

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

Purpose:

Compliance Evaluation Inspection

Facility:

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

NPDES Permit Number:

IN0000175

Date of Inspection:

April 19, 2021

EPA Representatives:

Joan Rogers, Environmental Scientist 312-886-2785
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State Representatives:

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Wastewater Inspector
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Facility Representatives:

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Courtney Zunica –Notetaker for Cleveland Cliffs Burns Harbor

Report Prepared by:

Joan Rogers

**JOAN
ROGERS**

Digitally signed by JOAN
ROGERS
Date: 2021.06.08
10:54:53 -05'00'

Inspector Signature:

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

**RYAN
BAHR**

Digitally signed by
RYAN BAHR
Date: 2021.06.08
13:11:56 -05'00'

Approver Signature/Date:

1. BACKGROUND

The purpose of this report is to describe and document the discussion and site inspection at the Cleveland Cliffs Burns Harbor facility on April 19, 2021. 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 Cleveland Cliffs Burns Harbor (CCBH) 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. A permit renewal application has been submitted to IDEM. The facility was previously owned by ArcelorMittal and was known as ArcelorMittal Burns Harbor.

The inspection on April 19, 2021 was a Compliance Evaluation Inspection to document compliance with the facility's permit.

EPA and IDEM also requested the following documents to be sent prior to the inspection (if possible):

- a. February 2021 analytical results and associated Chain-of Custody reports.
- b. Most recent flow meter calibration records.
- c. Sludge disposal records for February 2021.
- d. DMRs and MMRs for January and February 2021.
- e. Any additional ammonia analysis from the Storm Water Ditch sampling.
- f. Any new information regarding sludge depths or analysis of the sludge in the lagoons.
- g. Information regarding cyanide destruction and ammonia stripping within the blast furnace recycle system.
- h. Information regarding the elevated, although not over permit limits, cyanide results for the January 24 - February 2, 2021 timeframe.

A notification requesting these documents and information was sent to CCBH on April 13, 2021.

2. SITE INSPECTION

Site Entry and Opening Conference

Arrival Time:	8:30 A.M.	
Presented credentials?	Yes.	
Credentials presented to whom and at what time?	8:30 A.M. to Morgan Swanson. 9:00 A.M. to Tom Maicher, Cary Mathias, Pat Gorman and Courtney Zunica.	
Was an opening conference held? With whom?	Yes. Ms. Swanson, Mr. Maicher, Mr. Mathias, Mr. Gorman and Ms. Zunica.	
If photographs or documents were taken, does the facility consider any to be Confidential Business Information (CBI)?		No.
Which information does the facility consider to be CBI?	None.	
EPA vehicle parked in approved location?	Yes.	
Location where EPA vehicle was parked?	Environmental Services Building.	

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 April 13, 2021 notification. The inspection team discussed safety considerations with the facility personnel.

Ammonia Treatment Process

The conversation began with a description of ammonia treatment from the Blast Furnace Recycle System (BFRS) blowdown. Currently, the facility is utilizing a cooling tower to remove ammonia from the BFRS blowdown. Facility representatives commented that it has experienced a lot of solids build-up in the cooling tower. They plan to install equipment to remove the hardness before the flow goes to the cooling tower. The equipment is already ordered for rental through the summer, when the Permit's ammonia limits are lower. They will observe the process over the next couple of summers, demobilizing the system for the winter because it isn't freeze-proof.

Mr. Mathias stated that because of the solids in the blowdown, the ammonia reduction is 50%, at best, in the cooling tower. They stated that it is only removing about half of the hardness in blowdown with the system they currently have. This hardness is from calcium carbonate. The other half is from sulfates and they believe they need soda ash to assist in that removal. They plan to introduce soda ash after the chlorine dioxide (ClO₂) system that is designed for cyanide destruction. The flow will then go through two cooling towers before flowing to the Secondary Wastewater Treatment Plant (SWTP) and then out through Outfalls 011 and 001.

An additional plan to remove solids from the Reclamation Services Building (RSB) thickener underflow with a centrifuge and then send the centrate back to the BFRS will also provide more ammonia removal from the final effluent because that flow will now go through ammonia removal during blowdown before flowing to the Secondary Wastewater Treatment Plant (SWTP) and then out through Outfalls 011 and 001.

Lagoon Soundings

In November 2020, CCBH conducted surveys of the lagoon depths and have new soundings from those surveys. Using the unit of Cubic Yards Dry (CYD), the soundings were used to calculate the current water volume capacities of the influent channel, Cell 1 (South Cell), Cell 2 (North Cell), and the effluent channel. The current capacities in each location were compared to the design capacities. From the 2020-12-23 WWTP Lagoon Hydrographic Survey drawings provided to EPA and IDEM, there is significant reduction in capacity in the influent and effluent channels and each cell's capacity is reduced by approximately 30% of the design capacity.

CCBH is most concerned about the influent channel capacity. The design capacity was 37,887 CYD and currently there is only 8,421 CYD of water volume left. They consider this a pinch point of the lagoon system and have begun developing plans to dredge the influent channel. Since the influent channel cannot be isolated from the whole system, like the cells could be, CCBH is carefully considering how to dredge the influent channel without causing permit exceedances.

Storm Water Ditch

EPA and IDEM asked if there had been any additional testing for ammonia on the Storm Water Ditch. CCBH stated that there has been. They decided that testing for ammonia only wasn't giving them enough data. They added some instrumentation on April 2, 2021 to also test for temperature and conductivity. The instruments sample the water in the Storm Ditch every two minutes. They plan to download the data every 20 days and they recently downloaded the first batch of data and are in the process of reviewing the results. They plan to install these instruments from the SWTP all the way to Outfall 011. Meanwhile, they are still taking composite samples for ammonia from certain stretches along the Storm Water Ditch.

Additionally, they redid the ammonia mass balance with the Sinter Plant running. The Sinter Plant was not operating during the last ammonia mass balance testing. A report will be generated once the calculations are complete.

