



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

REPLY TO ATTENTION OF  
ECW-15J

**VIA EMAIL**

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

Subject: October 26, 2020 Inspection Report for ArcelorMittal Burns Harbor,  
NPDES Permit Number IN0000175

Dear Mr. Maciel:

Enclosed, please find a copy of the U.S. Environmental Protection Agency Inspection Report that describes, and documents the activities at ArcelorMittal Burns Harbor, LLC on October 26, 2020.

The purpose of the inspection at ArcelorMittal Burns Harbor, LLC was to document the facility's compliance with its NPDES permit and gather information related to the cyanide destruct system, the lagoons, sampling protocols, and investigations by the facility.

On October 30, 2020, IDEM and EPA received the information that AMBH personnel stated would be sent following the inspection, including electronic versions of the 2012 lagoon sounding maps and lagoon sludge sample analysis, electronic versions of the ammonia sampling locations in the plant and along the Storm Ditch, the report and data on the Phase 1 Ammonia Study of the Storm Ditch, and the Top Hat diagram.

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

Sincerely,

**Bahr,  
Ryan**

Digitally signed by  
Bahr, Ryan  
Date: 2020.11.18  
07:42:51 -06'00'

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 COMPLIANCE EVALUATION INSPECTION REPORT  
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION 5**

**Purpose:**

Compliance Evaluation Inspection

**Facility:**

ArcelorMittal Burns Harbor, LLC  
250 US-12  
Burns Harbor, Indiana 46304  
Porter County  
41.625, -87.117

**NPDES Permit Number:**

IN0000175

**Date of Inspection:**

October 26, 2020

**EPA Representatives:**

Joan Rogers, Environmental Scientist 312-886-2785  
Rogers.joan@epa.gov

**State Representatives:**

Nicholas Ream, Indiana Department of Environmental Management 219-730-1691  
Wastewater Inspector  
[nream@idem.IN.gov](mailto:nream@idem.IN.gov)

Robert Lugar, Indiana Department of Environmental Management 317-234-6019  
[RLugar@idem.IN.gov](mailto:RLugar@idem.IN.gov)

**Facility Representatives:**

Robert Maciel, Environmental Manager 219-787-4961  
[Robert.maciel@arcelormittal.com](mailto:Robert.maciel@arcelormittal.com)

Morgan Swanson, Environmental Engineer 219-787-2646  
[Morgan.swanson@arcelormittal.com](mailto:Morgan.swanson@arcelormittal.com)

Joyce Casillas, Environmental Engineer  
[Joyce.casillas@arcelormittal.com](mailto:Joyce.casillas@arcelormittal.com)

Cary Mathias, Regional Waste Manager 330-659-9124  
[Cary.mathias@arcelormittal.com](mailto:Cary.mathias@arcelormittal.com)

Patrick Gorman, Operator  
[Patrick.gorman@arcelormittal.com](mailto:Patrick.gorman@arcelormittal.com)

Blake Crisman, Operation Technology Manager  
[Blake.crisman@arcelormittal.com](mailto:Blake.crisman@arcelormittal.com)

Brandon Frye, Project Manager, ALS

Trevor Lager, Project Manager

**Report Prepared by:**  
Joan Rogers

**Inspector Signature:** JOAN ROGERS Digitally signed by JOAN ROGERS  
Date: 2020.11.17 10:17:46 -06'00'

**Approver Name and Title:** Ryan Bahr, Chief, Section 2, WECAB

**Approver Signature/Date:** Bahr, Ryan Digitally signed by Bahr, Ryan  
Date: 2020.11.18 07:39:24 -06'00'

## 1. **BACKGROUND**

The purpose of this report is to describe and document the discussion and site inspection at the ArcelorMittal Burns Harbor facility on October 26, 2020. This inspection was performed pursuant to Section 308(a) of the Federal Water Pollution Control Act, as amended. This was a joint inspection by EPA and the Indiana Department of Environmental Management (IDEM).

