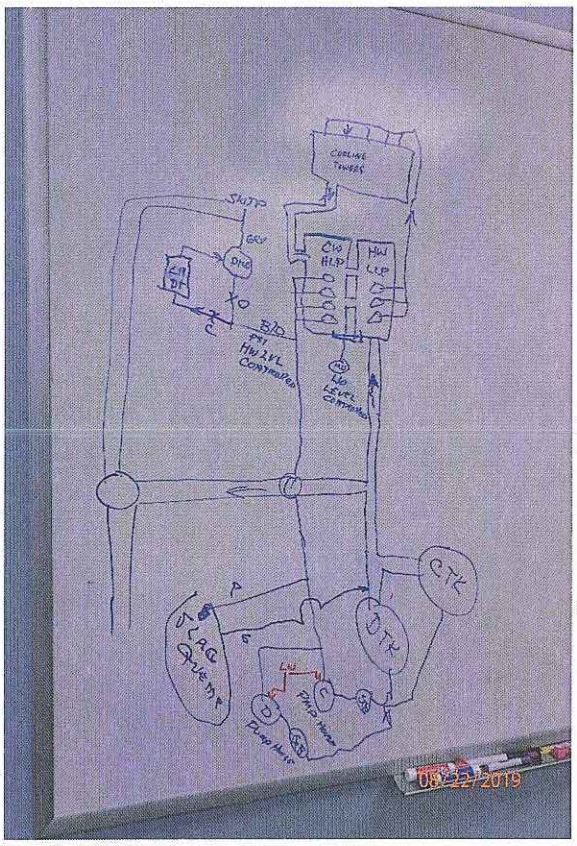

Primary Mixer
Pickle Lines
HDCL
Cold Sheet Mill
EGL Finishing
Wastewater
6250
Scalping Tanks (2)
Wastewater Pump Station No. 1
160
Cold Reduction Mills Wastewater
Oil Recovery Building
Steam Heated Storage Pit
42,000
Hot Strip Mill
32,000
160" Plate Mill
10,000
Oil Separation Plant
Oil for Resale
Wastewater
Secondary Wastewater Treatment Plant
Water Treatment Chemicals
Lake Water
Flash Mixers
Clarifiers (7)
Water
64,000
Lagoons (2)
Oil to Oil Recovery Building
Sludge
700
Overflow Water
Thickener
Sludge
To Sinter Plant (Future)
Vacuum Degasser
Power Station
1500
Sinter Plant
2800
BF Closed Water System
450
Wastewater 14,000
Wastewater Pump Station No. 2
BOF Gas Washing System
Continuous Casters
BOF Shop
Slab Mill
110" Plate Mill
Plant Storm and Noncontact Cooling Water
NPDES Monitoring Station 011
NPDES Outfall 001 to Little Calumet River
Material/Fuel Flow
Emission Stream
Water Flow
All flow rates are in gallons per minute unless otherwise noted.
BETHLEHEM STEEL
Burns Harbor Division
EQ
Process Flow Diagram:
Secondary Wastewater Treatment Plant
Drawing No.: 460-0004-W
BSC Ref Drawing: 17006, 30-N0
Scale: Not to Scale
Drawn by: SSR
Revision: 2
Checked by: DB
Date: 9/2/98

AT-2

ArcelorMittal Burns Harbor
EPA Inspection August 22, 2019
All photos taken by Joan Rogers, Environmental Scientist, U.S. EPA
Camera: Ricoh

