Cleveland-Cliffs Burns Harbor LLC

Study of Ammonia-N
in the Outfall 001 Storm Ditch

January 26, 2022

Prepared for:

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Cleveland-Cliffs Burns Harbor LLC
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Executive Summary

Cleveland-Cliffs initiated this study to evaluate potential unaccounted-for sources of ammonia-N to the Outfall 001 Storm Ditch, or Storm Ditch. Three potential sources were identified and assessed:

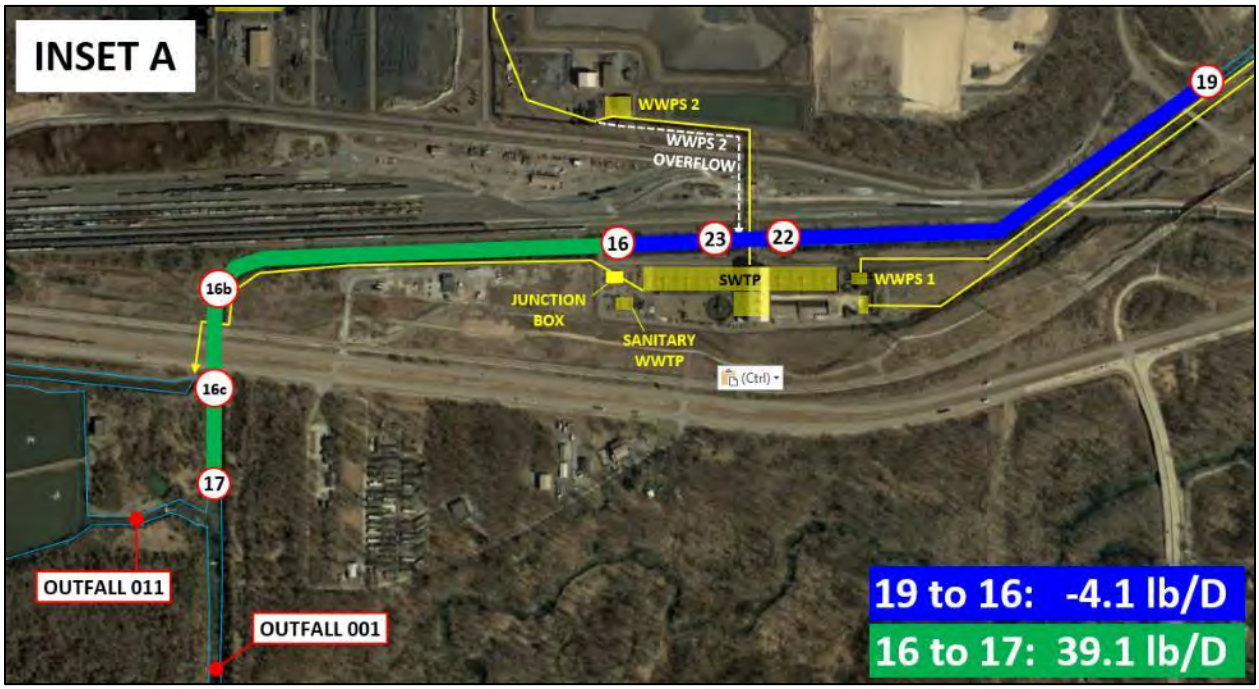
1. *Potential diffuse groundwater contributions of ammonia-N to the Storm Ditch south of U.S. Route 12;*
2. *Possible intermittent discharges of ammonia-N to the Storm Ditch from the Burns Harbor DIW sewer, Wastewater Pump Station No. 2 (WWPS-2) or the WWPS-2 overflow structure; and,*
3. *Potential ammonia-N releases from the Burns Harbor Secondary Wastewater Treatment Plant (SWTP) Junction Box.*

Data collected under this study consist of daily 24-hour composite ammonia-N samples, continuous conductivity measurements and continuous temperature measurements at seven locations in the Storm Ditch, at DIW Manhole 611 (upstream of WWPS-2), at the WWPS-2 Wet Well and at Outfalls 011 and 001. Data were collected at DIW Manhole 611 and at the WWPS-2 Wet Well to characterize possible discharges from WWPS-2 during a potential overflow event. Continuous WWPS-2 Wet Well level data were recorded to identify possible overflow events. An aerial photograph depicting arrangement of the Storm Ditch, WWPS-2, Outfalls 011/011 and sampling stations is provided below:

This report provides a summary of results for the study period April 5 to October 15, 2021.

- *Aggregate data collected through October 15, 2021 indicate no apparent continuing contributions of ammonia-N to the Storm Ditch from 2,000 ft upstream of the WWPS-2 overflow structure to 750 ft downstream (average net loss of 4.1 lb/D, see Inset A below).*

- *An average contribution of 39 lb/D of ammonia-N to the Storm Ditch was observed from 750 ft downstream of the WWPS-2 overflow structure to immediately upstream of the Outfall 011 channel between points 16 and 17, (see Inset A). This confirms the results of prior daily Storm Ditch sampling conducted from November 2020 to February 2021.*



- *Increased ammonia-N concentrations in the Storm Ditch were observed in several sections of the Storm Ditch between Locations 19 and 16b six times during the study. These ammonia-N increases are discussed in Section 2.4.*

- *Continuous WWPS-2 Wet Well level data confirm that one short-term (6 minute) overflow occurred on May 24, 2021. This was due to a short-term power outage.*

- *There were two instances where Wet Well bubble tube level measurements exceeded the Wet Well overflow level; however, those measurements were associated with maintenance activities and not confirmed by the more reliable Wet Level high level sensor. The high level sensor triggers an alarm when Wet Well level reaches three feet below the overflow level. Continuous Wet Well level data are reviewed in Section 2.4.*

- *Ammonia-N, conductivity and temperature data collected at the time of these events show no discernable impact to the Storm Ditch downstream of the WWPS-2 overflow structure. These events observed in the WWPS-2 Wet Well do not coincide with the six instances of observed increased ammonia-N Storm Ditch concentrations.*

- *The Junction Box is an open structure through which the Secondary Wastewater Treatment Plant (SWTP) effluent is routed to the Outfall 011 Polishing Lagoons. Unused large-diameter pipeline stubs were constructed in the walls of the Junction Box when it was first installed. To eliminate the potential for leakage of SWTP effluent through these unused pipeline stubs, Cleveland-Cliffs Burns Harbor has initiated a project to close the SWTP effluent to the Junction Box. Construction is scheduled to be completed before the end of the second quarter of 2022.*

All observed ammonia-N concentrations in the Storm Ditch for the period of this study are well below Indiana ambient aquatic water quality standards for ammonia-N. Therefore, no additional assessments are planned.

1.0 Introduction

Cleveland-Cliffs Burns Harbor LLC (CCBH) is a fully integrated steel mill located on Lake Michigan in Northwest Indiana with capacity to produce more than 5 million tons/year of semi-finished and finished flat-rolled and plate steel products. Water for process and non-contact cooling applications is withdrawn from Lake Michigan through cooling water intake structures comprising two off-shore intake cribs, two 108" diameter intake tunnels and two intake pumping stations. Figure 1 is an aerial photograph that shows the plant layout. CCBH discharges treated process water, treated sanitary wastewater, non-contact cooling water and site storm water to the East Branch of the Little Calumet River through Outfalls 011 and 001 as follows:

- Non-contact cooling water from the Hot Strip Mill, 110" Plate Mill, 160" Plate Mill, Steel Finishing Operations, and site storm water discharges to the Storm Ditch approximately 2 miles upstream of the discharge from Outfall 011 to the Storm Ditch (see Figure 1);

- CCBH operates a "Water Cannon" which discharges Lake Michigan intake water to the Storm Ditch upstream of the discharge of Outfall 011. The Water Cannon is operated intermittently during summer months to maintain compliance with NPDES permit temperature effluent limits at Outfall 001;

- Treated process wastewaters from the Burns Harbor Recycle Plant, C & D Blast Furnaces, Basic Oxygen Furnaces (BOFs), Vacuum Degasser, Continuous Casters, 80" Hot Strip Mill, 110" Plate Mill, 160" Plate Mill, Steel Finishing Operations, Power Station and treated sanitary wastewater discharge to the Storm Ditch at Outfall 011 upstream of Outfall 001; and,

- Outfall 001 discharges the combined flow from Outfall 011 and the Storm Ditch to the East Branch of the Little Calumet River.

CCBH also discharges non-contact cooling water from the Coke Plant, C & D Blast Furnaces, BOFs Power Station and other operations and site storm water to the East Arm of Burns Harbor through Outfall 002.

1.1 Unaccounted-for Sources of Ammonia to the Storm Ditch

Three potential unaccounted for sources of ammonia-N to the Outfall 001 Storm Ditch were identified from prior investigations as reported in the *Sources of Ammonia-N to Outfall 001 Interim Report* submitted to IDEM on October 22, 2020, as well as through continued ammonia-N sampling conducted in the Storm Ditch from October 2020 to February 2021:

(1) Potential diffuse groundwater contributions of ammonia-N to the Storm Ditch south of U.S. Route 12;
(2) Possible intermittent discharges of ammonia-N to the Storm Ditch from the Burns Harbor DIW sewer, Wastewater Pump Station No. 2 (WWPS-2) or the WWPS-2 overflow structure; and,
(3) Potential ammonia-N releases from the Burns Harbor Secondary Wastewater Treatment Plant (SWTP) Junction Box.

Potential diffuse groundwater contributions to the Storm Ditch were identified previously from daily Storm Ditch ammonia-N sampling conducted from November 1, 2020 through February 9, 2021. Possible intermittent discharges to the Storm Ditch from the DIW sewer and the WWPS-2, and possible releases from the SWTP Junction Box were not investigated prior to the start of this study. Results of daily Storm Ditch ammonia-N sampling conducted prior to this study are summarized in Figure 2.

1.2 Study Objective

The objective of this long-term study was to characterize and identify possible unaccounted-for sources of ammonia-N to the Storm Ditch through daily ammonia-N sampling and continuous conductivity and temperature monitoring at strategic locations in the Storm Ditch, in the DIW sewer and WWPS-2, and at Outfalls 011 and 001.

1.3 Study Elements and Data Evaluation Schedule

- On April 2, 2021, a network of continuous conductivity and temperature monitors/data loggers was deployed at the following locations (See Figure 3).
    - Storm Ditch 2,000 ft upstream and immediately upstream of the WWPS-2 overflow structure;
    - Storm Ditch immediately downstream and 750 ft, 2,900 ft, and 3,500 ft downstream of the WWPS-2 overflow structure;
    - Storm Ditch immediately upstream of the Outfall 011 discharge channel;
    - Outfall 011 and Outfall 001; and,
    - Manhole DIW 611, which discharges to WWPS-2 and the WWPS-2 Wet Well.

  The data loggers were programed to record conductivity and temperature data at 3-minute intervals;

- Daily 24-hour composite samples for ammonia-N were collected at several locations in the Storm Ditch upstream and downstream of the WWPS-2 overflow structure starting on April 5, 2021;

- An on-site rain gage was installed at the Outfall 011 Polishing Lagoons and has been recording daily precipitation as of April 7, 2021; and

- The following data are routinely collected by CCBH outside the scope of this study, and are included in data assessments:
    - Outfall 011, Outfall 001 and Lake Michigan intake 24-hour composite ammonia-N concentrations
    - Outfall 011, Outfall 001 and Water Cannon total daily flow
    - Continuous WWPS-2 Wet Well level (1-minute data)

Collected data were evaluated at approximate 2-week intervals for the duration of the study. This report includes an evaluation of data collected from April 5, 2021 through October 15, 2021.

2.0 Study Results and Data Assessments: April 5 to October 15, 2021

2.1 24-hr Composite Ammonia-N Sampling Results

Assessments of Storm Ditch Daily Ammonia-N Mass Loads

A summary of statistical assessments of unaccounted-for contributions of ammonia-N to the Storm Ditch from measured daily ammonia-N concentrations and Outfall 011, 001 and Water Cannon flow is provided in Figures 4 and 5. Complete data for these assessments are provided in Attachments A, B, C and D:

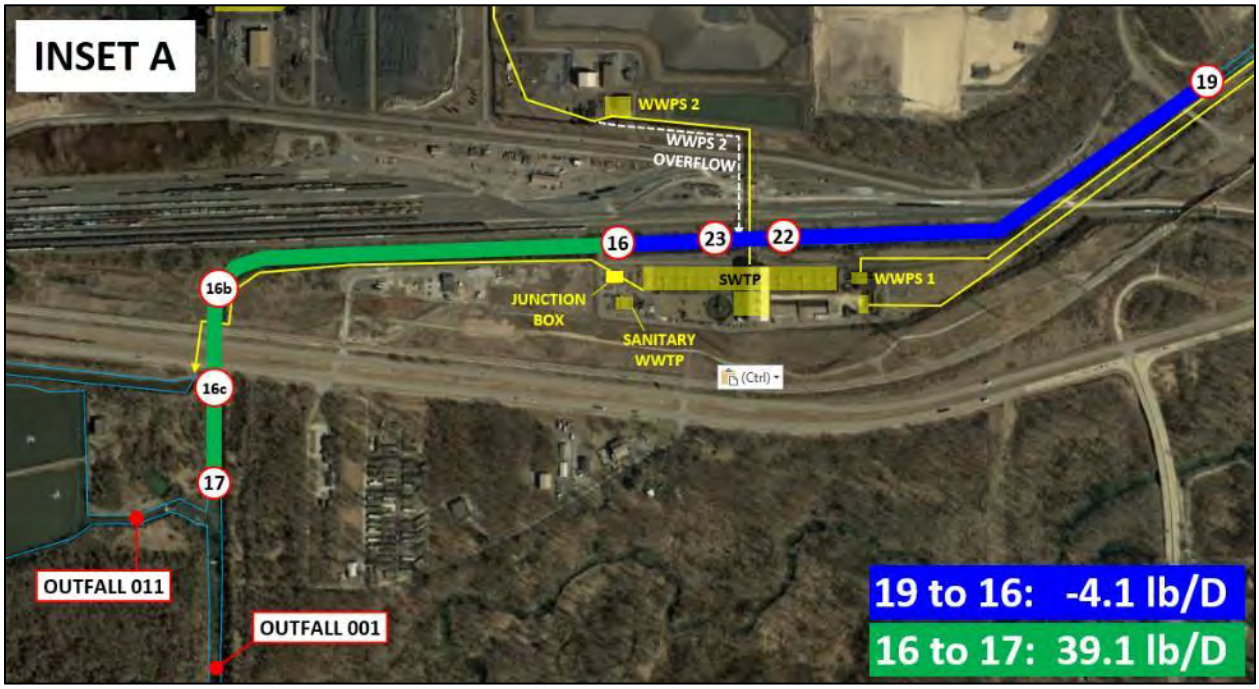
- Figure 4 presents *incremental* increases in ammonia-N mass loads at each Storm Ditch sampling location in tabular and graphical form. For example, the average ammonia-N mass load increase measured in the Storm Ditch from 2,000 ft upstream of the WWPS-2 overflow structure to immediately upstream of the overflow structure is 0.2 lb/D; the average increase measured from immediately upstream of the overflow structure to immediately downstream of the overflow structure is 3.5 lb/D;

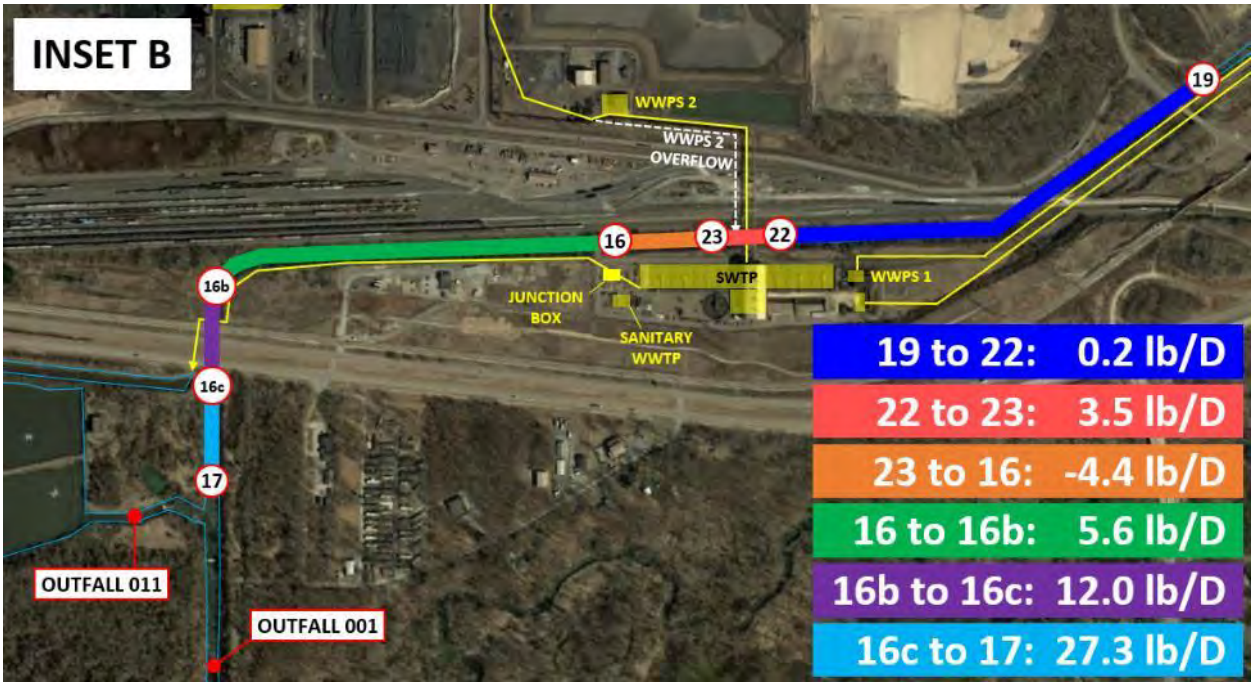
- Figure 5 presents the *total* ammonia-N mass load increase at select locations in the Storm Ditch. For example, the average ammonia-N mass load increase measured from 2,000 ft upstream of overflow structure to 750 ft downstream of the overflow structure is a net loss of 4.1 lb/D; the average increase measured from 750 ft downstream of the overflow structure to immediately upstream of the Outfall 011 channel is 39.1 lb/D;

- The long-term average incremental and total ammonia-N mass load increases for selected Storm Ditch segments are presented below in Table 1 and Insets A, B and C:

Table 1
Long-Term Average Incremental and Total Ammonia-N Mass Load Increases
By Storm Ditch Segment

Long-Term Average Ammonia-N Mass Load Increase (lb/D)					
See Inset A		See Inset B		See Inset C	
Ditch Segment	Incremental Increase	Ditch Segment	Total Increase	Ditch Segment	Total Increase
19 to 22	0.2	19 to 16	-4.1	19 to 17	46.8
22 to 23	3.5				
23 to 16	-4.4				
16 to 16b	5.6	16 to 17	39.1		
16b to 16c	12.0				
16c to 17	27.3				





- For the above assessments, the ammonia-N mass load in the Storm Ditch 2,000 ft upstream was considered to be 0 lb/D as a baseline, as these assessments evaluate ammonia-N mass loads measured in the Storm Ditch *in addition to* ammonia-N present in Lake Michigan water withdrawn by CCBH in non-contact cooling operations and discharged at the upstream end of the Storm Ditch.

The results of these assessments indicate no apparent contributions of ammonia-N to the Storm Ditch from 2,000 ft upstream to 750 ft downstream of the WWPS-2 overflow structure (average net loss of 4.1

lb/D). Contributions of ammonia-N are indicated from 750 ft downstream of the WWPS-2 overflow structure to immediately upstream of the Outfall 011 channel (average of 39 lb/D). This confirms there are unaccounted-for source(s) of ammonia-N to the Storm Ditch, as initially identified in the October 22, 2020 Sources of Ammonia-N to Outfall 001 Interim Report and as indicated by the results of daily Storm Ditch sampling conducted from November 2020 to February 2021.

Assessment of Storm Ditch Daily Ammonia-N Data vs. Daily Precipitation

As previously noted, CCBH installed an on-site rain gage at the SWTP polishing lagoons which has been recording daily precipitation since April 7, 2021. Attachment E is an assessment of daily precipitation data and daily ammonia-N data collected at the Storm Ditch immediately upstream of the Outfall 011 discharge channel. Also provided are calculated daily Storm Ditch flows at that location (Outfall 001 flow - Outfall 011 Flow - Water Cannon Flow). These data are sorted by precipitation (minimum to maximum). As shown in the summary table provided in Attachment E, the sorted data show no correlation between precipitation, ammonia-N concentration and mass loads, and flow calculated in the Storm Ditch immediately upstream of the Outfall 011 discharge channel. Further, the assessment of daily calculated Storm Ditch flow indicates storm water runoff is not a significant source of flow to the Storm Ditch compared to Outfall 011 process water flows and the combined Outfall 001 process water and non-contact cooling water flow.

Additional assessments of ammonia-N data are provided in Section 2.5 of the report.

2.2 Continuous Conductivity and Temperature Monitoring Results

Daily minimum, mean, and maximum continuous conductivity and temperature data are provided as Attachments F and G, respectively. It is not practical to provide graphs of these data (~ 94,000 data points per monitoring location); however, select continuous conductivity and temperature data are presented with the WWPS-2 overflow structure discharge assessments provided in Section 2.4 and the identification and assessment of possible discharge events provided in Section 2.5.

2.3 Continuous WWPS-2 Wet Well Level Monitoring Data

The WWPS-2 Wet Well is equipped with an overflow structure that is connected to the Storm Ditch between sample locations 22 and 23 shown in Figure 3. CCBH continuously monitors the level of the Wet Well at 1-min intervals using a bubbler tube sensor with a target level setpoint of 593 FASL. The elevation of the pipe invert to the overflow structure is 600 FASL. The Wet Well is also equipped with a conductivity-type high-level sensor and alarm. The alarm is triggered when the Wet Well level reaches or exceeds 597 FASL (3 feet lower than the overflow structure). Figure 6 is a simplified schematic of the Wet Well, level sensors and overflow pipe.

Figures 7a through 7g present continuous WWPS-2 Wet Well level data by month from April 5 to October 15, 2021. Although Figure 8 shows a target setpoint of 593 FASL, the graphs show a typical Wet Well elevation of approximately 591 FASL. Also shown on each graph is the overflow level of 600 FASL. The continuous bubbler tube data from April 5 to October 15, 2021 show readings exceeded 600 FASL on three occasions for short periods as follows:

Date	Duration >600 FASL	Max Level FASL	Wet Well Floor FASL	Notes
05/24/21	6 min	600.7	605.5	Confirmed overflow event due to power outage
06/07/21	4 min	606.8	605.5	The maximum bubbler tube elevations reported for both dates are the same at 606.8 FASL, which is above the Wet Well floor elevation of 605.5 FASL. High bubbler Wet Well readings are attributed to maintenance activities and were not confirmed by the high level sensor and alarm.
10/05/21	2 min	606.8	605.5	

CCBH determined that overflow events from the WWPS-2 Wet Well did not occur on June 7 and October 5, 2021 based on the following:

- Burns Harbor personnel report that high bubbler-tube readings were due to maintenance.
- The reliable high-level sensor alarm was not triggered in either case, indicating the Wet Well elevation did not exceed 597 FASL on these occasions.
- Continuous level data reported by the bubbler tube sensor indicate the Wet Well level increased from ~591 to 607 FASL within 1 to 2 minutes for each occasion. This would be above the Wet Well floor elevation of 605.5 FASL and such a rapid increase is not realistic.

Figures 8a and 8b present continuous conductivity and temperature data at the time of the 6-minute May 24, 2021 overflow event. These data show no discernable impact to the Storm Ditch immediately downstream and 750 ft downstream of the WWPS-2 overflow structure .

The May 24, 2021 overflow resulted in a 6-minute discharge to the Storm Ditch that occurred once during the approximate 6-month period of this study. Temperature and conductivity data upstream and downstream of the overflow structure during the period of the 6-minute discharge on May 24, 2021 indicate no discernable impact in the Storm Ditch.

2.4 Identification and Assessment of Possible Discharge Events

Twenty-four hour composite sample data for ammonia-N were evaluated to identify possible discharges of ammonia-N to the Storm Ditch from the DIW sewer. From the location of the DIW relative to the Storm Ditch, it can be surmised that any discharges to the Storm Ditch from the DIW would likely affect the Storm Ditch in the reach from just upstream of the overflow structure to 2,900 ft downstream of the overflow structure (see Figure 3).

Figures 9a through 9d present graphs of daily ammonia-N results for select segments of the Storm Ditch from 2,000 ft upstream (Location 19) to 2,900 ft downstream of the overflow structure (Location 16b). The following possible discharge events were identified from a review of these data:

Table 2
Identified Possible Discharge Events
Ammonia-N Results

Possible Event Date	Storm Ditch Ammonia-N Results, mg/L (Distances Relative to WWPS-2 Overflow Structure) [19] 2,000 ft Upstream	[22] Immediately Upstream	[23] Immediately Downstream	[16] 750 ft Downstream	[16b] 2,900 ft Downstream
05/09/21	J 0.072	J 0.088	**J 0.078**	**0.170**	**0.320**
05/11/21	J 0.082	J 0.057	**J 0.076**	**0.370**	0.130
06/13/21	0.170	0.180	**0.190**	**0.540**	U 0.054
06/26/21	**B 0.170**	**B 0.540**	**B 0.770**	B 0.330	B 0.460
07/14/21	0.190	**0.200**	**no data**	**0.370**	0.210
10/13/21	**B 0.100**	**B 0.370**	B 0.200	BJ 0.094	B 0.120

U: Analyte analyzed but not detected above the MDL
J: Analyte is present at an estimated concentration between MDL and RL
B: Analyte detected in the associated Method Blank above the RL

The blue shaded areas identify the Storm Ditch reach in which a possible discharge event occurred by comparison of the upstream vs. downstream ammonia-N data at each sample location. The Water Cannon was not discharging on any of the above days and did not impact these results. A total of six (6) possible discharge events were identified from this assessment. Graphs of the above data are included as Figures 10a through 10f. All the recorded ammonia-N results during these events are well below ambient Indiana aquatic life water quality standards for ammonia-N.

Following the identification of possible discharge events presented above, continuous temperature and conductivity data were evaluated from one day prior to one day following each possible discharge event to determine impacts to the Storm Ditch. These data are presented in Figures 11a through 11l and are summarized below:

Table 3
Possible Discharge Events
Daily Average Conductivity and Temperature Values and Calculated Relative Percent Differences[1]

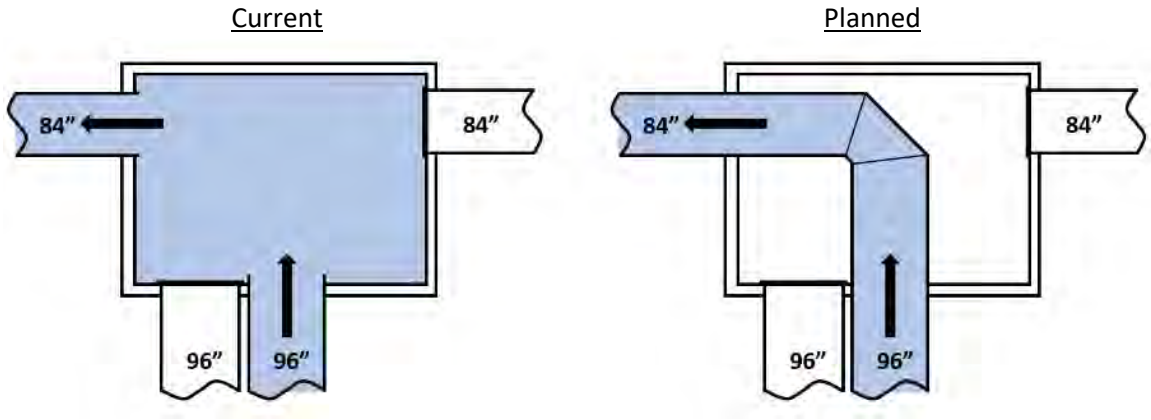
Possible Event Date	Conductivity – Daily Average (µS/com) Upstream	Downstream	+/- RPD	Temperature – Daily Average (Deg. F) Upstream	Downstream	+/- RPD
05/09/21	239	277	+14.7 %	55.2	54.8	-0.7 %
05/11/21	239	248	+3.6 %	55.2	55.1	-0.2 %
06/13/21	301	291	-3.4 %	63.0	63.1	+0.2 %
06/26/21	275	405	+38.2 %	67.6	68.4	+1.2 %
07/14/21	346	348	+0.6 %	79.6	80.1	+0.6 %
10/13/21	288	300	+4.0 %	73.0	72.4	-0.8 %

[1] Calculated relative percent difference between the upstream and downstream sample.

For the above table, “Upstream” and “Downstream” represent locations in the Storm Ditch identified at the upstream end and downstream end of the locations shaded in blue in Table 2. The conductivity data presented in Table 3 suggest, on a daily average basis, discernable differences in the Storm Ditch occurred on May 9 and June 26, 2021. Figure 11g shows the difference in conductivity from upstream to downstream from June 25 to June 27, suggesting a possible data issue. The conductivity data show no discernable impact on June 13, July 14 and October 15, 2021. Temperature data show no discernable impact to the Storm Ditch on any of the days identified above.

3.0 Potential Ammonia-N Releases from the SWTP Junction Box

Treated process water from the SWTP is routed to the Outfall 011 Polishing Lagoons through an open Junction Box and a network of sewers and open channels. The Junction Box was constructed in the 1960s and is an open structure where the SWTP effluent enters through a 96” pipeline and discharges through an 84” pipeline. The Junction Box also includes 84” and 96” pipeline stubs that have never been used. CCBH will install a section of steel pipe between the SWTP effluent entering the Junction Box and the SWTP effluent pipeline leaving the Junction Box. This will isolate the SWTP effluent from the Junction Box as shown in the following schematic diagram:



The project has been engineered and is scheduled for completion before the end of the second quarter 2022.

4.0 Measured vs. Calculated Outfall 001 Ammonia-N Mass Loads

Sample location 17 is in the Storm Ditch immediately upstream of the Outfall 011 discharge channel and was selected to characterize the total ammonia-N mass load in the Storm Ditch upstream of Outfall 011. An assessment comparing measured Outfall 001 ammonia-N mass loads (direct sample collection at Outfall 001) and calculated Outfall 001 ammonia-N mass loads (sum of Outfall 011 mass loads and sample location 17 mass loads) shows higher measured Outfall 001 mass loads compared to calculated Outfall 001 mass loads.

Monthly average and long-term average ammonia-N mass loads are shown in the below table by month; daily data from April 5 to October 15 are presented graphically in Figure 12.

Table 4
Measured vs Calculated Outfall 001 Ammonia-N Mass Loads[2]
Monthly Averages

Month	Outfall 001 Ammonia-N (lb/D) Calculated	Measured	Unaccounted-for Ammonia-N (lb/D)	Percent Difference[3]
April 5-30	355	382	27	7.3 %
May	198	292	94	38.4 %
June	237	293	56	21.1 %
July	188	222	34	16.6 %
August	141	231	90	48 4 %
September	126	188	62	39.4 %
October 1-15	132	199	67	40.5 %
Apr. 5 to Oct. 15	198	260	62	27.1 %

Based on a comparison of ammonia-N mass loads measured at Outfall 001 and mass loads calculated as the sum of mass loads measured at Outfall 011 and Storm Ditch location 17, there are an average of 62 lbs/day of unaccounted-for ammonia-N in the Storm Ditch between upstream of the Outfall 011 discharge channel and at the Outfall 001 monitoring location (see Inset D). It is not likely the discharge from Outfall 011 impacts ammonia-N concentrations measured at Location 17.

[2] Calculated Outfall 001 ammonia-N mass load = Outfall 001 – Sample Location 17 ammonia-N mass loads.
[3] Calculated relative percent difference between the monthly average calculated and measured Outfall 001 ammonia-N mass loading,

5.0 Conclusions and Additional Activities

Possible Intermittent Ammonia-N Discharges from WWPS-2 to the Outfall 001 Storm Ditch

The results of this study do not show frequent intermittent discharges from WWPS-2 to the Outfall 001 Storm Ditch.

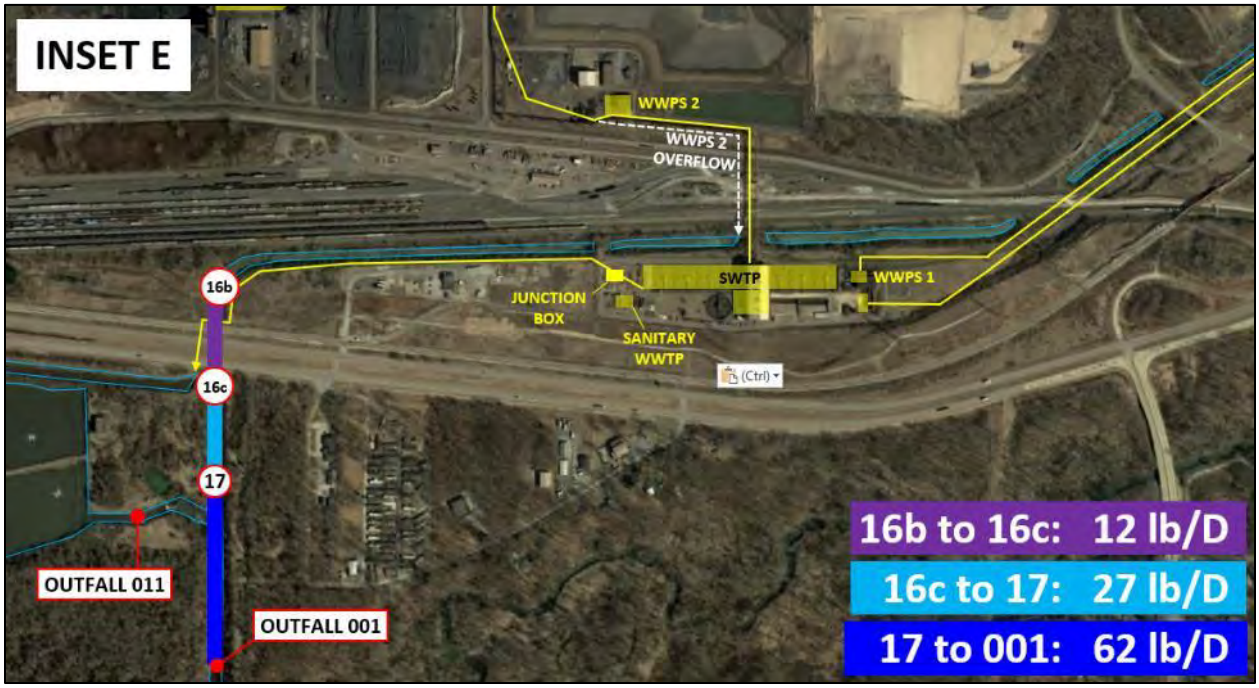
Potential Ammonia-N Releases from the SWTP Junction Box

As discussed in Section 3.0, CCBH will install a section of steel pipe to isolate the SWTP effluent and eliminate any potential releases from the Junction Box. The project has been engineered and is scheduled for completion by the second quarter of 2022.

Unaccounted-for Contributions of Ammonia-N to the Storm Ditch South of U.S. Route 12

The results of this study document, on a long-term average basis, the following unaccounted-for contributions of ammonia-N mass loads to the Storm Ditch South of U.S. Route 12 to the Outfall 001 monitoring location:

Storm Ditch Reach	Ammonia-N Mass Load Contributions (lb/D)
16b to 16c	12
16c to 17	27
17 to Outfall 001	62



All observed ammonia-N concentrations in the Storm Ditch for the period of record are well below Indiana ambient aquatic water quality standards for ammonia-N. Therefore, no additional assessments are planned.

FIGURE 1

Lake Michigan

Burns Harbor

Lake Michigan

L. Michigan Intake Cribs

Lake Michigan

LAKE MICHIGAN INTAKE PUMP STATIONS 2 1

BOF

CASTER

East Arm

D BLAST FURNACE

C BLAST FURNACE

Outfall 002

RECYCLE PLANT

POWER STATION

SLAB MILL

80" HOT STRIP MILL

160" PLATE MILL

110" PLATE MILL

COLD MILL

Storm Ditch

Non-Contact Cooling Water Discharges to the Storm Ditch

Burns Ditch

COKE PLANT

Water Cannon

Storm Ditch

SWTP

Storm Ditch

Polishing Lagoons

Storm Ditch

East Branch Little Calumet River

Outfall 011

Outfall 001

East Branch Little Calumet River

Little Calumet River

Salt Creek

Cleveland-Cliffs Burns Harbor LLC

LOCATIONS OF LAKE MICHIGAN WATER INTAKES, OUTFALLS, MAJOR PLANT OPERATIONS AND SURFACE WATERS

DWG. DATE: 10/20/21
REVISION: 1

Amendola Engineering Inc.