The ArcelorMittal Burns Harbor (AMBH) facility 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. They operate under NPDES Permit No. IN0000175, which was issued on May 27, 2016 and expires on June 30, 2021.

The inspection on October 26, 2020 was a Compliance Evaluation Inspection to document compliance with the facility's permit and gather information about:

- a. The Block and Bleed Valve at Blast Furnace D from which a bypass occurred on June 15, 2020.
- b. The current status of the Cyanide Destruct System.
- c. Procedures for the grab and 24-hour flow proportioned composite samples.
- d. Sludge depth, sludge characteristics, sludge removal and disposal and influent and effluent testing on the Lagoons.
- e. Status of ammonia testing on the Storm Ditch leading to Outfall 001.

EPA and IDEM also requested the following documents and diagrams:

- a. Detailed process flow diagrams that have not already been provided.
- b. Flow and mass balance for the blast furnace gas cleaning recycle system.
- c. Piping and instrumentation diagrams (P&IDs) for all hotwell pumps and coldwell pumps, the lake/makeup water system, the blowdown system, and the Cyanide Destruct System.

A notification requesting these documents and information was sent to AMBH on October 9, 2020.

**2. SITE INSPECTION**

**Site Entry and Opening Conference**

<b>Arrival Time:</b>	9:15 A.M.	
<b>Presented credentials?</b>	Yes	
<b>Credentials presented to whom and at what time?</b>	9:40 A.M. to Morgan Swanson, Rob Maciel, Cary Mathias, and Joyce Casillas.	
<b>Was an opening conference held? With whom?</b>	Yes. Ms. Swanson, Mr. Maciel and Ms. Casillas and Mr. Mathias.	
<b>If photographs or documents were taken, does the facility consider any to be Confidential Business Information (CBI)?</b>		No.
<b>Which information does the facility consider to be CBI?</b>	None.	
<b>EPA vehicle parked in approved location?</b>	Yes	
<b>Location where EPA vehicle was parked?</b>	Environmental Services Building.	

See Attachment A for photos taken by EPA.

EPA inspector, Ms. Joan Rogers, and IDEM inspectors Mr. Bob Lugar and Mr. Nick Ream followed Ms. Swanson to the Environmental Services Building conference room from the main office where EPA and IDEM inspectors received their visitor badges. The inspection team explained that the purpose of the inspection was to document compliance with the NPDES permit, obtain information and view the locations at the facility requested in the October 9, 2020 notification. The inspection team discussed safety considerations with the facility personnel.

**Blast Furnace D Block and Bleed Valve**

On June 15, 2020, AMBH reported a bypass from the Block and Bleed Valve in the D Furnace Pump House. A Root Cause Failure Analysis (RCFA) provided to the agencies explained that while closing off the lake water from the Blast Furnace Recycle System (BFRS), valves were turned in an incorrect order. The isolation valve for the gas wash water was opened before the isolation valve for the lake water was closed. The proper order of these valve operations would have had the lake water isolation valve closed before the gas wash water isolation valve was opened. Because of the incorrect order that the valves were turned, it caused BFRS water to comingle with lake water and discharge out Outfall 002.

On October 26, 2020, the inspection team discussed the bypass event and the Block and Bleed Valve in the conference room at the Environmental Services Building and then observed the D Furnace Block and Bleed Valve in the D Furnace Pump House. Mr. Blake Crisman met the inspection team at the D Furnace Pump House. When asked, AMBH personnel stated that they had no additional diagrams to share with the Agencies other than what was already shared in the RCFA.

AMBH personnel explained that the connection of the Lake Water System to the BFRS is in case there is a loss of pressure in the BFRS and lake water is needed to clean the blast

furnace gasses. A loss of pressure to the BFRS would happen if maintenance was being done on the system, or a catastrophic problem occurred. There are isolation valves for each system and a section of pipe between the isolation valves. A bleed valve, which is left open when the isolation valves are closed, comes off the pipe between them. If either of the isolation valves fail, that water would exit the pipe from the bleed valve and flow to a nearby floor drain and would be observed by AMBH personnel. The floor drain discharges to the Quick Dump Sump. There is another Block and Bleed Valve for Blast Furnace C. The facility does not exercise the valves in the pump room and if a valve failed, the observance of water from the bleed valve would be the indication of the failure. To know when to introduce lake water to the BFRS, the facility's Central Dispatch would notify the operator, or the operator could see the screens in the control room and would turn the valves to open the Lake Water System to the BFRS.