Cyanide Elevations from January 24 – February 2, 2021

During review of daily sample analysis reports, EPA noted that during the period from January 24, 2021 through February 2, 2021, the level of total cyanide at Outfalls 011 and 001 were elevated. The data from the sample analysis from that time frame are:

Date	Outfall 011 Total Cyanide (mg/L)	Outfall 001 Total Cyanide (mg/L)
1/24/21	0.0054	<0.0040
1/25/21	0.0090	0.0056
1/26/21	0.010	0.0068
1/27/21	0.018	0.0094
1/28/21	0.018	0.012
1/29/21	0.014	0.011
1/30/21	0.015	0.011
1/31/21	0.0086	0.0058
2/1/21	0.0077	<0.0040
2/2/21	0.0076	0.0056
2/3/21	0.0080	0.0054
2/4/21	0.0062	0.0041
2/5/21	0.0076	0.050
2/6/21	0.0050	0.0042

Although they never reached a level that would exceed a permit limit, EPA and IDEM were interested to know if there were any production changes or problems that caused the elevated levels of cyanide.

CCBH personnel stated that they have not identified anything different in the production during that timeframe. Mr. Mathias pointed out that 0-4 ppm variability is normal in their operations. Mr. Gorman stated that the facility observed that the total cyanide in the Cold Well also went up to 2 ppm during that time period. The facility doesn't take any additional actions until the samples in the Cold Well are at 4 ppm. Once the level of cyanide in the Cold Well reaches 4 ppm for two sample periods, the facility personnel increase the sampling frequency to every two hours. If the cyanide levels persist for two of those samples, the facility utilizes the ClO₂ to destruct the cyanide. The level of cyanide in the Cold Well did not reach a point where ClO₂ was needed.

Mr. Mathias stated that the facility gets about 85% reduction in cyanide with the use of the ClO₂. The Agencies were provided a hard copy from the report for the ClO₂ system titled Preliminary Pilot with Field Data that shows the percentage of cyanide removal using the ClO₂.

Facility Walkthrough

See Attachment A for the photolog of the photos taken during the facility walkthrough.

After the interview and discussion in the conference room, EPA and IDEM began the walkthrough of the facility. At 11:14 A.M., Ms. Rogers, Mr. Ream, and Mr. Lugar inspected the lab. In the lab, they observed that the log for the refrigerator temperature was maintained and showed that the refrigerator temperature was in the proper range. The thermometer was properly kept in water inside the refrigerator. Additionally, all the buffers were not expired.

At 11:29 A.M., the inspection team traveled to the Cooling Towers and observed the equipment in the control room. In the control room, facility personnel use colorimetric tests for cyanide and ammonia. They use a dilution for the ammonia testing because the test only reads to 10 mg/L and there is usually 140 mg/L in the water. Operators perform the ammonia and cyanide tests every eight-hour shift. The operators report to their supervisors who create a report that Mr. Gorman reads.

EPA and IDEM inspectors observed the control screen. The facility was not currently feeding ClO₂ to the system because the cyanide levels were too low.

EPA and IDEM inspection team then accompanied the facility personnel outside and observed the Cooling Towers. All five of the BFRS cooling towers have been rehabbed and there are now two cooling towers for ammonia reduction. The inspection team also saw the area next to the cooling towers where the new ammonia treatment will be installed.

EPA and IDEM then observed Outfall 111. This is an internal outfall for water from the Hi-Cap Thickener and the RSB Final Thickener effluents. Currently, these flows go to the Dirty Industrial Wastewater (DIW) pipe which takes the flow to the SWTP. As mentioned in the Ammonia Treatment Processes section above, in the future, the plan is to divert these flows to a centrifuge to remove solids. The solids will be landfilled and the centrate will be piped back into the BFRS. When the water leaves the BFRS through the blowdown, it will be treated for ammonia.

At 12:07 P.M., EPA and IDEM inspectors drove to and observed Outfall 003. The water in the bermed area was clear.

At 12:27 P.M., EPA and IDEM inspectors drove to and observed the Deerfield Retention Basin. The level of the water in the basin on the day of the inspection was 80" and the basin has a capacity of 144" to the top of the berm.

At 12:53 P.M., EPA and IDEM inspectors drove to Outfall 002 and observed that the water was clear. There was a small amount of scum and debris along the back wall of the outfall.

At 1:20 P.M., EPA and IDEM inspectors drove to the SWTP. CCBH Operations Manager, Mr. Rick Balunda, joined the inspection team. They began their inspection of the SWTP on the Cold Mill side. EPA and IDEM observed that there was oil on the effluent in the clarifiers. Mr. Balunda stated that he thought there was not enough solids in the influent to "grab" the oil and grease and that was the reason for the oil on the effluent.

EPA and IDEM also observed a clarifier that was empty for cleaning. There were solids built up in the corners of the square clarifier. Mr. Balunda stated that this is a typical problem with square clarifiers and the sludge built up in the corners needs to be cleaned periodically. EPA and IDEM also observed vegetative growth on the weirs of one of the clarifiers.

On the Hot Mill side of the SWTP, EPA and IDEM observed that there was also an oil sheen on the effluent in the clarifiers on this side of the plant. Ms. Rogers asked Mr. Balunda if there would be a problem running the SWTP in the future if the facility reduces solids from the waste stream even further. Mr. Balunda stated that it wouldn't be a problem because he could use his Return Activated Sludge (RAS) to reseed if needed.

EPA observed the sample data from the cyanide testing done at the SWTP during the time period of elevated cyanide from January 25, 2021 to February 3, 2021. During this timeframe, SWTP personnel had increased the monitoring frequency. Mr. Balunda stated that when the level reaches 3 ppm, he reports that and ClO₂ treatment was supposed to begin. None of the samples showed elevated cyanide over 3 ppm. Mr. Gorman thought that the trigger level was 4 ppm, but Mr. Balunda believed it to be 3 ppm.