FIGURE 2

Cleveland-Cliffs Burns Harbor Storm Ditch and Outfalls 011/001
Long-Term Average Ammonia Mass Loads (lb/day)
(Daily Data - November 1, 2020 to February 9, 2021)

Amendola Engineering, Inc.
October 20, 2021

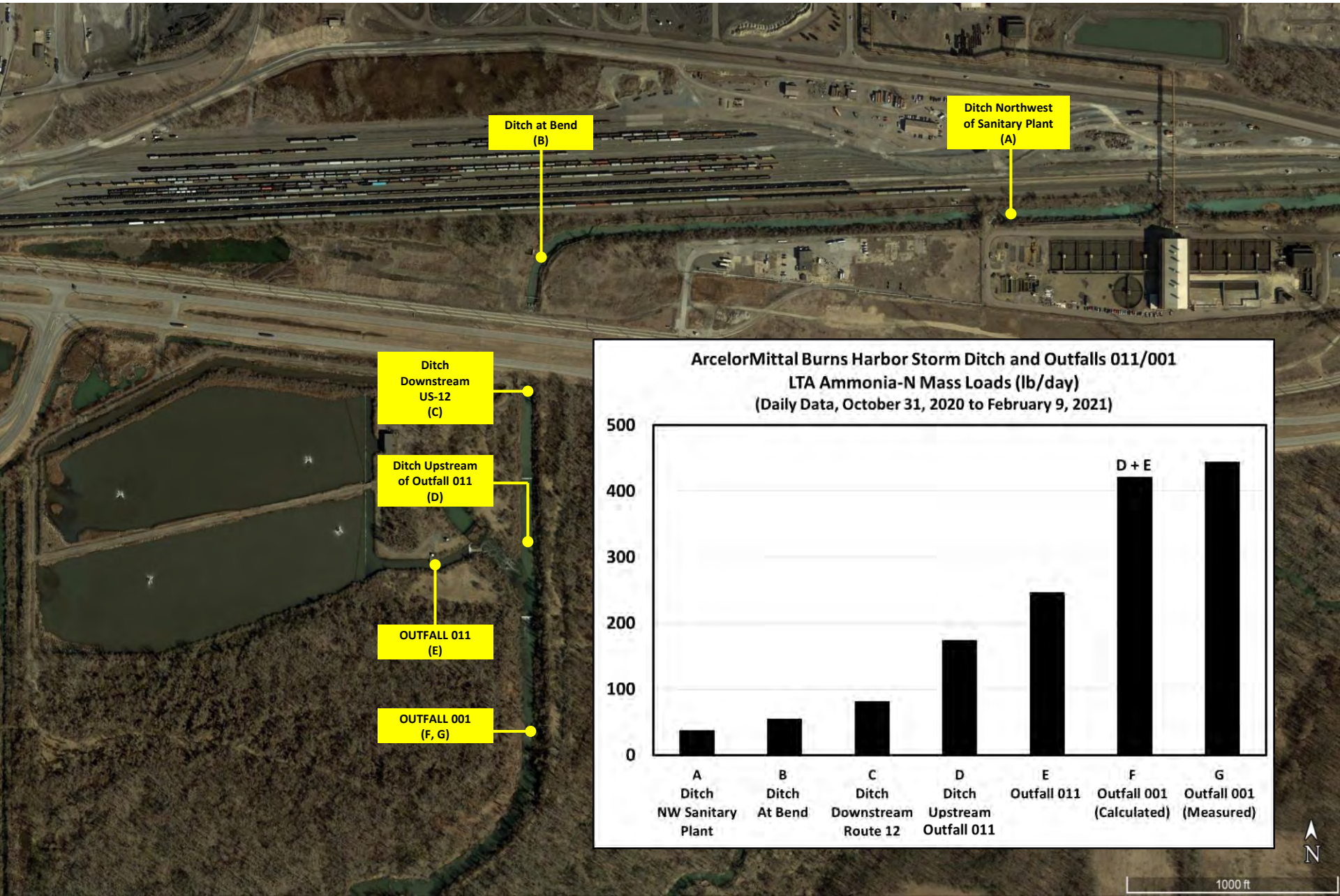


FIGURE 3

Sample Station		Data Collection		
Station ID	Description	Continuous Conductivity & Temperature	24-Hr Comp Ammonia-N	Continuous Water Level
Outfall 001 Storm Ditch Sample Locations				
19	Ditch upstream of WWPS-2 overflow influence	•	•	
22	Ditch immediately ups. of WWPS-2 overflow	•	•	
23	Ditch immediately dst. of overflow structure	•	•	
16	Ditch downstream of DIW/WWPS-2 at SWTP	•	•	
16b	Ditch at bend	•	•	
16c	Ditch downstream of US 12	•	•	
17	Ditch upstream of Outfall 011 inflow	•	•	
14	Outfall 011	•	•	
18	Outfall 001	•	•	
DIW Sewer/WWPS-2 Sample Locations				
21	DIW sewer ups. of WWPS-2 (MH DIW 611)	•	•	
11	WWPS-2 wet well	•	•	•

Cleveland-Cliffs Burns Harbor LLC

UNACCOUNTED FOR AMMONIA-N IN OUTFALL 001 STORM DITCH

DWG. DATE: 10/20/21
REVISION: 3

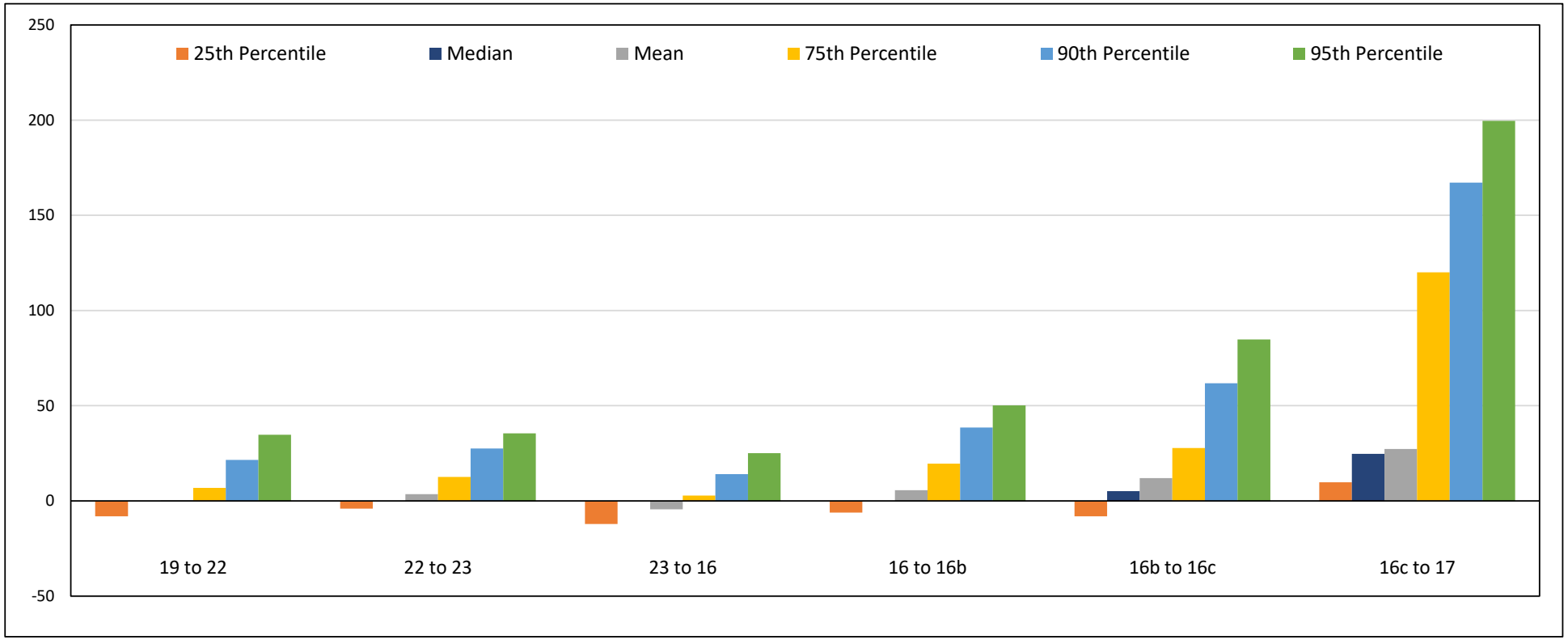
Amendola Engineering Inc.

Cleveland-Cliffs Burns Harbor LLC
Unaccounted-For Ammonia-N in Outfall 001 Storm Ditch Study
Incremental and Total Unaccounted-for Ammonia-N Mass Loads
(April 5 to October 15, 2021)

Amendola Engineering, Inc.
DRAFT - October 20, 2021

FIGURE 4
Incremental Ammonia-N Increase Each Storm Ditch Sampling Location (Sampling Location - Nearest Upstream Sampling Location)

Sampling Location		Ditch Segment	Incremental Unaccounted-for Ammonia-N by Ditch Segment (lb/D) 25th %tile	Median	**Mean**	75th %tile	90th %tile	95th %tile
19	2,000 ft Upstream WWPS-2 Overflow Structure	-	0.0	0.0	**0.0**	0.0	0.0	0.0
22	Immediately Upstream WWPS-2 Overflow	19 to 22	-8.1	0.0	**0.2**	6.9	21.5	34.8
23	Immediately Downstream WWPS-2 Overflow	22 to 23	-4.1	0.0	**3.5**	12.5	27.5	35.5
16	750 ft Downstream WWPS-2 Overflow	23 to 16	-12.1	0.0	**-4.4**	2.8	14.1	25.1
16b	At Bend N of US-12; 2,900 ft DS WWPS-2 Overflow	16 to 16b	-6.1	0.0	**5.6**	19.6	38.6	50.2
16c	South of US-12; 3,500 ft DS WWPS-2 Overflow	16b to 16c	-8.1	5.1	**12.0**	27.8	61.7	84.8
17	Immediately Upstream of Outfall 011 Channel	16c to 17	9.8	24.8	**27.3**	120.1	167.2	199.6



Cleveland-Cliffs Burns Harbor LLC
Unaccounted-For Ammonia-N in Outfall 001 Storm Ditch Study
Incremental and Total Unaccounted-for Ammonia-N Mass Loads
(April 5 to October 15, 2021)

Amendola Engineering, Inc.
DRAFT - October 20, 2021

FIGURE 5
Total Ammonia-N Increase at Each Storm Ditch Sampling Location (Sampling Location - 2,000 ft Upstream WWPS-2 Overflow)

Sampling Location		Ditch Segment	Total Unaccounted-for Ammonia-N in Ditch (lb/D)					
			25th %tile	Median	**Mean**	75th %tile	90th %tile	95th %tile
19	2,000 ft Upstream WWPS-2 Overflow Structure	-	0.0	0.0	**0.0**	0.0	0.0	0.0
16	2,000 ft Upstream WWPS-2 Overflow Structure to 750 ft Downstream WWPS-2 Overflow Structure	19 to 16	-13.0	-2.7	**-4.1**	4.6	17.9	27.3
17	750 ft Downstream of WWPS-2 Overflow Structure to Immediately Upstream of Outfall 011 Channel	16 to 17	21.8	40.3	**39.1**	55.1	105.6	150.3
17	2,000 ft Upstream WWPS-2 Overflow Structure to Immediately Upstream of Outfall 011 Channel	19 to 17	9.1	37.4	**46.8**	69.6	114.1	140.2

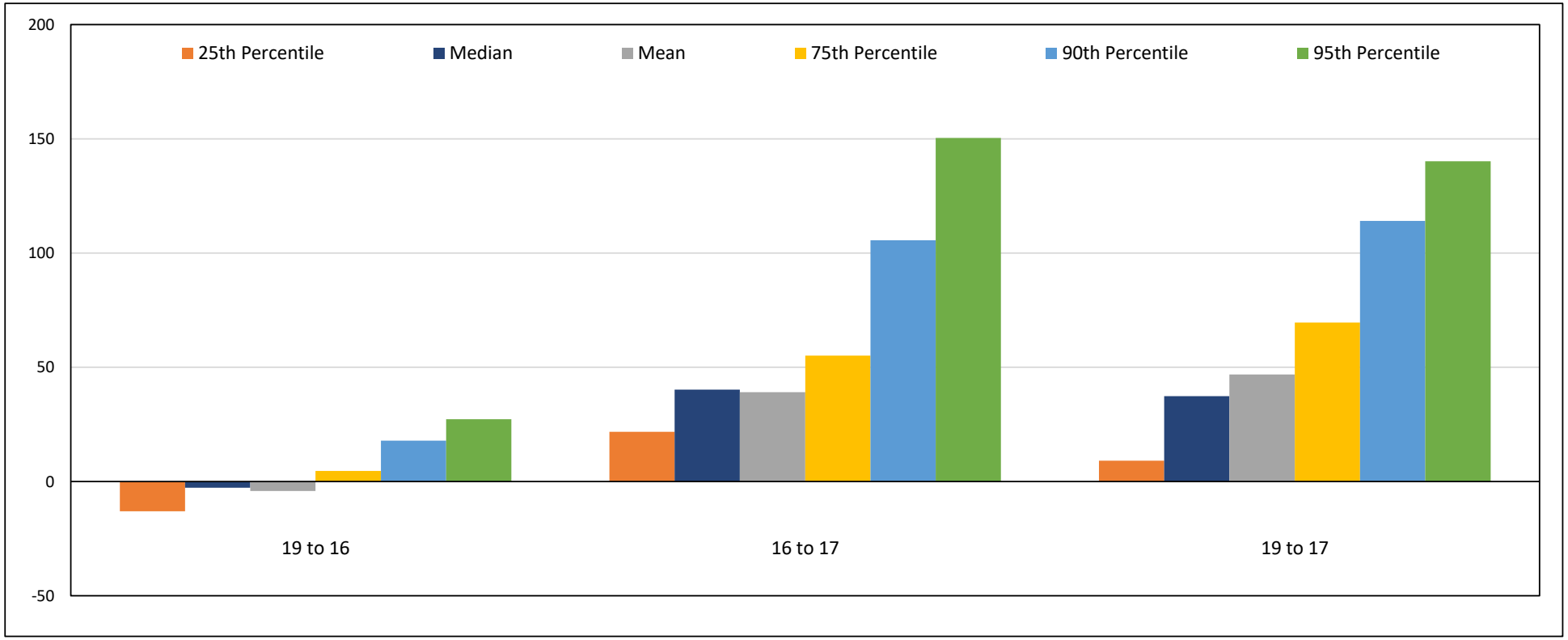


FIGURE 6
Cleveland-Cliffs Burns Harbor LLC
Wastewater Pumps Station 2 (WWPS-2)
Wet Well, Level Sensors and Overflow Pipe

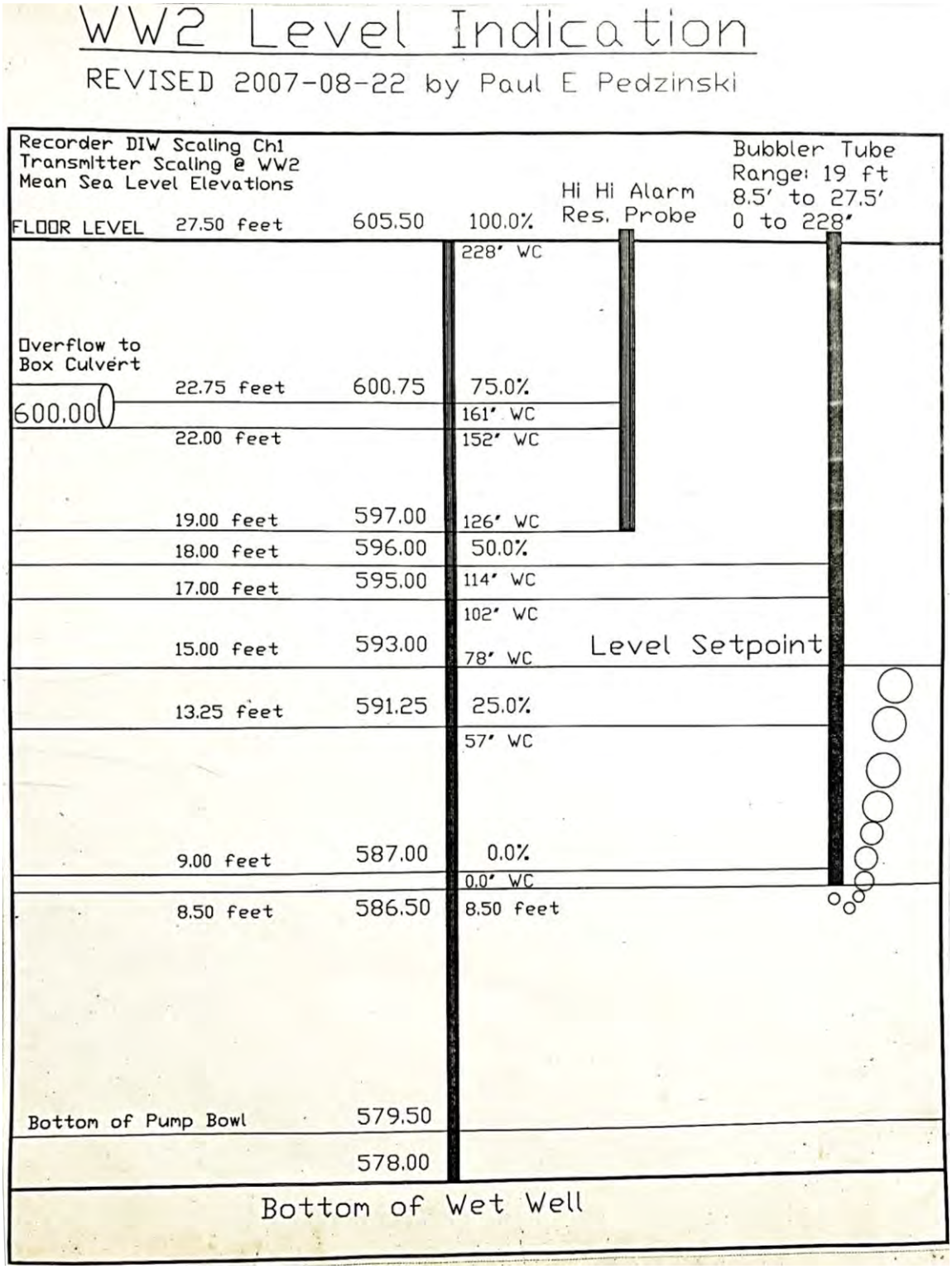


FIGURE 7a

Cleveland-Cliffs Burns Harbor

Continuous WWPS-2 Wet Well Level (FASL)

(Wet Well Overflows at 600.0 FASL)

April 5 to April 30, 2021

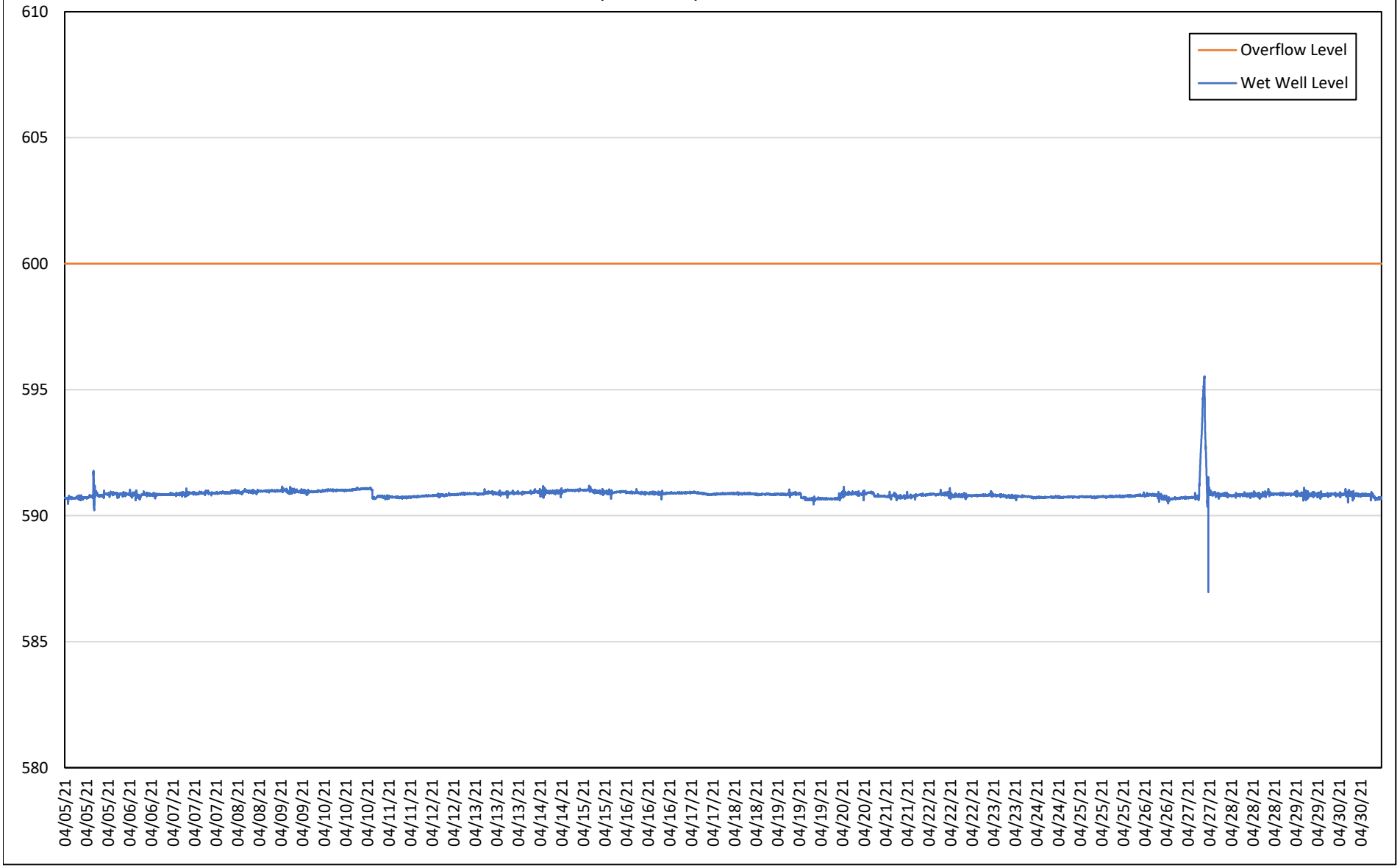


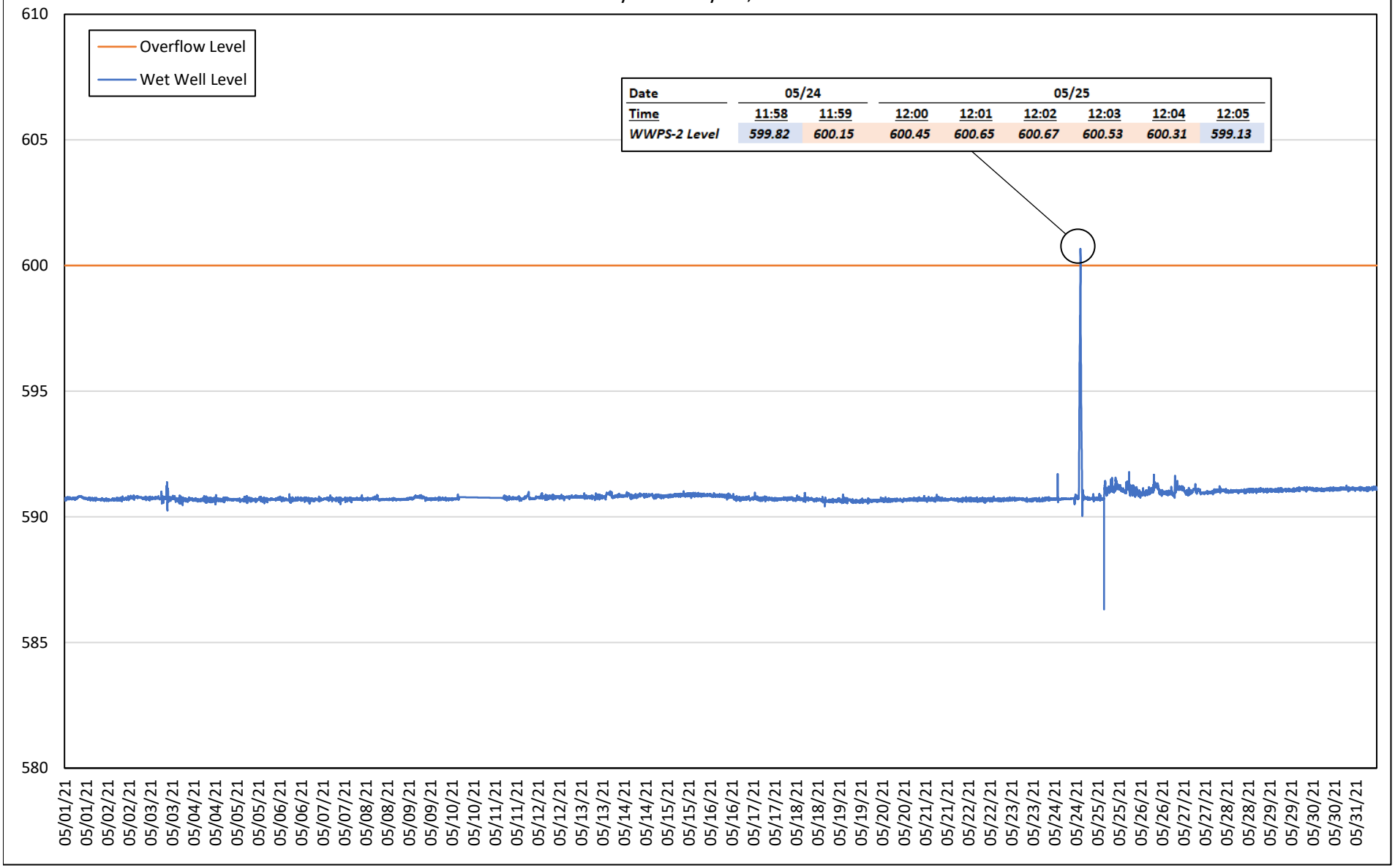
FIGURE 7b

Cleveland-Cliffs Burns Harbor

Continuous WWPS-2 Wet Well Level (FASL)

(Wet Well Overflows at 600.0 FASL)

May 1 to May 31, 2021



Date	05/24		05/25					
Time	11:58	11:59	12:00	12:01	12:02	12:03	12:04	12:05
WWPS-2 Level	*599.82*	*600.15*	*600.45*	*600.65*	*600.67*	*600.53*	*600.31*	*599.13*

FIGURE 7c

Cleveland-Cliffs Burns Harbor

Continuous WWPS-2 Wet Well Level (FASL)

(Wet Well Overflows at 600.0 FASL)

June 1 to June 30, 2021

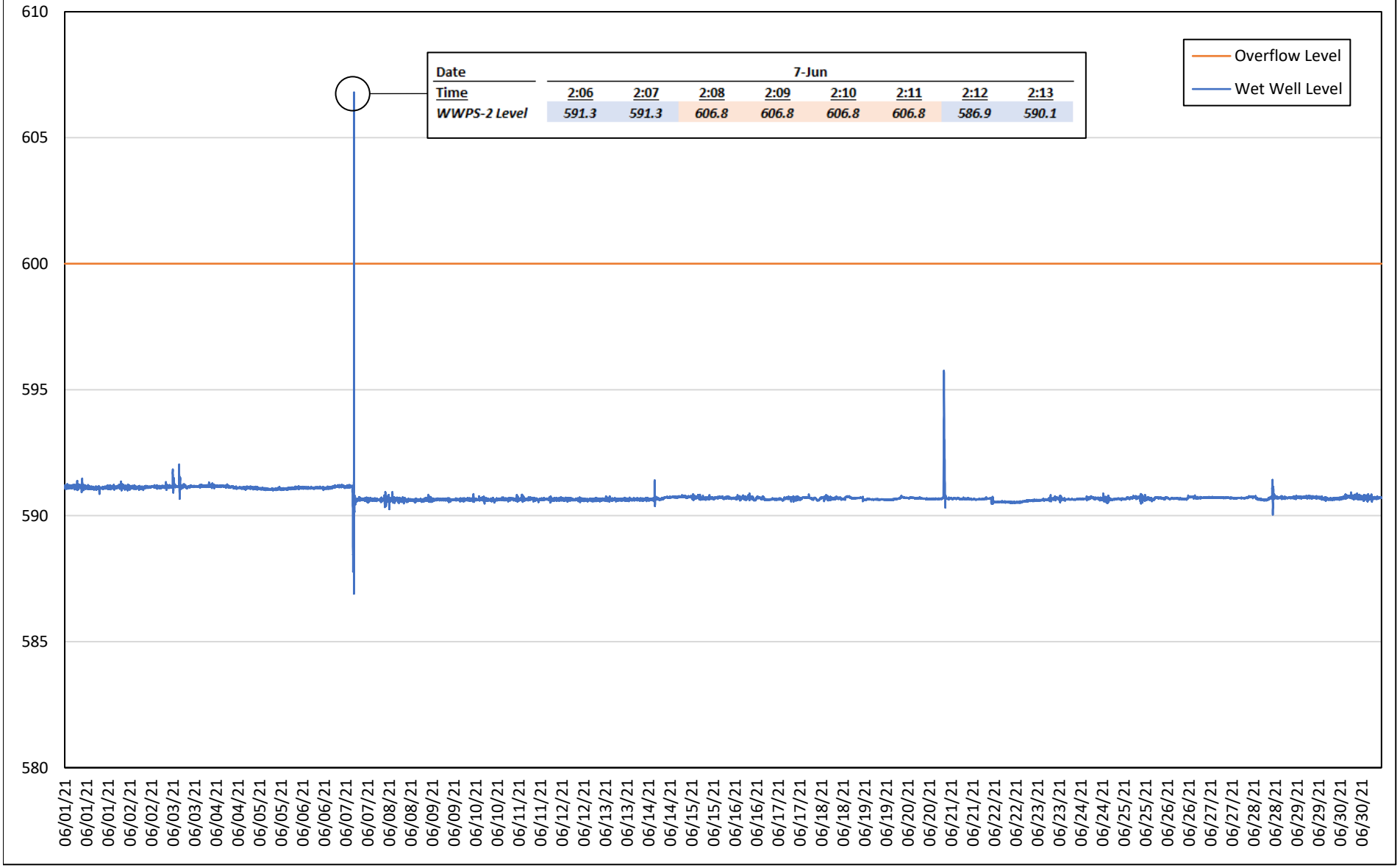


FIGURE 7d

Cleveland-Cliffs Burns Harbor

Continuous WWPS-2 Wet Well Level (FASL)

(Wet Well Overflows at 600.0 FASL)

July 1 to July 31, 2021

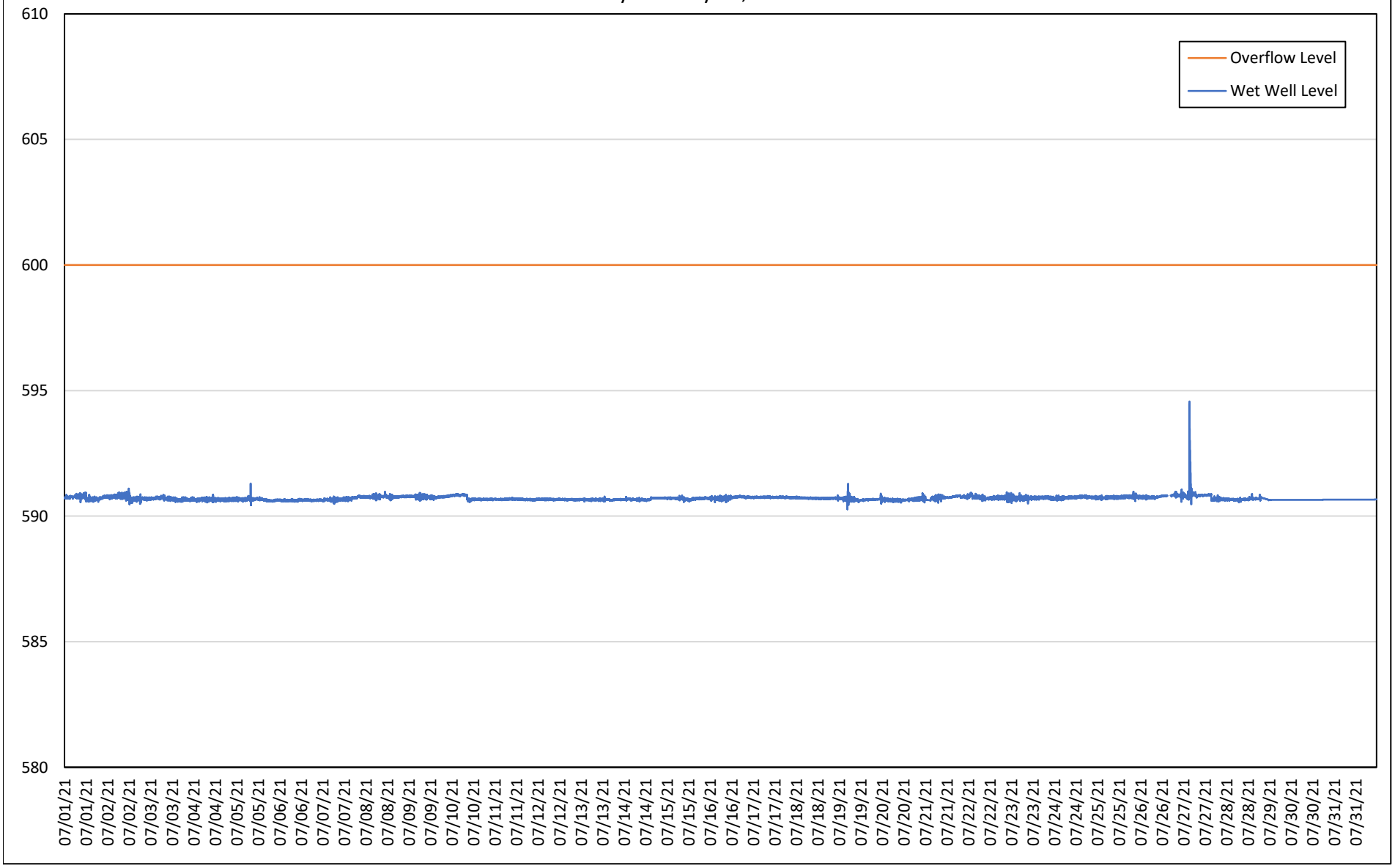


FIGURE 7e

Cleveland-Cliffs Burns Harbor

Continuous WWPS-2 Wet Well Level (FASL)

(Wet Well Overflows at 600.0 FASL)

August 1 to August 31, 2021

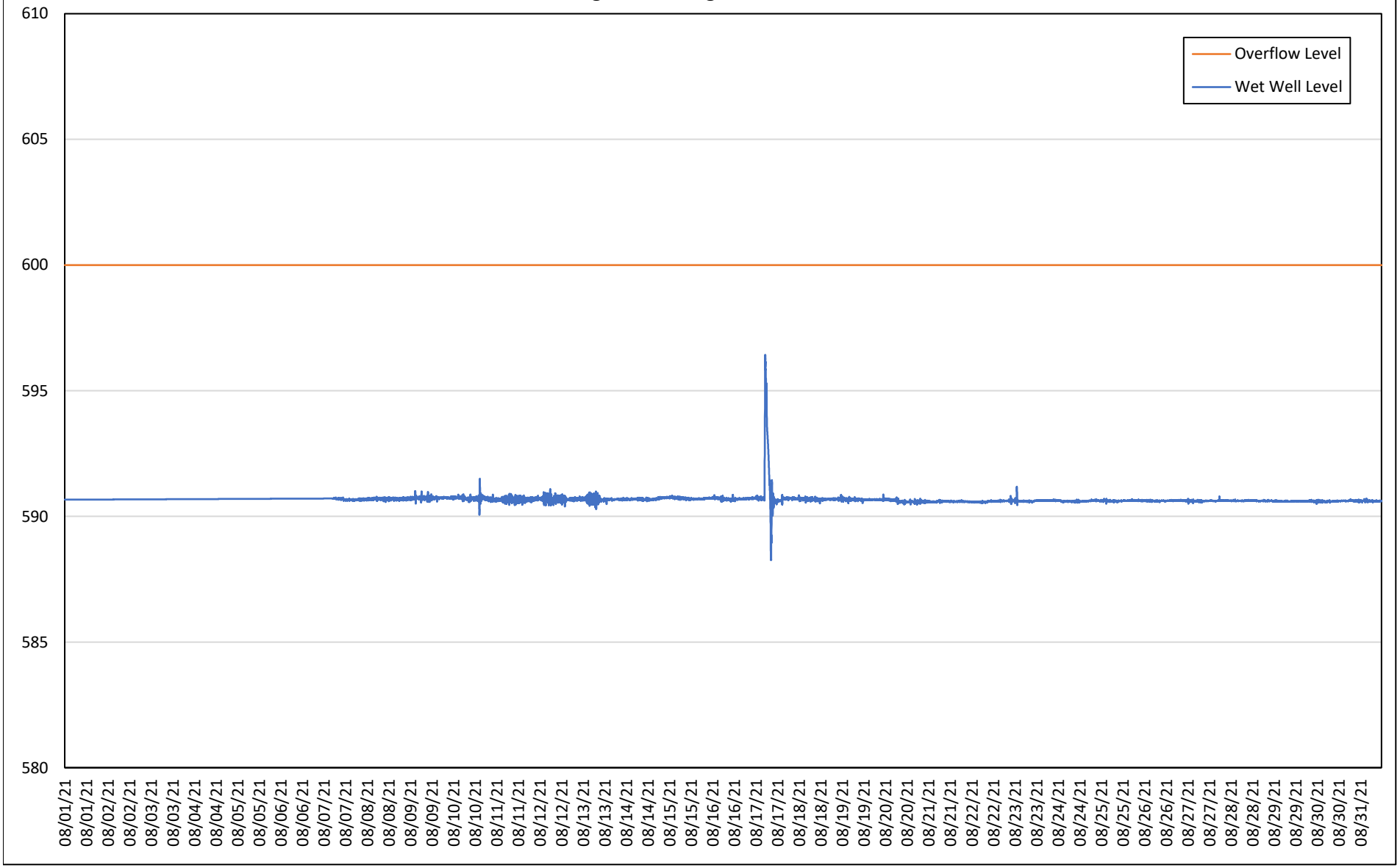


FIGURE 7f

Cleveland-Cliffs Burns Harbor

Continuous WWPS-2 Wet Well Level (FASL)

(Wet Well Overflows at 600.0 FASL)

September 1 to September 30, 2021

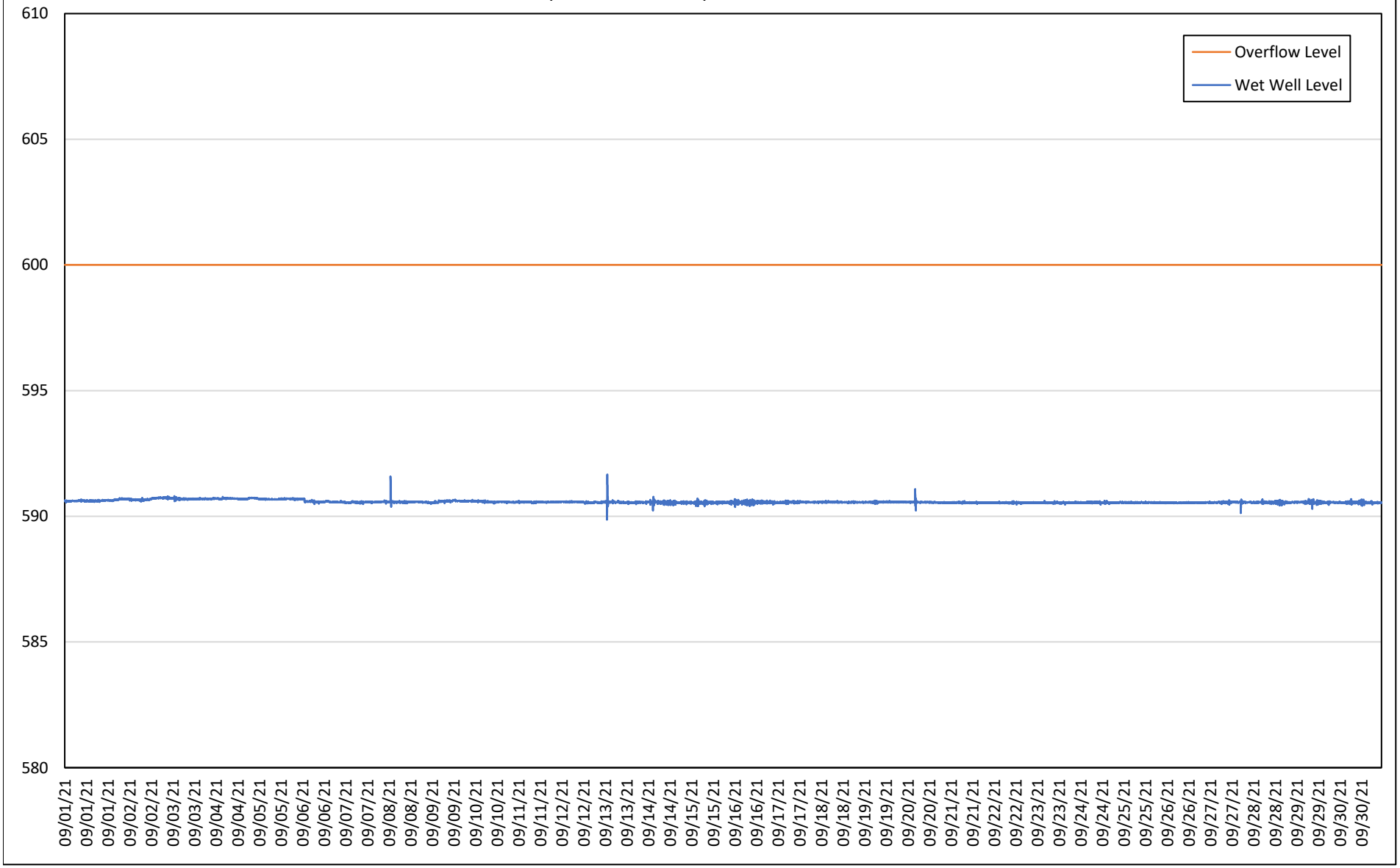


FIGURE 7g

Cleveland-Cliffs Burns Harbor

Continuous WWPS-2 Wet Well Level (FASL)

(Wet Well Overflows at 600.0 FASL)