It was explained that the BFRS water pressure is approximately 80 psi while the Lake Water System is at approximately 60 psi. Since there is an approximately 20 psi pressure differential, the BFRS water has the potential to comingle with the Lake Water System and flow to Outfall 002. There are no flow gauges to know how much BFRS water discharged to Outfall 002. AMBH personnel stated that the lake water flow is 20,000 GPM and they used that knowledge, along with the time that the valves were improperly open to estimate the amount of BFRS water that discharged on June 15, 2020, but they could not explain their calculation.

There are also no alarms to indicate that the BFRS and Lake Water System were connected in a way that could cause a discharge to Outfall 002.

Since the bypass event on June 15, 2020, AMBH has identified that better training is needed for the operators of the valves to prevent future discharges.

The inspection team left the D Furnace Pump House at 10:36 A.M. and proceeded to Outfall 002, arriving at 10:43 A.M.

#### Outfall 002

EPA and IDEM had requested to observe a demonstration of how grab and 24-hour flow proportioned composite samples (manual and auto) were collected and stored. Mr. Brandon Frye met the team at Outfall 002 for the demonstration.

Mr. Frye took a grab sample from the Outfall 002 water and took the sample bottle to the Outfall 002 Sample Building. There, he agitated the sample contents and poured a quarter of the sample into one bottle and a second quarter into a second bottle. He agitated the sample again and poured equal parts of the remaining sample into the two bottles. He explained that he then documented the sample collection on a chain of custody and documented the Outfall 002 flow reading. The samples are stored inside the composite sampler. EPA observed the composite sampler and the temperature of the inside of the composite sampler was displayed on the unit's display screen.

The inspection team left Outfall 002 at 10:56 A.M. and met Mr. Frye at the Environmental Lab at 11:02 A.M.

In the Environmental Lab, Mr. Frye demonstrated how he creates the composite sample from the three grab samples taken over the past 24 hours. He begins by testing the sample for sulfide interference and if there is interference, the sample is rushed to the lab. The flow readings had been provided to Ms. Swanson and in turn, she provided the amount of sample that should be poured from each bottle. Mr. Frye poured the required amount into a graduated cylinder, estimating to the tenths of a milliliter. There is typically 12-18 ml from each grab sample to make up the composite sample.

The inspection team left the Environmental Lab at 11:16 A.M. and arrived at the Cyanide Destruct System at 11:24 A.M.

#### Cyanide Destruct System

In the inspection notification, EPA and IDEM requested information on the status of the Cyanide Destruct System and how often it is being operated. AMBH had received approval from IDEM on the use of chlorine dioxide (ClO<sub>2</sub>) for cyanide destruction and the agencies were interested in learning if it was being used. EPA and IDEM also wanted an update on the timeframe for the static test of the Cyanide Destruct System and the dye tracer study.

At the Cyanide Destruct System, Mr. Gorman explained the way AMBH is currently treating the BFRS blowdown. The blowdown, typically around 300 GPM, flows to a temporary cooling tower where the pH is adjusted to 10 with sodium hydroxide (NaOH) and then pumped to the top of the temporary cooling tower to strip non-soluble ammonia from the flow. The blowdown then goes to Cell #6 of the Cyanide Destruct System, where ClO<sub>2</sub> is introduced. The ClO<sub>2</sub> is generated onsite using sodium chlorate and sulfuric acid. AMBH is currently treating the blowdown continuously with the ClO<sub>2</sub> even though no cyanide is anticipated to be in the flow. Cyanide is typically in the blowdown only during the times that a blast furnace is in the process of being taken down or starting up.