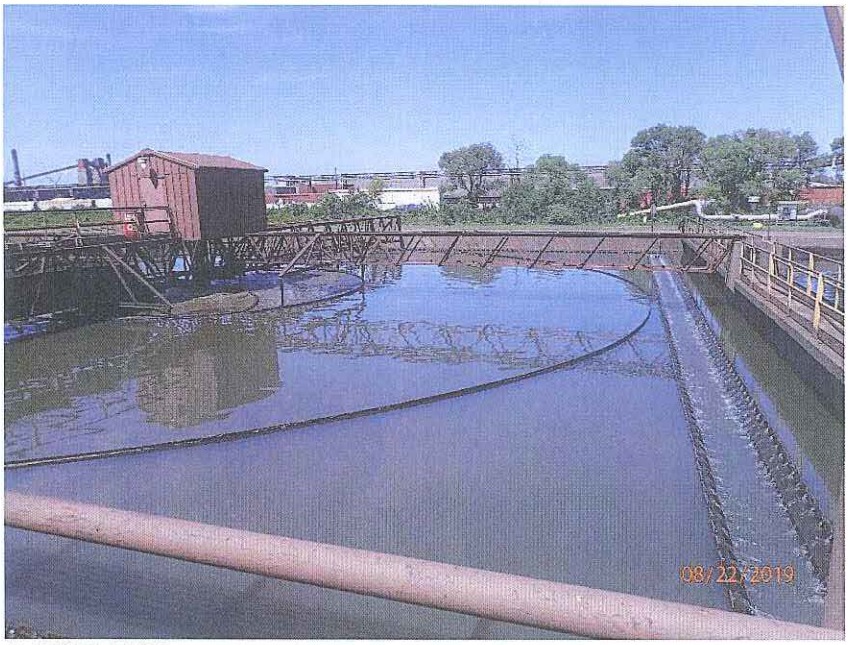


1: P8220001
Description: A map of the facility with hand drawn labels of the parts of the facility that were the focus of the inspection.
Location: Environmental Services Department Office.
Camera Direction: Down
Date/Time: August 22, 2019 10:31 A.M.



2: P8220002
Description: Photo of the hand drawn recirculation pump system on the white board in the office.
Location: Environmental Services Department Office.
Date/Time: August 22, 2019 1:06 P.M.

3: P8220003
Description: Hot Mill Sewer/ Hot Mill Flume from Wastewater Pump Station 2. This wastewater exits to the clarifiers.
Location: Secondary Wastewater Treatment Plant Control Building.
Camera Direction: Down
Date/Time: August 22, 2019 1:25 P.M.



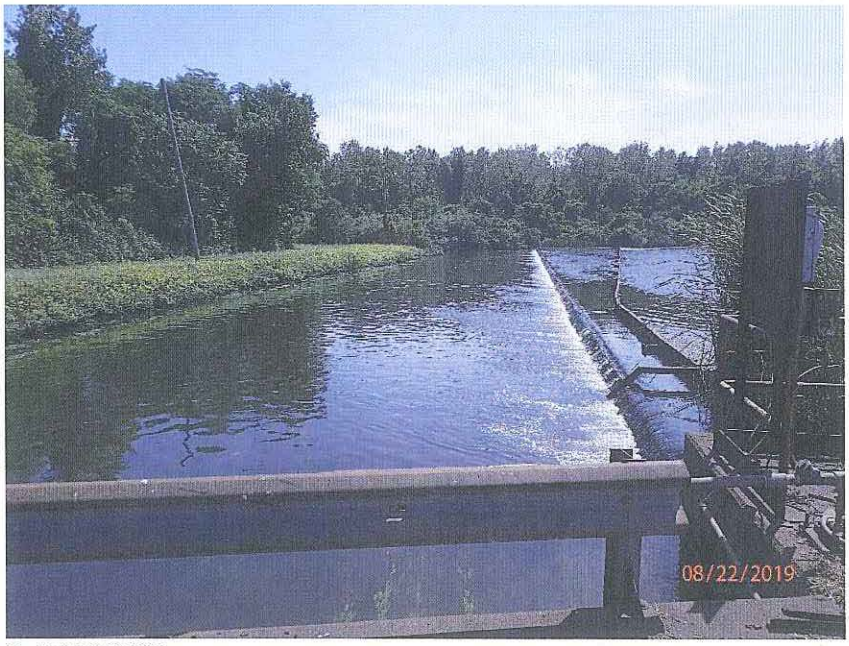
4: P8220004
Description: Cold Mill Clarifier #3.
Location: Secondary Wastewater Treatment Plant.
Camera Direction: North
Date/Time: August 22, 2019 1:33 P.M.