EPA and IDEM inspectors left the plant and traveled to Outfalls 011 and 001, arriving at Outfall 011 at 2:30 P.M. On the way to Outfall 011, EPA observed the influent channel to the lagoons. Clearing of the brush alongside the influent channel had already begun in preparation for the dredging. EPA observed that the water was clear at Outfall 011. In the sample building for Outfall 011, the temperature of the reagent refrigerator and the temperature of the sample refrigerator were both 3°C and the log entries were complete.

EPA and IDEM inspectors arrived at Outfall 001 at 2:44 P.M. The water was clear at Outfall 001. In the sample building, EPA and IDEM noted that the screen on the auto-sampler showed that the temperature in the sampler was -0.5°C, but the thermometer inside read 8°C. The thermometer was in water inside the auto sampler. EPA and IDEM looked for the logbook for the temperature observations, but it was not in the sample building. EPA and IDEM requested that the log entries be submitted electronically.

EPA and IDEM provided a brief closing conference at Outfall 001.

3. LIST OF DOCUMENTS RECEIVED FROM FACILITY

- Preliminary Pilot with Field Data (1 page) with percent destruction of cyanide after use of ClO₂.
- 2020-12-23 - WWTP Lagoon Hydrographic Survey (provided on April 16, 2021).
- January and February 2021 DMRs and MROs (provided on April 16, 2021).
- Calibration logs and flow records for all Outfalls (provided on April 16, 2021).
- Sludge disposal records (provided on April 16, 2021).
- Outfall 001 Sample Log Entries 20210413-20210419 (provided on April 20, 2021).

4. AREAS OF CONCERN

- A. Influent channel is a pinch point for flow to the lagoons due to buildup of sludge in the channel.
- B. Oil sheen observed in the clarifier effluent in both sides of the SWTP.
- C. Algae on weirs on the Cold Mill side of the SWTP.
- D. Temperature readout on the auto-sampler at Outfall 001 is out of range.

5. LIST OF ATTACHMENTS

- A) Photolog
- B) 2020-12-23 – WWTP Lagoon Hydrographic Survey
- C) Preliminary Pilot with Field Data.
- D) Outfall 001 Log entries.

ATTACHMENT A

**Attachment A - Photolog
Cleveland Cliffs Burns Harbor - Inspection April 19, 2021**



Photo taken by Nick Ream, IDEM Wastewater Inspector

Description: Area near the cooling towers.

Location: Near the Cooling Towers

Camera Direction: Southwest

Date/Time: April 19, 2021 / Approximately 11:50 A.M.

The remaining photos were taken by EPA inspector, Joan Rogers, with an Olympus Tough TG-4 camera.



1: P4190001

Description: Outfall 111 is an internal outfall for Hi-Cap Thickener and RSB Thickener effluent flows.

Location: Near the BFRS

Camera Direction: Down

Date/Time: April 19, 2021 / 12:01 A.M.



2: P4190002

Description: Deerfield Retention Basin was designed for leachate for the 75-acre landfill.

Location: South of the Deerfield Landfill.

Camera Direction: Southeast

Date/Time: April 19, 2021 / 12:36 P.M.



3: P4190003

Description: Deerfield Retention Basin.
Location: South of the Deerfield Landfill.
Camera Direction: South
Date/Time: April 19, 2021 / 12:36 P.M.



4: P4190004

Description: Deerfield Retention Basin.
Location: South of the Deerfield Landfill.
Camera Direction: Southwest
Date/Time: April 19, 2021 / 12:36 P.M.



5: P4190005

Description: Pump station for the leachate from the Deerfield Landfill to the Deerfield Retention Basin.

Location: South of the Deerfield Landfill.

Camera Direction: Northeast

Date/Time: April 19, 2021 / 12:39 P.M.



6: P4190006

Description: Oil sheen observed on the effluent from the clarifiers in the Cold Mill side of the SWTP.

Location: Clarifier in the Cold Mill side of the SWTP.

Camera Direction: Down

Date/Time: April 19, 2021 / 1:37 P.M.



7: P4190007

Description: Clarifier is empty for cleaning. Note the build-up of sludge in the corners of the clarifier. This is a typical problem for square clarifiers, according to CCBH operator, Mr. Balunda.

Location: Clarifier in the Cold Mill side of the SWTP.

Camera Direction: North

Date/Time: April 19, 2021 / 1:38 P.M.



8: P4190008

Description: There was vegetative growth on the weirs of the clarifiers in the Cold Mill side of the SWTP.

Location: Cold Mill side of the SWTP.

Camera Direction: West

Date/Time: April 19, 2021 / 1:41 P.M.

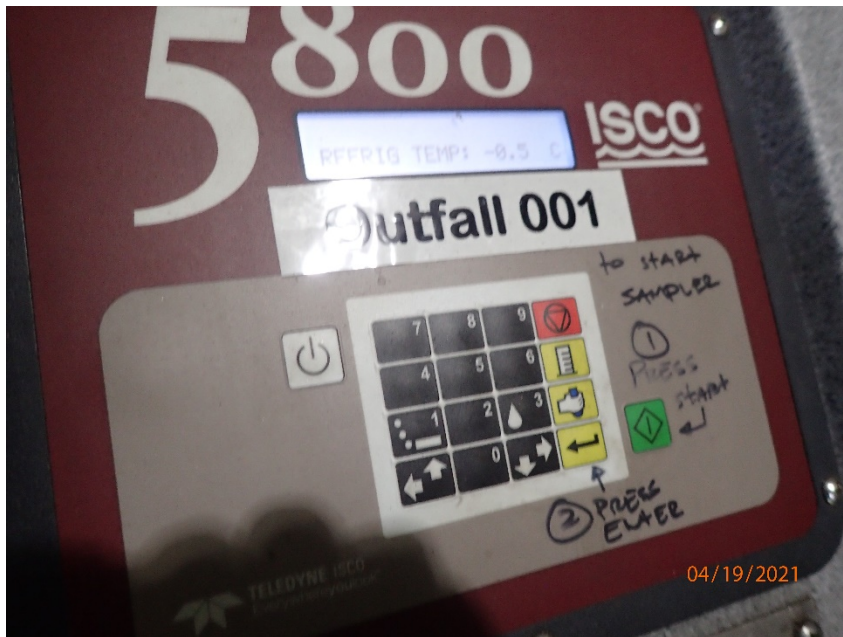


9: P4190009

Description: Readout of the auto-sampler at Outfall 001 shows that the internal temperature is -0.5°C.