AMBH can add ClO<sub>2</sub> to Cell #6, Cell #4, or at the end of Cell #4 which is the discharge to the Dirty Industrial Wastewater (DIW) sewer. AMBH is currently studying the effect of adding ClO<sub>2</sub> to the blowdown and is using an Oxidation Reduction Potential (ORP) sensor to assess whether ORP can be used as a trigger for the introduction of ClO<sub>2</sub> to the system. Mr. Gorman stated that after the next round of ClO<sub>2</sub> study, AMBH hopes to have cyanide destruct efficiency data and ammonia removal data.

In the Cyanide Destruct System lab, the use of CHEMets colorimetric test kits are used to test for the presence of cyanide. Testing for ammonia, pH and cyanide is performed every shift and if elevated values are seen, the testing schedule is accelerated.

The temporary cooling tower has been utilized for ammonia stripping since August 2020. The static test for the Cyanide Destruct System is still planned, but with the ongoing treatment of the blowdown, the system cannot be kept static at this time. The dye tracer study is targeted for the second full week of November.

The inspection team left the Cyanide Destruct System at 12:06 P.M. and drove back to the Environmental Services Building.

### Lagoons

In the inspection notification, EPA and IDEM requested any records depicting the sludge depth, sludge characteristics, and sludge removal and disposal from the two lagoons. The agencies also requested lagoon influent and effluent testing records.

AMBH personnel produced maps of 2012 soundings of the lagoons and a data package of the sludge sample analysis from 2012. AMBH personnel stated that they would provide electronic copies of the maps and analysis after the inspection, which they did on October 30, 2020. AMBH representatives stated that there has been no removal or disposal of sludge from the lagoons, no additional soundings since 2012, and no additional testing of the lagoon influent or effluent except for TSS at the “J Box”, an internal monitoring point.

### Storm Ditch Leading to Outfall 001

In the inspection notification, EPA and IDEM requested AMBH’s Outfall 001 source of ammonia investigation records, including all monitoring results available to date. The agencies also requested any photos, video, or other documentation of a visual survey of the Storm Ditch.

AMBH personnel provided one copy of two maps of the sampling locations for the facility’s ammonia investigation. AMBH personnel stated that a full presentation was being developed in preparation for a meeting between AMBH and the agencies where AMBH can describe their actions to identify the sources of ammonia, and their future actions to identify and eliminate any additional ammonia to the Storm Ditch and to Outfall 001. EPA and IDEM received the presentation and data on October 30, 2020.

### Additional Requested Documentation

The inspection notification requested additional documentation. Specifically, EPA and IDEM requested any detailed process flow diagrams of the BFRS and detailed flow and mass balance for the BFRS that have not already been provided. AMBH personnel stated that there are no additional diagrams or documentation in their possession that were not already provided.

EPA and IDEM also requested Piping and Instrumentation Diagrams (P&IDs) for all hotwell pumps, coldwell pumps, lake makeup water system, blowdown system and the cyanide destruct system. AMBH did not have any of these documents available and requested clarification on what was important to provide. EPA and IDEM stated that they will provide further clarification at a later time.

EPA and IDEM also requested documentation about the two Top Hats that were removed, and the manholes sealed. Mr. Mathias stated that the information would be sent to the agencies. A diagram of one of the manholes that had previously had a Top Hat installed on it was sent to the agencies on October 30, 2020.

While the inspection team was at the Cyanide Destruct System, EPA and IDEM observed one of the cooling towers for the BFRS was partially open and AMBH personnel described how the facility was repairing and replacing the cooling towers one at a time. Over the years, the slats of fill inside the cooling towers have become clogged from the



TSS in the recirculation water and the weight of the clogged slats has caused the inside slats to collapse. Once repaired and replaced, the cooling tower will not have fill inside anymore, but will utilize a spray nozzle to spray the water in a fine spray to cool it.