5: P8220005
Description: Influent Channel to the Lagoons.
Location: Northwest corner of the Lagoons.
Camera Direction: South
Date/Time: August 22, 2019 1:54 P.M.

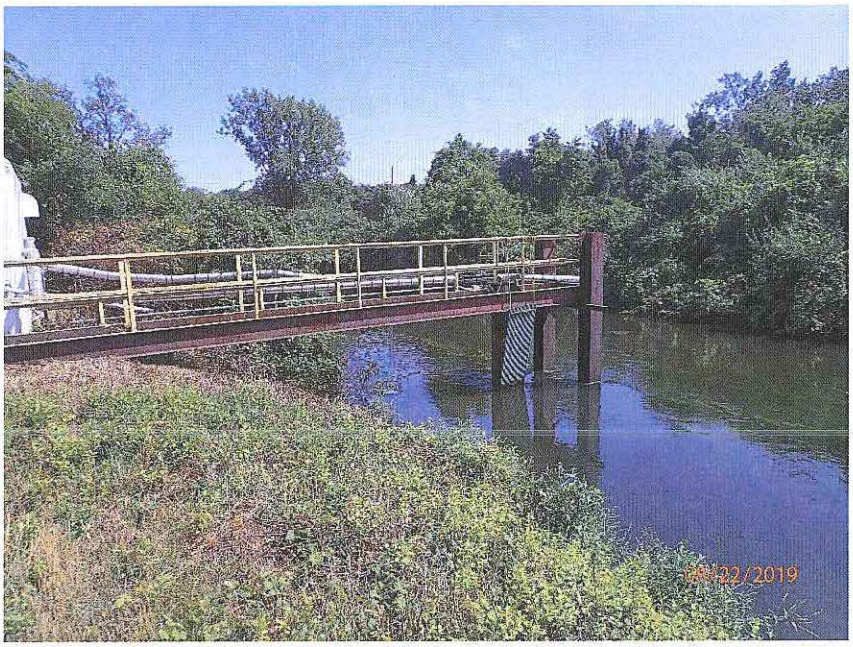
6: P8220006
Description: Influent channel flows west along the northern edge of the Lagoons. Influent flows into the Lagoons on the west side and exits on the east.
Location: Northwest corner of the Lagoons.
Camera Direction: West
Date/Time: August 22, 2019 1:54 P.M.

7: P8220007
Description: North Lagoon.
Location: Southeast corner of North Lagoon.
Camera Direction: West/Northwest
Date/Time: August 22, 2019 2:00 P.M.

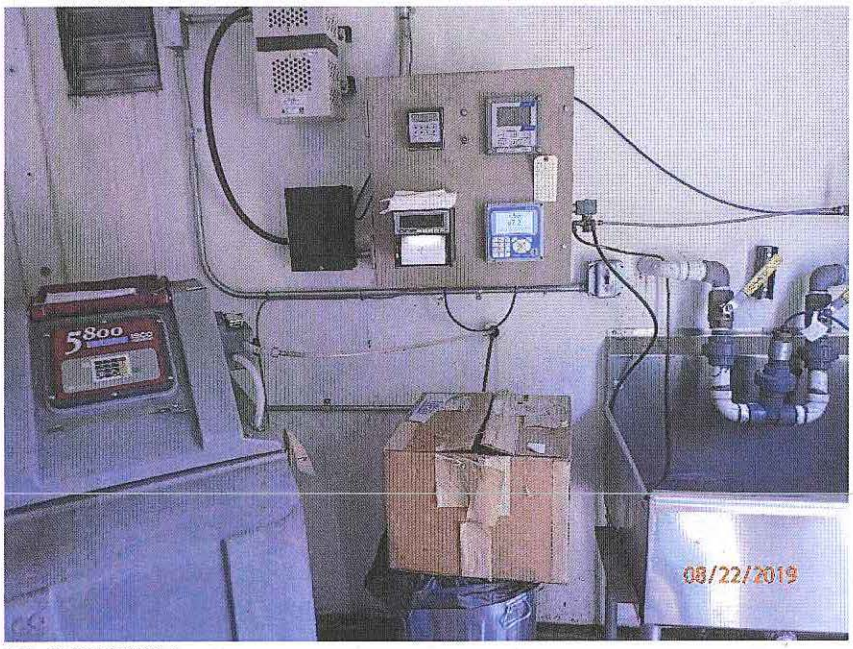
8: P8220008
Description: Overflow from the North Lagoon. This flow combines with the overflow from the South Lagoon and then travels to Outfall 001.
Location: Southeast corner of the North Lagoon.
Camera Direction: North
Date/Time: August 22, 2019 2:01 P.M.