Location: Inside the sample building at Outfall 001.

Date/Time: April 19, 2021 / 2:48 P.M.



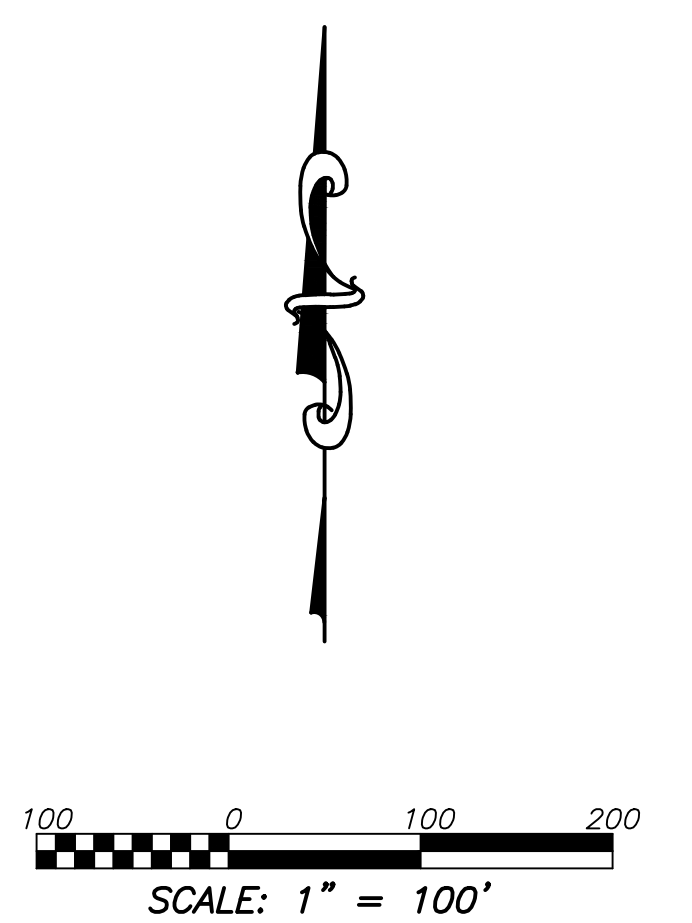
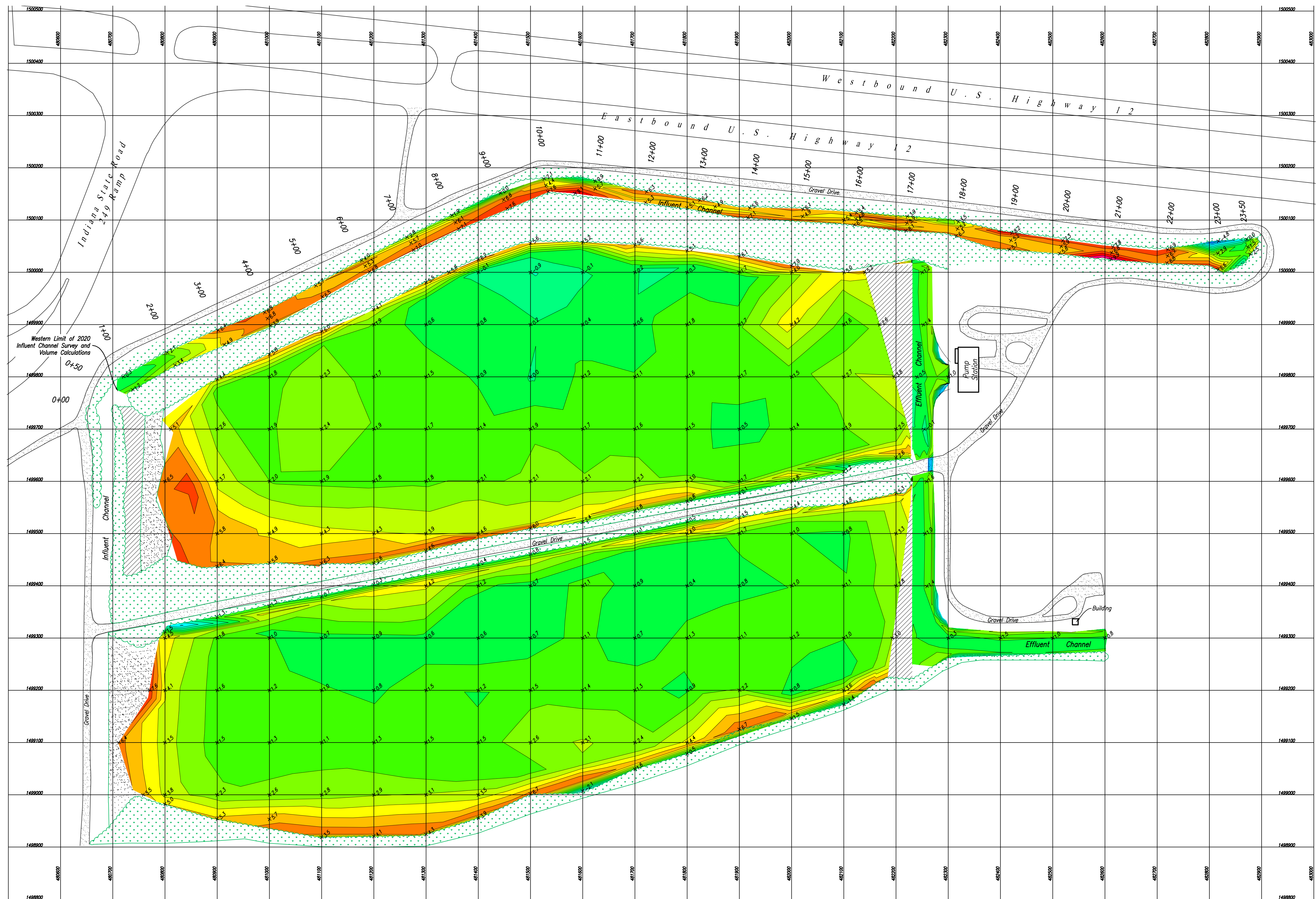
10: P4190010

Description: Duplicate photo of the readout of the auto-sampler at Outfall 001 shows that the internal temperature is -0.5°C.