October 1 to October 15, 2021

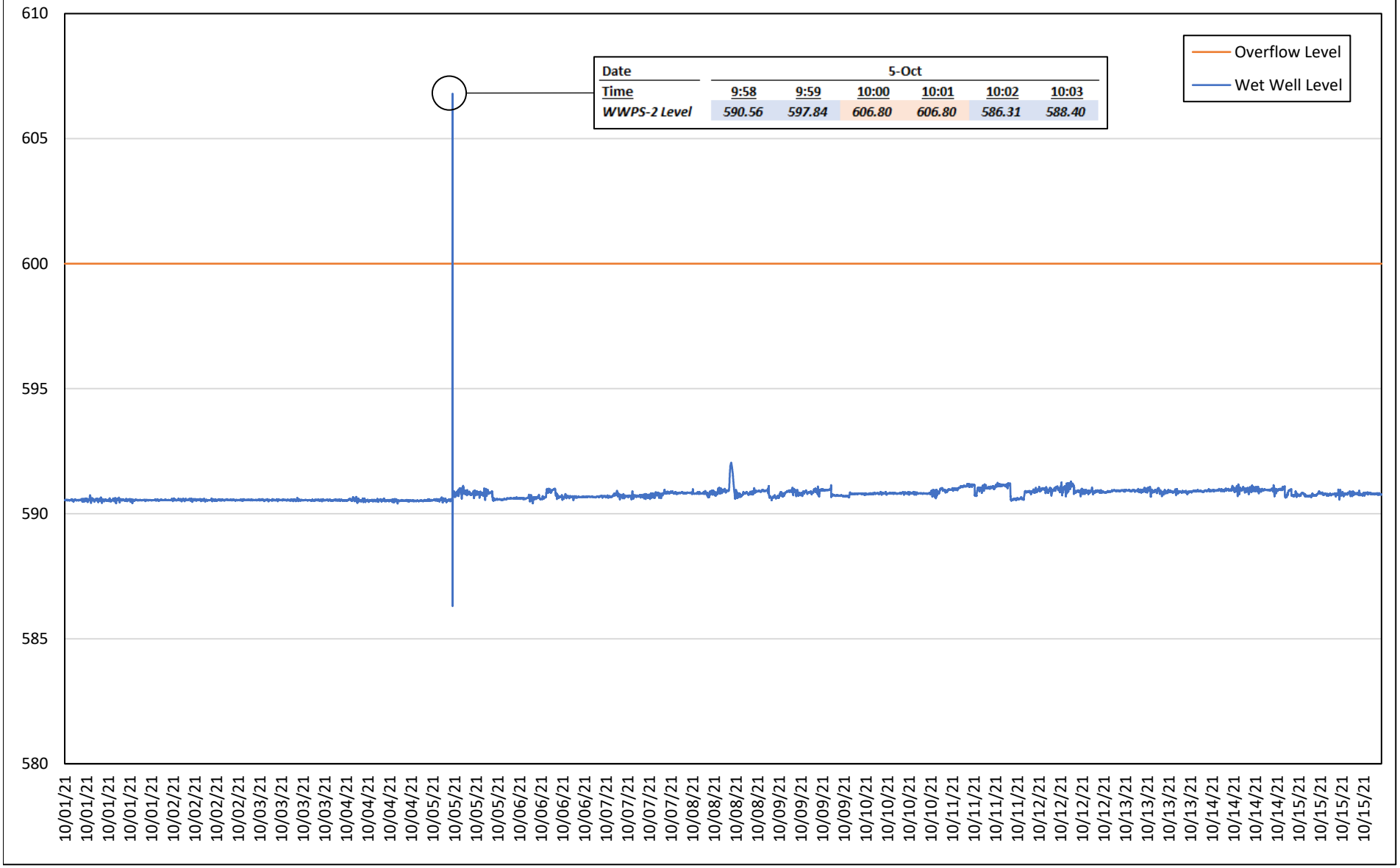


FIGURE 8a

Cleveland-Cliffs Burns Harbor

Storm Ditch Immediately Upstream and Downstream of WWPS-2 Overflow

Continuous Conductivity Data (µS/cm)

8 am 05/24/21 to 8 am 05/25/21

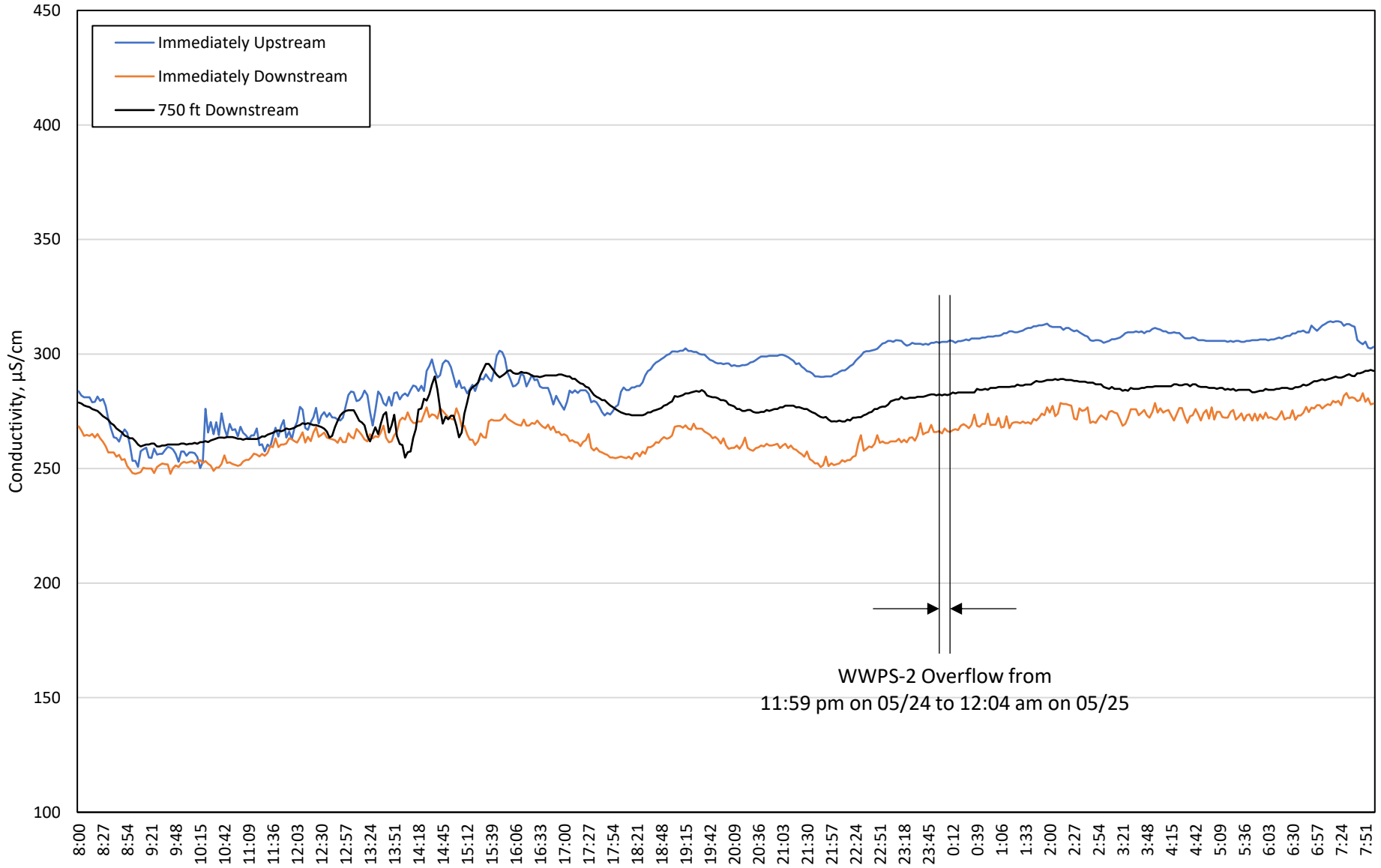


FIGURE 8b

Cleveland-Cliffs Burns Harbor

Storm Ditch Immediately Upstream and Downstream of WWPS-2 Overflow

Continuous Temperature Data (Deg. F)

8 am 05/24/21 to 8 am 05/25/21

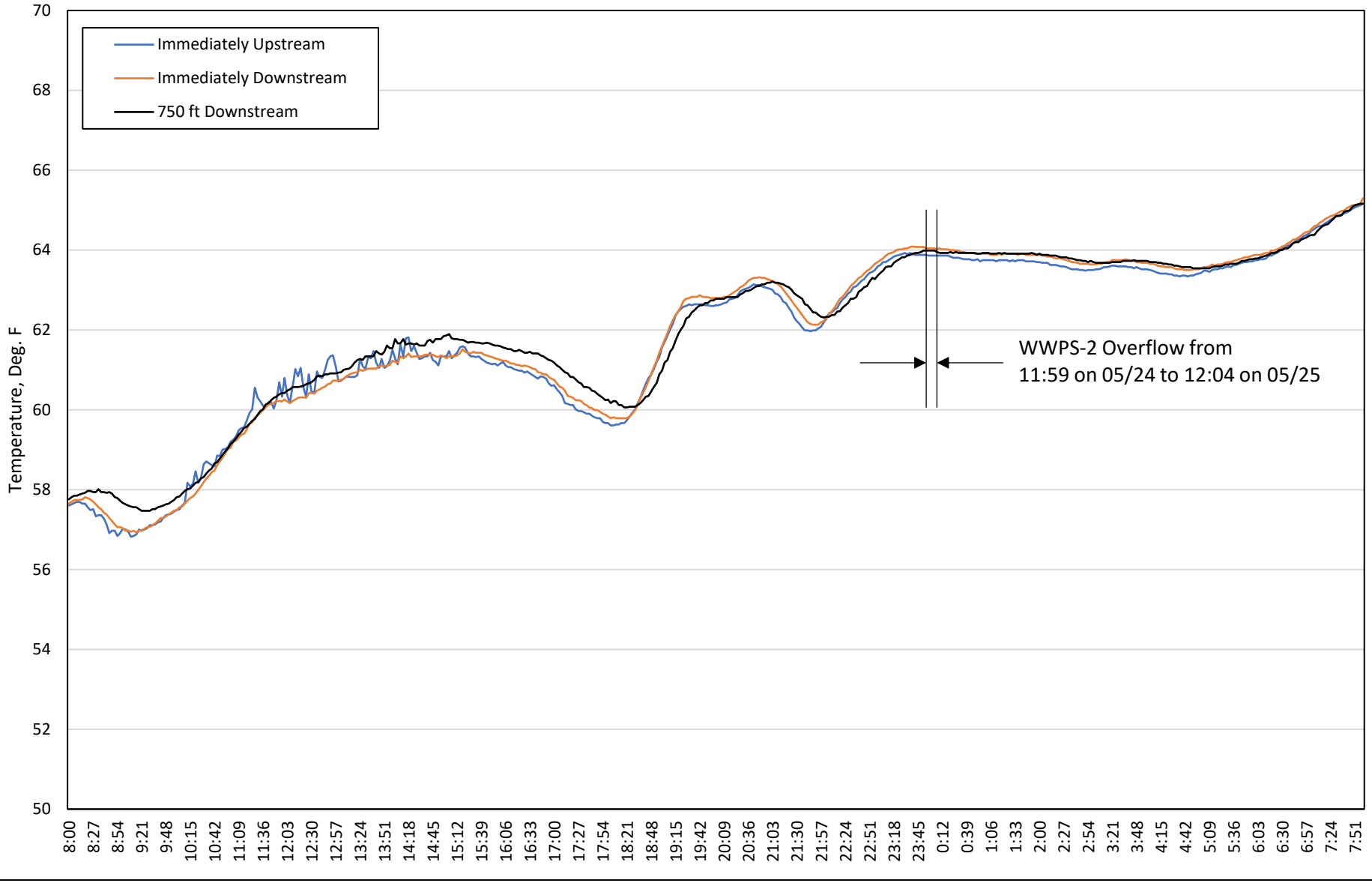


FIGURE 9a

Cleveland-Cliffs Burns Harbor

Storm Ditch 2,000 ft Upstream and Immediately Upstream WWPS-2 Overflow Structure

Ammonia-N Concentrations (mg/L)

April 5 to October 15, 2021

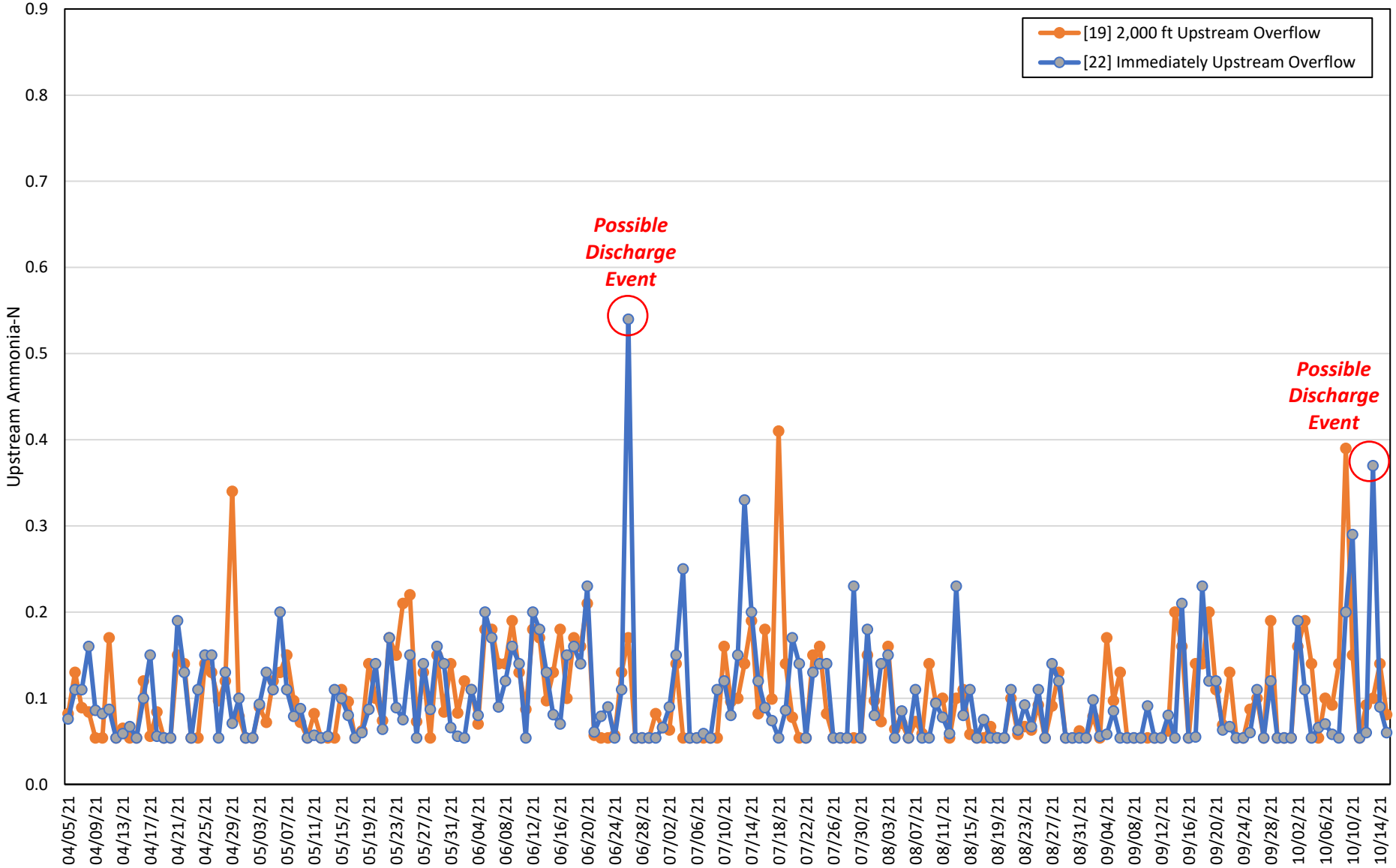


FIGURE 9b

Cleveland-Cliffs Burns Harbor

Storm Ditch Immediately Upstream and Downstream WWPS-2 Overflow Structure

Ammonia-N Concentrations (mg/L)

April 5 to October 15, 2021

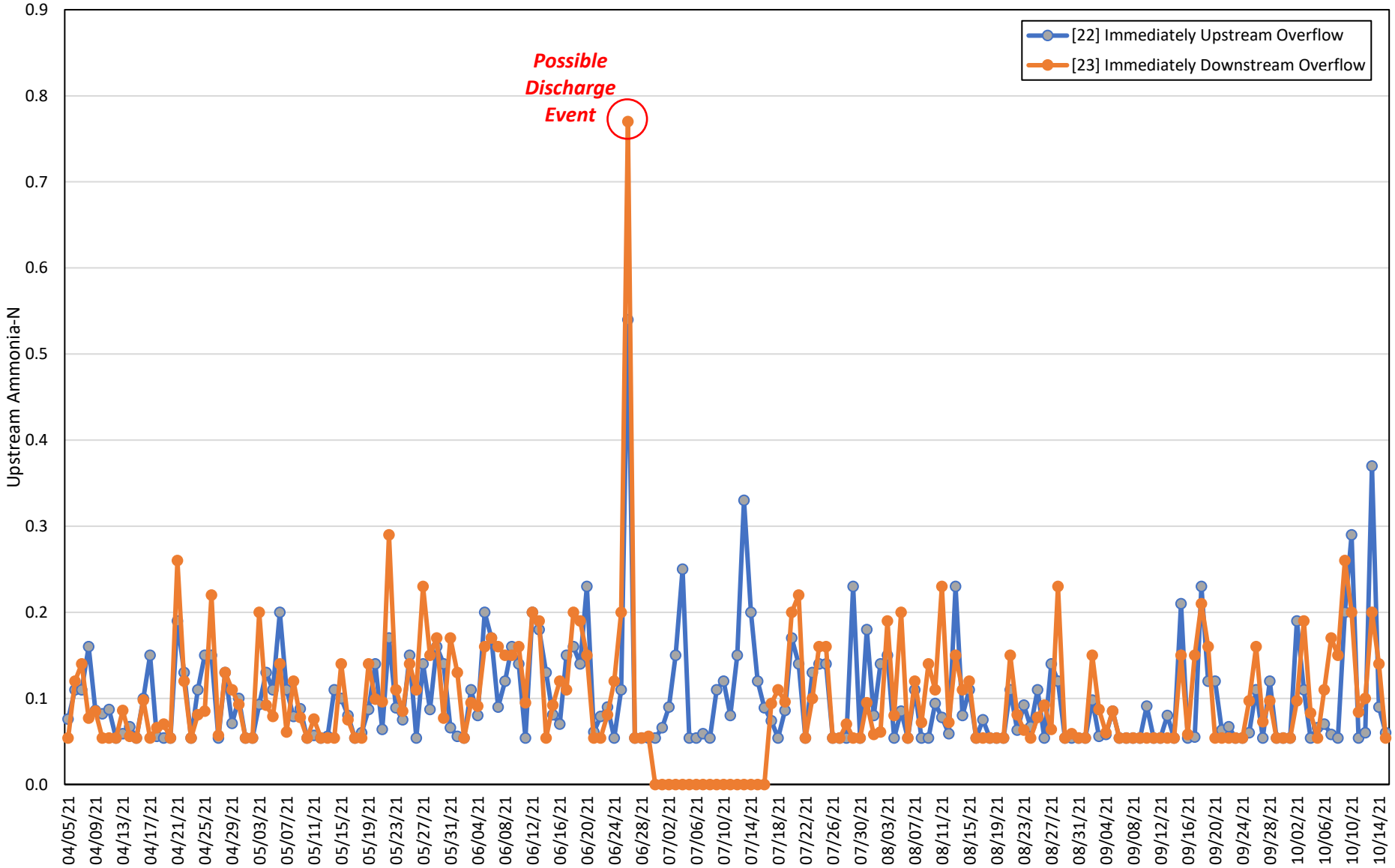


FIGURE 9c

Cleveland-Cliffs Burns Harbor

Storm Ditch Immediately Downstream and 750 ft Downstream WWPS-2 Overflow Structure

Ammonia-N Concentrations (mg/L)

April 5 to October 15, 2021

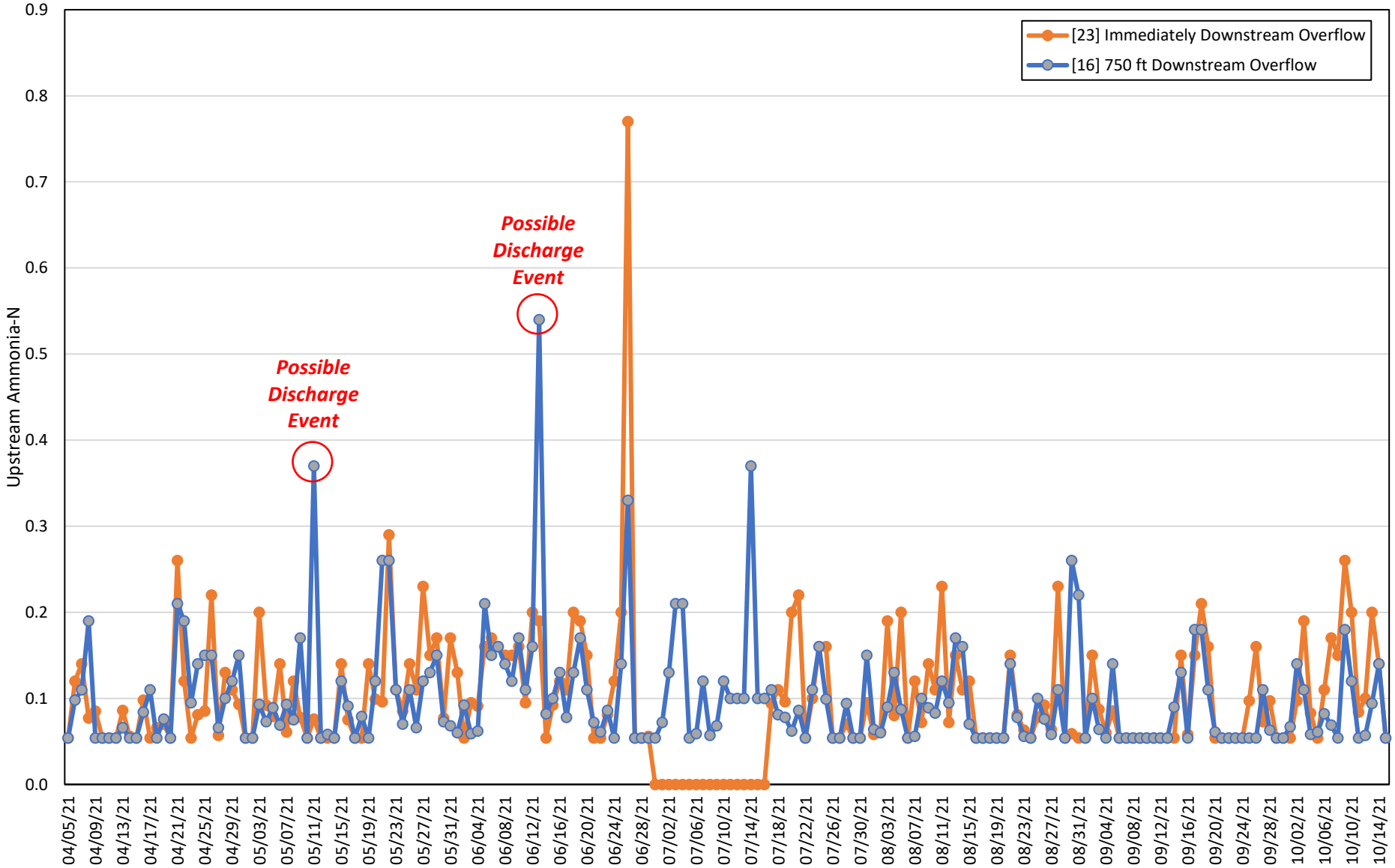


FIGURE 9d

Cleveland-Cliffs Burns Harbor

Storm Ditch 750 ft and 2,900 ft Downstream WWPS-2 Overflow Structure

Ammonia-N Concentrations (mg/L)

April 5 to October 15, 2021

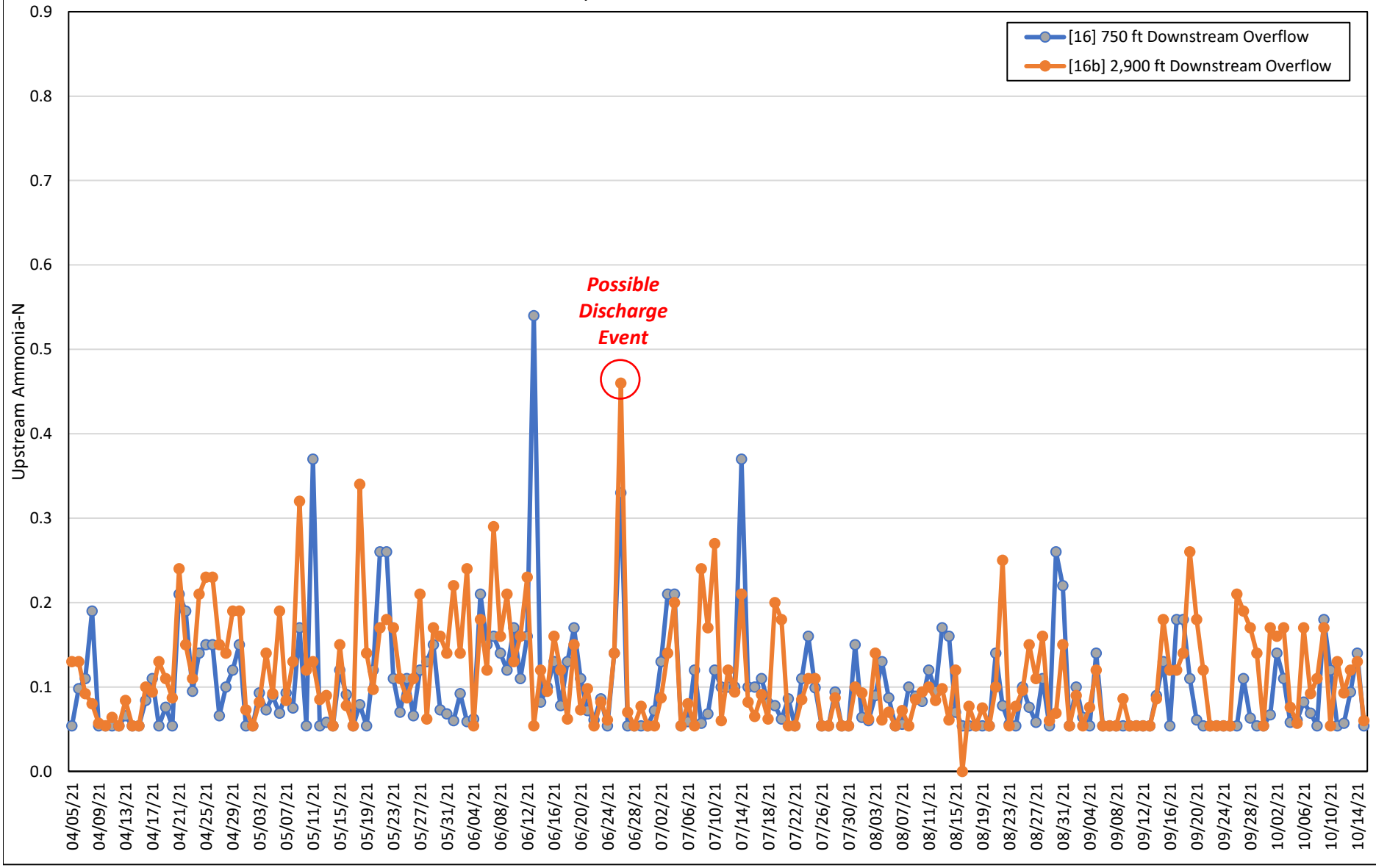


FIGURE 10a

Cleveland-Cliffs Burns Harbor

Possible Discharge Event - May 9, 2021

Storm Ditch Ammonia-N Concentrations (mg/L)

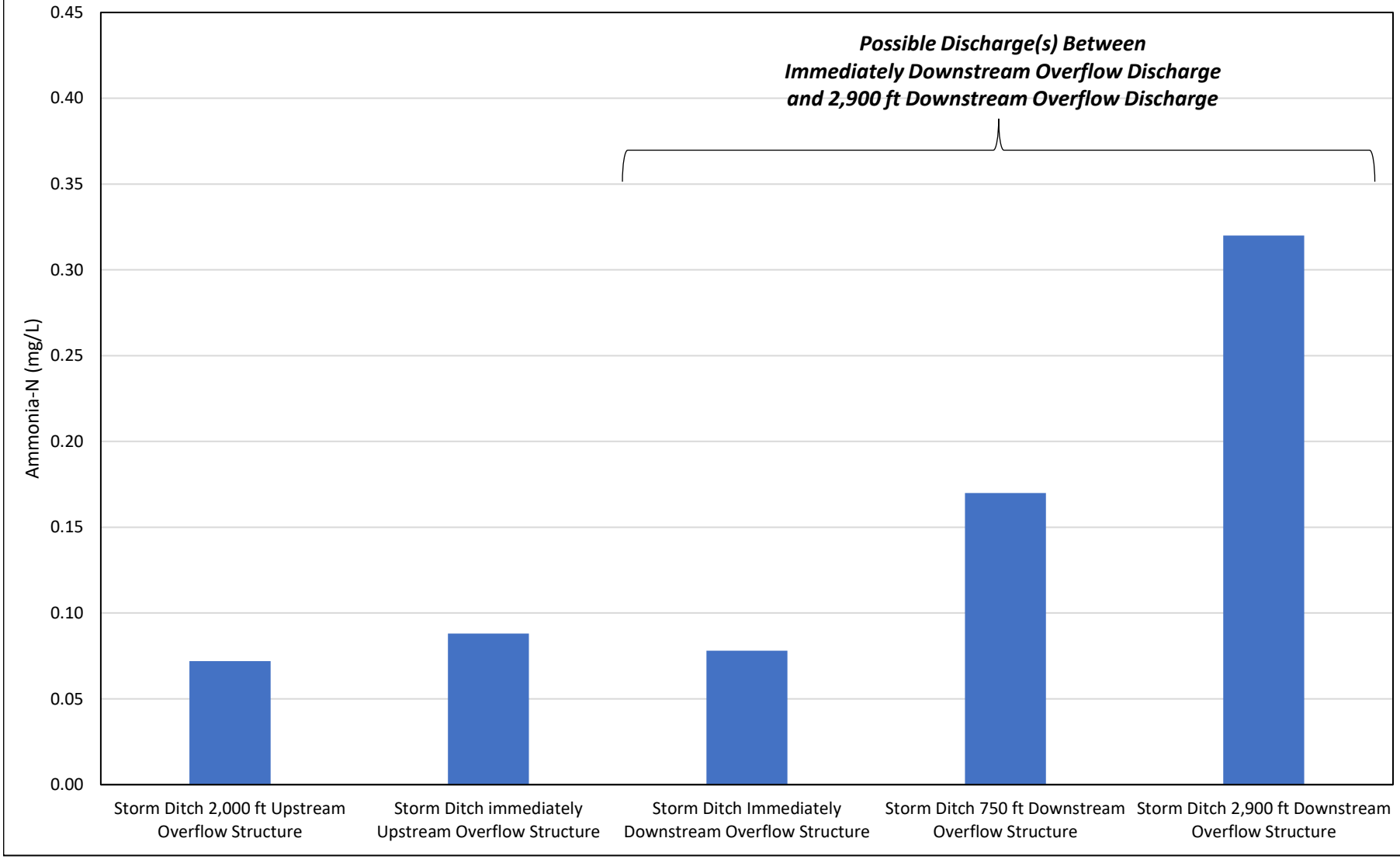


FIGURE 10b

Cleveland-Cliffs Burns Harbor

Possible Discharge Event - May 11, 2021

Storm Ditch Ammonia-N Concentrations (mg/L)

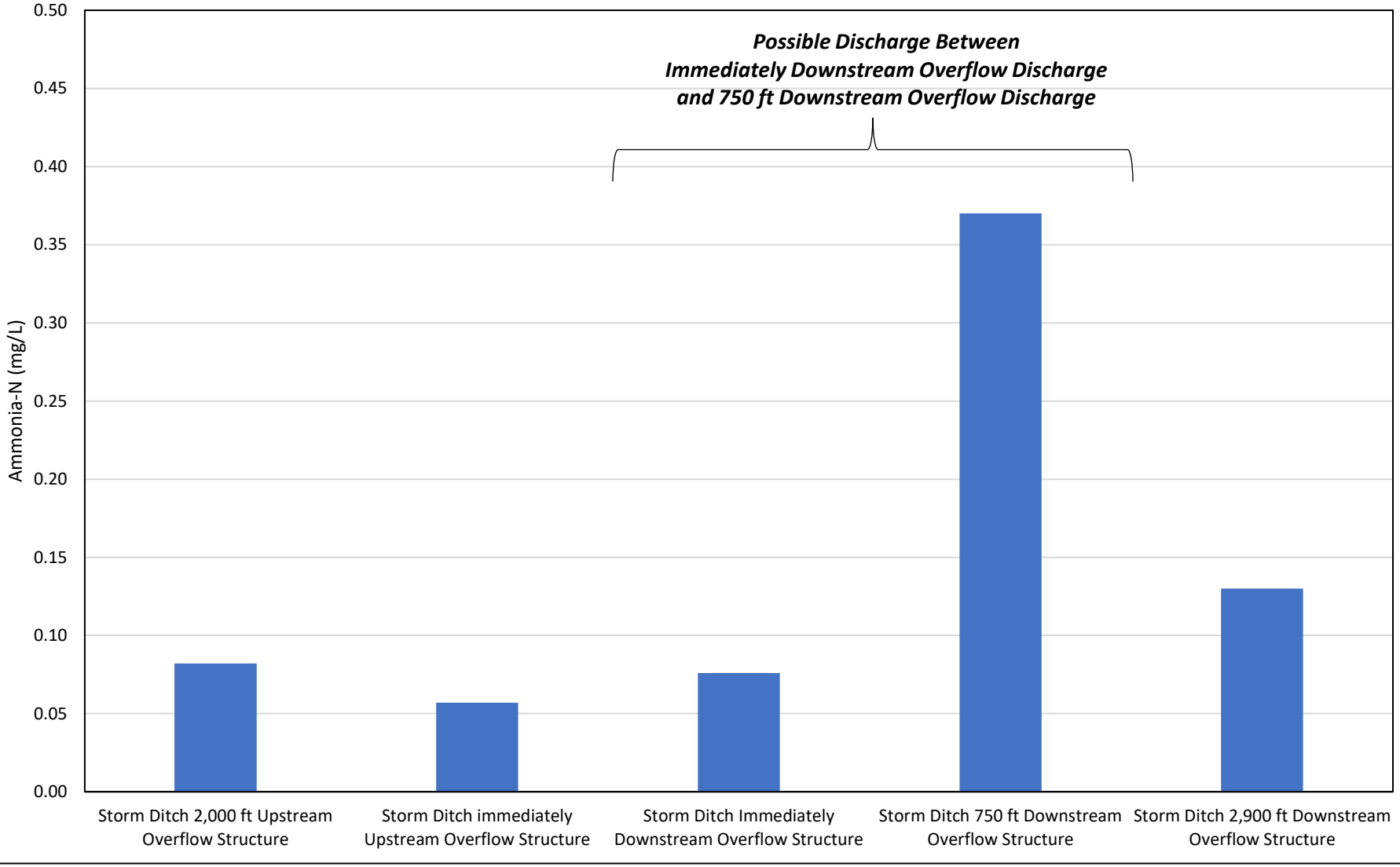


FIGURE 10c

Cleveland-Cliffs Burns Harbor

Possible Discharge Event - June 13, 2021

Storm Ditch Ammonia-N Concentrations (mg/L)

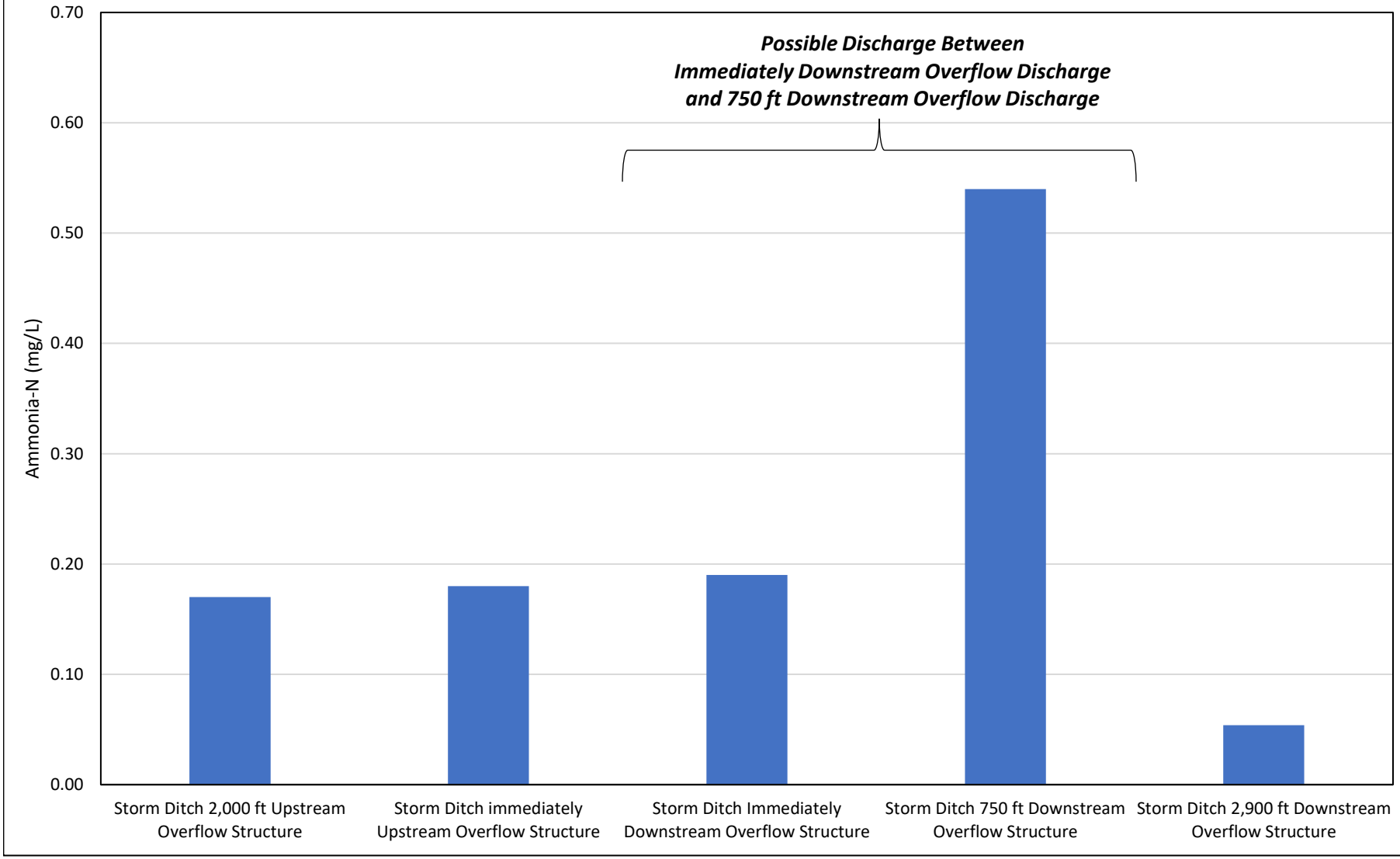


FIGURE 10d

Cleveland-Cliffs Burns Harbor

Possible Discharge Event - June 26, 2021

Storm Ditch Ammonia-N Concentrations (mg/L)

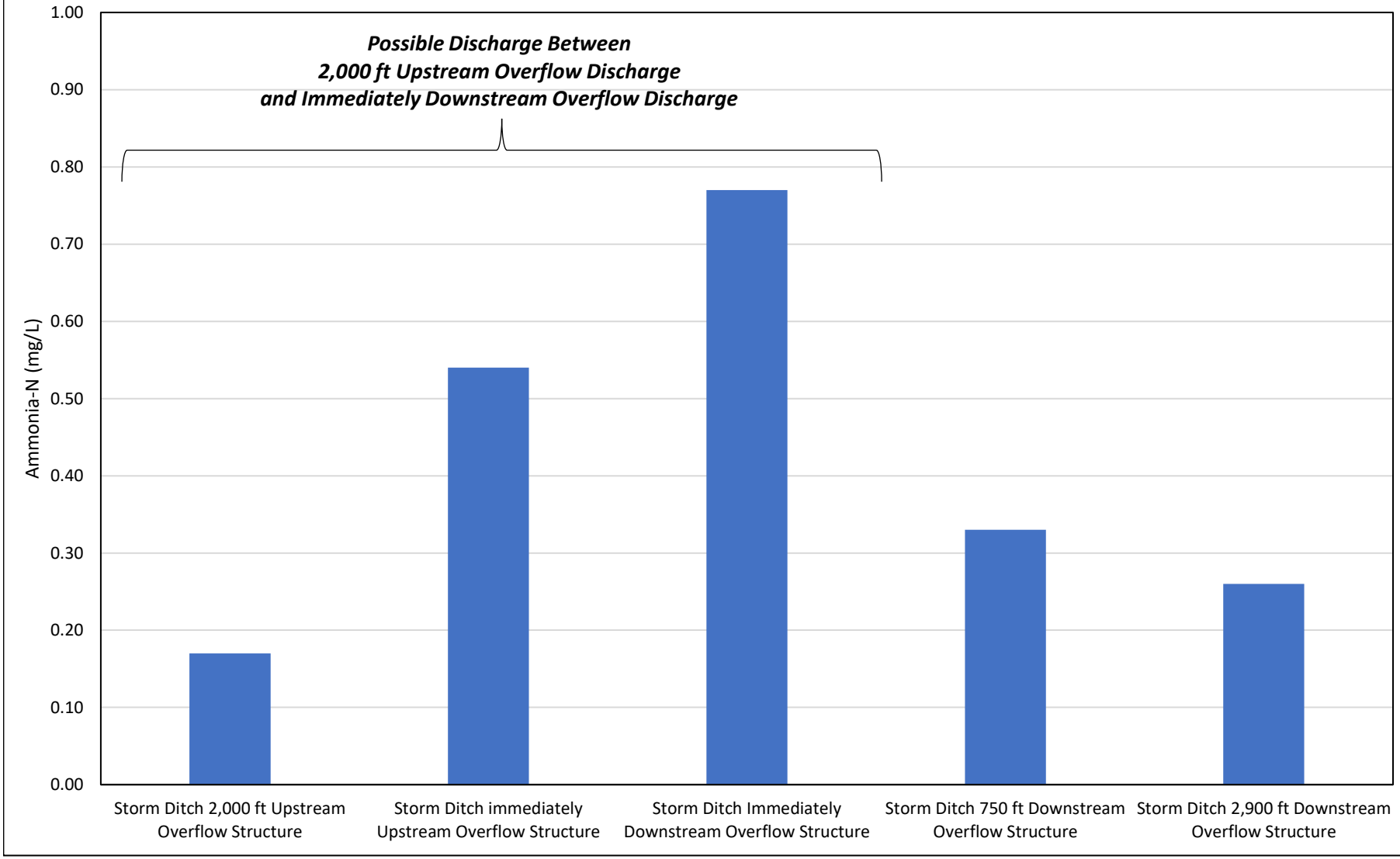


FIGURE 10e

Cleveland-Cliffs Burns Harbor

Possible Discharge Event - July 14, 2021

Storm Ditch Ammonia-N Concentrations (mg/L)