EPA and IDEM asked AMBH personnel if they could return to the lab at the Cyanide Destruct System to take a photo of the control screen that had a Blast Furnace Closed Water Pump Station Graphics Screen. AMBH agreed and proceeded to the Cyanide Destruct System for this photo at 1:40 P.M.

#### Outfalls 011 and 001

The inspection team then followed the AMBH personnel to Outfall 011, arriving there at 1:59 P.M. Mr. Trevor Lager met the inspection team there to show the team the sampling equipment and answer questions including the question of what type of flow meter is at Outfall 002. Mr. Lager stated that it was a magnetic flow meter.

EPA and IDEM observed the auto sampler in the Outfall 011 sample building and noted that the internal temperature of the sampler was displayed on the display screen of the sampler. The internal temperature was 3.2C.

Mr. Lager explained that AMBH is planning to create a weir for flow measurement near Outfall 011 but is still currently taking flow measurements for Outfall 011 at the Secondary Wastewater Treatment Plant.

The inspection team drove to Outfall 001, arriving at 2:25 P.M. While there EPA and IDEM observed the water and it appeared clear without any foam or solids. Mr. Lager stated that the flow is measured at the Parshall Flume.

EPA and IDEM inspectors provided closing remarks by Outfall 001 and exited the facility at 2:37 P.M.

On October 30, 2020, IDEM inspector Mr. Nick Ream and EPA inspector Ms. Joan Rogers spoke with Ms. Morgan Swanson to clarify and confirm a couple items. That information has been incorporated into this report. The items discussed were:

1. The name of the building that the inspectors observed the Block and Bleed Valve. The name of the building is the D Furnace Pump Building.
2. The inspectors questioned what chemical was being used to increase the blowdown pH to 10. AMBH utilizes NaOH. AMBH also has the capability to use sulfuric acid to lower the pH.
3. The inspectors wanted to confirm that the order of the cyanide destruct cells was Cell #6 to Cell #5 to Cell #4. That is the correct order.
4. The inspectors wanted to confirm the three locations that ClO<sub>2</sub> can be introduced into the blowdown. The three locations are Cell #6, Cell #4, and the end of Cell #4 which is the discharge to the DIW.
5. The inspectors wanted to confirm that there were two Block and Bleed Valves, one for Blast Furnace C and one for Blast Furnace D. There are two, and they are functionally similar but not identical.

### Review of Sample Analysis

After the inspection, Ms. Rogers reviewed the submissions of sample analysis since the last inspection on August 12, 2020, and specifically the times for the flow proportioned 24-hour 3 Part Composite samples for cyanide and phenols. Ms. Rogers noted that the times of the first grab sample for Outfall 011 had been performed later in the morning and because the 3<sup>rd</sup> sample was still collected early the following morning, the time period for the 3-Part Composite was not 24 hours. Since August 13, 2020, there were over 30 days when the composite period was less than 20 hours and since September 24, 2020, there was no day when the composite period was over 23 hours.

Additionally, the samples are not taken at approximately equally spaced time intervals over the composite period. Since September 28, 2020, the time period between the first and second samples has been significantly shorter than the time period between the second and third samples.

AMBH's NPDES Permit states at Part I.C.3.d. that a 24-hour composite sample consists of at least 3 individual flow-proportioned samples of wastewater, taken by the grab sample method or by an automatic sampler, which are taken at approximately equally spaced time intervals for the duration of the discharge within a 24-hour period and which are combined prior to analysis.

On July 8, 2020, EPA and IDEM discussed sampling and chain of custody issues with AMBH personnel. Detailed instructions about how to collect the 24-hour 3 Part Composite samples were relayed to AMBH personnel at that time.

### **3. LIST OF DOCUMENTS RECEIVED FROM FACILITY**

- Sounding maps and sample analysis of the sludge in the Lagoons dated 2012.
- Two maps of the ammonia sampling locations in the plant and along the Storm Ditch.