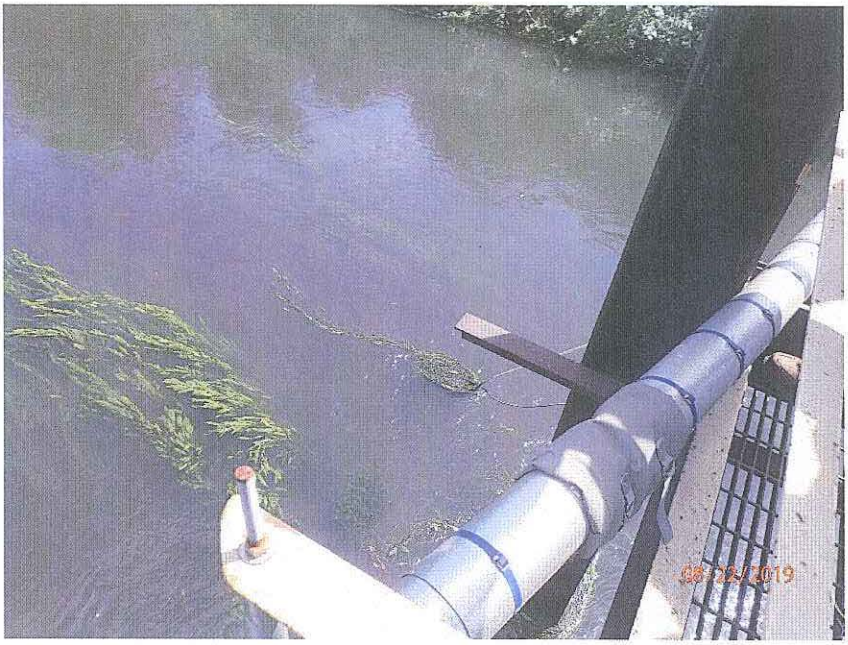
9: P8220009
Description: Overflow from the South Lagoon. The channel also contains the overflow from the North Lagoon which flowed south under the bridge the inspectors are standing on for this photo. Combined flow is to the south and to Outfall 001.
Location: Southeast corner of the North Lagoon.
Camera Direction: South
Date/Time: August 22, 2019 2:02 P.M.



10: P8220010
Description: Monitoring Station 011 is in the channel after the flow leaves the Lagoon and before it combines with the effluent from the Town of Burns Harbor Sanitary Wastewater Plant.
Location: East of the Lagoons.
Camera Direction: Southeast
Date/Time: August 22, 2019 2:04 P.M.