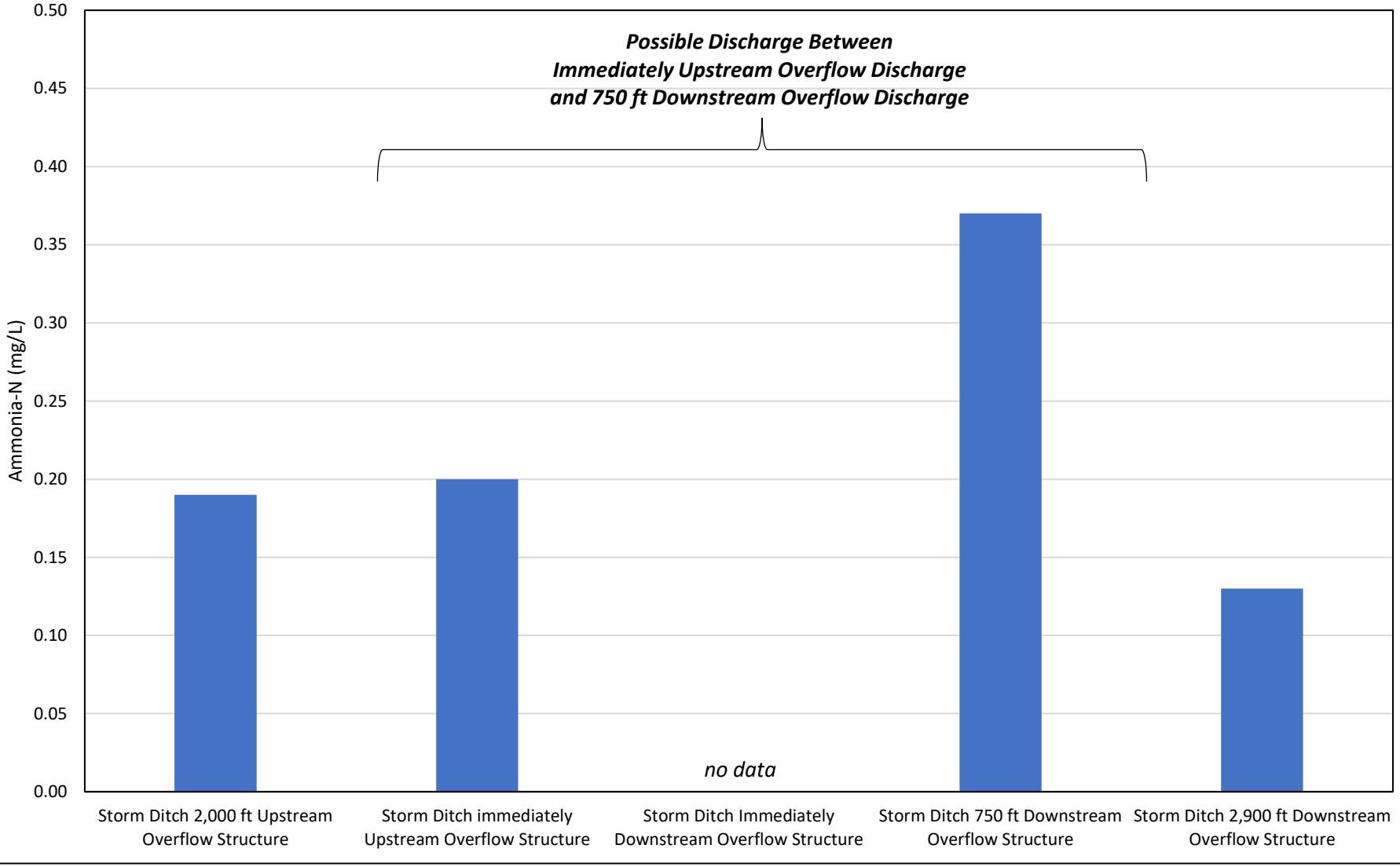


FIGURE 10f

Cleveland-Cliffs Burns Harbor

Possible Discharge Event - October 13, 2021

Storm Ditch Ammonia-N Concentrations (mg/L)

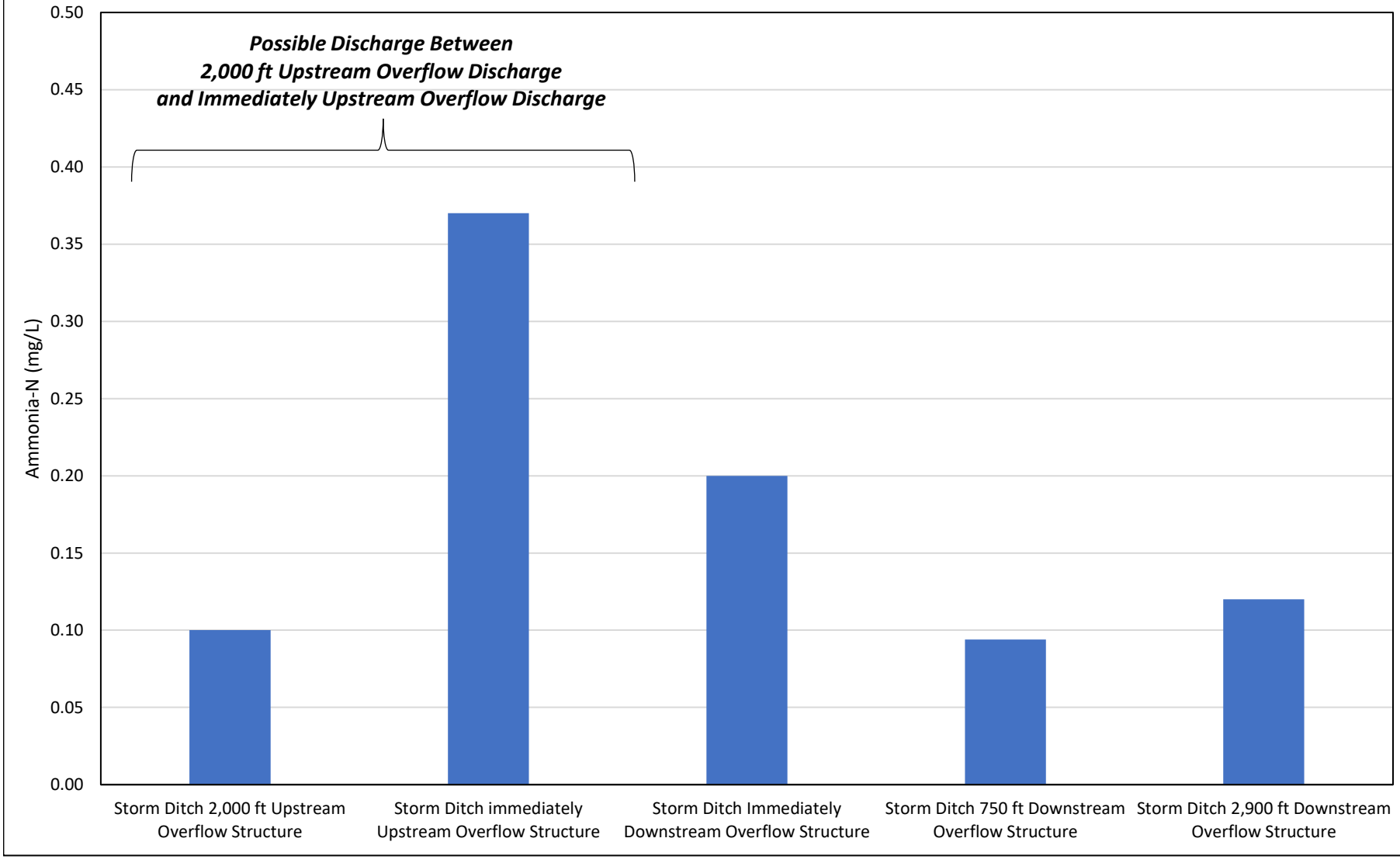


FIGURE 11a

Cleveland-Cliffs Burns Harbor

Storm Ditch Immediately Downstream to 2,900 ft Downstream of WWPS-2 Overflow

Possible Discharge Event - May 09, 2021

Continuous Conductivity Data (µS/cm)

05/08/21 to 05/10/21

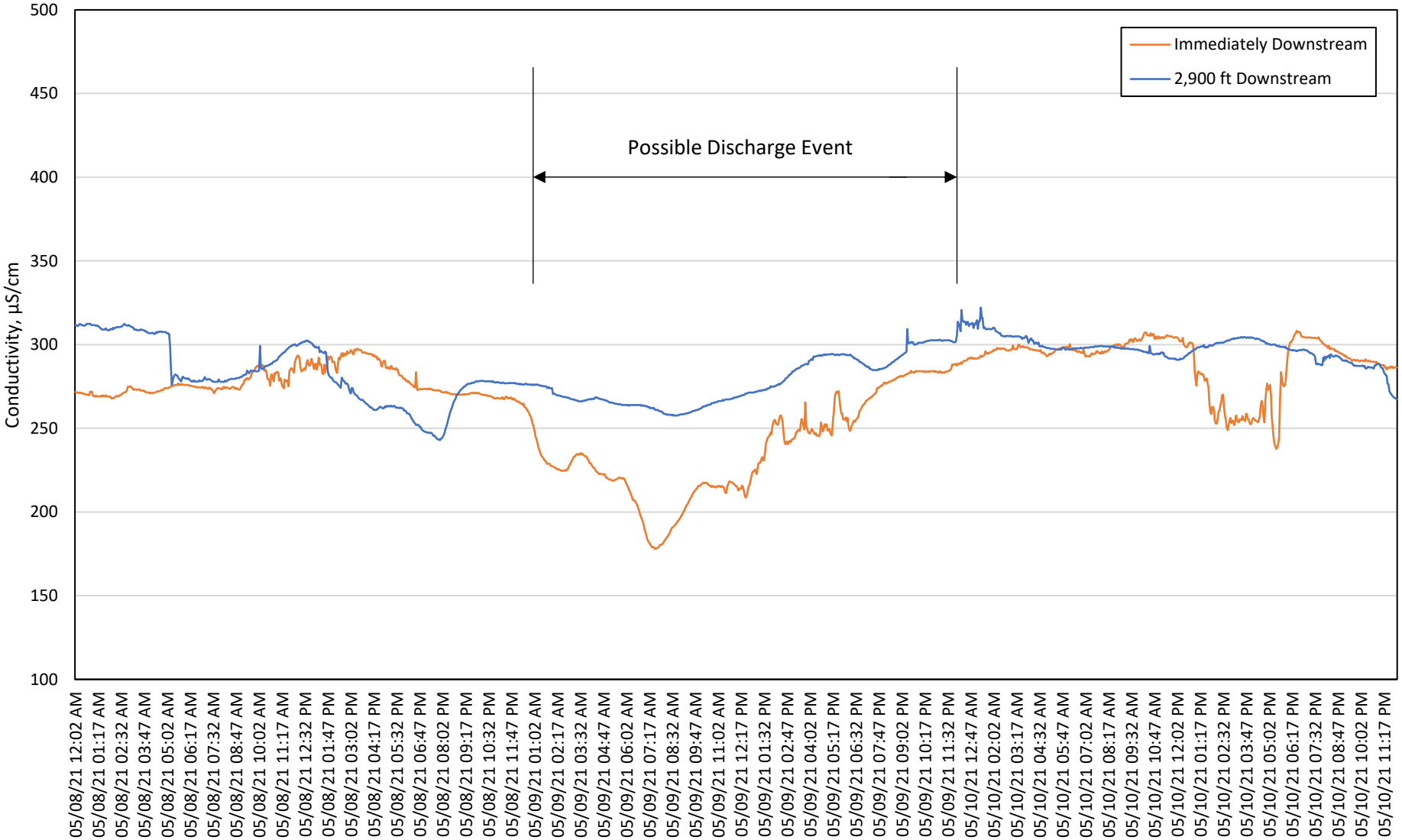


FIGURE 11b

Cleveland-Cliffs Burns Harbor

Storm Ditch Immediately Downstream to 2,900 ft Downstream of WWPS-2 Overflow

Possible Discharge Event - May 09, 2021

Continuous Temperature Data (Deg. F)

05/08/21 to 05/10/21

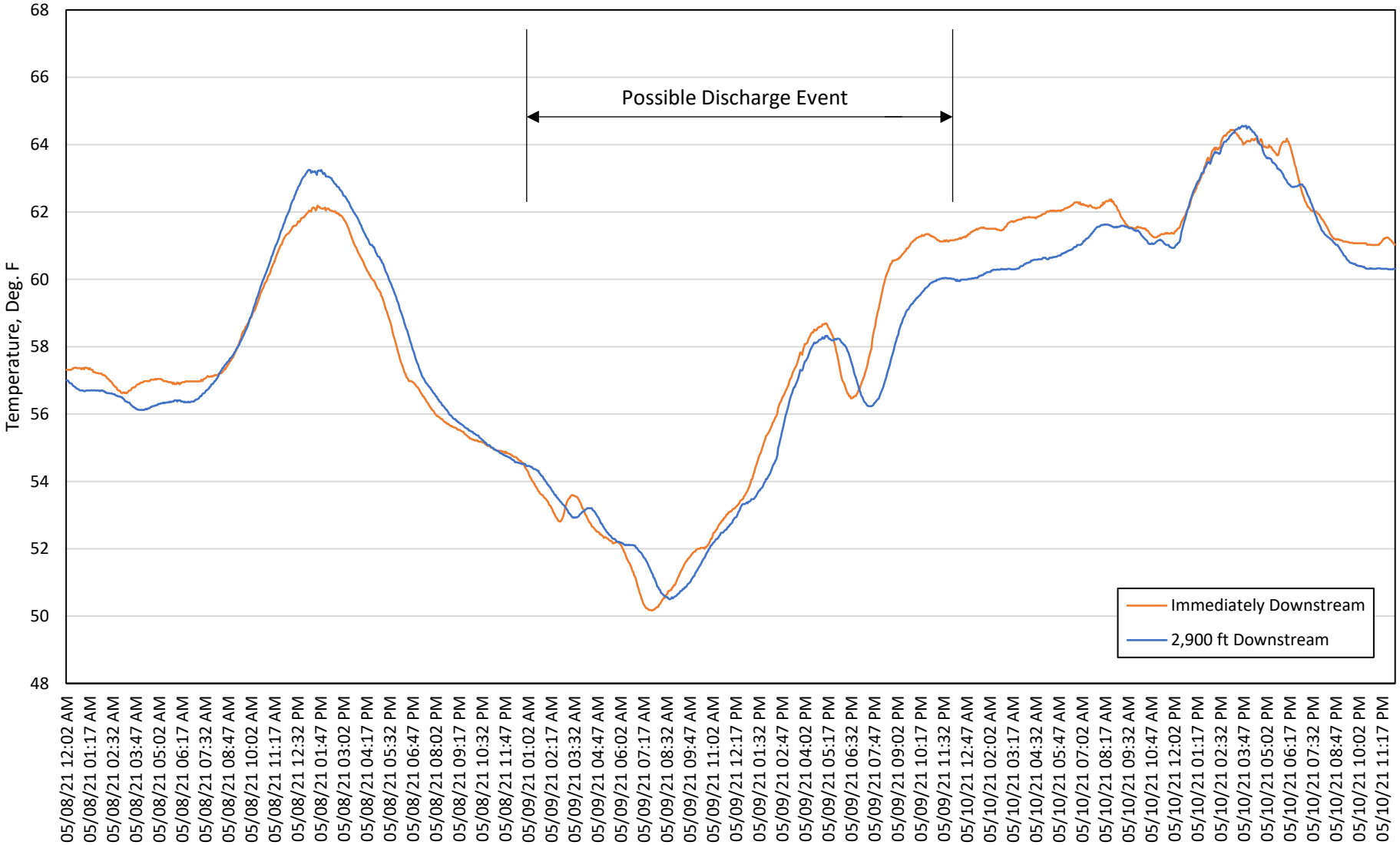


FIGURE 11c

Cleveland-Cliffs Burns Harbor

Storm Ditch Immediately Downstream to 750 ft Downstream of WWPS-2 Overflow

Possible Discharge Event - May 11, 2021

Continuous Conductivity Data (µS/cm)

05/10/21 to 05/12/21

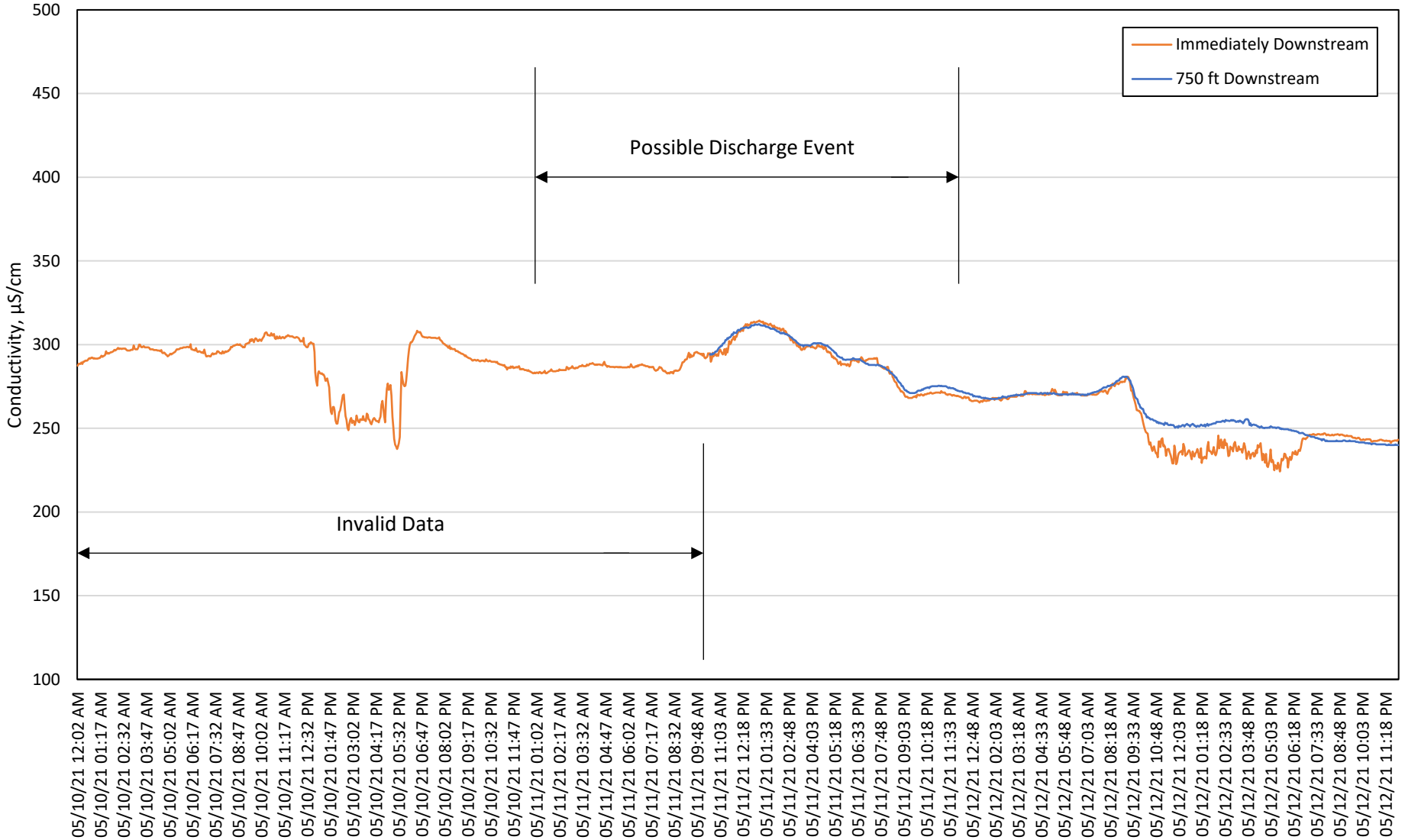


FIGURE 11d

Cleveland-Cliffs Burns Harbor

Storm Ditch Immediately Downstream to 750 ft Downstream of WWPS-2 Overflow

Possible Discharge Event - May 11, 2021

Continuous Temperature Data (Deg. F)

05/10/21 to 05/12/21

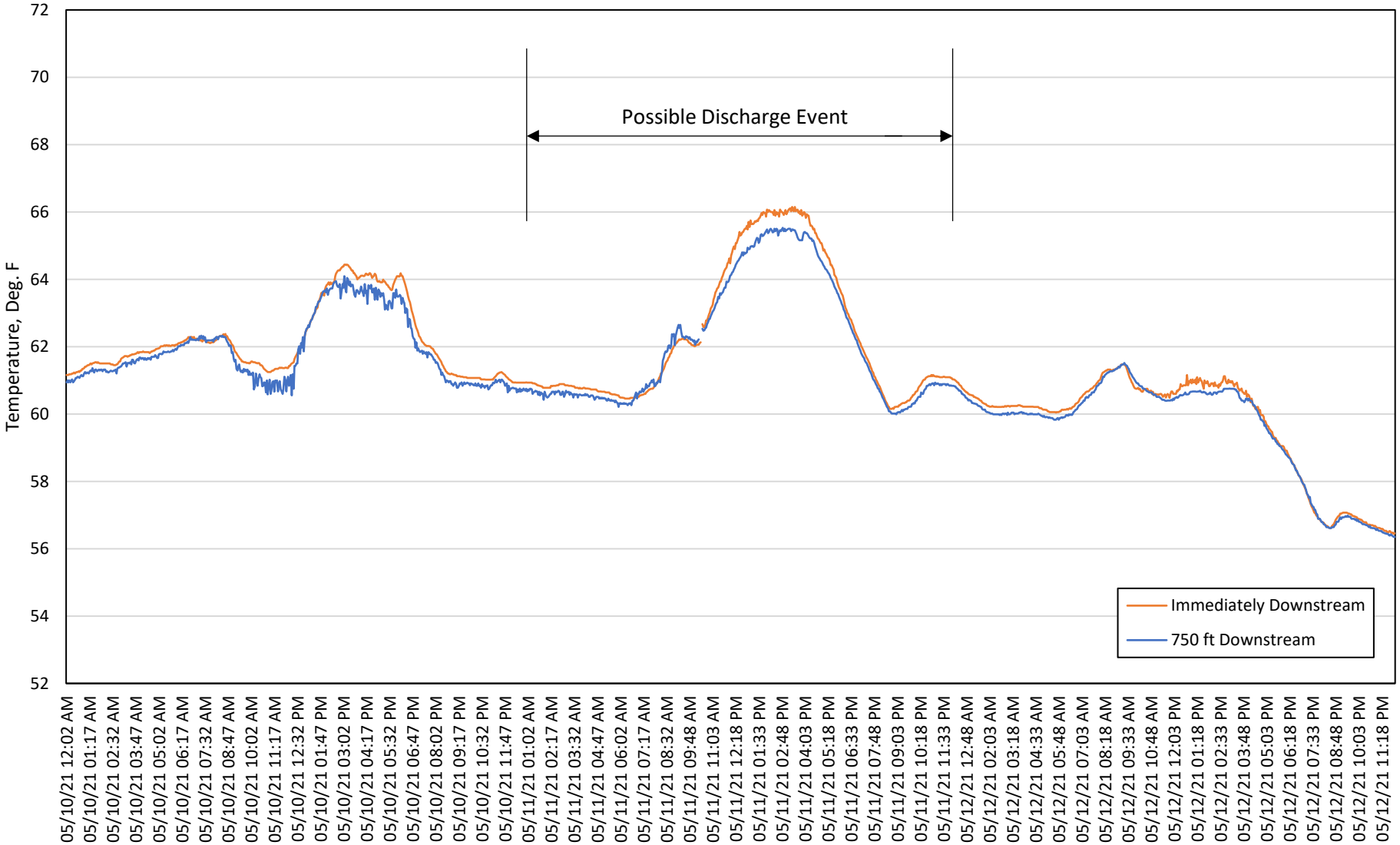


FIGURE 11e

Cleveland-Cliffs Burns Harbor

Storm Ditch Immediately Downstream to 750 ft Downstream of WWPS-2 Overflow

Possible Discharge Event - June 13, 2021

Continuous Conductivity Data (µS/cm)

06/12/21 to 06/14/21

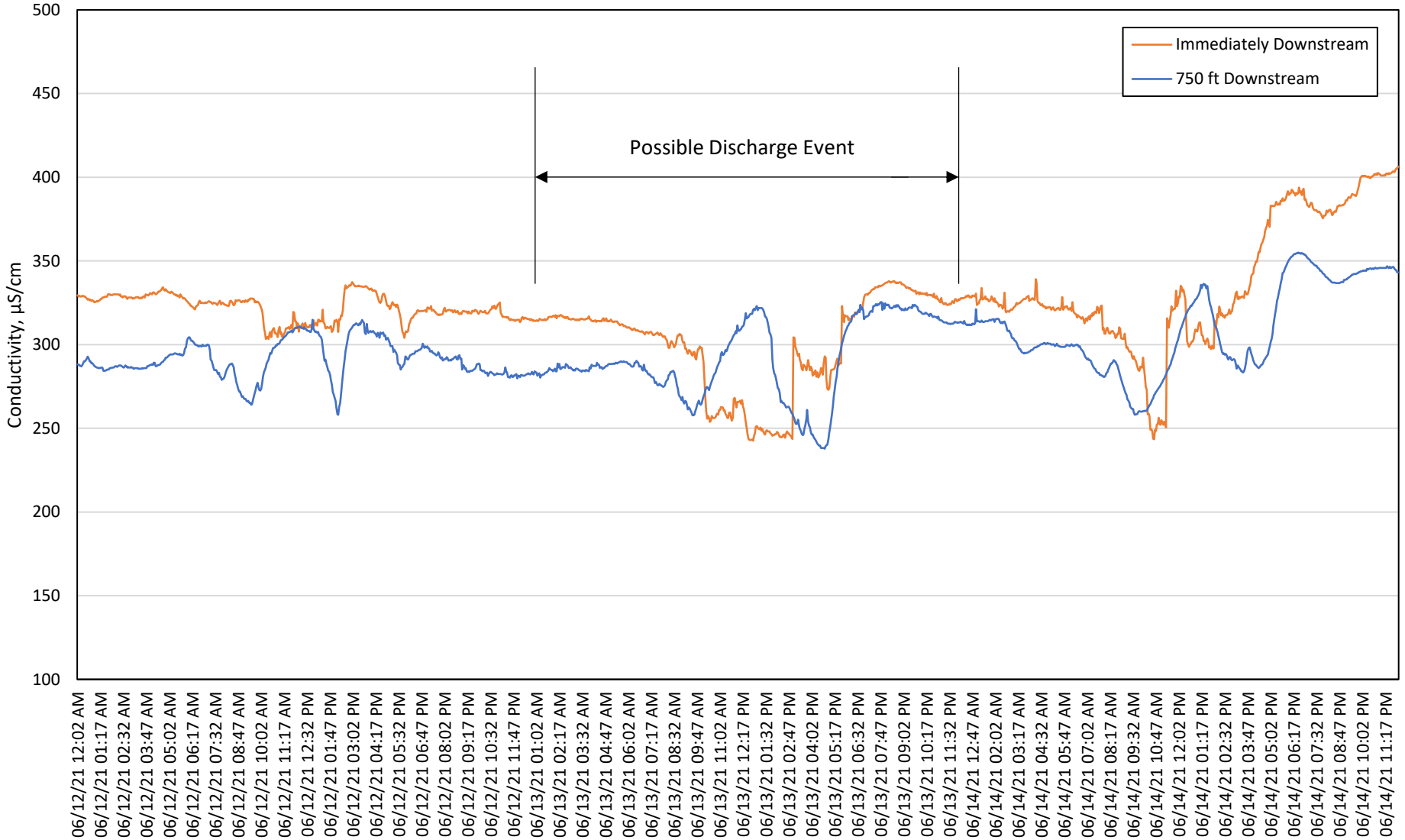


FIGURE 11f

Cleveland-Cliffs Burns Harbor

Storm Ditch Immediately Downstream to 750 ft Downstream of WWPS-2 Overflow

Possible Discharge Event - June 13, 2021

Continuous Temperature Data (Deg. F)

06/12/21 to 06/14/21

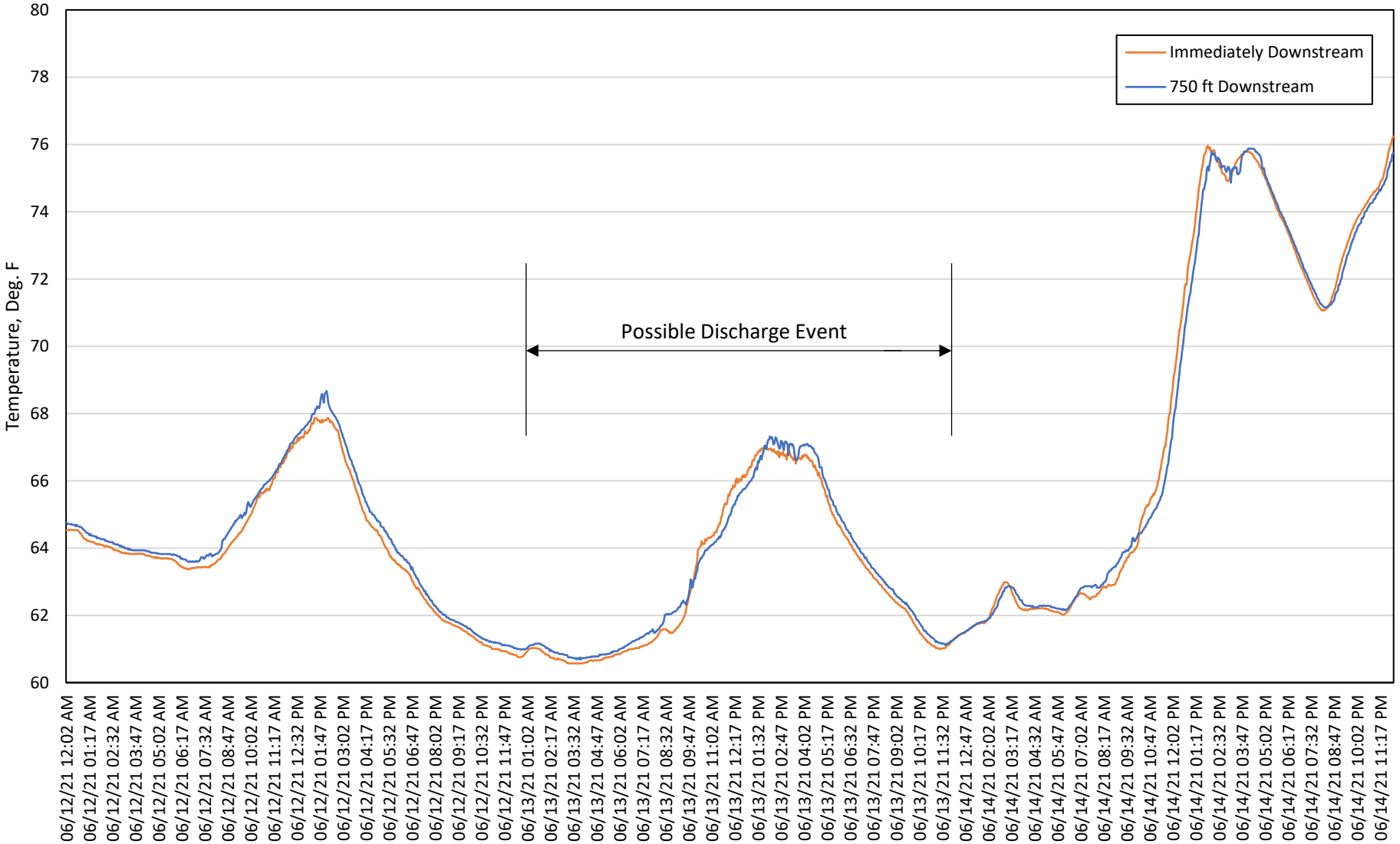


FIGURE 11g

Cleveland-Cliffs Burns Harbor

Storm Ditch 2,000 ft Upstream to Immediately Downstream of WWPS-2 Overflow

Possible Discharge Event - June 26, 2021

Continuous Conductivity Data (µS/cm)

06/25/21 to 06/27/21

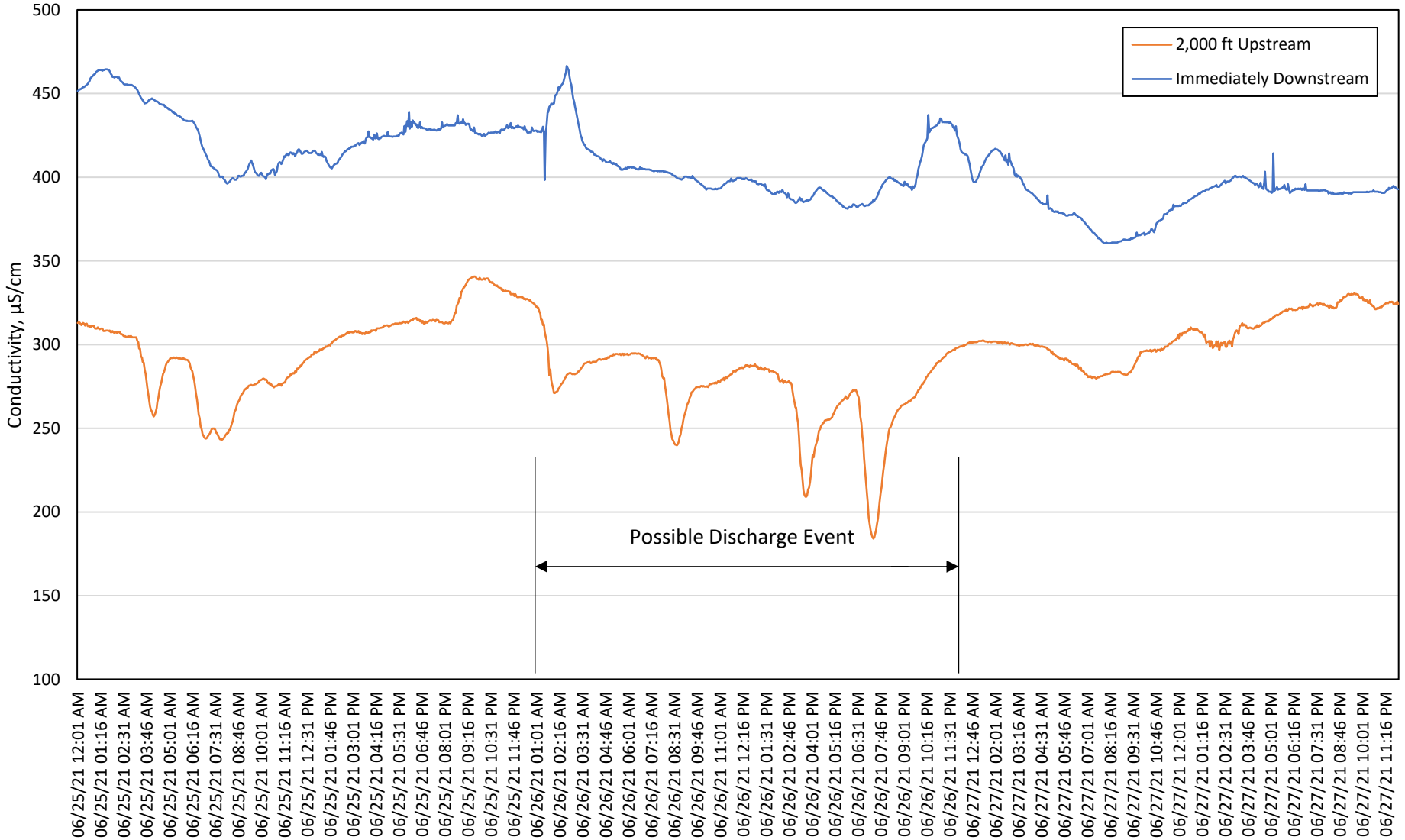


FIGURE 11h

Cleveland-Cliffs Burns Harbor

Storm Ditch 2,000 ft Upstream to Immediately Downstream of WWPS-2 Overflow

Possible Discharge Event - June 26, 2021

Continuous Temperature Data (Deg. F)

06/25/21 to 06/27/21

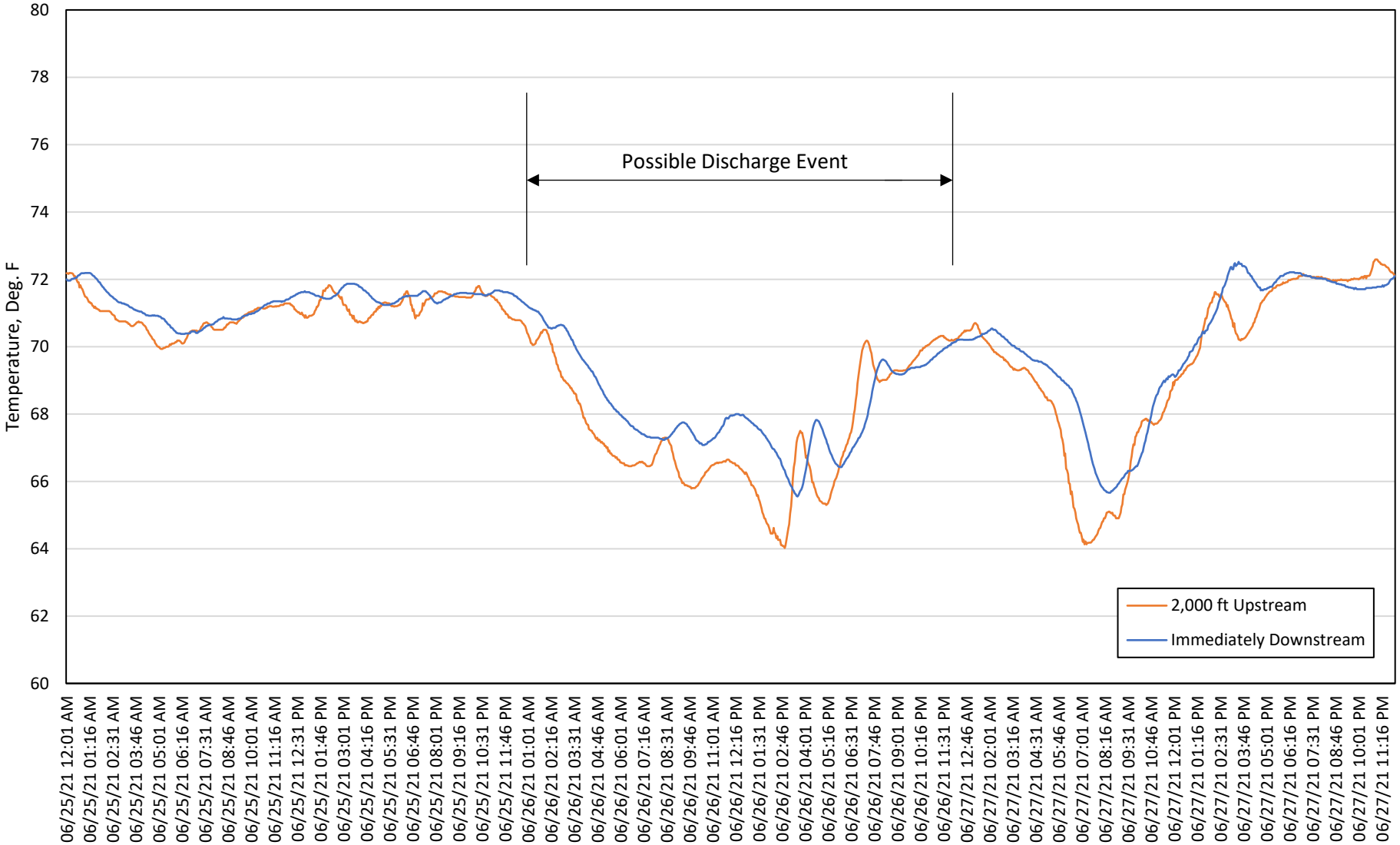


FIGURE 11i

Cleveland-Cliffs Burns Harbor

Storm Ditch Immediately Upstream to 750 ft Downstream of WWPS-2 Overflow

Possible Discharge Event - July 14, 2021

Continuous Conductivity Data (µS/cm)