### **4. INFORMATION TO BE PROVIDED BY FACILITY**

- A. Electronic versions of the 2012 lagoon sounding maps and lagoon sludge sample analysis. Provided to EPA on October 30, 2020.
- B. Electronic versions of the ammonia sampling locations in the plant and along the Storm Ditch. Provided to EPA on October 30, 2020.
- C. Report and data on the Phase 1 Ammonia Study of the Storm Ditch, including conclusions drawn from Phase 1 and plan for Phase 2. Provided to EPA on October 30, 2020.
- D. Top Hat diagram. Provided to EPA on October 30, 2020.
- E. Piping and Instrumentation Diagrams (P&IDs) for all hotwell pumps, Coldwell pups, lake makeup water system, blowdown system and the cyanide destruct system.

**5. AREAS OF CONCERN**

- A. The two Block and Bleed Valves at Blast Furnace C and Blast Furnace D represent two places where a cross connection is possible and could allow process wastewater to flow untreated out of Outfall 002. There are no alarms in place to alert facility personnel if process wastewater was discharging to Outfall 002.
- B. The Storm Ditch is providing additional ammonia to the wastestream even though that flow should only consist of non-contact cooling water and storm water.
- C. The 24-hour 3 Part Composite samples are not being performed correctly. The samples are not equally spaced over the 24-hour period and the sample period frequently is not 24 hours.

**6. LIST OF ATTACHMENTS**

- A) Photolog

**Attachment A**  
**ArcelorMittal Burns Harbor**  
**Joint EPA/IDEM Inspection October 26, 2020**  
**All photos taken by Joan Rogers, Environmental Scientist, U.S. EPA**  
**Camera: Olympus TG-4**

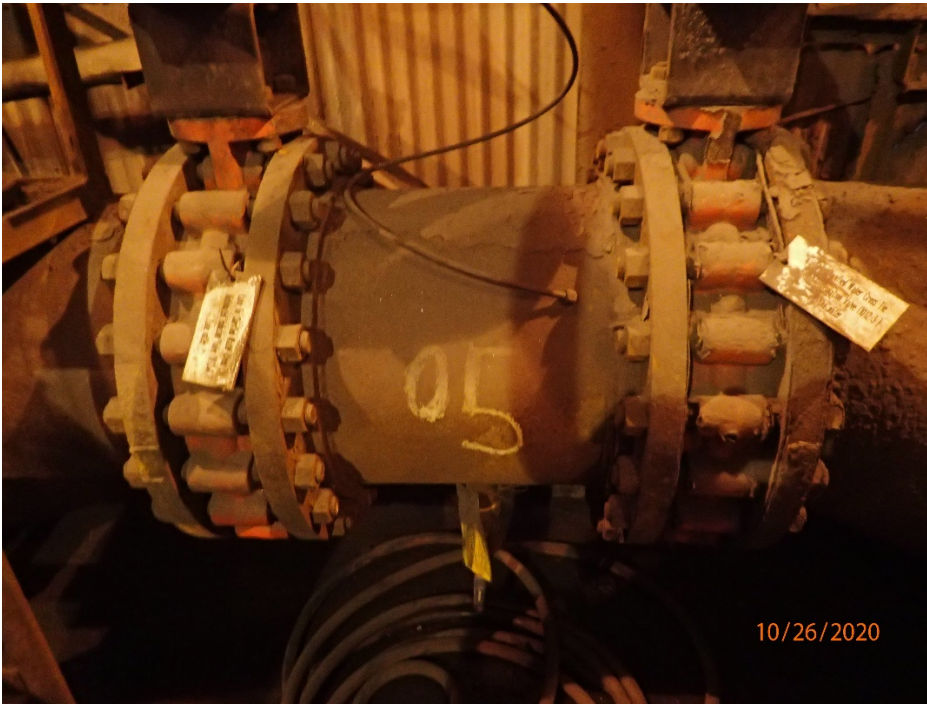


1: PA260001

Description: Shut off valve for Blast Furnace Recycle System.

Location: D Furnace Pump House.

Date/Time: October 26, 2020 10:15 A.M.