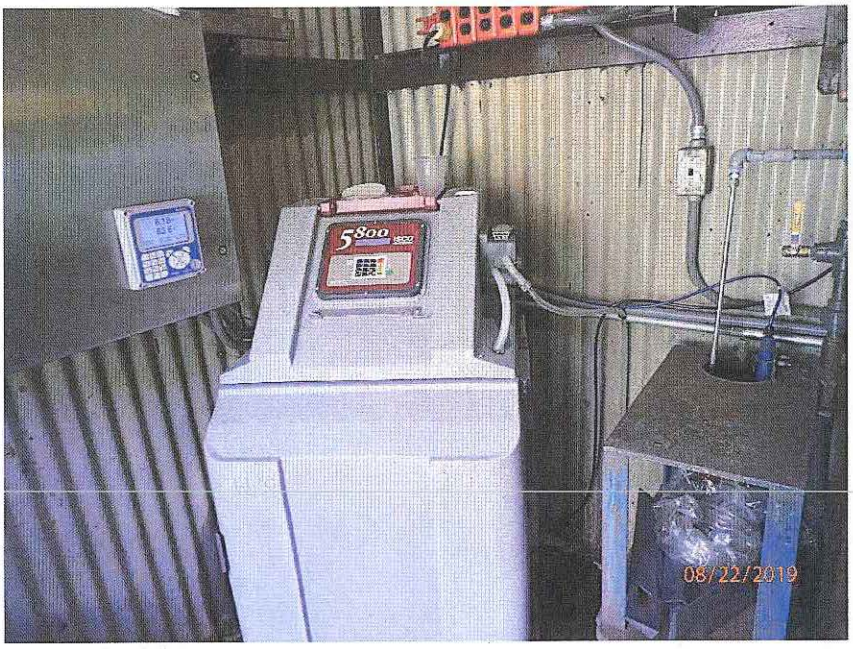
11: P8220011
Description: Sampling equipment inside Monitoring Station 011.
Location: Monitoring Station 011.
Camera Direction: East
Date/Time: August 22, 2019 2:08 P.M.



12: P8220012
Description: The end of the intake tube for Monitoring Station 011 has weeds caught on it.
Location: Monitoring Station 011.
Camera Direction: Down
Date/Time: August 22, 2019 2:11 P.M.

13: P8220013
Description: Sampling location for Outfall 001.
Location: Downstream from Monitoring Station 011.
Camera Direction: West
Date/Time: August 22, 2019 2:23 P.M.

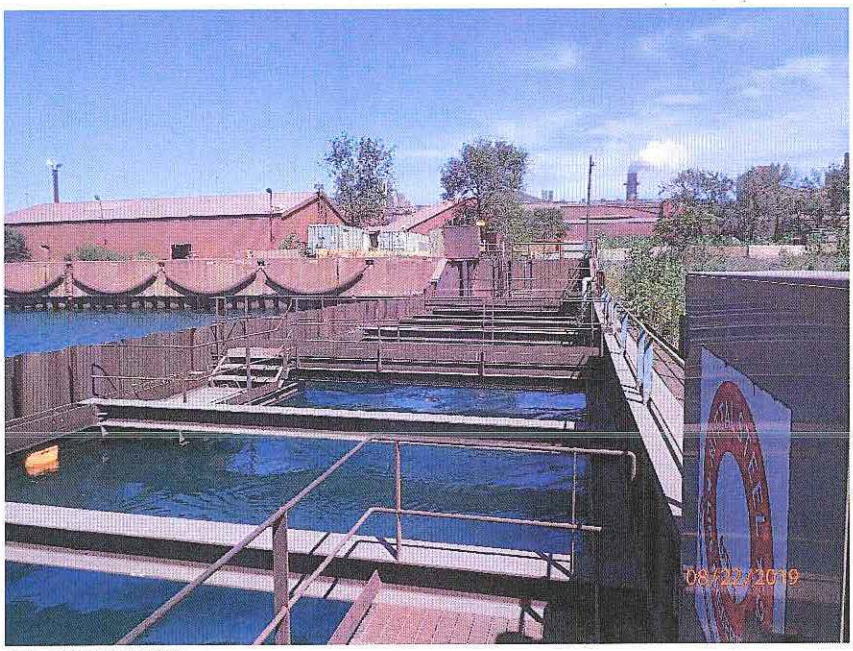
14: P8220014
Description: Outfall channel 001. The flow from the Storm Ditch joins the flow before the dam that is visible far upstream in the photo. Dam is circled with a blue circle.
Location: Outfall 001.
Camera Direction: North
Date/Time: August 22, 2019 2:25 P.M.