07/13/21 to 07/15/21

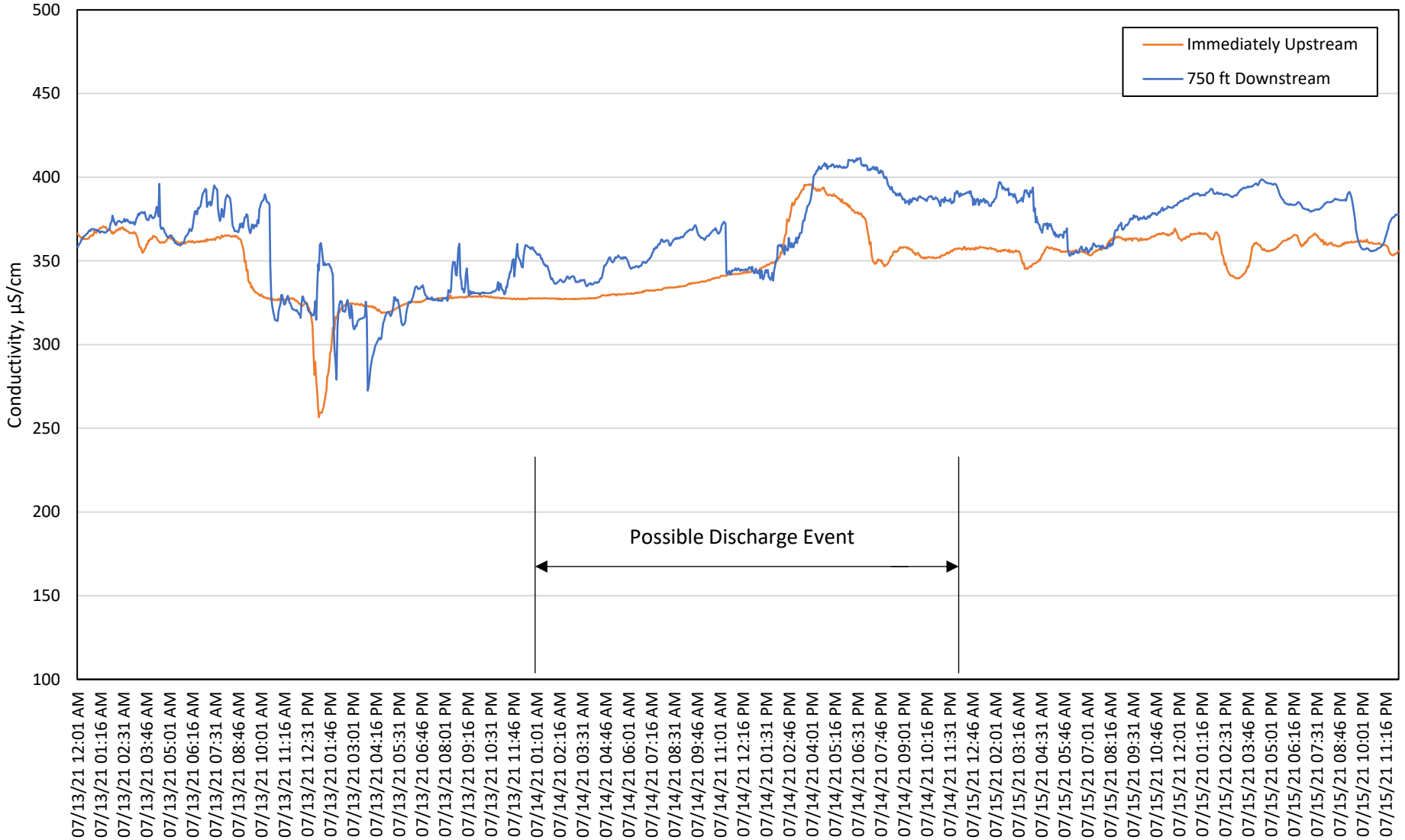


FIGURE 11h

Cleveland-Cliffs Burns Harbor

Storm Ditch Immediately Upstream to 750 ft Downstream of WWPS-2 Overflow

Possible Discharge Event - July 14, 2021

Continuous Temperature Data (Deg. F)

07/13/21 to 07/15/21

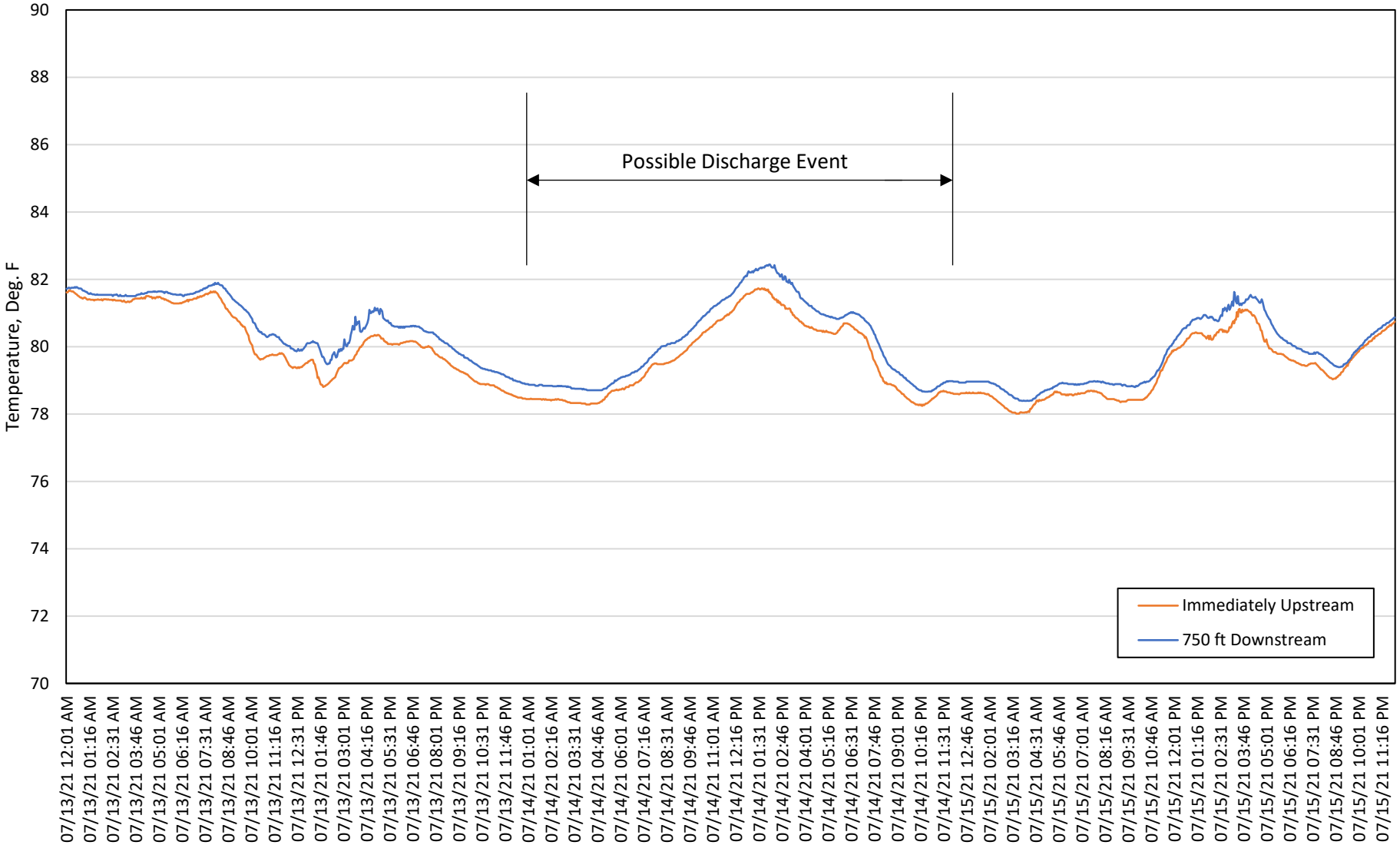


FIGURE 11k

Cleveland-Cliffs Burns Harbor

Storm Ditch 2,000 ft Upstream to Immediately Upstream of WWPS-2 Overflow

Possible Discharge Event - October 13, 2021

Continuous Conductivity Data (µS/cm)

10/12/21 to 10/14/21

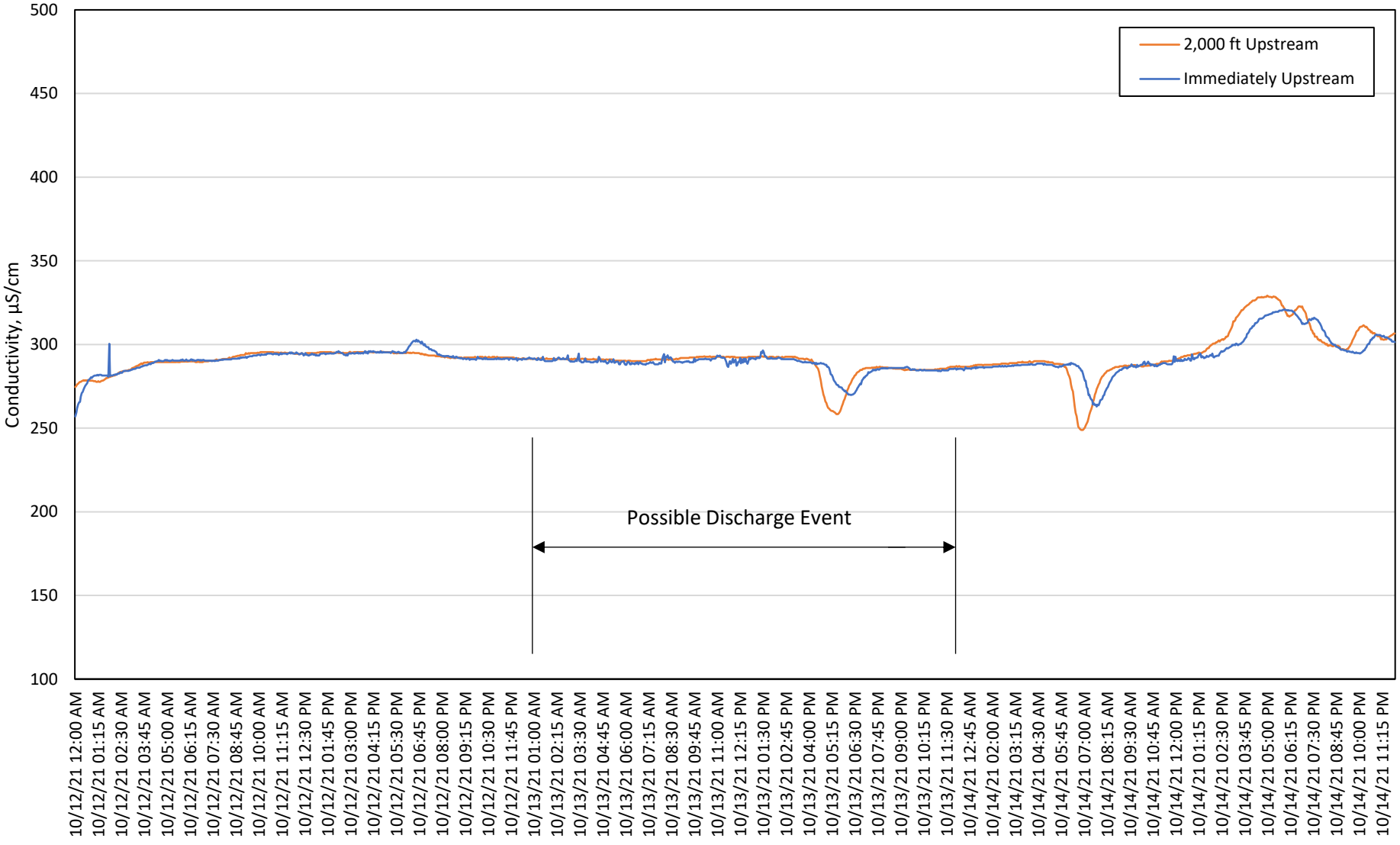


FIGURE 11l

Cleveland-Cliffs Burns Harbor

Storm Ditch 2,000 ft Upstream to Immediately Upstream of WWPS-2 Overflow

Possible Discharge Event - October 13, 2021

Continuous Temperature Data (Deg. F)

10/12/21 to 10/14/21

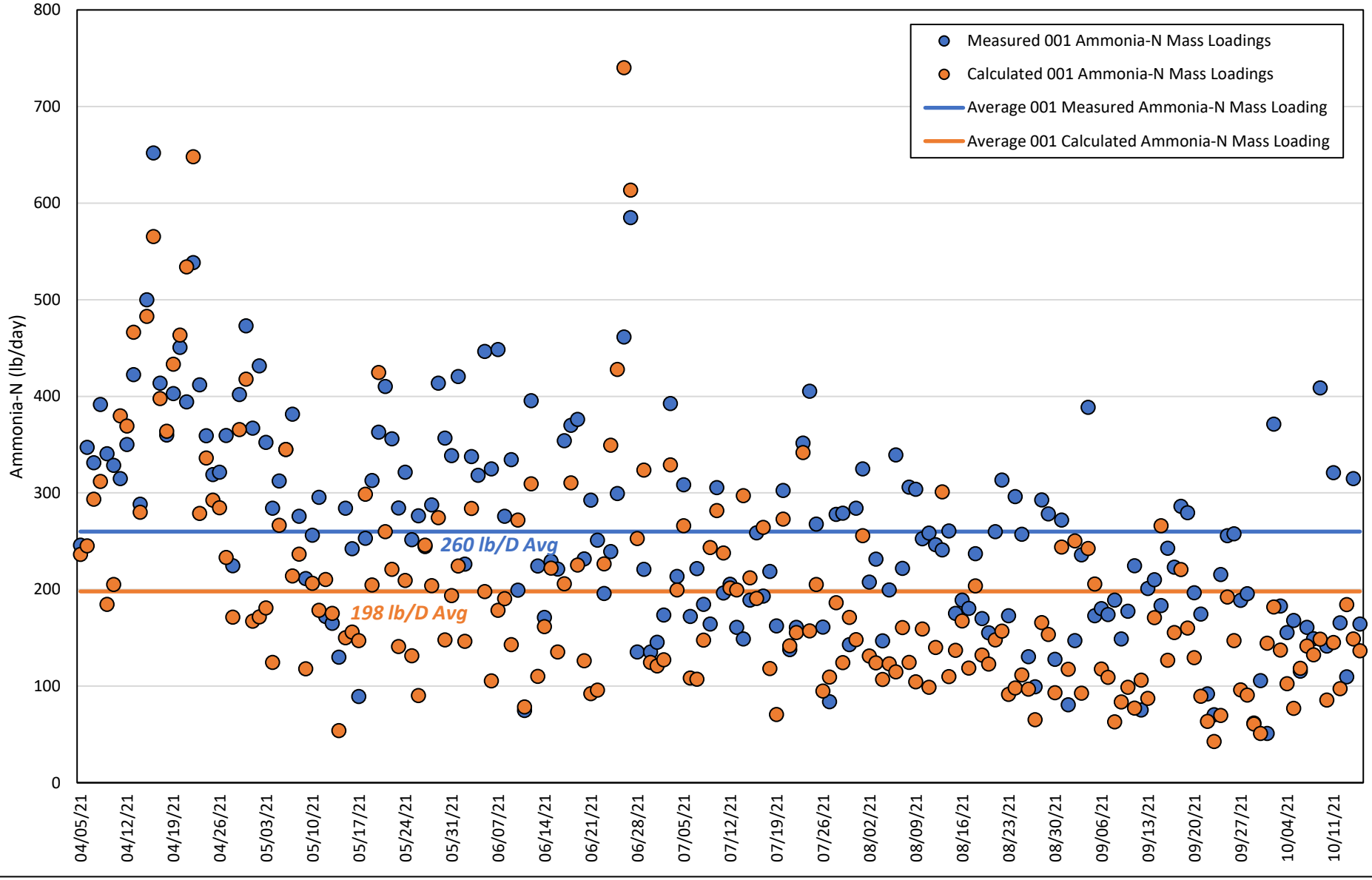
FIGURE 12

Cleveland-Cliffs Burns Harbor

Calculated vs. Measured Outfall 001 Ammonia-N Mass Loadings (lb/d)

(Calculated 001 = Outfall 011 + Storm Ditch Location 17)

April 5 to October 15, 2021



Cleveland-Cliffs Burns Harbor LLC
Unaccounted-For Ammonia-N in Outfall 001 Storm Ditch Study
(April 5 to October 15, 2021)

Amendola Engineering, Inc.
DRAFT - October 20, 2021

ATTACHMENT A
Daily Ammonia-N Concentrations (mg/L)

	DIW Sewer/WWPS-2		Storm Ditch Locations (Upstream <----------> Downstream)								Outfalls	
	21	11	19	22	23	-	16	16b	16c	17	14	18
	Manhole	WWPS-2	2,000 ft	Immediately	Immediately	Water	750 ft	2,900 ft	3,500 ft	Immediately	Outfall	Outfall
	DIW 611	Wet	Upstream	Upstream	Downstream	Cannon[1]	Downstream	Downstream	Downstream	Upstream	011	001
Sample Date	Upstream WWPS-2	Well -	WWPS-2 Overflow	WWPS-2 Overflow	WWPS-2 Overflow	- -	WWPS-2 Overflow	at Bend N of US-12	South of US-12	Outfall 011 Channel	- -	- -
Mean	**0.7926**	**1.3475**	**0.1014**	**0.1009**	**0.1068**	**0.0942**	**0.1002**	**0.1157**	**0.1437**	**0.2088**	**0.1899**	**0.2591**
04/05/21	1.9000	0.8500	J 0.0820	J 0.0760	U 0.0540	U 0.0540	J 0.0540	0.1300	0.2600	0.4400	0.1800	0.2800
04/06/21	2.1000	2.3000	0.1300	0.1100	0.1200	0.1100	J 0.0980	0.1300	0.1900	0.2800	0.2400	0.3600
04/07/21	B 1.3000	B 1.5000	BJ 0.0890	B 0.1100	B 0.1400	B 0.1100	B 0.1100	BJ 0.0920	B 0.1200	B 0.2400	0.3600	0.3500
04/08/21	2.2000	2.1000	J 0.0840	0.1600	J 0.0770	0.2000	0.1900	J 0.0800	0.2200	0.4100	0.2600	0.3900
04/09/21	1.7000	0.8800	U 0.0540	J 0.0860	J 0.0850	MU 0.0540	U 0.0540	J 0.0570	J 0.0690	0.2100	0.1600	0.3300
04/10/21	1.9000	1.9000	MU 0.0540	J 0.0820	U 0.0540	MU 0.0540	U 0.0540	U 0.0540	U 0.0540	0.2000	0.1900	0.3100
04/11/21	2.3000	1.3000	0.1700	J 0.0870	U 0.0540	U 0.0540	U 0.0540	J 0.0640	U 0.0540	0.3600	0.4200	0.3300
04/12/21	M 2.2000	1.6000	U 0.0540	U 0.0540	U 0.0540	MU 0.0540	U 0.0540	U 0.0540	J 0.0690	0.2700	0.4500	0.3700
04/13/21	1.8000	2.1000	J 0.0650	J 0.0590	J 0.0860	U 0.0540	J 0.0660	J 0.0840	0.1100	0.2500	0.5900	0.4300
04/14/21	1.3000	0.1700	U 0.0540	J 0.0670	J 0.0560	U 0.0540	U 0.0540	U 0.0540	U 0.0540	J 0.0940	0.5600	0.3100
04/15/21	1.3000	3.7000	U 0.0540	U 0.0540	U 0.0540	U 0.0540	U 0.0540	U 0.0540	J 0.0890	0.1800	0.7700	0.5000
04/16/21	B 1.1000	B 4.1000	B 0.1200	B 0.1000	BJ 0.0980	BM 0.1600	BJ 0.0840	B 0.1000	B 0.1500	B 0.3300	0.6700	0.6300
04/17/21	2.0000	1.8000	J 0.0560	0.1500	J 0.0540	J 0.0570	0.1100	J 0.0940	0.1100	0.2700	0.4500	0.4000
04/18/21	1.5000	1.4000	J 0.0840	J 0.0560	J 0.0660	U 0.0540	U 0.0540	M 0.1300	0.1100	0.1900	0.4600	0.3500
04/19/21	1.6000	5.0000	U 0.0540	U 0.0540	J 0.0700	U 0.0540	J 0.0760	0.1100	J 0.0600	0.3500	0.4800	0.4000
04/20/21	2.2000	3.7000	U 0.0540	U 0.0540	U 0.0540	U 0.0540	U 0.0540	J 0.0870	U 0.0540	0.2100	0.5600	0.4300
04/21/21	B 2.8000	B 2.9000	B 0.1500	B 0.1900	B 0.2600	B 0.1900	B 0.2100	B 0.2400	B 0.2000	B 0.3100	0.7400	0.4000
04/22/21	B 1.8000	B 1.9000	B 0.1400	B 0.1300	B 0.1200	BM 0.1100	B 0.1900	B 0.1500	B 0.2000	B 0.3900	0.7500	0.5200
04/23/21	1.3000	2.2000	MU 0.0540	U 0.0540	U 0.0540	MU 0.0540	J 0.0950	0.1100	U 0.0540	0.1500	0.3300	0.4000
04/24/21	0.5800	1.5000	U 0.0540	0.1100	J 0.0810	J 0.0680	0.1400	0.2100	0.1700	0.1400	M 0.4100	0.3500
04/25/21	M 1.1000	1.2000	0.1400	0.1500	J 0.0850	J 0.0770	0.1500	0.2300	0.2500	M 0.4300	0.2500	0.3300
04/26/21	1.6000	2.1000	0.1300	0.1500	0.2200	J 0.0620	0.1500	0.2300	0.1900	0.3200	0.2800	0.3300
04/27/21	0.7100	0.8700	MJ 0.0970	U 0.0540	J 0.0570	MJ 0.0780	J 0.0660	J 0.1500	0.1000	0.2200	0.2300	0.3500
04/28/21	B 0.6500	B 0.6400	BM 0.1200	B 0.1300	B 0.1300	BM 0.1300	0.1000	B 0.1400	BJ 0.0700	B 0.1400	0.2400	0.2500
04/29/21	1.2000	1.4000	M 0.3400	J 0.0710	0.1100	M 0.2100	0.1200	0.1900	0.1300	0.2600	0.4500	0.4000
04/30/21	1.2000	3.3000	MJ 0.0790	0.1000	J 0.0930	MJ 0.0910	0.1500	0.1900	0.1000	0.2700	0.4900	0.4700
05/01/21	B 1.7000	B 4.8000	BU 0.0540	BU 0.0540	BU 0.0540	BMU 0.0540	BU 0.0540	BJ 0.0730	BU 0.0540	BJ 0.0790	0.2200	0.3700
05/02/21	0.9900	7.8000	BU 0.0540	BU 0.0540	BU 0.0540	BJ 0.0900	BU 0.0540	BU 0.0540	BU 0.0540	M 0.1900	0.1800	0.4600
05/03/21	0.7100	3.1000	J 0.0900	J 0.0930	0.2000	U 0.0544	J 0.0930	J 0.0820	0.1800	0.1900	0.1900	0.3700
05/04/21	0.4900	1.9000	J 0.0720	0.1300	J 0.0920	U 0.0540	J 0.0730	0.1400	0.4600	0.1900	J 0.0870	0.2800
05/05/21	0.7300	1.6000	0.1200	0.1100	0.0790	0.1100	J 0.0890	J 0.0920	0.1300	0.2500	0.2900	0.3200
05/06/21	0.7300	1.7000	0.1300	0.2000	0.1400	M 0.1200	J 0.0690	0.1900	0.1500	M 0.3500	0.3500	0.3500
05/07/21	0.4100	0.8800	M 0.1500	0.1100	J 0.0610	M 0.1100	J 0.0930	J 0.0840	0.2300	0.3400	0.1500	0.3800
05/08/21	0.4400	1.0000	J 0.0970	J 0.0790	0.1200	J 0.0680	J 0.0750	0.1300	0.1900	0.6500	J 0.0730	0.2800
05/09/21	M 0.6200	0.8000	J 0.0720	J 0.0880	J 0.0780	J 0.0990	0.1700	0.3200	0.1800	M 0.2800	J 0.0580	0.2200
05/10/21	0.7300	1.0000	U 0.0540	U 0.0540	U 0.0540	J 0.0640	U 0.0540	0.1200	0.1500	0.3900	0.1100	0.2500
05/11/21	0.4200	0.6900	J 0.0820	J 0.0570	J 0.0760	MU 0.0540	0.3700	0.1300	0.1300	0.2800	0.1300	0.2800
05/12/21	0.5400	0.8100	MU 0.0540	U 0.0540	U 0.0540	U 0.0540	U 0.0540	J 0.0850	0.2600	0.2700	0.1800	0.1700

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Amendola Engineering, Inc.
DRAFT - October 20, 2021

ATTACHMENT A
Daily Ammonia-N Concentrations (mg/L)

	DIW Sewer/WWPS-2		Storm Ditch Locations (Upstream <----------> Downstream)								Outfalls	
	21	11	19	22	23	-	16	16b	16c	17	14	18
	Manhole	WWPS-2	2,000 ft	Immediately	Immediately	Water	750 ft	2,900 ft	3,500 ft	Immediately	Outfall	Outfall
	DIW 611	Wet	Upstream	Upstream	Downstream	Cannon[1]	Downstream	Downstream	Downstream	Upstream	011	001
Sample Date	Upstream WWPS-2	Well -	WWPS-2 Overflow	WWPS-2 Overflow	WWPS-2 Overflow	- -	WWPS-2 Overflow	at Bend N of US-12	South of US-12	Outfall 011 Channel	- -	- -
Mean	**0.7926**	**1.3475**	**0.1014**	**0.1009**	**0.1068**	**0.0942**	**0.1002**	**0.1157**	**0.1437**	**0.2088**	**0.1899**	**0.2591**
05/13/21	0.5600	1.0000	MU 0.0540	J 0.0560	U 0.0540	MJ 0.0630	J 0.0580	J 0.0900	J 0.0680	J 0.0660	0.3300	0.1800
05/14/21	B 0.5200	B 1.7000	BU 0.0540	B 0.1100	BU 0.0540	BU 0.0540	BU 0.0540	BU 0.0540	B 0.2600	BU 0.0540	BU 0.0540	0.1300
05/15/21	0.5200	0.9200	M 0.1100	0.1000	0.1400	0.1100	0.1200	0.1500	0.1300	J 0.0990	0.2400	0.3000
05/16/21	0.6700	1.0000	J 0.0960	J 0.0800	J 0.0750	0.1000	J 0.0910	J 0.0780	0.1100	J 0.0870	0.3000	0.2700
05/17/21	B 0.7300	1.0000	BU 0.0540	BU 0.0540	BU 0.0540	U 0.0540	BU 0.0540	BU 0.0540	BU 0.0540	BU 0.0540	0.3300	0.1000
05/18/21	0.6000	0.8100	J 0.0620	J 0.0600	U 0.0540	U 0.0540	J 0.0790	0.3400	0.2400	0.2900	0.4100	0.2900
05/19/21	B 0.4300	B 0.5700	BM 0.1400	BJ 0.0870	B 0.1400	BMJ 0.0780	BU 0.0540	B 0.1400	BU 0.0540	B 0.1300	0.3700	0.3700
05/20/21	0.1400	MRJ 0.0940	0.1000	0.1400	J 0.0990	M 0.1300	0.1200	J 0.0970	0.2300	0.5300	0.4000	0.3900
05/21/21	0.4200	1.3000	J 0.0740	J 0.0640	J 0.0960	J 0.0920	0.2600	0.1700	0.4800	0.2100	0.2900	0.4200
05/22/21	0.3800	BM 0.4300	0.1700	0.1700	0.2900	M 0.1700	0.2600	0.1800	0.3100	0.3600	BM 0.1800	B 0.3800
05/23/21	B 0.5200	B 0.6400	B 0.1500	BJ 0.0890	B 0.1100	BJ 0.0980	B 0.1100	B 0.1700	B 0.2000	B 0.1400	B 0.1900	B 0.3400
05/24/21	0.3900	0.6400	M 0.2100	J 0.0750	J 0.0850	MJ 0.0670	J 0.0700	0.1100	0.1200	0.2200	0.2400	0.3600
05/25/21	0.3700	0.5100	M 0.2200	0.1500	0.1400	J 0.0690	0.1100	J 0.0870	0.1200	0.1500	0.1300	0.2600
05/26/21	B 0.3500	B 0.4900	BMJ 0.0730	BU 0.0540	B 0.1100	BMJ 0.0730	BJ 0.0660	B 0.1100	BJ 0.0620	B 0.1300	J 0.0720	0.2900
05/27/21	0.4900	0.2900	0.1300	0.1400	0.2300	0.1800	0.1200	0.2100	J 0.0830	0.1700	0.3300	M 0.2600
05/28/21	0.3400	2.5000	U 0.0540	J 0.0870	0.1500	U 0.0540	0.1300	J 0.0620	U 0.0540	0.1800	0.2400	0.3100
05/29/21	0.8400	2.0000	0.1500	0.1600	0.1700	0.1400	0.1500	0.1700	0.3500	0.3700	0.2200	0.4000
05/30/21	0.1900	2.0000	J 0.0840	0.1400	J 0.0770	0.1000	J 0.0730	0.1600	0.1500	B 0.2300	0.1400	0.4000
05/31/21	2.2000	2.3000	B 0.1400	BJ 0.0660	B 0.1700	BJ 0.0830	BJ 0.0680	B 0.1400	B 0.1300	B 0.1700	0.2200	0.3600
06/01/21	1.2000	1.2000	J 0.0830	J 0.0560	0.1300	BJ 0.0060	J 0.0600	0.2200	0.2000	0.2200	0.2400	0.4400
06/02/21	1.6000	1.7000	0.1200	U 0.0540	U 0.0540	M 0.2400	J 0.0920	0.1400	0.1000	0.1400	0.1900	0.2600
06/03/21	0.6400	1.4000	0.1100	0.1100	J 0.0950	* *0.1800*	J 0.0590	0.2400	0.1500	0.1800	0.3400	0.3400
06/04/21	0.4200	0.7700	J 0.0700	J 0.0800	J 0.0910	0.1200	J 0.0620	U 0.0540	0.2400	J 0.0830	no data	0.3200
06/05/21	0.5300	0.7400	0.1800	0.2000	0.1600	* *0.1950*	0.2100	0.1800	0.1800	0.2300	0.1600	0.4400
06/06/21	0.5450	0.2300	0.1800	0.1700	0.1700	* *0.1950*	0.1500	0.1200	0.1200	0.1100	0.0960	0.3100
06/07/21	0.3200	0.9600	0.1400	J 0.0900	0.1600	0.2700	0.1600	0.2900	0.4600	0.2100	0.1500	0.4300
06/08/21	0.6000	1.2000	M 0.1400	M 0.1200	0.1500	* *0.2200*	0.1400	0.1600	J 0.0790	0.2100	0.1600	0.2600
06/09/21	0.8000	1.1000	0.1900	0.1600	0.1500	0.1700	0.1200	0.2100	0.1100	0.1300	0.1600	0.3400
06/10/21	1.1000	1.6000	M 0.1300	0.1400	0.1600	* *0.1290*	0.1700	0.1300	0.1600	0.1400	0.3400	0.1900
06/11/21	U 0.0540	0.1800	JMR 0.0870	U 0.0540	J 0.0950	J 0.0880	0.1100	0.1600	J 0.0750	J 0.0920	J 0.0650	J 0.0740
06/12/21	0.9900	1.8000	0.1800	0.2000	0.2000	* *0.0795*	0.1600	0.2300	0.2300	0.3200	0.2700	0.3700
06/13/21	0.7300	1.8000	0.1700	0.1800	0.1900	* *0.0795*	0.5400	U 0.0540	J 0.0670	0.1600	J 0.0610	0.2100
06/14/21	0.8200	1.8000	J 0.0970	0.1300	U 0.0540	J 0.0710	J 0.0820	0.1200	0.1500	0.1700	0.1700	0.1800
06/15/21	B 0.3200	B 1.5000	B 0.1300	BJ 0.0810	BJ 0.0920	* *0.0755*	B 0.1000	BJ 0.0950	B 0.1600	B 0.3200	0.1500	0.2300
06/16/21	0.5900	2.2000	0.1800	J 0.0700	0.1200	* *0.0755*	0.1300	0.1600	0.1300	0.1500	0.1400	0.2400
06/17/21	0.4000	0.4700	0.1000	0.1500	0.1100	J 0.0800	J 0.0780	0.1200	0.1200	0.1400	0.2700	0.3500
06/18/21	3.4000	2.3000	0.1700	0.1600	0.2000	J 0.0720	0.1300	J 0.0620	0.2200	0.4700	0.1900	0.3700
06/19/21	0.1600	2.1000	0.1600	0.1400	0.1900	* *0.0715*	0.1700	0.1500	0.2000	0.2100	0.2200	0.3600

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Daily Ammonia-N Concentrations (mg/L)

	DIW Sewer/WWPS-2		Storm Ditch Locations (Upstream <----------> Downstream)								Outfalls	
	21	11	19	22	23	-	16	16b	16c	17	14	18
	Manhole	WWPS-2	2,000 ft	Immediately	Immediately	Water	750 ft	2,900 ft	3,500 ft	Immediately	Outfall	Outfall
	DIW 611	Wet	Upstream	Upstream	Downstream	Cannon[1]	Downstream	Downstream	Downstream	Upstream	011	001
Sample Date	Upstream WWPS-2	Well -	WWPS-2 Overflow	WWPS-2 Overflow	WWPS-2 Overflow	- -	WWPS-2 Overflow	at Bend N of US-12	South of US-12	Outfall 011 Channel	- -	- -
Mean	**0.7926**	**1.3475**	**0.1014**	**0.1009**	**0.1068**	**0.0942**	**0.1002**	**0.1157**	**0.1437**	**0.2088**	**0.1899**	**0.2591**
06/20/21	1.5000	2.4000	0.2100	0.2300	0.1500	* *0.0715*	0.1100	J 0.0730	0.2200	0.1200	0.1200	0.2200
06/21/21	0.7500	2.1000	J 0.0570	J 0.0610	U 0.0540	J 0.0710	J 0.0720	J 0.0980	J 0.0820	J 0.0670	0.1000	0.2700
06/22/21	1.7000	1.1000	J 0.0540	J 0.0790	U 0.0540	* *0.1105*	J 0.0610	U 0.0540	J 0.0660	J 0.0790	0.1000	0.2400
06/23/21	0.7100	1.8000	U 0.0540	J 0.0900	J 0.0810	0.1500	J 0.0860	J 0.0820	J 0.0760	0.3500	0.0950	0.2000
06/24/21	0.4000	1.9000	J 0.0570	U 0.0540	0.1200	* *0.1450*	U 0.0540	J 0.0610	J 0.0880	0.1600	0.4300	0.2200
06/25/21	0.3700	B 1.9000	0.1300	0.1100	0.2000	0.1400	0.1400	0.1400	0.1200	0.3100	0.4400	0.2700
06/26/21	B 1.3000	B 2.5000	B 0.1700	B 0.5400	B 0.7700	* *0.1025*	B 0.3300	B 0.4600	B 0.3800	B 0.5200	0.7300	0.4000
06/27/21	B 0.2000	B 1.8000	BU 0.0540	BU 0.0540	BJ 0.0540	* *0.1025*	BU 0.0540	BJ 0.0700	BU 0.0540	BM 0.2400	0.7700	0.5000
06/28/21	B 0.4000	B 1.9000	BU 0.0540	BU 0.0540	BU 0.0540	BJ 0.0650	BU 0.0540	BU 0.0540	B 0.1300	B 0.1800	0.2900	0.1300
06/29/21	B 0.3600	B 1.2000	BU 0.0540	BU 0.0540	BJ 0.0560	* *0.0595*	B 0.0540	BJ 0.0770	B 0.2300	B 0.2500	0.3500	0.2100
06/30/21	no data	1.4000	BJ 0.0820	BU 0.0540	no data	BU 0.0540	BU 0.0540	BU 0.0540	BU 0.0540	BU 0.0540	0.3100	0.1500
07/01/21	no data	1.6000	J 0.0660	J 0.0660	no data	* *0.1120*	J 0.0720	U 0.0540	0.1800	J 0.0780	0.2400	0.1500
07/02/21	no data	1.8000	J 0.0630	J 0.0900	no data	0.1700	0.1300	J 0.0870	J 0.0940	J 0.0880	0.1600	0.1700
07/03/21	no data	1.3000	0.1400	0.1500	no data	* *0.1120*	0.2100	0.1400	0.2200	0.4400	0.2200	0.3700
07/04/21	no data	3.3000	U 0.0540	0.2500	no data	* *0.1120*	0.2100	0.2000	0.5200	0.3200	J 0.0920	0.2000
07/05/21	no data	1.4000	MU 0.0540	MU 0.0540	no data	U 0.0540	U 0.0540	U 0.0540	0.2400	0.2500	0.2500	0.2900
07/06/21	no data	0.8900	U 0.0540	U 0.0540	no data	U 0.0540	J 0.0590	J 0.0800	0.1700	0.1700	U 0.0540	0.1600
07/07/21	no data	0.8000	U 0.0540	J 0.0590	no data	U 0.0540	0.1200	U 0.0540	J 0.0970	0.1500	U 0.0540	0.2400
07/08/21	no data	0.5600	U 0.0540	U 0.0540	no data	* *0.0540*	J 0.0570	0.2400	0.1300	0.2000	J 0.0810	0.2000
07/09/21	no data	0.6100	U 0.0540	0.1100	no data	U 0.0540	J 0.0680	0.1700	0.2200	0.4400	J 0.0690	0.1600
07/10/21	no data	0.1900	0.1600	0.1200	no data	* *0.0660*	0.1200	0.2700	0.1700	0.3900	0.1800	0.3000
07/11/21	no data	0.5500	J 0.0960	J 0.0800	no data	* *0.0660*	0.1000	J 0.0600	0.2700	0.3700	J 0.0700	0.1900
07/12/21	no data	0.3100	0.1000	0.1500	no data	J 0.0780	0.1000	0.1200	0.2600	0.3500	J 0.0700	0.1900
07/13/21	no data	0.2800	0.1400	0.3300	no data	* *0.0660*	0.1000	J 0.0940	B 0.3100	0.3633	U 0.0540	0.1500
07/14/21	no data	0.7000	0.1900	0.2000	no data	U 0.0540	0.3700	0.2100	J 0.0910	0.4000	0.1600	0.1567
07/15/21	no data	0.6100	J 0.0820	0.1200	no data	* *0.1170*	0.1000	J 0.0820	0.2900	0.3700	U 0.0540	0.1800
07/16/21	no data	1.1000	B 0.1800	BJ 0.0890	no data	B 0.1800	M 0.1000	J 0.0650	0.2700	0.3500	0.0680	0.2400
07/17/21	no data	1.3000	J 0.0990	J 0.0740	J 0.0940	* *0.1365*	0.1100	J 0.0910	0.2600	0.4300	0.1300	0.1800
07/18/21	no data	0.9800	0.4100	U 0.0540	M 0.1100	* *0.1365*	J 0.0810	J 0.0620	0.2300	0.1900	U 0.0540	0.2100
07/19/21	no data	0.6300	0.1400	J 0.0860	J 0.0960	J 0.0930	J 0.0780	0.2000	0.2200	U 0.0540	J 0.0730	0.1500
07/20/21	MR 0.1800	0.1900	J 0.0780	0.1700	0.2000	* *0.0735*	J 0.0620	0.1800	0.1700	0.3600	0.1500	0.2691
07/21/21	0.4400	0.3200	U 0.0540	0.1400	0.2200	U 0.0540	J 0.0860	U 0.0540	0.1100	0.2000	U 0.0540	0.1429
07/22/21	0.2700	U 0.0540	U 0.0540	U 0.0540	U 0.0540	* *0.0820*	U 0.0540	U 0.0540	U 0.0540	0.2200	U 0.0540	0.1557
07/23/21	0.4400	0.5600	0.1500	0.1300	0.1000	M 0.1100	0.1100	J 0.0850	0.2000	0.4600	0.1600	0.2995
07/24/21	B 0.5100	B 0.5000	BM 0.1600	B 0.1400	B 0.1600	* *0.0820*	B 0.1600	B 0.1100	0.1800	B 0.1600	0.1100	0.3400
07/25/21	M 0.4700	0.6600	BJ 0.0820	B 0.1400	B 0.1600	* *0.0820*	BJ 0.0990	B 0.1100	B 0.2100	B 0.3200	J 0.0730	0.2542
07/26/21	0.2500	0.3800	U 0.0540	U 0.0540	U 0.0540	U 0.0540	U 0.0540	U 0.0540	J 0.0640	0.1200	J 0.0580	0.1476
07/27/21	B 0.2000	B 0.3200	BU 0.0540	BU 0.0540	BU 0.0540	* *0.0655*	BU 0.0540	BU 0.0540	BU 0.0540	B 0.1500	U 0.0540	J 0.0891