2: PA260002

Description: Isolation Valves for Blast Furnace Recycle Sytem and Lake Water System on either side of an open empty portion of piping with a Bleed Valve below.

Location: D Furnace Pump House.

Date/Time: October 26, 2020 10:21 A.M.



3: PA260003

Description: Bleed Valve below the empty pipe between the two isolation valves. The Bleed Valve is always open when the isolation valves are closed, and any water from it would indicate a failure of one or both of the isolation valves. Flow from the Bleed Valve would flow along the floor to a floor drain which goes to the Quick Dump Sump.

Location: D Furnace Pump House.

Date/Time: October 26, 2020 10:21 A.M.



4: PA260004

Description: Lake Water Intake pipe (through wall). Lake water flows at approximately 20,000 gpm through this pipe.

Location: D Furnace Pump House.

Date/Time: October 26, 2020 10:22 A.M.

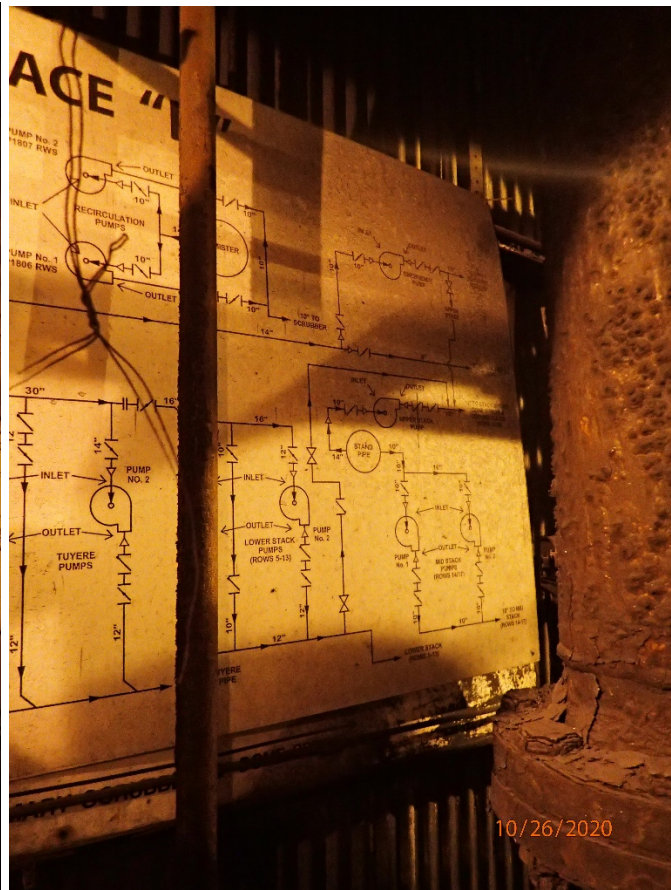


5: PA260005

Description: Left half of diagram on wall behind piping.

Location: D Furnace Pump House.

Date/Time: October 26, 2020 10:26 A.M.



6: PA260006

Description: Right half of diagram on wall behind piping.

Location: D Furnace Pump House.

Date/Time: October 26, 2020 10:26 A.M.



7: PA260007

Description: Inside the auto sampler for samples at Outfall 002.

Location: Sample building at Outfall 002.

Date/Time: October 26, 2020 10:54 A.M.



8: PA260008

Description: Display reading didn't photograph, but the temperature of the inside of the sampler is displayed on the outside panel.

Location: Sample building at Outfall 002.

Date/Time: October 26, 2020 10:54 A.M.



9: PA260009

Description: Flow meter inside for Outfall 002 is inside the Sample Building. Flow on the meter was at 168,000 GPM.

Location: Sample building at Outfall 002.

Date/Time: October 26, 2020 10:55 A.M.



10: PA260010

Description: Sampler creates a manually composited sample from three grab samples.

Location: Environmental Laboratory.

Date/Time: October 26, 2020 11:10 A.M.





11: PA260011

Description: Sample package for composite sample which is sent to Microbac Lab.

Location: Environmental Laboratory.