Location: Inside the sample building at Outfall 001.

Date/Time: April 19, 2021 / 2:48 P.M.

ATTACHMENT B



Number	Lower Limit	Upper Limit	Color
1	-9	-8	Purple
2	-8	-7	Dark Blue
3	-7	-6	Blue
4	-6	-5	Light Blue
5	-5	-4	Cyan
6	-4	-3	Teal
7	-3	-2	Green
8	-2	-1	Light Green
9	-1	0	Yellow-Green
10	0	1	Yellow
11	1	2	Light Yellow
12	2	3	Orange
13	3	4	Light Orange
14	4	5	Yellow-Orange
15	5	6	Orange
16	6	7	Red-Orange
17	7	8	Red
18	8	9	Dark Red
19	9	10	Magenta

- Legend**
- Depth Deviation
 - Areas Inaccessible During Survey
 - Area of Sediment Deposits
 - Gravel Roadway
 - Areas of Vegetation

- Notes:**
1. The depth deviations shown hereon are relative to the difference between a surface model generated for original lagoon bottom and this survey (Sheet 1).
 2. An original lagoon bottom surface model was generated based on information taken from General Plant Effluent Terminal Lagoon drawings provided by the Client, these include the following: 30-L98, 30-L99, 30-L10, 30-K98, 30-K99, 30-K10, 19416, 19417, 19418, 19427.
 3. Depth deviations are shown on a 100-foot grid and at other perimeter locations.
 4. Fieldwork was completed on December 2, 2020.
 5. All roadways and buildings shown hereon were taken from aerial photography and were not located in the field. They are intended for reference only.
 6. All control and coordinate values shown hereon are relative to the Cleveland-Cliffs Burns Harbor Plant Datums.
 7. The depth deviation table indicates the ranges for the color banding represented on the drawing.
 8. Areas denoted with a negative depth deviation are lower than original lagoon bottom, conversely, areas denoted with a positive depth deviation are higher than the original lagoon bottom.
 9. Stationing shown is relative to that shown on previous DLZ surveys.

ATTACHMENT C

Attachment C

PRELIMINARY PILOT WITH FIELD DATA

Chemetrics Data

Date	Time	B/CWPS	Cell 6	Cell 4	%	%	ClO ₂ (ppm)	Ratio ClO ₂ :CN ⁻
		Cold Well	Outlet	Outlet	Removal Cell 6	Removal Cell 4		
		CN ⁻ (ppm)	CN ⁻ (ppm)	CN ⁻ (ppm)				
08/12/20	23	14.00	4.00	5.00	85.7	89.3	83	6
08/13/20	1	7.00	2.00	5.00	71.4	85.7	83	12
08/13/20	3	8.00	2.00	3.00	75.0	87.5	85	11
08/13/20	5	6.00	2.00	3.00	66.7	83.3	87	15
08/13/20	7	3.00	2.00	3.00	75.0	80.0	105	35
08/13/20	9	3.00	0.75	1.50	33.3	93.3	95	32
08/13/20	11	2.00	2.00	1.00	70.0	90.0	95	48
08/13/20	13	2.00	0.60	1.00	80.0	80.0	110	55
08/13/20	15	2.00	0.40	1.00	85.0	97.5	95	48
08/13/20	17	1.00	0.30	0.60	60.0	90.0	65	65
08/13/20	19	5.10	0.40	0.20	96.1	98.0	75	15
08/13/20	21	1.50	0.20	0.20	86.7	80.0	70	47
08/13/20	23	1.10	0.20	0.40	86.4	63.6	65	50
Average		4.28	1.30	1.92	74.7	86.0	85.6	34.2

Certified Data

Date	CW CN (ppm)	C6 CN (ppm)	% removal
08/07/2020 04:30	0.18	0.04	78.89
08/07/2020 05:30	0.07	0.00	100.00
08/07/2020 06:12	0.06	0.00	100.00
08/07/2020 06:40	0.09	0.08	8.99
08/07/2020 08:15	0.07	0.00	100.00
08/07/2020 00:00	0.06	0.00	100.00
08/07/2020 09:48	0.19	0.00	100.00

Not CBI

ATTACHMENT D

Date Obtained: 4/19/21

24-hour Sampling Period: _____

Technician: B. Otto

FLOW DATA

Sample	Time
002	0620
001	0520
011	0449
031	0537
WPL	
WAL 1	SD
WAL 2	0603
WAL 3	0603
J Box	0442
WWII	0547
DIV 131	
003	
RSB	0650
BFTC	0625
BFTD	0631
999	0638
Mixed Liquid	0540
BFCWPS	
Coke Well	0658

Today's	Integrator	Factor
002	1521617	0.005 (MGD)
001	6953.0802	0.001 (MGD)
011	74517900	0.001 (MGD)
031	40259293	0.0001 (MGD)
WPL		1 (GD)
WAL 1	30752948	1 (GD)
WAL 2	17651097	1 (GD)
WAL 3	14954502	1 (GD)
LWPS Dewatering		1 (GD)