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	DIW Sewer/WWPS-2		Storm Ditch Locations (Upstream <----------> Downstream)								Outfalls	
	21	11	19	22	23	-	16	16b	16c	17	14	18
	Manhole	WWPS-2	2,000 ft	Immediately	Immediately	Water	750 ft	2,900 ft	3,500 ft	Immediately	Outfall	Outfall
	DIW 611	Wet	Upstream	Upstream	Downstream	Cannon[1]	Downstream	Downstream	Downstream	Upstream	011	001
Sample Date	Upstream WWPS-2	Well -	WWPS-2 Overflow	WWPS-2 Overflow	WWPS-2 Overflow	- -	WWPS-2 Overflow	at Bend N of US-12	South of US-12	Outfall 011 Channel	- -	- -
Mean	**0.7926**	**1.3475**	**0.1014**	**0.1009**	**0.1068**	**0.0942**	**0.1002**	**0.1157**	**0.1437**	**0.2088**	**0.1899**	**0.2591**
07/28/21	0.1400	0.6400	BU 0.0540	BU 0.0540	J 0.0700	* *0.0655*	J 0.0940	J 0.0870	0.1800	0.3200	J 0.0590	0.2434
07/29/21	BJ 0.0950	B 0.2200	BU 0.0540	B 0.2300	BU 0.0540	* *0.0655*	BU 0.0540	BU 0.0540	BU 0.0540	B 0.1000	0.1300	0.2637
07/30/21	BJ 0.0550	0.2800	BU 0.0540	BU 0.0540	BU 0.0540	J 0.0770	BU 0.0540	BU 0.0540	BU 0.0540	B 0.2600	U 0.0540	0.1196
07/31/21	1.2000	1.2000	B 0.1500	B 0.1800	BJ 0.0950	* *0.0690*	B 0.1500	B 0.1000	B 0.1300	0.1800	J 0.0910	0.2445
08/01/21	0.5300	3.1000	MJ 0.0970	MJ 0.0800	J 0.0580	* *0.0690*	J 0.0640	J 0.0930	0.2400	0.2700	0.1900	0.2872
08/02/21	0.3200	2.1000	J 0.0730	0.1400	J 0.0610	J 0.0610	J 0.0600	J 0.0620	J 0.0980	0.1600	J 0.0810	0.1835
08/03/21	0.3700	1.4000	0.1600	0.1500	0.1900	* *0.0575*	J 0.0900	0.1400	0.3600	0.2000	J 0.0570	0.2119
08/04/21	0.2700	0.8700	J 0.0640	U 0.0540	J 0.0800	U 0.0540	0.1300	J 0.0610	0.1500	0.1300	J 0.0900	0.1595
08/05/21	0.2700	0.9400	J 0.0710	J 0.0850	0.2000	* *0.0600*	J 0.0870	J 0.0700	0.1000	0.1700	J 0.0820	0.2278
08/06/21	0.1400	1.5000	U 0.0540	U 0.0540	U 0.0540	J 0.0660	U 0.0540	U 0.0540	U 0.0540	J 0.0800	0.1100	0.2897
08/07/21	0.2700	1.1000	MJ 0.0730	0.1100	0.1200	* *0.1080*	J 0.0560	J 0.0720	0.2300	0.2500	0.1300	0.2313
08/08/21	0.2800	M 1.4000	J 0.0590	U 0.0540	J 0.0720	* *0.1080*	0.1000	U 0.0540	0.1100	0.1800	J 0.0820	0.2941
08/09/21	0.3300	1.2000	0.1400	U 0.0540	0.1400	0.1500	J 0.0890	J 0.0850	0.1200	0.1400	J 0.0620	0.2748
08/10/21	2.2000	5.1000	J 0.0950	J 0.0940	0.1100	* *0.1400*	J 0.0830	J 0.0940	0.1800	0.1800	0.1100	0.2202
08/11/21	B 0.6400	B 2.9000	0.1000	J 0.0780	0.2300	0.1300	0.1200	0.1000	BJ 0.0760	BJ 0.0960	0.1100	0.2639
08/12/21	B 0.4500	B 0.9600	BU 0.0540	BJ 0.0590	BJ 0.0720	* *0.0920*	BJ 0.0950	BJ 0.0840	B 0.1100	B 0.1500	0.1200	0.2371
08/13/21	0.2400	1.3000	0.1000	0.2300	0.1500	U 0.0540	0.1700	J 0.0980	0.1900	0.1300	0.3600	0.2125
08/14/21	0.1600	0.7500	M 0.1100	J 0.0800	0.1100	* *0.1770*	0.1600	J 0.0610	0.1400	0.1500	U 0.0540	0.2290
08/15/21	0.3600	1.4000	J 0.0580	0.1100	0.1200	* *0.1770*	J 0.0700	0.1200	0.1100	0.2300	U 0.0540	0.1618
08/16/21	B 0.4100	B 1.0000	BU 0.0540	BU 0.0540	BU 0.0540	B 0.3000	BU 0.0540	no data	0.1600	0.1700	0.1500	0.1782
08/17/21	0.2200	0.8400	U 0.0540	J 0.0750	U 0.0540	* *0.2350*	U 0.0540	J 0.0770	0.1500	0.2100	J 0.0630	0.1769
08/18/21	0.3300	1.2000	J 0.0670	U 0.0540	U 0.0540	0.1700	U 0.0540	U 0.0540	0.1600	0.3000	0.1300	0.2700
08/19/21	0.3300	1.6000	U 0.0540	U 0.0540	U 0.0540	* *0.1550*	U 0.0540	J 0.0750	0.1400	0.1400	0.1400	0.1800
08/20/21	0.2400	1.0000	MU 0.0540	U 0.0540	U 0.0540	0.1400	U 0.0540	U 0.0540	0.1000	0.2000	J 0.0860	0.1600
08/21/21	0.1300	0.5500	0.1000	0.1100	0.1500	* *0.1170*	0.1400	0.1000	0.1600	0.1600	0.1500	0.2700
08/22/21	J 0.0920	0.4800	J 0.0580	J 0.0630	J 0.0810	* *0.1170*	J 0.0780	0.2500	0.2300	0.3400	J 0.0750	0.3300
08/23/21	U 0.0540	0.2800	J 0.0670	J 0.0920	J 0.0630	J 0.0940	J 0.0560	U 0.0540	0.1000	0.1600	U 0.0540	0.1900
08/24/21	0.1300	0.3100	J 0.0630	J 0.0670	U 0.0540	* *0.0900*	U 0.0540	J 0.0770	0.1500	0.1600	U 0.0540	0.3100
08/25/21	B 0.1500	B 1.3000	BJ 0.0920	B 0.1100	BJ 0.0780	J 0.0860	B 0.1000	BJ 0.0960	B 0.1300	BJ 0.0690	0.1900	0.2600
08/26/21	0.1900	0.5500	U 0.0540	U 0.0540	J 0.0920	* *0.0700*	J 0.0760	0.1500	0.1000	0.1800	U 0.0540	0.1407
08/27/21	0.1000	0.7900	J 0.0910	0.1400	J 0.0640	U 0.0540	J 0.0580	0.1100	J 0.0650	U 0.0540	J 0.0620	J 0.0898
08/28/21	0.2500	3.6000	0.1300	0.1200	0.2300	* *0.0705*	0.1100	0.1600	0.1800	0.1400	0.1500	0.2581
08/29/21	0.2300	0.9700	U 0.0540	U 0.0540	U 0.0540	* *0.0705*	U 0.0540	J 0.0600	J 0.0580	0.1300	0.1500	0.2573
08/30/21	0.2100	0.6600	U 0.0540	U 0.0540	J 0.0590	* *0.0705*	0.2600	J 0.0690	0.1000	0.1000	J 0.0840	0.1237
08/31/21	0.2800	0.6500	MJ 0.0620	U 0.0540	U 0.0540	* *0.0705*	0.2200	0.1500	0.1400	0.3300	0.1700	0.2580
09/01/21	B 0.1100	B 0.6100	BU 0.0540	BU 0.0540	BU 0.0540	0.0870	BU 0.0540	BU 0.0540	BU 0.0540	B 0.1800	J 0.0550	J 0.0930
09/02/21	0.2500	0.7000	J 0.0790	J 0.0980	0.1500	* *0.0705*	J 0.1000	J 0.0900	0.1200	0.3200	0.2200	0.1700
09/03/21	0.1500	0.7400	U 0.0540	J 0.0560	J 0.0870	U 0.0540	J 0.0640	U 0.0540	J 0.0630	J 0.0810	0.1600	0.2700

Cleveland-Cliffs Burns Harbor LLC
Unaccounted-For Ammonia-N in Outfall 001 Storm Ditch Study
(April 5 to October 15, 2021)

Amendola Engineering, Inc.
DRAFT - October 20, 2021

ATTACHMENT A
Daily Ammonia-N Concentrations (mg/L)

	DIW Sewer/WWPS-2		Storm Ditch Locations (Upstream <----------> Downstream)								Outfalls	
	21	11	19	22	23	-	16	16b	16c	17	14	18
	Manhole	WWPS-2	2,000 ft	Immediately	Immediately	Water	750 ft	2,900 ft	3,500 ft	Immediately	Outfall	Outfall
	DIW 611	Wet	Upstream	Upstream	Downstream	Cannon[1]	Downstream	Downstream	Downstream	Upstream	011	001
Sample Date	Upstream WWPS-2	Well -	WWPS-2 Overflow	WWPS-2 Overflow	WWPS-2 Overflow	- -	WWPS-2 Overflow	at Bend N of US-12	South of US-12	Outfall 011 Channel	- -	- -
Mean	**0.7926**	**1.3475**	**0.1014**	**0.1009**	**0.1068**	**0.0942**	**0.1002**	**0.1157**	**0.1437**	**0.2088**	**0.1899**	**0.2591**
09/04/21	J 0.0970	0.9300	0.1700	J 0.0580	J 0.0600	* *0.0540*	U 0.0540	J 0.0760	0.1800	0.2900	0.2100	0.3900
09/05/21	J 0.0850	1.1000	J 0.0970	J 0.0850	J 0.0850	* *0.0540*	0.1400	0.1200	0.1400	M 0.2200	0.1900	0.1700
09/06/21	0.8000	0.8800	0.1300	U 0.0540	U 0.0540	* *0.0540*	U 0.0540	U 0.0540	U 0.0540	0.1000	0.1300	0.1800
09/07/21	0.8900	0.8800	MU 0.0540	U 0.0540	U 0.0540	U 0.0540	U 0.0540	U 0.0540	U 0.0540	0.1600	J 0.0660	0.1600
09/08/21	0.6400	0.7300	U 0.0540	U 0.0540	U 0.0540	* *0.0540*	U 0.0540	U 0.0540	J 0.0560	U 0.0540	J 0.0940	0.2100
09/09/21	0.7800	0.8000	U 0.0540	U 0.0540	U 0.0540	* *0.0540*	U 0.0540	J 0.0860	J 0.0950	J 0.0880	0.1100	0.1700
09/10/21	0.9600	0.9600	U 0.0540	J 0.0910	U 0.0540	U 0.0540	U 0.0540	U 0.0540	U 0.0540	0.1100	J 0.0920	0.1800
09/11/21	0.7100	0.4500	BU 0.0540	BU 0.0540	BU 0.0540	* *0.0820*	BU 0.0540	BU 0.0540	BU 0.0540	B 0.1100	U 0.0540	0.2200
09/12/21	0.2000	0.9500	BU 0.0540	BU 0.0540	BU 0.0540	* *0.0820*	BU 0.0540	BU 0.0540	J 0.0760	0.1500	J 0.0800	J 0.0766
09/13/21	0.3700	0.7600	J 0.0620	J 0.0800	U 0.0540	0.1100	U 0.0540	U 0.0540	J 0.0740	0.1400	J 0.0590	0.2063
09/14/21	1.6000	1.3000	0.2000	U 0.0540	U 0.0540	* *0.1950*	J 0.0900	J 0.0860	J 0.0870	J 0.0660	0.2300	0.1923
09/15/21	0.5900	1.1000	B 0.1600	B 0.2100	B 0.1500	0.2800	B 0.1300	B 0.1800	B 0.2300	B 0.4300	0.0910	0.1927
09/16/21	0.5700	0.4700	MU 0.0540	U 0.0540	J 0.0580	* *0.1670*	U 0.0540	0.1200	J 0.0710	0.1400	0.1100	0.2365
09/17/21	0.1900	0.1500	0.1400	J 0.0550	0.1500	0.0540	0.1800	0.1200	0.1000	0.1500	0.1500	0.2152
09/18/21	1.4000	1.3000	0.1400	0.2300	0.2100	* *0.0540*	0.1800	0.1400	0.2300	0.3100	0.1800	0.3055
09/19/21	1.0000	0.9800	0.2000	0.1200	0.1600	* *0.0540*	0.1100	0.2600	0.2000	0.1800	0.2200	0.3528
09/20/21	0.9100	1.2000	0.1100	0.1200	U 0.0540	0.0540	J 0.0610	0.1800	0.1400	0.2700	0.0880	0.2300
09/21/21	0.4000	1.5000	J 0.0690	J 0.0630	U 0.0540	* *0.0540*	U 0.0540	0.1200	J 0.0580	0.1300	0.0670	0.1800
09/22/21	B 0.2000	B 0.1600	B 0.1300	BJ 0.0670	BU 0.0540	0.0540	BU 0.0540	BU 0.0540	BU 0.0540	BJ 0.0850	0.0540	0.1100
09/23/21	B 0.3400	B 0.9100	BU 0.0540	BU 0.0540	BU 0.0540	* *0.1070*	BU 0.0540	BU 0.0540	BU 0.0540	BU 0.0540	0.0540	0.0890
09/24/21	0.4300	0.4500	U 0.0540	U 0.0540	U 0.0540	0.1600	U 0.0540	U 0.0540	U 0.0540	J 0.0790	0.0840	0.2500
09/25/21	1.4000	3.0000	J 0.0870	J 0.0600	J 0.0970	* *0.1070*	U 0.0540	U 0.0540	0.1500	0.2900	0.1300	0.2600
09/26/21	0.6000	1.6000	0.1000	0.1100	0.1600	* *0.1070*	U 0.0540	0.2100	J 0.0990	0.1600	0.1500	0.2700
09/27/21	1.9000	1.6000	J 0.0540	U 0.0540	J 0.0730	0.0540	0.1100	0.1900	0.1600	0.1900	0.0540	0.2000
09/28/21	0.4500	0.5600	0.1900	0.1200	J 0.0970	* *0.0595*	J 0.0630	0.1700	J 0.0860	0.1700	0.0540	0.2100
09/29/21	1.3000	2.0000	U 0.0540	U 0.0540	U 0.0540	0.0650	U 0.0540	0.1400	J 0.0570	J 0.0890	0.0540	0.0760
09/30/21	1.1000	1.5000	MU 0.0540	U 0.0540	U 0.0540	* *0.0595*	U 0.0540	U 0.0540	U 0.0540	U 0.0540	0.0770	0.1300
10/01/21	B 0.2900	B 4.1000	BMU 0.0540	BU 0.0540	BU 0.0540	0.0540	BJ 0.0670	B 0.1700	BU 0.0540	B 0.1400	0.1600	U 0.0540
10/02/21	B 2.0000	B 1.5000	BM 0.1600	B 0.1900	BJ 0.0970	* *0.1120*	B 0.1400	B 0.1600	B 0.1900	B 0.1600	0.1700	0.3388
10/03/21	B 1.6000	B 0.9700	B 0.1900	B 0.1100	B 0.1900	* *0.1120*	B 0.1100	B 0.1700	BJ 0.0920	B 0.1500	0.1000	0.1630
10/04/21	B 1.7000	B 2.2000	B 0.1400	BU 0.0540	BJ 0.0830	0.1700	BJ 0.0580	BJ 0.0760	BJ 0.0740	B 0.1100	J 0.0730	0.1370
10/05/21	1.1000	0.6300	U 0.0540	J 0.0660	U 0.0540	* *0.1165*	J 0.0610	J 0.0570	J 0.0960	J 0.0960	U 0.0540	0.1550
10/06/21	1.0000	1.2000	M 0.1000	J 0.0700	0.1100	J 0.0630	J 0.0820	0.1700	J 0.0880	0.1400	0.1300	0.1330
10/07/21	B 3.9000	1.6000	BJ 0.0920	BJ 0.0580	B 0.1700	* *0.0585*	BJ 0.0690	BJ 0.0920	B 0.1500	B 0.1800	0.1400	0.1900
10/08/21	1.0000	1.4000	0.1400	U 0.0540	0.1500	U 0.0540	U 0.0540	0.1100	0.1100	0.1700	0.1100	0.1600
10/09/21	1.4000	1.1000	M 0.3900	0.2000	0.2600	* *0.0540*	0.1800	0.1700	0.1800	0.2300	J 0.0810	0.3800
10/10/21	1.1000	1.9000	0.1500	0.2900	0.2000	* *0.0540*	0.1200	U 0.0540	J 0.0740	U 0.0540	J 0.0940	0.1250
10/11/21	0.1100	1.7000	U 0.0540	U 0.0540	J 0.0840	U 0.0540	U 0.0540	0.1300	U 0.0540	U 0.0540	0.1900	0.2760

ATTACHMENT A
Daily Ammonia-N Concentrations (mg/L)

	DIW Sewer/WWPS-2		Storm Ditch Locations (Upstream <----------> Downstream)								Outfalls	
	21	11	19	22	23	-	16	16b	16c	17	14	18
	Manhole DIW 611 Upstream	WWPS-2 Wet Well	2,000 ft Upstream	Immediately Upstream	Immediately Downstream	Water Cannon[1]	750 ft Downstream	2,900 ft Downstream	3,500 ft Downstream	Immediately Upstream	Outfall 011	Outfall 001
Sample Date	WWPS-2	-	Overflow	Overflow	Overflow	-	Overflow	at Bend N of US-12	South of US-12	Outfall 011 Channel	-	-
	-	-	-	-	-	-	-	-	-	-	-	-
Mean	**0.7926**	**1.3475**	**0.1014**	**0.1009**	**0.1068**	**0.0942**	**0.1002**	**0.1157**	**0.1437**	**0.2088**	**0.1899**	**0.2591**
10/12/21	0.1400	1.5000	J 0.0920	J 0.0600	0.1000	* *0.0650*	J 0.0570	J 0.0930	J 0.0770	0.1100	J 0.0580	0.1590
10/13/21	B 1.2000	B 0.9200	B 0.1000	B 0.3700	B 0.2000	* *0.0650*	BJ 0.0940	B 0.1200	B 0.1400	B 0.2000	0.1500	0.1100
10/14/21	1.8000	0.5900	0.1400	J 0.0900	0.1400	* *0.0650*	0.1400	0.1300	J 0.0910	0.1100	0.2300	0.3100
10/15/21	1.3000	J 0.0730	J 0.0810	J 0.0600	U 0.0540	J 0.0760	U 0.0540	J 0.0600	J 0.0900	0.1200	0.1300	0.1500

Notes

[1] No. 2 LWPS data used to represent Water Cannon Ammonia-N Concentrations. Starting June 1, 2021, No. 2 LWPS sampling frequecy reduced from daily to 3/week. Data shown with asterisk and in red are averages of the two closest day results.

Qualifiers

J Analyte is present at an estimated concentration between the Minimum Detection Limit (MDL) and Reporting Limit (RL)
U Analyte analyzed but not detected above the MDL
B Analyte detected in the associated Method Blank above the RL
M Matrix interference is present and matrix spike recovery is outside of acceptance limits
R Duplicate RPD is outside of acceptance limits

ATTACHMENT B
Daily Flows (mgd)

Date	Storm Ditch Upstream Water Cannon[3]	Water Cannon[1]	Storm Ditch Downstream Water Cannon[2]	Outfall 011[1]	Outfall 001[1]
Mean	**50.4**	**2.6**	**53.0**	**67.0**	**120.0**
04/05/21	36.0	0.0	36.0	69.3	105.3
04/06/21	40.7	0.0	40.7	74.9	115.6
04/07/21	47.1	0.0	47.1	66.3	113.4
04/08/21	40.7	0.0	40.7	79.6	120.3
04/09/21	46.4	0.0	46.4	77.3	123.7
04/10/21	45.2	0.0	45.2	81.8	127.0
04/11/21	41.8	0.0	41.8	72.5	114.3
04/12/21	37.6	0.0	37.6	75.8	113.4
04/13/21	39.9	0.0	39.9	77.8	117.7
04/14/21	62.0	0.0	62.0	49.5	111.5
04/15/21	58.3	0.0	58.3	61.5	119.8
04/16/21	45.1	0.0	45.1	78.9	124.0
04/17/21	45.0	0.0	45.0	78.9	123.9
04/18/21	48.4	0.0	48.4	74.8	123.2
04/19/21	46.2	0.0	46.2	74.5	120.7
04/20/21	42.3	0.0	42.3	83.3	125.6
04/21/21	54.4	0.0	54.4	63.7	118.1
04/22/21	42.8	0.0	42.8	81.3	124.1
04/23/21	40.6	0.0	40.6	82.8	123.4
04/24/21	37.6	0.0	37.6	85.4	123.0
04/25/21	33.9	0.0	33.9	81.9	115.8
04/26/21	36.1	0.0	36.1	80.6	116.7
04/27/21	36.8	0.0	36.8	86.3	123.1
04/28/21	53.2	0.0	53.2	54.5	107.7
04/29/21	54.6	0.0	54.6	65.8	120.4
04/30/21	41.0	0.0	41.0	79.6	120.6
05/01/21	43.5	0.0	43.5	75.4	118.9
05/02/21	32.5	0.0	32.5	79.9	112.4
05/03/21	37.9	0.0	37.9	76.2	114.1
05/04/21	42.3	0.0	42.3	79.3	121.6
05/05/21	50.1	0.0	50.1	66.9	117.0
05/06/21	42.3	0.0	42.3	75.8	118.1
05/07/21	40.0	0.0	40.0	80.3	120.3
05/08/21	34.2	0.0	34.2	83.8	118.0
05/09/21	33.6	0.0	33.6	81.5	115.1
05/10/21	40.1	0.0	40.1	82.7	122.8
05/11/21	33.0	0.0	33.0	93.4	126.4
05/12/21	37.6	0.0	37.6	83.7	121.3
05/13/21	57.8	0.0	57.8	52.1	109.9
05/14/21	71.6	0.0	71.6	48.2	119.8
05/15/21	65.6	0.0	65.6	47.9	113.5
05/16/21	63.7	0.0	63.7	43.8	107.5
05/17/21	64.2	0.0	64.2	42.9	107.1
05/18/21	59.1	0.0	59.1	45.5	104.6
05/19/21	53.9	0.0	53.9	47.4	101.3
05/20/21	48.3	0.0	48.3	63.2	111.5
05/21/21	35.0	0.0	35.0	82.0	117.0
05/22/21	34.7	0.0	34.7	77.6	112.3
05/23/21	42.9	0.0	42.9	57.3	100.2
05/24/21	28.8	0.0	28.8	78.2	107.0
05/25/21	33.8	0.0	33.8	82.1	115.9
05/26/21	44.6	0.0	44.6	69.6	114.2

ATTACHMENT B
Daily Flows (mgd)

Date	Storm Ditch Upstream Water Cannon[3]	Water Cannon[1]	Storm Ditch Downstream Water Cannon[2]	Outfall 011[1]	Outfall 001[1]
Mean	**50.4**	**2.6**	**53.0**	**67.0**	**120.0**
05/27/21	48.3	0.0	48.3	64.4	112.7
05/28/21	37.4	0.0	37.4	73.8	111.2
05/29/21	37.4	0.0	37.4	86.5	123.9
05/30/21	30.5	0.0	30.5	76.4	106.9
05/31/21	31.6	0.0	31.6	81.1	112.7
06/01/21	30.2	0.0	30.2	84.3	114.5
06/02/21	45.5	0.0	45.5	58.8	104.3
06/03/21	40.3	0.0	40.3	78.7	119.0
06/04/21	52.3	0.0	52.3	66.9	119.2
06/05/21	60.8	0.0	60.8	60.8	121.6
06/06/21	41.2	0.0	41.2	84.4	125.6
06/07/21	44.0	0.0	44.0	81.0	125.0
06/08/21	50.1	0.0	50.1	77.0	127.1
06/09/21	57.8	0.0	57.8	60.1	117.9
06/10/21	50.8	0.0	50.8	74.9	125.7
06/11/21	57.0	0.0	57.0	64.0	121.0
06/12/21	49.7	0.0	49.7	78.4	128.1
06/13/21	54.4	0.0	54.4	73.6	128.0
06/14/21	50.9	0.0	50.9	63.0	113.9
06/15/21	51.2	0.0	51.2	68.2	119.4
06/16/21	75.6	0.0	75.6	34.8	110.4
06/17/21	61.8	0.0	61.8	59.4	121.2
06/18/21	51.6	0.0	51.6	68.2	119.8
06/19/21	53.5	0.0	53.5	71.7	125.2
06/20/21	54.8	0.0	54.8	71.4	126.2
06/21/21	58.6	0.0	58.6	71.2	129.8
06/22/21	50.2	0.0	50.2	75.2	125.4
06/23/21	62.7	0.0	62.7	54.7	117.4
06/24/21	52.6	0.0	52.6	77.8	130.4
06/25/21	55.5	0.0	55.5	77.4	132.9
06/26/21	58.1	0.0	58.1	80.1	138.2
06/27/21	65.0	0.0	65.0	75.2	140.2
06/28/21	53.7	0.0	53.7	71.1	124.8
06/29/21	53.5	0.0	53.5	72.6	126.1
06/30/21	72.7	0.0	72.7	35.5	108.2
07/01/21	82.5	0.0	82.5	33.6	116.1
07/02/21	60.1	0.0	60.1	62.3	122.4
07/03/21	52.1	0.0	52.1	75.0	127.1
07/04/21	53.2	0.0	53.2	74.8	128.0
07/05/21	54.4	0.0	54.4	73.1	127.5
07/06/21	52.0	0.0	52.0	77.0	129.0
07/07/21	71.6	0.0	71.6	39.1	110.7
07/08/21	73.4	0.0	73.4	37.2	110.6
07/09/21	55.8	0.0	55.8	67.2	123.0
07/10/21	56.2	0.0	56.2	65.8	122.0
07/11/21	66.1	0.0	66.1	57.8	123.9
07/12/21	53.9	0.0	53.9	75.7	129.6
07/13/21	54.9	0.0	54.9	73.6	128.5
07/14/21	72.4	0.0	72.4	41.5	113.9
07/15/21	58.9	0.0	58.9	67.0	125.9
07/16/21	49.9	0.0	49.9	79.3	129.2
07/17/21	49.8	0.0	49.8	78.9	128.7

ATTACHMENT B
Daily Flows (mgd)

Date	Storm Ditch Upstream Water Cannon[3]	Water Cannon[1]	Storm Ditch Downstream Water Cannon[2]	Outfall 011[1]	Outfall 001[1]
Mean	**50.4**	**2.6**	**53.0**	**67.0**	**120.0**
07/18/21	54.5	0.0	54.5	70.3	124.8
07/19/21	52.6	0.0	52.6	77.1	129.7
07/20/21	54.9	4.6	59.5	75.2	134.7
07/21/21	71.3	2.4	73.7	41.8	115.5
07/22/21	67.4	4.6	72.0	51.8	123.8
07/23/21	52.3	9.2	61.5	79.2	140.7
07/24/21	49.9	12.6	62.5	80.4	142.9
07/25/21	45.3	17.0	62.3	63.9	126.2
07/26/21	45.6	15.6	61.2	69.6	130.8
07/27/21	61.5	11.6	73.1	39.8	112.9
07/28/21	41.5	13.1	54.6	82.2	136.8
07/29/21	36.7	16.2	52.9	73.9	126.8
07/30/21	50.5	11.5	62.0	81.3	143.3
07/31/21	48.7	8.3	57.0	82.3	139.3
08/01/21	43.5	17.6	61.1	74.4	135.5
08/02/21	42.4	17.4	59.8	75.8	135.6
08/03/21	44.3	7.4	51.7	79.2	130.9
08/04/21	65.7	6.6	72.3	38.0	110.3
08/05/21	66.3	3.6	69.9	35.1	105.0
08/06/21	46.5	9.6	56.1	84.2	140.3
08/07/21	35.1	0.6	35.7	79.3	115.0
08/08/21	33.5	14.5	48.0	76.7	124.7
08/09/21	38.4	16.8	55.2	77.2	132.4
08/10/21	44.1	12.6	56.7	80.7	137.4
08/11/21	64.9	10.6	75.5	41.8	117.3
08/12/21	52.4	9.0	61.4	63.1	124.5
08/13/21	41.4	14.4	55.8	80.1	135.9
08/14/21	43.1	17.3	60.4	76.0	136.4
08/15/21	44.1	9.4	53.5	76.4	129.9
08/16/21	44.0	5.8	49.8	77.3	127.1
08/17/21	39.6	4.8	44.4	77.9	122.3
08/18/21	63.1	0.0	63.1	42.1	105.2
08/19/21	52.4	0.0	52.4	60.7	113.1
08/20/21	41.4	0.0	41.4	74.8	116.2
08/21/21	43.6	0.0	43.6	71.7	115.3
08/22/21	38.7	0.0	38.7	75.1	113.8
08/23/21	47.8	0.0	47.8	61.3	109.1
08/24/21	52.6	0.0	52.6	61.9	114.5
08/25/21	75.8	0.0	75.8	42.8	118.6
08/26/21	44.0	0.6	44.6	66.5	111.1
08/27/21	43.1	5.6	48.7	83.7	132.4
08/28/21	42.5	9.6	52.1	83.8	135.9
08/29/21	42.9	8.7	51.6	78.0	129.6
08/30/21	45.1	3.7	48.8	75.0	123.8
08/31/21	44.6	3.9	48.5	77.8	126.3
09/01/21	66.8	0.2	67.0	36.8	103.8
09/02/21	71.8	0.0	71.8	31.9	103.7
09/03/21	71.5	0.0	71.5	33.2	104.7
09/04/21	49.8	0.0	49.8	69.6	119.4
09/05/21	50.2	0.0	50.2	71.6	121.8
09/06/21	49.4	0.0	49.4	70.6	120.0
09/07/21	44.3	3.4	47.7	82.6	130.3

ATTACHMENT B
Daily Flows (mgd)

Date	Storm Ditch Upstream Water Cannon[3]	Water Cannon[1]	Storm Ditch Downstream Water Cannon[2]	Outfall 011[1]	Outfall 001[1]
Mean	**50.4**	**2.6**	**53.0**	**67.0**	**120.0**
09/08/21	63.7	1.2	64.9	43.0	107.9
09/09/21	68.7	0.0	68.7	36.2	104.9
09/10/21	53.2	0.0	53.2	65.0	118.2
09/11/21	47.4	0.0	47.4	75.0	122.4
09/12/21	41.6	5.5	47.1	70.9	118.0
09/13/21	40.7	3.5	44.2	72.6	116.8
09/14/21	43.7	15.2	58.9	72.1	131.0
09/15/21	55.9	7.5	63.4	50.6	114.0
09/16/21	46.7	8.6	55.3	67.7	123.0
09/17/21	43.2	8.8	52.0	72.2	124.2
09/18/21	46.0	2.0	48.0	64.2	112.2
09/19/21	41.4	0.8	42.2	52.7	94.9
09/20/21	35.7	0.0	35.7	66.7	102.4
09/21/21	46.8	0.0	46.8	69.4	116.2
09/22/21	71.4	0.0	71.4	28.8	100.2
09/23/21	71.3	0.0	71.3	23.5	94.8
09/24/21	67.5	0.0	67.5	35.8	103.3
09/25/21	48.1	0.0	48.1	69.8	117.9
09/26/21	48.0	0.0	48.0	66.4	114.4
09/27/21	39.8	0.0	39.8	73.3	113.1
09/28/21	41.9	0.0	41.9	69.7	111.6
09/29/21	57.5	0.0	57.5	40.1	97.6
09/30/21	61.0	0.0	61.0	36.5	97.5
10/01/21	40.0	0.0	40.0	73.2	113.2
10/02/21	36.2	15.0	51.2	80.1	131.3
10/03/21	41.0	19.0	60.0	74.4	134.4
10/04/21	47.3	16.5	63.8	72.1	135.9
10/05/21	40.6	12.3	52.9	77.0	129.9
10/06/21	61.9	2.6	64.5	39.6	104.1
10/07/21	68.6	0.3	68.9	32.6	101.5
10/08/21	59.6	0.0	59.6	52.1	111.7
10/09/21	46.2	3.3	49.5	79.4	128.9
10/10/21	46.7	16.0	62.7	73.0	135.7
10/11/21	48.4	18.4	66.8	72.5	139.3
10/12/21	78.1	7.0	85.1	39.7	124.8
10/13/21	84.1	0.0	84.1	35.2	119.3
10/14/21	84.7	0.0	84.7	37.0	121.7
10/15/21	69.5	0.0	69.5	61.8	131.3

Notes

[1] Water Cannon, Outfall 011 and Outfall 001 daily flows retrieved from Enviance.

[2] Storm Ditch Flow Downstream Water Cannon = Outfall 001 Flow - Outfall 011 Flow

[3] Storm Ditch Flow Upstream Water Cannon = Outfall 001 Flow - Outfall 011 Flow - Water Cannon Flow

Cleveland-Cliffs Burns Harbor LLC
Unaccounted-For Ammonia-N in Outfall 001 Storm Ditch Study
(April 5 to October 15, 2021)

Amendola Engineering, Inc.
DRAFT - October 20, 2021

ATTACHMENT C
Ammonia-N Mass Loadings (lb/D)

	Storm Ditch Locations (Upstream <----------> Downstream)								Outfalls		
Sample Date	19 2,000 ft Upstream WWPS-2 Overflow	22 Immediately Upstream WWPS-2 Overflow	23 Immediately Downstream WWPS-2 Overflow	- Water Cannon -	16 750 ft Downstream WWPS-2 Overflow	16b 2,900 ft Downstream at Bend N of US-12	16c 3,500 ft Downstream South of US-12	17 Immediately Upstream Outfall 011 Channel	14 Outfall 011 -	18 Outfall 001 (Measured) -	- Outfall 001 (Calculated) -
									-	-	-
25th %tile	**24.0**	**24.1**	**23.0**	**0.0**	**23.6**	**29.2**	**33.1**	**55.0**	**41.8**	**175.9**	**118.8**
Mean	**42.3**	**42.5**	**44.4**	**2.2**	**41.8**	**49.7**	**61.7**	**89.0**	**108.8**	**260.0**	**198.0**
75th %tile	**53.7**	**50.3**	**55.3**	**1.0**	**50.8**	**60.9**	**80.8**	**116.6**	**137.7**	**327.6**	**245.1**
90th %tile	**70.5**	**72.4**	**82.2**	**8.6**	**68.7**	**86.3**	**107.1**	**153.9**	**230.7**	**400.0**	**340.7**
95th %tile	**79.2**	**86.9**	**93.6**	**13.3**	**85.3**	**95.3**	**129.6**	**187.5**	**297.1**	**425.5**	**425.9**
Max	**186.5**	**261.8**	**373.3**	**25.6**	**245.1**	**223.0**	**230.9**	**252.1**	**508.8**	**651.9**	**740.1**
04/05/21	24.6	22.8	16.2	0.0	16.2	39.1	78.1	132.2	104.1	246.0	236.3
04/06/21	44.2	37.4	40.8	0.0	33.3	44.2	64.5	95.1	150.0	347.3	245.1
04/07/21	35.0	43.2	55.0	0.0	43.2	36.2	47.2	94.3	199.2	331.2	293.5
04/08/21	28.5	54.3	26.2	0.0	64.5	27.2	74.7	139.3	172.7	391.5	312.0
04/09/21	20.9	33.3	32.9	0.0	20.9	22.1	26.7	81.3	103.2	340.7	184.5
04/10/21	20.4	30.9	20.4	0.0	20.4	20.4	20.4	75.4	129.7	328.5	205.1
04/11/21	59.3	30.3	18.8	0.0	18.8	22.3	18.8	125.6	254.1	314.8	379.7
04/12/21	16.9	16.9	16.9	0.0	16.9	16.9	21.7	84.7	284.6	350.1	369.4
04/13/21	21.6	19.6	28.6	0.0	22.0	28.0	36.6	83.2	383.1	422.3	466.3
04/14/21	27.9	34.7	29.0	0.0	27.9	27.9	27.9	48.6	231.3	288.4	280.0
04/15/21	26.3	26.3	26.3	0.0	26.3	26.3	43.3	87.6	395.2	499.9	482.7
04/16/21	45.2	37.6	36.9	0.0	31.6	37.6	56.5	124.2	441.1	651.9	565.3
04/17/21	21.0	56.3	20.3	0.0	41.3	35.3	41.3	101.4	296.3	413.6	397.7
04/18/21	33.9	22.6	26.7	0.0	21.8	52.5	44.4	76.7	287.1	359.8	363.9
04/19/21	20.8	20.8	27.0	0.0	29.3	42.4	23.1	134.9	298.4	402.9	433.4
04/20/21	19.1	19.1	19.1	0.0	19.1	30.7	19.1	74.1	389.3	450.7	463.4
04/21/21	68.1	86.3	118.0	0.0	95.3	109.0	90.8	140.7	393.4	394.2	534.1
04/22/21	50.0	46.4	42.9	0.0	67.9	53.6	71.4	139.3	508.8	538.5	648.1
04/23/21	18.3	18.3	18.3	0.0	32.2	37.3	18.3	50.8	228.0	411.9	278.8
04/24/21	16.9	34.5	25.4	0.0	43.9	65.9	53.3	43.9	292.2	359.3	336.1
04/25/21	39.6	42.4	24.0	0.0	42.4	65.1	70.7	121.6	170.9	318.9	292.5
04/26/21	39.2	45.2	66.3	0.0	45.2	69.3	57.2	96.4	188.3	321.4	284.7
04/27/21	29.8	16.6	17.5	0.0	20.3	46.1	30.7	67.6	165.6	359.5	233.2
04/28/21	53.3	57.7	57.7	0.0	44.4	62.2	31.1	62.2	109.2	224.7	171.3
04/29/21	154.9	32.4	50.1	0.0	54.7	86.6	59.2	118.5	247.1	401.9	365.6
04/30/21	27.0	34.2	31.8	0.0	51.3	65.0	34.2	92.4	325.5	473.0	417.9
05/01/21	19.6	19.6	19.6	0.0	19.6	26.5	19.6	28.7	138.4	367.1	167.1
05/02/21	14.6	14.6	14.6	0.0	14.6	14.6	14.6	51.5	120.0	431.5	171.5
05/03/21	28.5	29.4	63.3	0.0	29.4	25.9	56.9	60.1	120.8	352.3	180.9

ATTACHMENT C
Ammonia-N Mass Loadings (lb/D)