Date/Time: October 26, 2020 11:14 A.M.



12: PA260012

Description: Chlorine Dioxide Generator creates Chlorine Dioxide on site.

Location: Cyanide Destruct System.

Date/Time: October 26, 2020 11:36 A.M.



13: PA260013

Description: Chemicals used to create chlorine dioxide are stored outside in totes. Chemicals are sodium chlorate and sulfuric acid.

Location: Cyanide Destruct System.

Date/Time: October 26, 2020 11:40 A.M.



14: PA260014

Description: Chlorine dioxide is fed into Cell 6 at the Cyanide Destruct System.

Location: Cyanide Destruct System.

Date/Time: October 26, 2020 11:42 A.M.



15: PA260015

Description: White pipe is coming from the cooling tower outside the building that is being used to strip ammonia from the blowdown flow.

Location: Cyanide Destruct System.

Date/Time: October 26, 2020 11:42 A.M.



16: PA260016

Description: Cell 4 of the Cyanide Destruct System. There is a plume in the water that indicates a reaction of the chemicals in the water.

Location: Cyanide Destruct System.

Date/Time: October 26, 2020 11:46 A.M.



17: PA260017

Description: Cell 5 of the Cyanide Destruct System is on the left side of the photo and Cell 4 is on the right.

Location: Cyanide Destruct System.

Date/Time: October 26, 2020 11:47 A.M.



18: PA260018

Description: pH of the Blast Furnace Blowdown is raised to 10 s.u. and then lifted to the top of the cooling tower for ammonia stripping. Cooling tower was rented and installed to investigate a way to reduce ammonia from the blowdown from the Blast Furnace Recycle System.

Location: Cyanide Destruct System.

Date/Time: October 26, 2020 11:49 A.M.

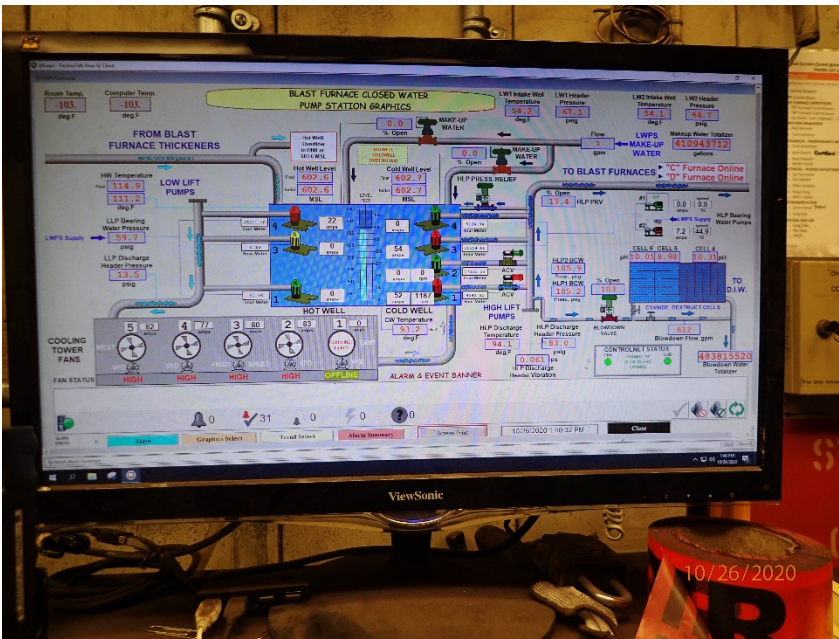


19: PA260019

Description: Cooling Towers for the Blast Furnaces are being overhauled one at a time. The insides of the cooling towers have collapsed from the weight of the particles on the fill media inside.

Location: Cyanide Destruct System.

Date/Time: October 26, 2020 11:55 A.M.



20: PA260020

Description: Blast Furnace Closed Water Pump Station Graphics Screen.

Location: Inside the lab at the Cyanide Destruct System.

Date/Time: October 26, 2020 1:41 P.M.