Daily Flow	MGD
002	MGD
001	MGD
011	MGD
031	MGD
WPL	GD
WAL 1	GD
WAL 2	GD
WAL 3	GD
Water Cannon	MGD
999	MGD

pH Data

Temperature Data

	Max	Min	Instr	Lab	Max	Min	Inst	Grab	Refrig
999				8.2				47.0	
002			8.4	8.2			61.5	62.1	3.0
001			8.2	8.2			63.2	61.8	3.5
011			8.3	8.5			67.3	67.0	3.0
RSB				8.8					

	Max	Min	Avg	Seal Pot Level	Max Barometric Pressure
WPL					
WAL 1					
WAL 2					
WAL 3					

Waste Ammonia Liquor / Waste Pickle Liquor Pressure Data

	Injection Pressure			Annulus Pressure		Annulus at	Inj. Press at	Min	Formation Pressure	Inj. Press. WAL 1	Inj. Press. WAL 2	Inj. Press. WAL 3
	Max	Avg	Min	Avg	Min	Min Differ.	Min Differ.	Differ.				
WPL									0600			
WAL 1									1200			
WAL 2									1800			
WAL 3									2400			

	In Calibration		Composite Sample	Surface Oil	Oil Boom	Grease
	Temp	pH				
002	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
011	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Lagoon						
001	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
WAL		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	
Ditch				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
003				<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>

Comments: _____

*All daily automatic data is 12:00am sampling period day to 12:00am obtained date CST Non - Day light savings.

**Temperature and pH data are not 2-hour sustained values.

Earlyman Worksheet - Burns Harbor Environmental

ArcelorMittal

Date Obtained: 4/18/21

24-hour Sampling Period: 4/17/21

Technician: D. FARRIS

FLOW DATA

Sample	Time
002	0800
001	0645
011	0619
031	
WPL	
WAL 1	0752
WAL 2	
WAL 3	
J Box	
WWII	
DIW 131	
003	
RSB	
BFTC	
BFTD	
999	
Mixed Liquid	
BFCWPS	
Cold Well	

Today's	Integrator	Factor
002	1481852	0.005 (MGD)
001	69416889	0.001 (MGD)
011	74450075	0.001 (MGD)
031	40253856	0.0001 (MGD)
WPL		1 (GD)
WAL 1	30752948	1 (GD)
WAL 2	67548454	1 (GD)
WAL 3	14814183	1 (GD)
LWPS Dewatering		1 (GD)

Daily Flow	Factor
002	MGD
001	MGD
011	MGD
031	MGD
WPL	GD
WAL 1	GD
WAL 2	GD
WAL 3	GD
Water Cannon	MGD
999	MGD

pH Data

Temperature Data

	Max	Min	Instr	Lab	Max	Min	Inst	Grab	Refrig
999								47.0	
002			8.3	8.2			61.5	61.1	3.0
001			8.2	8.1			58.8	59.2	1.8
011			8.1	8.2			66.1	66.0	2.5
RSB									

	Max	Min	Avg
WPL			
WAL 1			
WAL 2			
WAL 3			

Seal Pot Level

Max Barometric Pressure

Max Formation Pressure

Waste Ammonia Liquor / Waste Pickle Liquor Pressure Data

	Injection Pressure			Annulus Pressure		Annulus at	Inj. Press at	Min
	Max	Avg	Min	Avg	Min	Min Differ.	Min Differ.	Differ.
WPL								
WAL 1								
WAL 2								
WAL 3								

Formation Pressure	Inj. Press. WAL 1	Inj. Press. WAL 2	Inj. Press. WAL 3
0600			
1200			
1800			
2400			

In Calibration

Composite Sample

Surface Oil

Oil Boom

Grease

	Temp	pH					
002	G	N	G	N	Y	Y	Y
011	G	N	G	N	Y	Y	Y
Lagoon							
001	G	N	G	N	Y	Y	Y
WAL		Y			Y	Y	Y
Ditch					Y	Y	Y
003					Y	Y	Y

Comments:

*All daily automatic data is 12:00am sampling period day to 12:00am obtained date CST Non - Day light savings.
 **Temperature and pH data are not 2-hour sustained values.

Earlyman Worksheet - Burns Harbor Environmental

ArcelorMittal

Technician: D. FARRIS

Date Obtained: 4/12/21

24-hour Sampling Period: 4/12/21

FLOW DATA

Sample	Time
002	08 20
001	06 55
011	06 20
001	
WPL	
WAL 1	07 54
WAL 2	
WAL 3	
J Box	
WWE	
DW 131	
003	
RSB	
BFTC	
BFTD	
999	
Mixed Liquid	
BFCVAPS	
Color Well	

Toddes	Integrator	Factor
002	1439125	0.008 (MGD)
001	69284586	0.001 (MGD)
011	74525091	0.001 (MGD)
031	40248120	0.0001 (MGD)
WPL		1 (GD)
WAL 1	30752948	1 (GD)
WAL 2	17426138	1 (GD)
WAL 3	14652799	1 (GD)
LWPS Dewatering		1 (GD)

Daily Flow	MGD
002	MGD
001	MGD
011	MGD
031	MGD
WPL	GD
WAL 1	GD
WAL 2	GD
WAL 3	GD
Water Cannon	MGD
999	MGD

pH Data

Temperature Data

	Max	Min	Inst	Lab	Max	Min	Inst	Grab	Refrig
999								47.0	
002			8.4	8.3			60.8	60.6	3.2
001			8.1	8.0			60.6	60.1	1.6
011			7.9	8.0			66.5	66.3	3.4
RSB									

	Max	Min	Avg
WPL			
WAL 1	8.9		
WAL 2	8.9		
WAL 3			

Seal Pot Level

Max Barometric Pressure

Max Formation Pressure

Waste Ammonia Liquor / Waste Pickle Liquor Pressure Data

	Injection Pressure			Annulus Pressure		Annulus at	Inj. Press at	Min	Formation Pressure	Inj. Press. WAL 1	Inj. Press. WAL 2	Inj. Press. WAL 3
	Max	Avg	Min	Avg	Min	Min Differ.	Min Differ.	Differ.				
WPL									0800			
WAL 1									1200			
WAL 2									1800			
WAL 3									2400			