	Storm Ditch Locations (Upstream <----------> Downstream)								Outfalls		
Sample Date	19 2,000 ft Upstream WWPS-2 Overflow	22 Immediately Upstream WWPS-2 Overflow	23 Immediately Downstream WWPS-2 Overflow	- Water Cannon -	16 750 ft Downstream WWPS-2 Overflow	16b 2,900 ft Downstream at Bend N of US-12	16c 3,500 ft Downstream South of US-12	17 Immediately Upstream Outfall 011 Channel	14 Outfall 011 -	18 Outfall 001 (Measured) -	- Outfall 001 (Calculated) -
									-	-	-
25th %tile	**24.0**	**24.1**	**23.0**	**0.0**	**23.6**	**29.2**	**33.1**	**55.0**	**41.8**	**175.9**	**118.8**
Mean	**42.3**	**42.5**	**44.4**	**2.2**	**41.8**	**49.7**	**61.7**	**89.0**	**108.8**	**260.0**	**198.0**
75th %tile	**53.7**	**50.3**	**55.3**	**1.0**	**50.8**	**60.9**	**80.8**	**116.6**	**137.7**	**327.6**	**245.1**
90th %tile	**70.5**	**72.4**	**82.2**	**8.6**	**68.7**	**86.3**	**107.1**	**153.9**	**230.7**	**400.0**	**340.7**
95th %tile	**79.2**	**86.9**	**93.6**	**13.3**	**85.3**	**95.3**	**129.6**	**187.5**	**297.1**	**425.5**	**425.9**
Max	**186.5**	**261.8**	**373.3**	**25.6**	**245.1**	**223.0**	**230.9**	**252.1**	**508.8**	**651.9**	**740.1**
05/04/21	25.4	45.9	32.5	0.0	25.8	49.4	162.4	67.1	57.6	284.1	124.6
05/05/21	50.2	46.0	33.0	0.0	37.2	38.5	54.4	104.5	161.9	312.4	266.4
05/06/21	45.9	70.6	49.4	0.0	24.4	67.1	52.9	123.5	221.4	344.9	344.9
05/07/21	50.1	36.7	20.4	0.0	31.0	28.0	76.8	113.5	100.5	381.5	214.0
05/08/21	27.7	22.5	34.2	0.0	21.4	37.1	54.2	185.5	51.0	275.7	236.6
05/09/21	20.2	24.7	21.9	0.0	47.7	89.7	50.5	78.5	39.4	211.3	118.0
05/10/21	18.1	18.1	18.1	0.0	18.1	40.2	50.2	130.5	75.9	256.2	206.4
05/11/21	22.6	15.7	20.9	0.0	101.9	35.8	35.8	77.1	101.3	295.3	178.4
05/12/21	16.9	16.9	16.9	0.0	16.9	26.7	81.6	84.7	125.7	172.1	210.4
05/13/21	26.0	27.0	26.0	0.0	28.0	43.4	32.8	31.8	143.5	165.1	175.3
05/14/21	32.3	65.7	32.3	0.0	32.3	32.3	155.4	32.3	21.7	130.0	54.0
05/15/21	60.2	54.7	76.6	0.0	65.7	82.1	71.2	54.2	95.9	284.1	150.1
05/16/21	51.0	42.5	39.9	0.0	48.4	41.5	58.5	46.2	109.7	242.2	155.9
05/17/21	28.9	28.9	28.9	0.0	28.9	28.9	28.9	28.9	118.1	89.4	147.1
05/18/21	30.6	29.6	26.6	0.0	39.0	167.7	118.4	143.0	155.7	253.1	298.7
05/19/21	63.0	39.1	63.0	0.0	24.3	63.0	24.3	58.5	146.4	312.8	204.8
05/20/21	40.3	56.4	39.9	0.0	48.4	39.1	92.7	213.6	211.0	362.9	424.6
05/21/21	21.6	18.7	28.0	0.0	75.9	49.7	140.2	61.3	198.4	410.1	259.8
05/22/21	49.2	49.2	84.0	0.0	75.3	52.1	89.8	104.2	116.6	356.1	220.8
05/23/21	53.7	31.9	39.4	0.0	39.4	60.9	71.6	50.1	90.9	284.3	141.0
05/24/21	50.5	18.0	20.4	0.0	16.8	26.4	28.8	52.9	156.6	321.4	209.5
05/25/21	62.1	42.3	39.5	0.0	31.0	24.5	33.8	42.3	89.1	251.5	131.4
05/26/21	27.2	20.1	40.9	0.0	24.6	40.9	23.1	48.4	41.8	276.4	90.2
05/27/21	52.4	56.4	92.7	0.0	48.4	84.6	33.5	68.5	177.3	244.5	245.9
05/28/21	16.9	27.2	46.8	0.0	40.6	19.4	16.9	56.2	147.8	287.7	204.0
05/29/21	46.8	49.9	53.1	0.0	46.8	53.1	109.2	115.5	158.8	413.6	274.3
05/30/21	21.4	35.6	19.6	0.0	18.6	40.7	38.2	58.5	89.3	356.8	147.8
05/31/21	36.9	17.4	44.8	0.0	17.9	36.9	34.3	44.8	148.9	338.6	193.7
06/01/21	20.9	14.1	32.8	0.0	15.1	55.4	50.4	55.4	168.8	420.4	224.3

ATTACHMENT C
Ammonia-N Mass Loadings (lb/D)

	Storm Ditch Locations (Upstream <----------> Downstream)								Outfalls		
Sample Date	19 2,000 ft Upstream WWPS-2 Overflow	22 Immediately Upstream WWPS-2 Overflow	23 Immediately Downstream WWPS-2 Overflow	- Water Cannon -	16 750 ft Downstream WWPS-2 Overflow	16b 2,900 ft Downstream at Bend N of US-12	16c 3,500 ft Downstream South of US-12	17 Immediately Upstream Outfall 011 Channel	14 Outfall 011 -	18 Outfall 001 (Measured) -	- Outfall 001 (Calculated) -
									-	-	-
25th %tile	**24.0**	**24.1**	**23.0**	**0.0**	**23.6**	**29.2**	**33.1**	**55.0**	**41.8**	**175.9**	**118.8**
Mean	**42.3**	**42.5**	**44.4**	**2.2**	**41.8**	**49.7**	**61.7**	**89.0**	**108.8**	**260.0**	**198.0**
75th %tile	**53.7**	**50.3**	**55.3**	**1.0**	**50.8**	**60.9**	**80.8**	**116.6**	**137.7**	**327.6**	**245.1**
90th %tile	**70.5**	**72.4**	**82.2**	**8.6**	**68.7**	**86.3**	**107.1**	**153.9**	**230.7**	**400.0**	**340.7**
95th %tile	**79.2**	**86.9**	**93.6**	**13.3**	**85.3**	**95.3**	**129.6**	**187.5**	**297.1**	**425.5**	**425.9**
Max	**186.5**	**261.8**	**373.3**	**25.6**	**245.1**	**223.0**	**230.9**	**252.1**	**508.8**	**651.9**	**740.1**
06/02/21	45.6	20.5	20.5	0.0	34.9	53.2	38.0	53.2	93.2	226.3	146.4
06/03/21	37.0	37.0	31.9	0.0	19.8	80.7	50.4	60.5	223.3	337.6	283.8
06/04/21	30.6	34.9	39.7	0.0	27.1	23.6	104.7	36.2	no data	318.3	no data
06/05/21	91.3	101.5	81.2	0.0	106.5	91.3	91.3	116.7	81.2	446.5	197.9
06/06/21	61.9	58.4	58.4	0.0	51.6	41.3	41.3	37.8	67.6	324.9	105.4
06/07/21	51.4	33.0	58.7	0.0	58.7	106.5	168.9	77.1	101.4	448.5	178.5
06/08/21	58.5	50.2	62.7	0.0	58.5	66.9	33.0	87.8	102.8	275.8	190.6
06/09/21	91.6	77.2	72.4	0.0	57.9	101.3	53.1	62.7	80.2	334.5	142.9
06/10/21	55.1	59.3	67.8	0.0	72.1	55.1	67.8	59.3	212.5	199.3	271.9
06/11/21	41.4	25.7	45.2	0.0	52.3	76.1	35.7	43.8	34.7	74.7	78.5
06/12/21	74.7	82.9	82.9	0.0	66.4	95.4	95.4	132.7	176.6	395.5	309.4
06/13/21	77.2	81.7	86.3	0.0	245.1	24.5	30.4	72.6	37.5	224.3	110.1
06/14/21	41.2	55.2	22.9	0.0	34.8	51.0	63.7	72.2	89.4	171.1	161.6
06/15/21	55.5	34.6	39.3	0.0	42.7	40.6	68.4	136.7	85.4	229.2	222.1
06/16/21	113.6	44.2	75.7	0.0	82.0	100.9	82.0	94.6	40.7	221.1	135.3
06/17/21	51.6	77.4	56.7	0.0	40.2	61.9	61.9	72.2	133.8	354.0	206.0
06/18/21	73.2	68.9	86.1	0.0	56.0	26.7	94.7	202.4	108.1	369.9	310.5
06/19/21	71.4	62.5	84.8	0.0	75.9	67.0	89.3	93.8	131.6	376.1	225.4
06/20/21	96.0	105.2	68.6	0.0	50.3	33.4	100.6	54.9	71.5	231.7	126.4
06/21/21	27.9	29.8	26.4	0.0	35.2	47.9	40.1	32.8	59.4	292.5	92.2
06/22/21	22.6	33.1	22.6	0.0	25.6	22.6	27.6	33.1	62.8	251.2	95.8
06/23/21	28.3	47.1	42.4	0.0	45.0	42.9	39.8	183.1	43.4	195.9	226.5
06/24/21	25.0	23.7	52.7	0.0	23.7	26.8	38.6	70.2	279.2	239.4	349.4
06/25/21	60.2	50.9	92.6	0.0	64.8	64.8	55.6	143.6	284.2	299.4	427.8
06/26/21	82.4	261.8	373.3	0.0	160.0	223.0	184.2	252.1	488.0	461.3	740.1
06/27/21	29.3	29.3	29.3	0.0	29.3	38.0	29.3	130.2	483.2	585.0	613.4
06/28/21	24.2	24.2	24.2	0.0	24.2	24.2	58.3	80.7	172.1	135.4	252.7
06/29/21	24.1	24.1	25.0	0.0	24.1	34.4	102.7	111.6	212.0	221.0	323.7
06/30/21	49.7	32.8	no data	0.0	32.8	32.8	32.8	32.8	91.8	135.4	124.6

ATTACHMENT C
Ammonia-N Mass Loadings (lb/D)

	Storm Ditch Locations (Upstream <----------> Downstream)								Outfalls		
Sample Date	19 2,000 ft Upstream WWPS-2 Overflow	22 Immediately Upstream WWPS-2 Overflow	23 Immediately Downstream WWPS-2 Overflow	- Water Cannon -	16 750 ft Downstream WWPS-2 Overflow	16b 2,900 ft Downstream at Bend N of US-12	16c 3,500 ft Downstream South of US-12	17 Immediately Upstream Outfall 011 Channel	14 Outfall 011 -	18 Outfall 001 (Measured) -	- Outfall 001 (Calculated) -
									-	-	-
25th %tile	**24.0**	**24.1**	**23.0**	**0.0**	**23.6**	**29.2**	**33.1**	**55.0**	**41.8**	**175.9**	**118.8**
Mean	**42.3**	**42.5**	**44.4**	**2.2**	**41.8**	**49.7**	**61.7**	**89.0**	**108.8**	**260.0**	**198.0**
75th %tile	**53.7**	**50.3**	**55.3**	**1.0**	**50.8**	**60.9**	**80.8**	**116.6**	**137.7**	**327.6**	**245.1**
90th %tile	**70.5**	**72.4**	**82.2**	**8.6**	**68.7**	**86.3**	**107.1**	**153.9**	**230.7**	**400.0**	**340.7**
95th %tile	**79.2**	**86.9**	**93.6**	**13.3**	**85.3**	**95.3**	**129.6**	**187.5**	**297.1**	**425.5**	**425.9**
Max	**186.5**	**261.8**	**373.3**	**25.6**	**245.1**	**223.0**	**230.9**	**252.1**	**508.8**	**651.9**	**740.1**
07/01/21	45.4	45.4	no data	0.0	49.6	37.2	123.9	53.7	67.3	145.3	121.0
07/02/21	31.6	45.1	no data	0.0	65.2	43.6	47.1	44.1	83.2	173.6	127.3
07/03/21	60.9	65.2	no data	0.0	91.3	60.9	95.7	191.3	137.7	392.4	329.0
07/04/21	24.0	111.0	no data	0.0	93.2	88.8	230.9	142.1	57.4	213.6	199.5
07/05/21	24.5	24.5	no data	0.0	24.5	24.5	109.0	113.5	152.5	308.6	266.0
07/06/21	23.4	23.4	no data	0.0	25.6	34.7	73.8	73.8	34.7	172.2	108.5
07/07/21	32.3	35.3	no data	0.0	71.7	32.3	58.0	89.6	17.6	221.7	107.2
07/08/21	33.1	33.1	no data	0.0	34.9	147.0	79.6	122.5	25.1	184.6	147.6
07/09/21	25.1	51.2	no data	0.0	31.7	79.2	102.4	204.9	38.7	164.2	243.6
07/10/21	75.0	56.3	no data	0.0	56.3	126.6	79.7	182.9	98.8	305.4	281.7
07/11/21	53.0	44.1	no data	0.0	55.2	33.1	148.9	204.1	33.8	196.4	237.9
07/12/21	45.0	67.5	no data	0.0	45.0	54.0	116.9	157.4	44.2	205.5	201.6
07/13/21	64.1	151.2	no data	0.0	45.8	43.1	142.0	166.5	33.2	160.8	199.6
07/14/21	114.8	120.8	no data	0.0	223.5	126.9	55.0	241.7	55.4	148.9	297.1
07/15/21	40.3	59.0	no data	0.0	49.2	40.3	142.5	181.9	30.2	189.1	212.1
07/16/21	75.0	37.1	no data	0.0	41.6	27.1	112.4	145.7	45.0	258.8	190.7
07/17/21	41.1	30.8	39.1	0.0	45.7	37.8	108.1	178.7	85.6	193.3	264.3
07/18/21	186.5	24.6	50.0	0.0	36.8	28.2	104.6	86.4	31.7	218.7	118.1
07/19/21	61.5	37.7	42.1	0.0	34.2	87.8	96.6	23.7	47.0	162.4	70.7
07/20/21	35.8	77.9	91.7	2.8	28.4	89.4	84.4	178.7	94.1	302.5	272.9
07/21/21	32.1	83.3	130.9	1.1	51.2	33.2	67.7	123.0	18.8	137.8	141.8
07/22/21	30.4	30.4	30.4	3.1	30.4	32.4	32.4	132.2	23.3	160.9	155.5
07/23/21	65.5	56.8	43.7	8.4	48.0	43.6	102.6	236.1	105.7	351.7	341.8
07/24/21	66.6	58.3	66.6	8.6	66.6	57.4	93.9	83.5	73.8	405.4	157.3
07/25/21	31.0	53.0	60.5	11.6	37.5	57.2	109.2	166.4	38.9	267.7	205.3
07/26/21	20.6	20.6	20.6	7.0	20.6	27.6	32.7	61.3	33.7	161.1	95.0
07/27/21	27.7	27.7	27.7	6.3	27.7	32.9	32.9	91.5	17.9	84.0	109.4
07/28/21	18.7	18.7	24.2	7.2	32.5	39.6	82.0	145.8	40.5	277.9	186.3
07/29/21	16.5	70.4	16.5	8.9	16.5	23.8	23.8	44.1	80.2	279.1	124.3

ATTACHMENT C
Ammonia-N Mass Loadings (lb/D)

	Storm Ditch Locations (Upstream <----------> Downstream)								Outfalls		
Sample Date	19 2,000 ft Upstream WWPS-2 Overflow	22 Immediately Upstream WWPS-2 Overflow	23 Immediately Downstream WWPS-2 Overflow	- Water Cannon -	16 750 ft Downstream WWPS-2 Overflow	16b 2,900 ft Downstream at Bend N of US-12	16c 3,500 ft Downstream South of US-12	17 Immediately Upstream Outfall 011 Channel	14 Outfall 011 -	18 Outfall 001 (Measured) -	- Outfall 001 (Calculated) -
									-	-	-
25th %tile	**24.0**	**24.1**	**23.0**	**0.0**	**23.6**	**29.2**	**33.1**	**55.0**	**41.8**	**175.9**	**118.8**
Mean	**42.3**	**42.5**	**44.4**	**2.2**	**41.8**	**49.7**	**61.7**	**89.0**	**108.8**	**260.0**	**198.0**
75th %tile	**53.7**	**50.3**	**55.3**	**1.0**	**50.8**	**60.9**	**80.8**	**116.6**	**137.7**	**327.6**	**245.1**
90th %tile	**70.5**	**72.4**	**82.2**	**8.6**	**68.7**	**86.3**	**107.1**	**153.9**	**230.7**	**400.0**	**340.7**
95th %tile	**79.2**	**86.9**	**93.6**	**13.3**	**85.3**	**95.3**	**129.6**	**187.5**	**297.1**	**425.5**	**425.9**
Max	**186.5**	**261.8**	**373.3**	**25.6**	**245.1**	**223.0**	**230.9**	**252.1**	**508.8**	**651.9**	**740.1**
07/30/21	22.8	22.8	22.8	7.4	22.8	27.9	27.9	134.5	36.6	143.0	171.2
07/31/21	61.0	73.2	38.6	4.8	61.0	47.6	61.8	85.6	62.5	284.2	148.1
08/01/21	35.2	29.1	21.1	10.1	23.3	47.4	122.4	137.7	118.0	324.8	255.6
08/02/21	25.9	49.6	21.6	8.8	21.2	30.9	48.9	79.8	51.2	207.6	131.1
08/03/21	59.2	55.5	70.3	3.5	33.3	60.4	155.3	86.3	37.7	231.5	124.0
08/04/21	35.1	29.6	43.9	3.0	71.3	36.8	90.5	78.4	28.5	146.8	107.0
08/05/21	39.3	47.0	110.6	1.8	48.1	40.8	58.3	99.2	24.0	199.6	123.2
08/06/21	21.0	21.0	21.0	5.3	21.0	25.3	25.3	37.5	77.3	339.2	114.7
08/07/21	21.4	32.2	35.1	0.6	16.4	21.4	68.5	74.5	86.0	222.0	160.5
08/08/21	16.5	15.1	20.2	13.0	28.0	21.6	44.1	72.1	52.5	306.1	124.6
08/09/21	44.9	17.3	44.9	21.0	28.5	39.2	55.3	64.5	39.9	303.7	104.4
08/10/21	35.0	34.6	40.5	14.7	30.5	44.5	85.2	85.2	74.1	252.5	159.2
08/11/21	54.2	42.2	124.6	11.5	65.0	63.0	47.9	60.5	38.4	258.3	98.9
08/12/21	23.6	25.8	31.5	6.9	41.5	43.0	56.4	76.9	63.2	246.3	140.0
08/13/21	34.5	79.5	51.8	6.5	58.7	45.6	88.5	60.5	240.6	241.0	301.2
08/14/21	39.6	28.8	39.6	25.6	57.5	30.7	70.6	75.6	34.2	260.7	109.9
08/15/21	21.3	40.5	44.2	13.9	25.8	53.6	49.1	102.7	34.4	175.4	137.1
08/16/21	19.8	19.8	19.8	14.5	19.8	no data	66.5	70.6	96.8	189.0	167.4
08/17/21	17.8	24.8	17.8	9.4	17.8	28.5	55.6	77.8	41.0	180.5	118.8
08/18/21	35.3	28.4	28.4	0.0	28.4	28.4	84.3	158.0	45.7	237.0	203.6
08/19/21	23.6	23.6	23.6	0.0	23.6	32.8	61.2	61.2	70.9	169.9	132.1
08/20/21	18.7	18.7	18.7	0.0	18.7	18.7	34.5	69.1	53.7	155.2	122.8
08/21/21	36.4	40.0	54.6	0.0	50.9	36.4	58.2	58.2	89.8	259.8	148.0
08/22/21	18.7	20.3	26.2	0.0	25.2	80.7	74.3	109.8	47.0	313.4	156.8
08/23/21	26.7	36.7	25.1	0.0	22.3	21.5	39.9	63.8	27.6	173.0	91.4
08/24/21	27.7	29.4	23.7	0.0	23.7	33.8	65.8	70.2	27.9	296.2	98.1
08/25/21	58.2	69.6	49.3	0.0	63.3	60.7	82.2	43.6	67.9	257.3	111.5
08/26/21	19.8	19.8	33.8	0.3	27.9	55.8	37.2	67.0	30.0	130.5	97.0
08/27/21	32.7	50.3	23.0	2.5	20.9	44.7	26.4	21.9	43.3	99.2	65.3

ATTACHMENT C
Ammonia-N Mass Loadings (lb/D)

	Storm Ditch Locations (Upstream <----------> Downstream)								Outfalls		
Sample Date	19 2,000 ft Upstream WWPS-2 Overflow	22 Immediately Upstream WWPS-2 Overflow	23 Immediately Downstream WWPS-2 Overflow	- Water Cannon -	16 750 ft Downstream WWPS-2 Overflow	16b 2,900 ft Downstream at Bend N of US-12	16c 3,500 ft Downstream South of US-12	17 Immediately Upstream Outfall 011 Channel	14 Outfall 011 -	18 Outfall 001 (Measured) -	- Outfall 001 (Calculated) -
									-	-	-
25th %tile	**24.0**	**24.1**	**23.0**	**0.0**	**23.6**	**29.2**	**33.1**	**55.0**	**41.8**	**175.9**	**118.8**
Mean	**42.3**	**42.5**	**44.4**	**2.2**	**41.8**	**49.7**	**61.7**	**89.0**	**108.8**	**260.0**	**198.0**
75th %tile	**53.7**	**50.3**	**55.3**	**1.0**	**50.8**	**60.9**	**80.8**	**116.6**	**137.7**	**327.6**	**245.1**
90th %tile	**70.5**	**72.4**	**82.2**	**8.6**	**68.7**	**86.3**	**107.1**	**153.9**	**230.7**	**400.0**	**340.7**
95th %tile	**79.2**	**86.9**	**93.6**	**13.3**	**85.3**	**95.3**	**129.6**	**187.5**	**297.1**	**425.5**	**425.9**
Max	**186.5**	**261.8**	**373.3**	**25.6**	**245.1**	**223.0**	**230.9**	**252.1**	**508.8**	**651.9**	**740.1**
08/28/21	46.2	42.6	81.7	5.6	39.1	69.6	78.3	60.9	104.9	292.8	165.8
08/29/21	19.3	19.3	19.3	5.1	19.3	25.8	25.0	56.0	97.6	278.3	153.6
08/30/21	20.3	20.3	22.2	2.2	97.9	28.1	40.7	40.7	52.6	127.8	93.3
08/31/21	23.1	20.1	20.1	2.3	81.9	60.7	56.7	133.6	110.4	271.9	243.9
09/01/21	30.1	30.1	30.1	0.1	30.1	30.2	30.2	100.6	16.9	80.6	117.5
09/02/21	47.3	58.7	89.9	0.0	59.9	53.9	71.9	191.7	58.6	147.1	250.3
09/03/21	32.2	33.4	51.9	0.0	38.2	32.2	37.6	48.3	44.3	235.9	92.7
09/04/21	70.6	24.1	24.9	0.0	22.4	31.6	74.8	120.5	122.0	388.6	242.5
09/05/21	40.6	35.6	35.6	0.0	58.6	50.3	58.6	92.2	113.5	172.8	205.7
09/06/21	53.6	22.3	22.3	0.0	22.3	22.3	22.3	41.2	76.6	180.3	117.8
09/07/21	19.9	19.9	19.9	1.6	19.9	21.5	21.5	63.7	45.5	174.0	109.2
09/08/21	28.7	28.7	28.7	0.5	28.7	29.2	30.3	29.2	33.7	189.1	63.0
09/09/21	31.0	31.0	31.0	0.0	31.0	49.3	54.5	50.5	33.2	148.8	83.7
09/10/21	24.0	40.4	24.0	0.0	24.0	24.0	24.0	48.8	49.9	177.5	98.7
09/11/21	21.4	21.4	21.4	0.0	21.4	21.4	21.4	43.5	33.8	224.7	77.3
09/12/21	18.8	18.8	18.8	3.7	18.8	21.2	29.9	59.0	47.3	75.4	106.3
09/13/21	21.0	27.1	18.3	3.3	18.3	19.9	27.3	51.6	35.7	201.0	87.4
09/14/21	72.9	19.7	19.7	24.7	32.8	42.3	42.8	32.4	138.4	210.2	170.8
09/15/21	74.6	97.9	69.9	17.6	60.6	95.2	121.7	227.5	38.4	183.4	265.9
09/16/21	21.1	21.1	22.6	11.9	21.1	55.4	32.8	64.6	62.1	242.7	126.8
09/17/21	50.5	19.8	54.1	4.0	64.9	52.1	43.4	65.1	90.4	223.1	155.5
09/18/21	53.7	88.2	80.6	0.9	69.0	56.1	92.1	124.2	96.4	286.1	220.6
09/19/21	69.2	41.5	55.3	0.3	38.0	91.6	70.4	63.4	96.8	279.4	160.1
09/20/21	32.8	35.7	16.1	0.0	18.2	53.6	41.7	80.4	49.0	196.5	129.4
09/21/21	26.9	24.6	21.1	0.0	21.1	46.9	22.7	50.8	38.8	174.5	89.6
09/22/21	77.5	39.9	32.2	0.0	32.2	32.2	32.2	50.6	13.0	92.0	63.6
09/23/21	32.1	32.1	32.1	0.0	32.1	32.1	32.1	32.1	10.6	70.4	42.7
09/24/21	30.4	30.4	30.4	0.0	30.4	30.4	30.4	44.5	25.1	215.5	69.6
09/25/21	34.9	24.1	38.9	0.0	21.7	21.7	60.2	116.4	75.7	255.8	192.1

ATTACHMENT C
Ammonia-N Mass Loadings (lb/D)

Sample Date	Storm Ditch Locations (Upstream <----------> Downstream)								Outfalls		
	19 2,000 ft Upstream WWPS-2 Overflow	22 Immediately Upstream WWPS-2 Overflow	23 Immediately Downstream WWPS-2 Overflow	- Water Cannon -	16 750 ft Downstream WWPS-2 Overflow	16b 2,900 ft Downstream at Bend N of US-12	16c 3,500 ft Downstream South of US-12	17 Immediately Upstream Outfall 011 Channel	14 Outfall 011 -	18 Outfall 001 (Measured) -	- Outfall 001 (Calculated) -
									-	-	-
25th %tile	**24.0**	**24.1**	**23.0**	**0.0**	**23.6**	**29.2**	**33.1**	**55.0**	**41.8**	**175.9**	**118.8**
Mean	**42.3**	**42.5**	**44.4**	**2.2**	**41.8**	**49.7**	**61.7**	**89.0**	**108.8**	**260.0**	**198.0**
75th %tile	**53.7**	**50.3**	**55.3**	**1.0**	**50.8**	**60.9**	**80.8**	**116.6**	**137.7**	**327.6**	**245.1**
90th %tile	**70.5**	**72.4**	**82.2**	**8.6**	**68.7**	**86.3**	**107.1**	**153.9**	**230.7**	**400.0**	**340.7**
95th %tile	**79.2**	**86.9**	**93.6**	**13.3**	**85.3**	**95.3**	**129.6**	**187.5**	**297.1**	**425.5**	**425.9**
Max	**186.5**	**261.8**	**373.3**	**25.6**	**245.1**	**223.0**	**230.9**	**252.1**	**508.8**	**651.9**	**740.1**
09/26/21	40.1	44.1	64.1	0.0	21.6	84.1	39.7	64.1	83.1	257.8	147.2
09/27/21	17.9	17.9	24.2	0.0	36.5	63.1	53.1	63.1	33.0	188.8	96.1
09/28/21	66.4	42.0	33.9	0.0	22.0	59.4	30.1	59.4	31.4	195.6	90.9
09/29/21	25.9	25.9	25.9	0.0	25.9	67.2	27.4	42.7	18.1	61.9	60.8
09/30/21	27.5	27.5	27.5	0.0	27.5	27.5	27.5	27.5	23.5	105.8	50.9
10/01/21	18.0	18.0	18.0	0.0	22.4	56.7	18.0	46.7	97.7	51.0	144.5
10/02/21	48.3	57.4	29.3	14.0	42.3	68.4	81.2	68.4	113.6	371.2	182.0
10/03/21	65.0	37.6	65.0	17.8	37.6	85.1	46.1	75.1	62.1	182.9	137.2
10/04/21	55.3	21.3	32.8	23.4	22.9	40.5	39.4	58.6	43.9	155.4	102.5
10/05/21	18.3	22.4	18.3	12.0	20.7	25.2	42.4	42.4	34.7	168.0	77.1
10/06/21	51.7	36.2	56.8	1.4	42.4	91.5	47.4	75.4	43.0	115.5	118.3
10/07/21	52.7	33.2	97.3	0.1	39.5	52.9	86.2	103.5	38.1	160.9	141.6
10/08/21	69.6	26.9	74.6	0.0	26.9	54.7	54.7	84.6	47.8	149.1	132.4
10/09/21	150.4	77.1	100.2	1.5	69.4	70.2	74.4	95.0	53.7	408.8	148.7
10/10/21	58.5	113.0	77.9	7.2	46.8	28.3	38.7	28.3	57.3	141.6	85.5
10/11/21	21.8	21.8	33.9	8.3	21.8	72.5	30.1	30.1	115.0	320.8	145.1
10/12/21	60.0	39.1	65.2	3.8	37.1	66.0	54.7	78.1	19.2	165.6	97.3
10/13/21	70.2	259.7	140.4	0.0	66.0	84.2	98.3	140.4	44.1	109.5	184.4
10/14/21	99.0	63.6	99.0	0.0	99.0	91.9	64.3	77.8	71.0	314.8	148.8
10/15/21	47.0	34.8	31.3	0.0	31.3	34.8	52.2	69.6	67.0	164.4	136.6

Cleveland-Cliffs Burns Harbor LLC
Unaccounted-For Ammonia-N in Outfall 001 Storm Ditch Study
(April 5 to October 15, 2021)

Amendola Engineering, Inc.
DRAFT - October 20, 2021

ATTACHMENT D
Incremental Ammonia-N Mass Loadings (lb/D)
Sampling Location - Nearest Upstream Sampling Location

Sample Date	Storm Ditch Locations (Upstream <----------> Downstream) 22-19 Immediately Upstream WWPS-2 Overflow	23-22 Immediately Downstream WWPS-2 Overflow	- Water Cannon - -	16-23 750 ft Downstream WWPS-2 Overflow	16b-16 2,900 ft Downstream at Bend N of US-12	16c-16b 3,500 ft Downstream South of US-12	17-16c Immediately Upstream Outfall 011 Channel	Measured Minus Calculated Outfall 001
25th %tile	**-8.1**	**-4.1**	**0.0**	**-12.1**	**-6.1**	**-8.1**	**4.7**	**9.8**
Mean	**0.2**	**3.5**	**2.2**	**-4.4**	**5.6**	**12.0**	**27.3**	**61.6**
Median	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**5.1**	**24.8**	**63.4**
75th %tile	**6.9**	**12.5**	**1.0**	**2.8**	**19.6**	**27.8**	**47.0**	**120.1**
90th %tile	**21.5**	**27.5**	**8.6**	**14.1**	**38.6**	**61.7**	**75.9**	**167.2**
95th %tile	**34.8**	**35.5**	**13.3**	**25.1**	**50.2**	**84.8**	**106.1**	**199.6**
04/05/21	-1.8	-6.6	0.0	0.0	22.8	39.1	54.1	9.8
04/06/21	-6.8	3.4	0.0	-7.5	10.9	20.4	30.6	102.2
04/07/21	8.3	11.8	0.0	-11.8	-7.1	11.0	47.2	37.7
04/08/21	25.8	-28.2	0.0	38.4	-37.4	47.5	64.5	79.6
04/09/21	12.4	-0.4	0.0	-12.0	1.2	4.6	54.6	156.1
04/10/21	10.6	-10.6	0.0	0.0	0.0	0.0	55.1	123.4
04/11/21	-29.0	-11.5	0.0	0.0	3.5	-3.5	106.7	-64.9
04/12/21	0.0	0.0	0.0	0.0	0.0	4.7	63.1	-19.2
04/13/21	-2.0	9.0	0.0	-6.7	6.0	8.7	46.6	-43.9
04/14/21	6.7	-5.7	0.0	-1.0	0.0	0.0	20.7	8.5
04/15/21	0.0	0.0	0.0	0.0	0.0	17.0	44.3	17.1
04/16/21	-7.5	-0.8	0.0	-5.3	6.0	18.8	67.7	86.6
04/17/21	35.3	-36.1	0.0	21.0	-6.0	6.0	60.1	15.9
04/18/21	-11.3	4.0	0.0	-4.8	30.7	-8.1	32.3	-4.0
04/19/21	0.0	6.2	0.0	2.3	13.1	-19.3	111.8	-30.5
04/20/21	0.0	0.0	0.0	0.0	11.6	-11.6	55.1	-12.7
04/21/21	18.2	31.8	0.0	-22.7	13.6	-18.2	49.9	-139.9
04/22/21	-3.6	-3.6	0.0	25.0	-14.3	17.9	67.9	-109.6
04/23/21	0.0	0.0	0.0	13.9	5.1	-19.0	32.5	133.1
04/24/21	17.6	-9.1	0.0	18.5	22.0	-12.6	-9.4	23.1
04/25/21	2.8	-18.4	0.0	18.4	22.6	5.7	50.9	26.4
04/26/21	6.0	21.1	0.0	-21.1	24.1	-12.1	39.2	36.6
04/27/21	-13.2	0.9	0.0	2.8	25.8	-15.4	36.9	126.3
04/28/21	4.4	0.0	0.0	-13.3	17.8	-31.1	31.1	53.4
04/29/21	-122.6	17.8	0.0	4.6	31.9	-27.3	59.2	36.3
04/30/21	7.2	-2.4	0.0	19.5	13.7	-30.8	58.2	55.1
05/01/21	0.0	0.0	0.0	0.0	6.9	-6.9	9.1	200.0
05/02/21	0.0	0.0	0.0	0.0	0.0	0.0	36.9	259.9
05/03/21	0.9	33.8	0.0	-33.8	-3.5	31.0	3.2	171.4
05/04/21	20.5	-13.4	0.0	-6.7	23.7	113.0	-95.3	159.5
05/05/21	-4.2	-13.0	0.0	4.2	1.3	15.9	50.2	46.0
05/06/21	24.7	-21.2	0.0	-25.1	42.7	-14.1	70.6	0.0
05/07/21	-13.4	-16.4	0.0	10.7	-3.0	48.7	36.7	167.5
05/08/21	-5.1	11.7	0.0	-12.8	15.7	17.1	131.3	39.2
05/09/21	4.5	-2.8	0.0	25.8	42.1	-39.3	28.0	93.4
05/10/21	0.0	0.0	0.0	0.0	22.1	10.0	80.3	49.8
05/11/21	-6.9	5.2	0.0	81.0	-66.1	0.0	41.3	116.9
05/12/21	0.0	0.0	0.0	0.0	9.7	54.9	3.1	-38.4
05/13/21	1.0	-1.0	0.0	1.9	15.4	-10.6	-1.0	-10.2
05/14/21	33.5	-33.5	0.0	0.0	0.0	123.1	-123.1	76.0
05/15/21	-5.5	21.9	0.0	-10.9	16.4	-10.9	-17.0	134.0
05/16/21	-8.5	-2.7	0.0	8.5	-6.9	17.0	-12.2	86.3
05/17/21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-57.7
05/18/21	-1.0	-3.0	0.0	12.3	128.7	-49.3	24.7	-45.6

Cleveland-Cliffs Burns Harbor LLC
Unaccounted-For Ammonia-N in Outfall 001 Storm Ditch Study
(April 5 to October 15, 2021)

Amendola Engineering, Inc.
DRAFT - October 20, 2021

ATTACHMENT D
Incremental Ammonia-N Mass Loadings (lb/D)
Sampling Location - Nearest Upstream Sampling Location

Sample Date	Storm Ditch Locations (Upstream <----------> Downstream) 22-19 Immediately Upstream WWPS-2 Overflow	23-22 Immediately Downstream WWPS-2 Overflow	- Water Cannon - -	16-23 750 ft Downstream WWPS-2 Overflow	16b-16 2,900 ft Downstream at Bend N of US-12	16c-16b 3,500 ft Downstream South of US-12	17-16c Immediately Upstream Outfall 011 Channel	Measured Minus Calculated Outfall 001
25th %tile	**-8.1**	**-4.1**	**0.0**	**-12.1**	**-6.1**	**-8.1**	**4.7**	**9.8**
Mean	**0.2**	**3.5**	**2.2**	**-4.4**	**5.6**	**12.0**	**27.3**	**61.6**
Median	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**5.1**	**24.8**	**63.4**
75th %tile	**6.9**	**12.5**	**1.0**	**2.8**	**19.6**	**27.8**	**47.0**	**120.1**
90th %tile	**21.5**	**27.5**	**8.6**	**14.1**	**38.6**	**61.7**	**75.9**	**167.2**
95th %tile	**34.8**	**35.5**	**13.3**	**25.1**	**50.2**	**84.8**	**106.1**	**199.6**
05/19/21	-23.8	23.8	0.0	-38.7	38.7	-38.7	34.2	108.0
05/20/21	16.1	-16.5	0.0	8.5	-9.3	53.6	120.9	-61.7
05/21/21	-2.9	9.3	0.0	47.9	-26.3	90.5	-78.9	150.3
05/22/21	0.0	34.7	0.0	-8.7	-23.2	37.6	14.5	135.3
05/23/21	-21.8	7.5	0.0	0.0	21.5	10.7	-21.5	143.3
05/24/21	-32.4	2.4	0.0	-3.6	9.6	2.4	24.0	112.0
05/25/21	-19.7	-2.8	0.0	-8.5	-6.5	9.3	8.5	120.1
05/26/21	-7.1	20.8	0.0	-16.4	16.4	-17.9	25.3	186.2
05/27/21	4.0	36.3	0.0	-44.3	36.3	-51.2	35.1	-1.3
05/28/21	10.3	19.7	0.0	-6.2	-21.2	-2.5	39.3	83.7
05/29/21	3.1	3.1	0.0	-6.2	6.2	56.2	6.2	139.3
05/30/21	14.3	-16.0	0.0	-1.0	22.1	-2.5	20.4	209.0
05/31/21	-19.5	27.4	0.0	-26.9	19.0	-2.6	10.5	144.9
06/01/21	-6.8	18.6	0.0	-17.6	40.3	-5.0	5.0	196.1
06/02/21	-25.1	0.0	0.0	14.4	18.2	-15.2	15.2	79.9
06/03/21	0.0	-5.0	0.0	-12.1	60.9	-30.3	10.1	53.8
06/04/21	4.4	4.8	0.0	-12.7	no data	81.2	-68.5	no data
06/05/21	10.1	-20.3	0.0	25.4	-15.2	0.0	25.4	248.6
06/06/21	-3.4	0.0	0.0	-6.9	-10.3	0.0	-3.4	219.5
06/07/21	-18.4	25.7	0.0	0.0	47.7	62.4	-91.8	270.0
06/08/21	-8.4	12.5	0.0	-4.2	8.4	-33.9	54.8	85.2
06/09/21	-14.5	-4.8	0.0	-14.5	43.4	-48.2	9.6	191.6
06/10/21	4.2	8.5	0.0	4.2	-17.0	12.7	-8.5	-72.6
06/11/21	-15.7	19.5	0.0	7.1	23.8	-40.4	8.1	-3.8
06/12/21	8.3	0.0	0.0	-16.6	29.0	0.0	37.3	86.2
06/13/21	4.5	4.5	0.0	158.9	-220.6	5.9	42.2	114.2
06/14/21	14.0	-32.3	0.0	11.9	16.1	12.7	8.5	9.5
06/15/21	-20.9	4.7	0.0	3.4	-2.1	27.8	68.4	7.1
06/16/21	-69.4	31.5	0.0	6.3	18.9	-18.9	12.6	85.8
06/17/21	25.8	-20.6	0.0	-16.5	21.7	0.0	10.3	148.0
06/18/21	-4.3	17.2	0.0	-30.1	-29.3	68.0	107.7	59.4
06/19/21	-8.9	22.3	0.0	-8.9	-8.9	22.3	4.5	150.7
06/20/21	9.1	-36.6	0.0	-18.3	-16.9	67.2	-45.7	105.3
06/21/21	2.0	-3.4	0.0	8.8	12.7	-7.8	-7.3	200.3
06/22/21	10.5	-10.5	0.0	2.9	-2.9	5.0	5.4	155.3
06/23/21	18.8	-4.7	0.0	2.6	-2.1	-3.1	143.4	-30.6
06/24/21	-1.3	29.0	0.0	-29.0	3.1	11.9	31.6	-110.0
06/25/21	-9.3	41.7	0.0	-27.8	0.0	-9.3	88.0	-128.3
06/26/21	179.4	111.5	0.0	-213.3	63.0	-38.8	67.9	-278.8
06/27/21	0.0	0.0	0.0	0.0	8.7	-8.7	100.9	-28.4
06/28/21	0.0	0.0	0.0	0.0	0.0	34.1	22.4	-117.3
06/29/21	0.0	0.9	0.0	-0.9	10.3	68.3	8.9	-102.7
06/30/21	-17.0	no data	0.0	no data	0.0	0.0	0.0	10.8
07/01/21	0.0	no data	0.0	no data	-12.4	86.7	-70.2	24.3