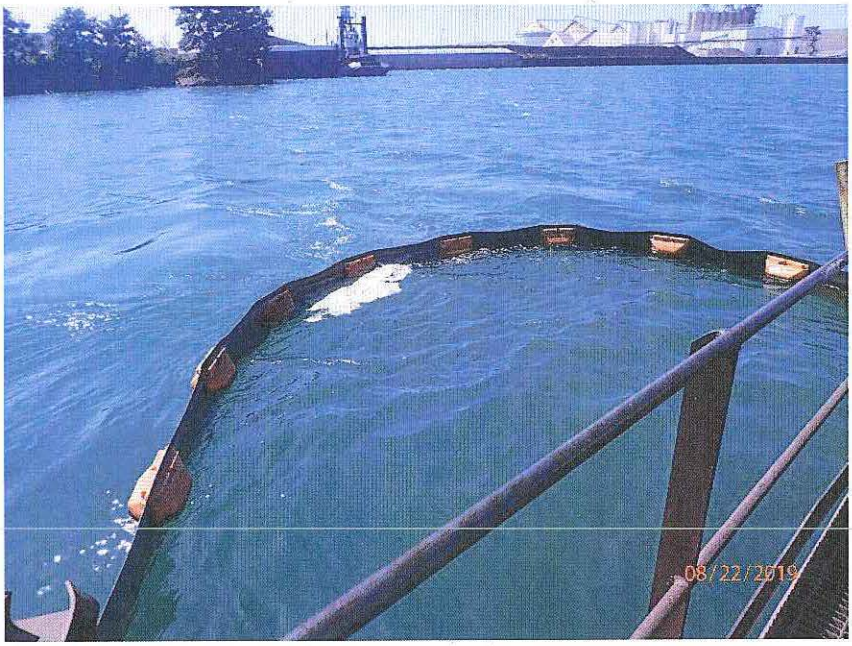
15: P8220015
Description: Sampling equipmnt inside the building for Outfall 001. Temperature is taken in the stream. Flow is measured at the weirs.
Location: Outfall 001.
Camera Direction: Southwest
Date/Time: August 22, 2019 2:29 P.M.

16: P8220016
Description: Small dead fish on the concrete by the weirs.
Location: Weirs for Outfall 001.
Camera Direction: Down
Date/Time: August 22, 2019 2:33 P.M.

17: P8220017
Description: Parshall flume meter at the weirs for Outfall 001.
Location: Weirs for Outfall 001.
Camera Direction: Down
Date/Time: August 22, 2019 2:34 P.M.

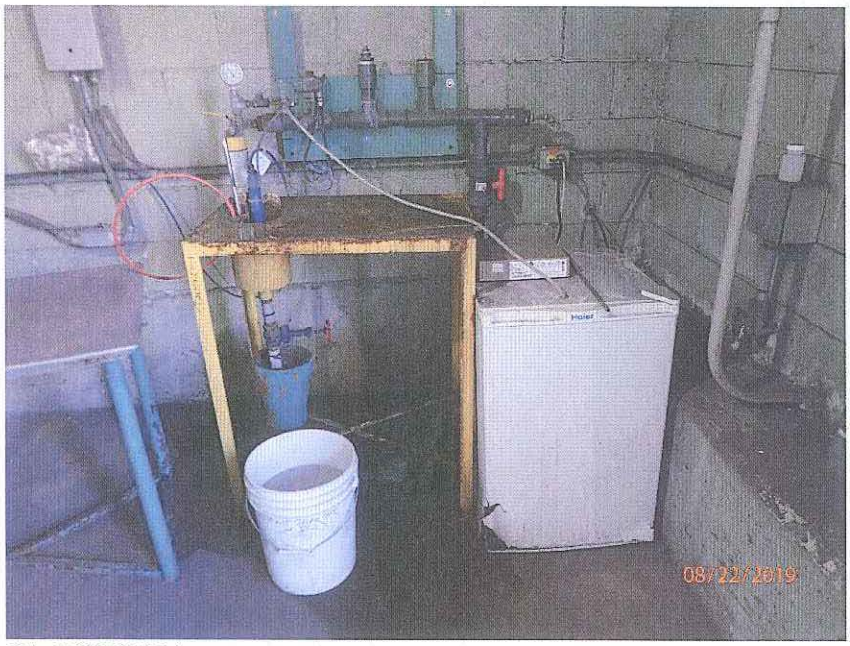


18: P8220018
Description: Pilings on either side of Outfall 002 go all the way to the bottom of Burns International Harbor.
Location: Outfall 002.
Camera Direction: East
Date/Time: August 22, 2019 2:56 P.M.