In Calibration

Composite

Surface

Oil

Grease

Temp pH
+/- 2 deg F +/-0.3 SU

002	<input checked="" type="checkbox"/>	N	<input checked="" type="checkbox"/>	N	<input checked="" type="checkbox"/>	N	Y	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N		
011	<input checked="" type="checkbox"/>	N	<input checked="" type="checkbox"/>	N	<input checked="" type="checkbox"/>	N	Y	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N		
Lagoon							Y	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N		
001	<input checked="" type="checkbox"/>	N	<input checked="" type="checkbox"/>	N	<input checked="" type="checkbox"/>	N	Y	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N		
WAL			Y	<input checked="" type="checkbox"/>								
Ditch							Y	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N		
003							Y	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N	Y	<input checked="" type="checkbox"/>

Comments:

*All daily automatic data is 12:00am sampling period day to 12:00am obtained date CST Non - Day light savings.

**Temperature and pH data are not 2-hour sustained values.

Earlyman Worksheet - Burns Harbor Environmental

ArcelorMittal

Date Obtained: 4/16/21

24-hour Sampling Period: _____

Technician: B. Otto

FLOW DATA

Sample	Time	Today's Integrator	Factor	Daily Flow
002	<u>0722</u>	<u>1394579</u>	0.025 (MGD)	002 <u> </u> MGD
001	<u>0615</u>	<u>69167458</u>	0.001 (MGD)	001 <u> </u> MGD
011	<u>0551</u>	<u>74292571</u>	0.001 (MGD)	011 <u> </u> MGD
031	<u>0625</u>	<u>40242006</u>	0.0001 (MGD)	031 <u> </u> MGD
WPL			1 (GD)	WPL <u> </u> GD
WAL 1	<u>50</u>	<u>30752948</u>	1 (GD)	WAL 1 <u> </u> GD
WAL 2	<u>0650</u>	<u>17321355</u>	1 (GD)	WAL 2 <u> </u> GD
WAL 3	<u>0650</u>	<u>14490526</u>	1 (GD)	WAL 3 <u> </u> GD
J Box	<u>8440</u>			Water Cannon <u> </u> MGD
WWII	<u>0639</u>			999 <u> </u> MGD
DW 131				
003				
RSS	<u>0821</u>			
BFTC	<u>0750</u>			
BFTD	<u>0756</u>			
999	<u>0807</u>			
Mixed Liquid	<u>0628</u>			
SFC/WPS				
CoC Well	<u>0830</u>			

pH Data

Temperature Data

	Max	Min	Instr	Lab	Max	Min	Inst	Grab	Refrig
999				<u>8.3</u>				<u>46.5</u>	
002			<u>8.3</u>	<u>8.4</u>			<u>60.4</u>	<u>60.3</u>	<u>3.0</u>
001			<u>8.1</u>	<u>8.0</u>			<u>60.6</u>	<u>58.9</u>	<u>3.0</u>
011			<u>8.1</u>	<u>8.2</u>			<u>64.0</u>	<u>64.1</u>	<u>3.0</u>
RSS				<u>9.2</u>					

	Max	Min	Avg	Seal Pot Level	Max Barometric Pressure
WPL					
WAL 1			<u>8.9</u>		
WAL 2			<u>8.9</u>		
WAL 3			<u>8.9</u>		

Waste Ammonia Liquor / Waste Pickle Liquor Pressure Data

	Injection Pressure			Annulus Pressure		Annulus at	Inj. Press at	Min	Formation Pressure	Inj. Press. WAL 1	Inj. Press. WAL 2	Inj. Press. WAL 3
	Max	Avg	Min	Avg	Min							
WPL									0600			
WAL 1									1200			
WAL 2									1800			
WAL 3									2400			

	In Calibration		Composite Sample	Surface Oil	Oil Boom	Grease
	Temp	pH				
	+/- 2 deg F +/- 0.3 SU					
002	<u>(N)</u>	<u>(N)</u>	<u>(N)</u>	<u>(N)</u>	<u>(N)</u>	
011	<u>(N)</u>	<u>(N)</u>	<u>(N)</u>	<u>(N)</u>	<u>(N)</u>	
Lagoon						
001	<u>(N)</u>	<u>(N)</u>	<u>(N)</u>	<u>(N)</u>	<u>(N)</u>	
WAL		<u>(N)</u>				
Ditch				<u>(N)</u>	<u>(N)</u>	
003				<u>(N)</u>	<u>(N)</u>	<u>(N)</u>

Comments: _____

*All daily automatic data is 12:00am sampling period day to 12:00am obtained date CST Non - Day light savings.
 **Temperature and pH data are not 2-hour sustained values.

Earlyman Worksheet - Burns Harbor Environmental

ArcelorMittal

Date Obtained: 9/19/21

24-hour Sampling Period: _____

Technician: B. O'Ho

Sample		FLOW DATA			Daily Flow	
Time	Integrator	Factor				
002 <u>0740</u>	002 <u>1352578</u>	0.005 (MGD)		002		MGD
001 <u>0635</u>	001 <u>69045330</u>	0.001 (MGD)		001		MGD
011 <u>0600</u>	011 <u>74217784</u>	0.001 (MGD)		011		MGD
031 _____	031 <u>40236385</u>	0.0001 (MGD)		031		MGD
WPL _____	WPL _____	1 (GD)		WPL		GD
WAL 1 _____	WAL 1 <u>30752948</u>	1 (GD)		WAL 1		GD
WAL 2 _____	WAL 2 <u>17211511</u>	1 (GD)		WAL 2		GD
WAL 3 _____	WAL 3 <u>14311322</u>	1 (GD)		WAL 3		GD
J Box <u>0538</u>	LWPS Dewatering _____	1 (GD)		Water Cannon		MGD
WWI _____				888		MGD
DW 131 _____						
003 _____						
RISB <u>0522</u>						
BFTC _____						
BFTD _____						
888 <u>0505</u>						
Mixed Liquid <u>0653</u>						
BPC/WPS _____						
Cole Well _____						

pH Data				Temperature Data				
Max	Min	Instr	Lab	Max	Min	Inst	Grab	Refrig
			<u>8.3</u>				<u>46.2</u>	
		<u>8.3</u>	<u>8.2</u>			<u>59.0</u>	<u>55.8</u>	<u>2.0</u>
		<u>8.1</u>	<u>8.0</u>			<u>60.1</u>	<u>58.6</u>	<u>2.0</u>
		<u>8.1</u>	<u>8.2</u>			<u>63.1</u>	<u>63.7</u>	<u>3.5</u>
			<u>9.6</u>					

	Max	Min	Avg	Seal Pot Level	Max Barometric Pressure
WPL					
WAL 1					
WAL 2					
WAL 3					

Waste Ammonia Liquor / Waste Pickle Liquor Pressure Data											
Injection Pressure			Annulus Pressure		Annulus at	Inj. Press at	Min	Formation Pressure	Inj. Press.	Inj. Press.	Inj. Press.
Max	Avg	Min	Avg	Min	Min Differ.	Min Differ.	Differ.		WAL 1	WAL 2	WAL 3
WPL								0600			
WAL 1								1200			
WAL 2								1800			
WAL 3								2400			

	In Calibration		Composite Sample	Surface Oil	Oil Boom	Grease
	Temp	pH				
	+/- 2 deg F +/- 0.3 SU					
002	<input checked="" type="checkbox"/>	N	<input checked="" type="checkbox"/>	N	Y <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
011	<input checked="" type="checkbox"/>	N	<input checked="" type="checkbox"/>	N	Y <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Lagoon					Y <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
001	<input checked="" type="checkbox"/>	N	<input checked="" type="checkbox"/>	N	Y <input checked="" type="checkbox"/>	
WAL		Y				
Ditch					Y <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
003					Y <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Comments: _____

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 **Temperature and pH data are not 2-hour sustained values.

Date Obtained: 4/13/21

24-hour Sampling Period: _____

Technician: B. O'H

Sample		FLOW DATA			Daily Flow	
Time	Integrator	Today's	Factor			
002 <u>0704</u>	<u>1266832</u>		0.002 (WGED)	002		WGED
001 <u>0628</u>	<u>68813513</u>		0.001 (WGED)	001		WGED
011 <u>0552</u>	<u>74103897</u>		0.011 (WGED)	011		WGED
001 <u>0723</u>	<u>40223874</u>		0.0001 (WGED)	001		WGED
WPL <u>0723</u>	<u>75368566</u>		1 (GSD)	WPL		GSD
WAL 1 _____	<u>30752948</u>		1 (GSD)	WAL 1		GSD
WAL 2 _____	<u>16992540</u>		1 (GSD)	WAL 2		GSD
WAL 3 _____	<u>13985733</u>		1 (GSD)	WAL 3		GSD
J Box <u>0941</u>	<u>_____</u>	LXPS Dewasting	1 (GSD)	Water Cannon		WGED
WWP _____				_____		WGED
DMW 131 _____						
003 _____						
RSB <u>0738</u>						
BFTC _____						
BFTD _____						
999 <u>0728</u>						
Mixed Liquid <u>0642</u>						
BCHAPS _____						
Cold Wet _____						

pH Data				Temperature Data				
Max	Min	Instr	Lab	Max	Min	Instr	Grab	Range
			<u>8.2</u>				<u>46.9</u>	
		<u>8.3</u>	<u>8.1</u>			<u>60.6</u>	<u>60.5</u>	<u>3.0</u>
		<u>8.0</u>	<u>7.9</u>			<u>63.6</u>	<u>62.8</u>	<u>2.0</u>
		<u>9.2</u>	<u>8.3</u>			<u>66.7</u>	<u>67.7</u>	<u>3.0</u>
			<u>9.2</u>					

	Max	Min	Avg	Seal Pot Level	Wab. Barometric Pressure
WPL					
WAL 1					
WAL 2	<u>9.0</u>				
WAL 3	<u>9.0</u>				

Waste Ammonia Liquor / Waste Pickle Liquor Pressure Data													
Injection Pressure			Annulus Pressure		Annulus at		Inj. Press at		Min	Formation	Inj. Press.	Inj. Press.	Inj. Press.
Max	Avg	Min	Avg	Min	Min Differ.	Min Differ.	Min Differ.	Differ.		Pressure	WAL 1	WAL 2	WAL 3
WPL									0600				
WAL 1									1200				
WAL 2									1800				
WAL 3									2400				

In Calibration		Composite		Surface		Oil	
Temp	pH	Sample	Oil	Boom	Grease		
+/- 2 deg F +/- 0.3 SU							
002	<input checked="" type="checkbox"/> N	<input checked="" type="checkbox"/> N	<input checked="" type="checkbox"/> N	Y <input checked="" type="checkbox"/>		<input checked="" type="checkbox"/> N	
011	<input checked="" type="checkbox"/> N	<input checked="" type="checkbox"/> N	<input checked="" type="checkbox"/> N	Y <input checked="" type="checkbox"/>		<input checked="" type="checkbox"/> N	
Lagoon				Y <input checked="" type="checkbox"/>		<input checked="" type="checkbox"/> N	
001	<input checked="" type="checkbox"/> N	<input checked="" type="checkbox"/> N	<input checked="" type="checkbox"/> N	Y <input checked="" type="checkbox"/>		<input checked="" type="checkbox"/> N	
WAL		Y	N				
Ditch				Y <input checked="" type="checkbox"/>		<input checked="" type="checkbox"/> N	
003				Y <input checked="" type="checkbox"/>		<input checked="" type="checkbox"/> N	Y <input checked="" type="checkbox"/>

Comments: _____

*All daily automatic data is 12:00am sampling period day to 12:00am obtained date CST Non - Day light savings.

**Temperature and pH data are not 2-hour sustained values.