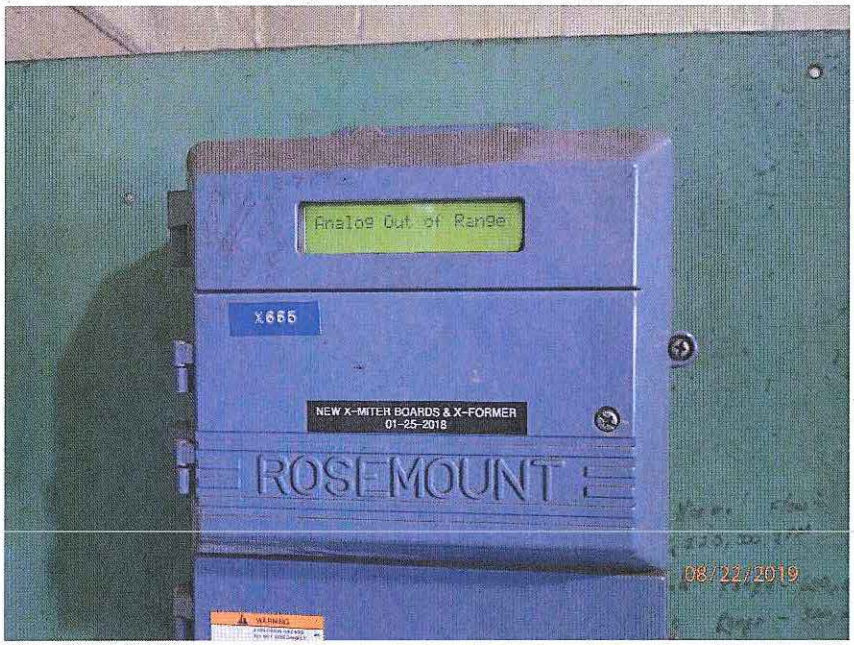
19: P8220019
Description: Permanent boom installed at the end of Outfall 002.
Location: Outfall 002.
Camera Direction: West
Date/Time: August 22, 2019 2:57 P.M.

20: P8220020
Description: One of the ships docked in the harbor with bilge water from the ship being discharged into the harbor. Blue circle denotes bilge water coming from ship. Note the piles of iron ore and other raw materials behind the ship.
Location: Outfall 002.
Camera Direction: North
Date/Time: August 22, 2019 2:58 P.M.



21: P8220021
Description: Sampling equipment for Outfall 002. Temperature in the sample fridge was 5 °C.
Location: Sample house for Outfall 002.
Camera Direction: North
Date/Time: August 22, 2019 3:07 P.M.

22: P8220022
Description: Control panel in sample house for Outfall 002.
Location: Sample house for Outfall 002.
Camera Direction: West
Date/Time: August 22, 2019 3:08 P.M.



23: P8220023
Description: Flow meter for Outfall 002 is out of range according to flow panel in sample house.
Location: Sample house for Outfall 002.
Camera Direction: North
Date/Time: August 22, 2019 3:10 P.M.

24: P8220024
Description: Dead fish in the Portage Burns Waterway.
Location: Portage Burns Waterway near the mouth of the East Arm of the Little Calumet River.
Camera Direction: Down
Date/Time: August 22, 2019 4:15 P.M.

25: P8220025
Description: Temporary Closure sign at the Indiana Dunes.
Location: Portage Lakefront and Riverwalk.
Camera Direction: North
Date/Time: August 22, 2019 4:27 P.M.