ATTACHMENT D
Incremental Ammonia-N Mass Loadings (lb/D)
Sampling Location - Nearest Upstream Sampling Location

Sample Date	Storm Ditch Locations (Upstream <----------> Downstream) 22-19 Immediately Upstream WWPS-2 Overflow	23-22 Immediately Downstream WWPS-2 Overflow	- Water Cannon - -	16-23 750 ft Downstream WWPS-2 Overflow	16b-16 2,900 ft Downstream at Bend N of US-12	16c-16b 3,500 ft Downstream South of US-12	17-16c Immediately Upstream Outfall 011 Channel	Measured Minus Calculated Outfall 001
25th %tile	**-8.1**	**-4.1**	**0.0**	**-12.1**	**-6.1**	**-8.1**	**4.7**	**9.8**
Mean	**0.2**	**3.5**	**2.2**	**-4.4**	**5.6**	**12.0**	**27.3**	**61.6**
Median	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**5.1**	**24.8**	**63.4**
75th %tile	**6.9**	**12.5**	**1.0**	**2.8**	**19.6**	**27.8**	**47.0**	**120.1**
90th %tile	**21.5**	**27.5**	**8.6**	**14.1**	**38.6**	**61.7**	**75.9**	**167.2**
95th %tile	**34.8**	**35.5**	**13.3**	**25.1**	**50.2**	**84.8**	**106.1**	**199.6**
07/02/21	13.5	no data	0.0	no data	-21.6	3.5	-3.0	46.3
07/03/21	4.3	no data	0.0	no data	-30.4	34.8	95.7	63.4
07/04/21	87.0	no data	0.0	no data	-4.4	142.1	-88.8	14.1
07/05/21	0.0	no data	0.0	no data	0.0	84.4	4.5	42.6
07/06/21	0.0	no data	0.0	no data	9.1	39.1	0.0	63.8
07/07/21	3.0	no data	0.0	no data	-39.4	25.7	31.7	114.5
07/08/21	0.0	no data	0.0	no data	112.1	-67.4	42.9	36.9
07/09/21	26.1	no data	0.0	no data	47.5	23.3	102.4	-79.4
07/10/21	-18.8	no data	0.0	no data	70.3	-46.9	103.2	23.7
07/11/21	-8.8	no data	0.0	no data	-22.1	115.8	55.2	-41.4
07/12/21	22.5	no data	0.0	no data	9.0	63.0	40.5	3.8
07/13/21	87.0	no data	0.0	no data	-2.7	99.0	24.4	-38.8
07/14/21	6.0	no data	0.0	no data	-96.7	-71.9	186.7	-148.2
07/15/21	18.7	no data	0.0	no data	-8.8	102.2	39.3	-22.9
07/16/21	-37.9	no data	0.0	no data	-14.6	85.4	33.3	68.0
07/17/21	-10.4	8.3	0.0	6.6	-7.9	70.2	70.6	-71.0
07/18/21	-161.9	25.5	0.0	-13.2	-8.6	76.4	-18.2	100.6
07/19/21	-23.7	4.4	0.0	-7.9	53.6	8.8	-72.9	91.7
07/20/21	42.2	13.8	2.8	-63.3	58.2	-5.0	94.3	29.6
07/21/21	51.2	47.6	1.1	-79.8	-19.0	34.4	55.4	-4.1
07/22/21	0.0	0.0	3.1	0.0	-1.1	0.0	99.7	5.4
07/23/21	-8.7	-13.1	8.4	4.4	-12.8	59.0	133.4	9.9
07/24/21	-8.3	8.3	8.6	0.0	-17.9	36.5	-10.4	248.2
07/25/21	21.9	7.6	11.6	-23.1	8.1	52.0	57.2	62.4
07/26/21	0.0	0.0	7.0	0.0	0.0	5.1	28.6	66.1
07/27/21	0.0	0.0	6.3	0.0	-1.1	0.0	58.6	-25.5
07/28/21	0.0	5.5	7.2	8.3	-0.1	42.4	63.8	91.6
07/29/21	53.9	-53.9	8.9	0.0	-1.6	0.0	20.3	154.7
07/30/21	0.0	0.0	7.4	0.0	-2.2	0.0	106.6	-28.1
07/31/21	12.2	-34.6	4.8	22.4	-18.2	14.3	23.8	136.1
08/01/21	-6.2	-8.0	10.1	2.2	14.1	75.0	15.3	69.1
08/02/21	23.7	-28.0	8.8	-0.4	0.9	18.0	30.9	76.6
08/03/21	-3.7	14.8	3.5	-37.0	23.6	94.9	-69.0	107.5
08/04/21	-5.5	14.3	3.0	27.4	-37.5	53.7	-12.1	39.9
08/05/21	7.7	63.6	1.8	-62.5	-9.1	17.5	40.8	76.5
08/06/21	0.0	0.0	5.3	0.0	-1.0	0.0	12.2	224.5
08/07/21	10.8	2.9	0.6	-18.7	4.5	47.1	6.0	61.5
08/08/21	-1.4	5.0	13.0	7.8	-19.4	22.4	28.0	181.5
08/09/21	-27.6	27.6	21.0	-16.3	-10.4	16.1	9.2	199.2
08/10/21	-0.4	5.9	14.7	-9.9	-0.8	40.7	0.0	93.2
08/11/21	-11.9	82.3	11.5	-59.6	-13.5	-15.1	12.6	159.5
08/12/21	2.2	5.7	6.9	10.1	-5.4	13.3	20.5	106.3
08/13/21	44.9	-27.6	6.5	6.9	-19.6	42.8	-27.9	-60.2
08/14/21	-10.8	10.8	25.6	18.0	-52.4	39.8	5.0	150.8

Cleveland-Cliffs Burns Harbor LLC
Unaccounted-For Ammonia-N in Outfall 001 Storm Ditch Study
(April 5 to October 15, 2021)

Amendola Engineering, Inc.
DRAFT - October 20, 2021

ATTACHMENT D
Incremental Ammonia-N Mass Loadings (lb/D)
Sampling Location - Nearest Upstream Sampling Location

Sample Date	Storm Ditch Locations (Upstream <----------> Downstream) 22-19 Immediately Upstream WWPS-2 Overflow	23-22 Immediately Downstream WWPS-2 Overflow	- Water Cannon - -	16-23 750 ft Downstream WWPS-2 Overflow	16b-16 2,900 ft Downstream at Bend N of US-12	16c-16b 3,500 ft Downstream South of US-12	17-16c Immediately Upstream Outfall 011 Channel	Measured Minus Calculated Outfall 001
25th %tile	**-8.1**	**-4.1**	**0.0**	**-12.1**	**-6.1**	**-8.1**	**4.7**	**9.8**
Mean	**0.2**	**3.5**	**2.2**	**-4.4**	**5.6**	**12.0**	**27.3**	**61.6**
Median	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**5.1**	**24.8**	**63.4**
75th %tile	**6.9**	**12.5**	**1.0**	**2.8**	**19.6**	**27.8**	**47.0**	**120.1**
90th %tile	**21.5**	**27.5**	**8.6**	**14.1**	**38.6**	**61.7**	**75.9**	**167.2**
95th %tile	**34.8**	**35.5**	**13.3**	**25.1**	**50.2**	**84.8**	**106.1**	**199.6**
08/15/21	19.1	3.7	13.9	-18.4	13.9	-4.5	53.6	38.3
08/16/21	0.0	0.0	14.5	0.0	no data	no data	4.2	21.6
08/17/21	6.9	-6.9	9.4	0.0	1.3	27.0	22.2	61.8
08/18/21	-6.8	0.0	0.0	0.0	0.0	55.8	73.7	33.4
08/19/21	0.0	0.0	0.0	0.0	9.2	28.4	0.0	37.8
08/20/21	0.0	0.0	0.0	0.0	0.0	15.9	34.5	32.4
08/21/21	3.6	14.6	0.0	-3.6	-14.6	21.8	0.0	111.8
08/22/21	1.6	5.8	0.0	-1.0	55.5	-6.5	35.5	156.6
08/23/21	10.0	-11.6	0.0	-2.8	-0.8	18.3	23.9	81.5
08/24/21	1.8	-5.7	0.0	0.0	10.1	32.0	4.4	198.1
08/25/21	11.4	-20.2	0.0	13.9	-2.5	21.5	-38.6	145.8
08/26/21	0.0	14.0	0.3	-5.9	27.6	-18.6	29.8	33.5
08/27/21	17.6	-27.3	2.5	-2.2	21.3	-18.3	-4.5	34.0
08/28/21	-3.6	39.1	5.6	-42.6	24.9	8.7	-17.4	127.0
08/29/21	0.0	0.0	5.1	0.0	1.4	-0.9	31.0	124.6
08/30/21	0.0	1.9	2.2	75.7	-72.0	12.6	0.0	34.5
08/31/21	-3.0	0.0	2.3	61.8	-23.5	-4.0	76.9	28.0
09/01/21	0.0	0.0	0.1	0.0	-0.1	0.0	70.4	-37.0
09/02/21	11.4	31.2	0.0	-30.0	-6.0	18.0	119.8	-103.2
09/03/21	1.2	18.5	0.0	-13.7	-6.0	5.4	10.7	143.2
09/04/21	-46.5	0.8	0.0	-2.5	9.1	43.2	45.7	146.1
09/05/21	-5.0	0.0	0.0	23.0	-8.4	8.4	33.5	-32.9
09/06/21	-31.3	0.0	0.0	0.0	0.0	0.0	19.0	62.4
09/07/21	0.0	0.0	1.6	0.0	0.0	0.0	42.2	64.8
09/08/21	0.0	0.0	0.5	0.0	0.0	1.1	-1.1	126.1
09/09/21	0.0	0.0	0.0	0.0	18.3	5.2	-4.0	65.1
09/10/21	16.4	-16.4	0.0	0.0	0.0	0.0	24.9	78.8
09/11/21	0.0	0.0	0.0	0.0	0.0	0.0	22.2	147.4
09/12/21	0.0	0.0	3.7	0.0	-1.3	8.6	29.1	-30.9
09/13/21	6.1	-8.8	3.3	0.0	-1.7	7.4	24.3	113.7
09/14/21	-53.2	0.0	24.7	13.1	-15.3	0.5	-10.3	39.4
09/15/21	23.3	-28.0	17.6	-9.3	17.0	26.5	105.8	-82.6
09/16/21	0.0	1.6	11.9	-1.6	22.4	-22.6	31.8	116.0
09/17/21	-30.7	34.3	4.0	10.8	-16.8	-8.7	21.7	67.6
09/18/21	34.5	-7.7	0.9	-11.5	-13.9	36.1	32.0	65.5
09/19/21	-27.7	13.8	0.3	-17.3	53.2	-21.1	-7.0	119.3
09/20/21	3.0	-19.7	0.0	2.1	35.5	-11.9	38.7	67.1
09/21/21	-2.3	-3.5	0.0	0.0	25.8	-24.2	28.1	85.0
09/22/21	-37.5	-7.7	0.0	0.0	0.0	0.0	18.5	28.4
09/23/21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27.7
09/24/21	0.0	0.0	0.0	0.0	0.0	0.0	14.1	145.9
09/25/21	-10.8	14.9	0.0	-17.3	0.0	38.5	56.2	63.7
09/26/21	4.0	20.0	0.0	-42.5	62.5	-44.5	24.4	110.6
09/27/21	0.0	6.3	0.0	12.3	26.6	-10.0	10.0	92.6

ATTACHMENT D
Incremental Ammonia-N Mass Loadings (lb/D)
Sampling Location - Nearest Upstream Sampling Location

Sample Date	Storm Ditch Locations (Upstream <----------> Downstream) 22-19 Immediately Upstream WWPS-2 Overflow	23-22 Immediately Downstream WWPS-2 Overflow	- Water Cannon - -	16-23 750 ft Downstream WWPS-2 Overflow	16b-16 2,900 ft Downstream at Bend N of US-12	16c-16b 3,500 ft Downstream South of US-12	17-16c Immediately Upstream Outfall 011 Channel	Measured Minus Calculated Outfall 001
25th %tile	**-8.1**	**-4.1**	**0.0**	**-12.1**	**-6.1**	**-8.1**	**4.7**	**9.8**
Mean	**0.2**	**3.5**	**2.2**	**-4.4**	**5.6**	**12.0**	**27.3**	**61.6**
Median	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**5.1**	**24.8**	**63.4**
75th %tile	**6.9**	**12.5**	**1.0**	**2.8**	**19.6**	**27.8**	**47.0**	**120.1**
90th %tile	**21.5**	**27.5**	**8.6**	**14.1**	**38.6**	**61.7**	**75.9**	**167.2**
95th %tile	**34.8**	**35.5**	**13.3**	**25.1**	**50.2**	**84.8**	**106.1**	**199.6**
09/28/21	-24.5	-8.0	0.0	-11.9	37.4	-29.4	29.4	104.7
09/29/21	0.0	0.0	0.0	0.0	41.3	-39.8	15.4	1.1
09/30/21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	54.8
10/01/21	0.0	0.0	0.0	4.3	34.4	-38.7	28.7	-93.5
10/02/21	9.1	-28.1	14.0	13.0	12.1	12.8	-12.8	189.2
10/03/21	-27.4	27.4	17.8	-27.4	29.7	-39.1	29.0	45.7
10/04/21	-33.9	11.4	23.4	-9.9	-5.8	-1.1	19.2	52.9
10/05/21	4.1	-4.1	12.0	2.4	-7.5	17.2	0.0	90.9
10/06/21	-15.5	20.7	1.4	-14.5	47.8	-44.1	28.0	-2.8
10/07/21	-19.5	64.1	0.1	-57.8	13.3	33.3	17.2	19.4
10/08/21	-42.8	47.7	0.0	-47.7	27.9	0.0	29.8	16.8
10/09/21	-73.3	23.1	1.5	-30.8	-0.7	4.1	20.7	260.1
10/10/21	54.6	-35.1	7.2	-31.2	-25.7	10.5	-10.5	56.0
10/11/21	0.0	12.1	8.3	-12.1	42.4	-42.4	0.0	175.8
10/12/21	-20.9	26.1	3.8	-28.0	25.1	-11.4	23.4	68.3
10/13/21	189.5	-119.3	0.0	-74.4	18.2	14.0	42.1	-74.9
10/14/21	-35.3	35.3	0.0	0.0	-7.1	-27.6	13.4	166.1
10/15/21	-12.2	-3.5	0.0	0.0	3.5	17.4	17.4	27.7

ATTACHMENT D
Incremental Ammonia-N Mass Loadings (lb/D)
Sampling Location - 2,000 ft Upstream WWPS-2 Overflow

Sample Date	(Upstream <----------> Downstream) 16-19-WC 750 ft Downstream WWPS-2 Overflow	17-16 Immediately Upstream Outfall 011 Channel[1]	17-19-WC Immediately Upstream Outfall 011 Channel[1]	Measured Minus Calculated Outfall 001
25th %tile	**-13.0**	**21.8**	**9.1**	**9.8**
Mean	**-4.1**	**39.1**	**46.8**	**61.6**
Median	**-2.7**	**40.3**	**37.4**	**63.4**
75th %tile	**4.6**	**55.1**	**69.6**	**120.1**
90th %tile	**17.9**	**105.6**	**114.1**	**167.2**
95th %tile	**27.3**	**150.3**	**140.2**	**199.6**
04/05/21	-8.4	116.0	107.6	9.8
04/06/21	-10.9	61.8	50.9	102.2
04/07/21	8.3	51.1	59.4	37.7
04/08/21	36.0	74.7	110.7	79.6
04/09/21	0.0	60.4	60.4	156.1
04/10/21	0.0	55.1	55.1	123.4
04/11/21	-40.5	106.7	66.3	-64.9
04/12/21	0.0	67.8	67.8	-19.2
04/13/21	0.3	61.3	61.6	-43.9
04/14/21	0.0	20.7	20.7	8.5
04/15/21	0.0	61.3	61.3	17.1
04/16/21	-13.5	92.6	79.0	86.6
04/17/21	20.3	60.1	80.4	15.9
04/18/21	-12.1	54.9	42.8	-4.0
04/19/21	**8.5**	105.6	114.1	-30.5
04/20/21	0.0	55.1	55.1	-12.7
04/21/21	27.2	45.4	72.6	-139.9
04/22/21	17.9	71.4	89.3	-109.6
04/23/21	13.9	18.6	32.5	133.1
04/24/21	27.0	0.0	27.0	23.1
04/25/21	2.8	79.2	82.0	26.4
04/26/21	6.0	51.2	57.2	36.6
04/27/21	-9.5	47.3	37.8	126.3
04/28/21	-8.9	17.8	8.9	53.4
04/29/21	-100.2	63.8	-36.5	36.3
04/30/21	24.3	41.1	65.3	55.1
05/01/21	0.0	9.1	9.1	200.0
05/02/21	0.0	36.9	36.9	259.9
05/03/21	0.9	30.7	31.6	171.4
05/04/21	0.4	41.3	41.7	159.5
05/05/21	-13.0	67.3	54.4	46.0
05/06/21	-21.5	99.2	77.7	0.0
05/07/21	-19.0	82.4	63.4	167.5
05/08/21	-6.3	164.1	157.8	39.2
05/09/21	27.5	30.8	58.3	93.4
05/10/21	0.0	112.4	112.4	49.8
05/11/21	79.3	-24.8	54.5	116.9
05/12/21	0.0	67.8	67.8	-38.4
05/13/21	1.9	3.9	5.8	-10.2
05/14/21	0.0	0.0	0.0	76.0
05/15/21	5.5	-11.5	-6.0	134.0
05/16/21	-2.7	-2.1	-4.8	86.3
05/17/21	0.0	0.0	0.0	-57.7

ATTACHMENT D
Incremental Ammonia-N Mass Loadings (lb/D)
Sampling Location - 2,000 ft Upstream WWPS-2 Overflow

Sample Date	(Upstream <----------> Downstream) 16-19-WC 750 ft Downstream WWPS-2 Overflow	17-16 Immediately Upstream Outfall 011 Channel[1]	17-19-WC Immediately Upstream Outfall 011 Channel[1]	Measured Minus Calculated Outfall 001
25th %tile	**-13.0**	**21.8**	**9.1**	**9.8**
Mean	**-4.1**	**39.1**	**46.8**	**61.6**
Median	**-2.7**	**40.3**	**37.4**	**63.4**
75th %tile	**4.6**	**55.1**	**69.6**	**120.1**
90th %tile	**17.9**	**105.6**	**114.1**	**167.2**
95th %tile	**27.3**	**150.3**	**140.2**	**199.6**
05/18/21	8.4	104.1	112.4	-45.6
05/19/21	-38.7	34.2	-4.5	108.0
05/20/21	8.1	165.3	173.3	-61.7
05/21/21	54.3	-14.6	39.7	150.3
05/22/21	26.1	29.0	55.0	135.3
05/23/21	-14.3	10.7	-3.6	143.3
05/24/21	-33.6	36.1	2.4	112.0
05/25/21	-31.0	11.3	-19.7	120.1
05/26/21	-2.6	23.8	21.2	186.2
05/27/21	-4.0	20.2	16.1	-1.3
05/28/21	23.7	15.6	39.3	83.7
05/29/21	0.0	68.7	68.7	139.3
05/30/21	-2.8	40.0	37.2	209.0
05/31/21	-19.0	26.9	7.9	144.9
06/01/21	-5.8	40.3	34.5	196.1
06/02/21	-10.6	18.2	7.6	79.9
06/03/21	-17.2	40.7	23.5	53.8
06/04/21	-3.5	9.2	5.7	no data
06/05/21	15.2	10.1	25.4	248.6
06/06/21	-10.3	-13.8	-24.1	219.5
06/07/21	7.3	18.4	25.7	270.0
06/08/21	0.0	29.3	29.3	85.2
06/09/21	-33.8	4.8	-28.9	191.6
06/10/21	17.0	-12.7	4.2	-72.6
06/11/21	10.9	-8.6	2.4	-3.8
06/12/21	-8.3	66.4	58.1	86.2
06/13/21	168.0	-172.5	-4.5	114.2
06/14/21	-6.4	37.4	31.0	9.5
06/15/21	-12.8	94.0	81.2	7.1
06/16/21	-31.5	12.6	-18.9	85.8
06/17/21	-11.3	32.0	20.6	148.0
06/18/21	-17.2	146.4	129.2	59.4
06/19/21	4.5	17.9	22.3	150.7
06/20/21	**-45.7**	4.6	-41.2	105.3
06/21/21	7.3	-2.4	4.9	200.3
06/22/21	2.9	7.5	10.5	155.3
06/23/21	16.7	138.1	154.9	-30.6
06/24/21	-1.3	46.5	45.2	-110.0
06/25/21	4.6	78.7	83.4	-128.3
06/26/21	77.6	92.1	169.7	-278.8
06/27/21	0.0	100.9	100.9	-28.4
06/28/21	0.0	56.5	56.5	-117.3
06/29/21	0.0	87.5	87.5	-102.7

ATTACHMENT D
Incremental Ammonia-N Mass Loadings (lb/D)
Sampling Location - 2,000 ft Upstream WWPS-2 Overflow

Sample Date	(Upstream <----------> Downstream) 16-19-WC 750 ft Downstream WWPS-2 Overflow	17-16 Immediately Upstream Outfall 011 Channel[1]	17-19-WC Immediately Upstream Outfall 011 Channel[1]	Measured Minus Calculated Outfall 001
25th %tile	**-13.0**	**21.8**	**9.1**	**9.8**
Mean	**-4.1**	**39.1**	**46.8**	**61.6**
Median	**-2.7**	**40.3**	**37.4**	**63.4**
75th %tile	**4.6**	**55.1**	**69.6**	**120.1**
90th %tile	**17.9**	**105.6**	**114.1**	**167.2**
95th %tile	**27.3**	**150.3**	**140.2**	**199.6**
06/30/21	no data	0.0	-17.0	10.8
07/01/21	no data	4.1	8.3	24.3
07/02/21	no data	-21.1	12.5	46.3
07/03/21	no data	100.0	130.4	63.4
07/04/21	no data	48.8	118.1	14.1
07/05/21	no data	89.0	89.0	42.6
07/06/21	no data	48.2	50.3	63.8
07/07/21	no data	17.9	57.4	114.5
07/08/21	no data	87.6	89.4	36.9
07/09/21	**no data**	173.2	179.7	**-79.4**
07/10/21	no data	126.6	107.9	23.7
07/11/21	no data	148.9	151.1	-41.4
07/12/21	no data	112.4	112.4	3.8
07/13/21	no data	120.6	102.3	-38.8
07/14/21	no data	18.1	126.9	-148.2
07/15/21	no data	132.7	141.6	-22.9
07/16/21	no data	104.1	70.8	68.0
07/17/21	4.6	133.0	137.6	-71.0
07/18/21	-149.6	49.6	-100.1	100.6
07/19/21	-27.2	-10.5	-37.7	91.7
07/20/21	**-10.1**	150.3	140.2	29.6
07/21/21	18.0	71.8	89.8	-4.1
07/22/21	-3.1	101.8	98.7	5.4
07/23/21	-25.9	188.0	162.2	9.9
07/24/21	-8.6	16.8	8.2	248.2
07/25/21	-5.2	128.9	123.7	62.4
07/26/21	-7.0	40.7	33.7	66.1
07/27/21	-6.3	63.8	57.5	-25.5
07/28/21	6.7	113.3	119.9	91.6
07/29/21	-8.9	27.6	18.8	154.7
07/30/21	-7.4	111.8	104.4	-28.1
07/31/21	-4.8	24.6	19.9	136.1
08/01/21	-22.1	114.4	92.3	69.1
08/02/21	-13.4	58.6	45.2	76.6
08/03/21	-29.4	53.0	23.6	107.5
08/04/21	33.2	7.1	40.4	39.9
08/05/21	7.0	51.0	58.1	76.5
08/06/21	-5.3	16.5	11.2	224.5
08/07/21	-5.6	58.1	52.5	61.5
08/08/21	-1.6	44.1	42.6	181.5
08/09/21	-37.4	36.0	-1.4	199.2
08/10/21	-19.1	54.6	35.5	93.2
08/11/21	-0.7	-4.5	-5.2	159.5

ATTACHMENT D
Incremental Ammonia-N Mass Loadings (lb/D)
Sampling Location - 2,000 ft Upstream WWPS-2 Overflow

Sample Date	(Upstream <----------> Downstream) 16-19-WC 750 ft Downstream WWPS-2 Overflow	17-16 Immediately Upstream Outfall 011 Channel[1]	17-19-WC Immediately Upstream Outfall 011 Channel[1]	Measured Minus Calculated Outfall 001
25th %tile	**-13.0**	**21.8**	**9.1**	**9.8**
Mean	**-4.1**	**39.1**	**46.8**	**61.6**
Median	**-2.7**	**40.3**	**37.4**	**63.4**
75th %tile	**4.6**	**55.1**	**69.6**	**120.1**
90th %tile	**17.9**	**105.6**	**114.1**	**167.2**
95th %tile	**27.3**	**150.3**	**140.2**	**199.6**
08/12/21	11.0	35.3	46.3	106.3
08/13/21	17.7	1.8	19.5	-60.2
08/14/21	-7.6	18.1	10.5	150.8
08/15/21	-9.5	76.9	67.5	38.3
08/16/21	-14.5	50.8	36.3	21.6
08/17/21	-9.4	60.0	50.6	61.8
08/18/21	-6.8	129.5	122.7	33.4
08/19/21	0.0	37.6	37.6	37.8
08/20/21	0.0	50.4	50.4	32.4
08/21/21	14.6	7.3	21.8	111.8
08/22/21	6.5	84.6	91.1	156.6
08/23/21	-4.4	41.5	37.1	81.5
08/24/21	-4.0	46.5	42.6	198.1
08/25/21	5.1	-19.6	-14.5	145.8
08/26/21	**7.8**	39.1	46.8	33.5
08/27/21	-14.4	1.1	-13.3	34.0
08/28/21	**-12.7**	21.8	9.1	127.0
08/29/21	-5.1	36.6	31.5	124.6
08/30/21	75.4	-57.2	18.2	34.5
08/31/21	56.5	51.7	108.2	28.0
09/01/21	-0.1	70.5	70.4	-37.0
09/02/21	12.6	131.8	144.4	-103.2
09/03/21	6.0	10.1	16.1	143.2
09/04/21	-48.2	98.1	49.9	146.1
09/05/21	18.0	33.5	51.5	-32.9
09/06/21	-31.3	19.0	-12.4	62.4
09/07/21	-1.6	43.7	42.2	64.8
09/08/21	-0.5	0.5	0.0	126.1
09/09/21	0.0	19.5	19.5	65.1
09/10/21	0.0	24.9	24.9	78.8
09/11/21	0.0	22.2	22.2	147.4
09/12/21	-3.7	40.2	36.5	-30.9
09/13/21	-6.0	33.3	27.3	113.7
09/14/21	-64.8	-0.4	-65.2	39.4
09/15/21	-31.6	166.9	135.3	-82.6
09/16/21	-11.9	43.5	31.6	116.0
09/17/21	10.5	0.2	10.6	67.6
09/18/21	**14.4**	55.1	69.6	65.5
09/19/21	-31.5	25.3	-6.1	119.3
09/20/21	-14.6	62.3	47.7	67.1
09/21/21	-5.9	29.7	23.8	85.0
09/22/21	-45.3	18.5	-26.8	28.4
09/23/21	0.0	0.0	0.0	27.7

ATTACHMENT D
Incremental Ammonia-N Mass Loadings (lb/D)
Sampling Location - 2,000 ft Upstream WWPS-2 Overflow

Sample Date	(Upstream <----------> Downstream) 16-19-WC 750 ft Downstream WWPS-2 Overflow	17-16 Immediately Upstream Outfall 011 Channel[1]	17-19-WC Immediately Upstream Outfall 011 Channel[1]	Measured Minus Calculated Outfall 001
25th %tile	**-13.0**	**21.8**	**9.1**	**9.8**
Mean	**-4.1**	**39.1**	**46.8**	**61.6**
Median	**-2.7**	**40.3**	**37.4**	**63.4**
75th %tile	**4.6**	**55.1**	**69.6**	**120.1**
90th %tile	**17.9**	**105.6**	**114.1**	**167.2**
95th %tile	**27.3**	**150.3**	**140.2**	**199.6**
09/24/21	0.0	14.1	14.1	145.9
09/25/21	-13.2	94.7	81.5	63.7
09/26/21	-18.4	42.5	24.0	110.6
09/27/21	18.6	26.6	45.2	92.6
09/28/21	-44.4	37.4	-7.0	104.7
09/29/21	0.0	16.8	16.8	1.1
09/30/21	0.0	0.0	0.0	54.8
10/01/21	4.3	24.4	28.7	-93.5
10/02/21	-20.1	26.1	6.0	189.2
10/03/21	-45.1	37.5	-7.7	45.7
10/04/21	-55.8	35.7	-20.1	52.9
10/05/21	-9.6	21.7	12.1	90.9
10/06/21	-10.7	33.0	22.3	-2.8
10/07/21	-13.3	64.0	50.7	19.4
10/08/21	-42.8	57.7	14.9	16.8
10/09/21	-82.5	25.6	-56.8	260.1
10/10/21	-18.9	-18.5	-37.4	56.0
10/11/21	-8.3	8.3	0.0	175.8
10/12/21	-26.6	41.0	14.4	68.3
10/13/21	-4.2	74.4	70.2	-74.9
10/14/21	0.0	-21.2	-21.2	166.1
10/15/21	-15.7	38.3	22.6	27.7

Cleveland-Cliffs Burns Harbor LLC
Unaccounted-For Ammonia-N in Outfall 001 Storm Ditch Study
(April 8 to October 15, 2021)

Amendola Engineering, Inc.
DRAFT - October 20, 2021

ATTACHMENT E

Daily Ammonia-N Concentrations, Flows and Mass Loadings vs. Daily Precipitation[1]

Sample Date	Storm Ditch Immediately Upstream Outfall 001 Channel Ammonia-N Concentration (mg/L)		Flow (mgd)	Ammonia-N Mass Loading (lb/D)	Precipitation (in)
04/11/21		0.360	41.8	125.6	0
04/13/21		0.250	39.9	83.2	0
04/14/21	J	0.094	62.0	48.6	0
04/15/21		0.180	58.3	87.6	0
04/16/21	B	0.330	45.1	124.2	0
04/17/21		0.270	45.0	101.4	0
04/18/21		0.190	48.4	76.7	0
04/22/21	B	0.390	42.8	139.3	0
04/23/21		0.150	40.6	50.8	0
04/25/21	M	0.430	33.9	121.6	0
04/26/21		0.320	36.1	96.4	0
04/27/21		0.220	36.8	67.6	0
04/30/21		0.270	41.0	92.4	0
05/01/21	BJ	0.079	43.5	28.7	0
05/04/21		0.190	42.3	67.1	0
05/05/21		0.250	50.1	104.5	0
05/07/21		0.340	40.0	113.5	0
05/10/21		0.390	40.1	130.5	0
05/11/21		0.280	33.0	77.1	0
05/12/21		0.270	37.6	84.7	0
05/13/21	J	0.066	57.8	31.8	0
05/14/21	BU	0.054	71.6	32.3	0
05/15/21	J	0.099	65.6	54.2	0
05/16/21	J	0.087	63.7	46.2	0
05/17/21	BU	0.054	64.2	28.9	0
05/20/21		0.530	48.3	213.6	0
05/21/21		0.210	35.0	61.3	0
05/22/21		0.360	34.7	104.2	0
05/23/21	B	0.140	42.9	50.1	0
05/24/21		0.220	28.8	52.9	0
05/25/21		0.150	33.8	42.3	0
05/29/21		0.370	37.4	115.5	0
05/30/21	B	0.230	30.5	58.5	0
05/31/21	B	0.170	31.6	44.8	0
06/01/21		0.220	30.2	55.4	0
06/02/21		0.140	45.5	53.2	0
06/03/21		0.180	40.3	60.5	0
06/04/21	J	0.083	52.3	36.2	0
06/05/21		0.230	60.8	116.7	0
06/06/21		0.110	41.2	37.8	0
06/08/21		0.210	50.1	87.8	0
06/09/21		0.130	57.8	62.7	0
06/10/21		0.140	50.8	59.3	0
06/11/21	J	0.092	57.0	43.8	0
06/12/21		0.320	49.7	132.7	0
06/13/21		0.160	54.4	72.6	0
06/14/21		0.170	50.9	72.2	0
06/15/21	B	0.320	51.2	136.7	0
06/16/21		0.150	75.6	94.6	0
06/17/21		0.140	61.8	72.2	0
06/20/21		0.120	54.8	54.9	0
06/22/21	J	0.079	50.2	33.1	0
06/23/21		0.350	62.7	183.1	0
07/06/21		0.170	52.0	73.8	0
07/08/21		0.200	73.4	122.5	0
07/09/21		0.440	55.8	204.9	0
07/10/21		0.390	56.2	182.9	0
07/11/21		0.370	66.1	204.1	0
07/12/21		0.350	53.9	157.4	0
07/13/21		0.363	54.9	166.5	0
07/14/21		0.400	72.4	241.7	0
07/15/21		0.370	58.9	181.9	0
07/16/21		0.350	49.9	145.7	0
07/17/21		0.430	49.8	178.7	0
07/18/21		0.190	54.5	86.4	0
07/19/21	U	0.054	52.6	23.7	0

Precipitation Range (in)	No. Days	Storm Ditch Immediately Upstream Outfall 001 Channel Ammonia-N Concentration (mg/L)	Flow (mgd)	Ammonia-N Mass Loading (lb/D)
0	121	0.210	52.1	89.4
0.01 to 0.10	28	0.187	57.8	85.1
0.11 to 0.25	9	0.175	54.5	74.3
0.26 to 0.50	10	0.244	55.1	102.6
0.51 to 1.00	4	0.183	52.4	78.8
> 1.01	4	0.233	44.8	87.1

Notes
[1] Rainfall gage located at the CCBH SWTP

Qualifiers
J Analyte is present at an estimated concentration between the MDL and RL
U Analyte analyzed but not detected above the MDL
B Analyte detected in the associated Method Blank above the RL
M Matrix interference present; matrix spike recovery outside of acceptance limits

Cleveland-Cliffs Burns Harbor LLC
Unaccounted-For Ammonia-N in Outfall 001 Storm Ditch Study
(April 8 to October 15, 2021)

Amendola Engineering, Inc.
DRAFT - October 20, 2021

ATTACHMENT E

Daily Ammonia-N Concentrations, Flows and Mass Loadings vs. Daily Precipitation[1]

Sample Date	Storm Ditch Immediately Upstream Outfall 001 Channel			Precipitation (in)
	Ammonia-N Concentration (mg/L)	Flow (mgd)	Ammonia-N Mass Loading (lb/D)	
07/20/21	0.360	59.5	178.7	0
07/21/21	0.200	73.7	123.0	0
07/22/21	0.220	72.0	132.2	0
07/23/21	0.460	61.5	236.1	0
07/25/21	B 0.320	62.3	166.4	0
07/26/21	0.120	61.2	61.3	0
07/27/21	B 0.150	73.1	91.5	0
07/28/21	0.320	54.6	145.8	0
07/30/21	B 0.260	62.0	134.5	0
07/31/21	0.180	57.0	85.6	0
08/01/21	0.270	61.1	137.7	0
08/02/21	0.160	59.8	79.8	0
08/03/21	0.200	51.7	86.3	0
08/04/21	0.130	72.3	78.4	0
08/05/21	0.170	69.9	99.2	0
08/07/21	0.250	35.7	74.5	0
08/08/21	0.180	48.0	72.1	0
08/13/21	0.130	55.8	60.5	0
08/14/21	0.150	60.4	75.6	0
08/15/21	0.230	53.5	102.7	0
08/16/21	0.170	49.8	70.6	0
08/17/21	0.210	44.4	77.8	0
08/19/21	0.140	52.4	61.2	0
08/20/21	0.200	41.4	69.1	0
08/21/21	0.160	43.6	58.2	0
08/22/21	0.340	38.7	109.8	0
08/23/21	0.160	47.8	63.8	0
08/27/21	U 0.054	48.7	21.9	0
08/28/21	0.140	52.1	60.9	0
08/30/21	0.100	48.8	40.7	0
08/31/21	0.330	48.5	133.6	0
09/01/21	B 0.180	67.0	100.6	0
09/02/21	0.320	71.8	191.7	0
09/04/21	0.290	49.8	120.5	0
09/05/21	M 0.220	50.2	92.2	0
09/06/21	0.100	49.4	41.2	0
09/07/21	0.160	47.7	63.7	0
09/08/21	U 0.054	64.9	29.2	0
09/09/21	J 0.088	68.7	50.5	0
09/10/21	0.110	53.2	48.8	0
09/11/21	B 0.110	47.4	43.5	0
09/12/21	0.150	47.1	59.0	0
09/13/21	0.140	44.2	51.6	0
09/14/21	J 0.066	58.9	32.4	0
09/15/21	B 0.430	63.4	227.5	0
09/16/21	0.140	55.3	64.6	0
09/17/21	0.150	52.0	65.1	0
09/18/21	0.310	48.0	124.2	0
09/19/21	0.180	42.2	63.4	0
09/24/21	J 0.079	67.5	44.5	0
09/26/21	0.160	48.0	64.1	0
09/27/21	0.190	39.8	63.1	0
09/28/21	0.170	41.9	59.4	0
09/29/21	J 0.089	57.5	42.7	0
09/30/21	U 0.054	61.0	27.5	0
10/03/21	B 0.150	60.0	75.1	0
10/05/21	J 0.096	52.9	42.4	0
10/06/21	0.140	64.5	75.4	0
10/10/21	U 0.054	62.7	28.3	0
05/02/21	M 0.190	32.5	51.5	0.01
05/06/21	M 0.350	42.3	123.5	0.01
05/18/21	0.290	59.1	143.0	0.01
07/01/21	J 0.078	82.5	53.7	0.01
07/02/21	J 0.088	60.1	44.1	0.01
07/03/21	0.440	52.1	191.3	0.01
07/04/21	0.320	53.2	142.1	0.01

Precipitation Range (in)	No. Days	Storm Ditch Immediately Upstream Outfall 001 Channel		
		Ammonia-N Concentration (mg/L)	Flow (mgd)	Ammonia-N Mass Loading (lb/D)

ATTACHMENT E

Daily Ammonia-N Concentrations, Flows and Mass Loadings vs. Daily Precipitation[1]

Sample Date	Storm Ditch Immediately Upstream Outfall 001 Channel			Precipitation (in)
	Ammonia-N Concentration (mg/L)	Flow (mgd)	Ammonia-N Mass Loading (lb/D)	
07/05/21	0.250	54.4	113.5	0.01
07/07/21	0.150	71.6	89.6	0.01
09/03/21	J 0.081	71.5	48.3	0.01
09/22/21	BJ 0.085	71.4	50.6	0.01
10/15/21	0.120	69.5	69.6	0.01
06/28/21	B 0.180	53.7	80.7	0.02
06/29/21	B 0.250	53.5	111.6	0.02
06/30/21	BU 0.054	72.7	32.8	0.02
08/26/21	0.180	44.6	67.0	0.02
08/29/21	0.130	51.6	56.0	0.02
04/09/21	0.210	46.4	81.3	0.03
04/20/21	0.210	42.3	74.1	0.03
05/27/21	0.170	48.3	68.5	0.03
06/19/21	0.210	53.5	93.8	0.03
06/27/21	BM 0.240	65.0	130.2	0.03
08/11/21	BJ 0.096	75.5	60.5	0.03
10/04/21	B 0.110	63.8	58.6	0.03
04/21/21	B 0.310	54.4	140.7	0.04
10/14/21	0.110	84.7	77.8	0.04
04/29/21	0.260	54.6	118.5	0.05
09/20/21	0.270	35.7	80.4	0.05
10/09/21	0.230	49.5	95.0	0.05
04/12/21	0.270	37.6	84.7	0.06
10/13/21	B 0.200	84.1	140.4	0.06
08/12/21	B 0.150	61.4	76.9	0.09
06/07/21	0.210	44.0	77.1	0.1
07/24/21	B 0.160	62.5	83.5	0.13
07/29/21	B 0.100	52.9	44.1	0.13
08/09/21	0.140	55.2	64.5	0.13
05/19/21	B 0.130	53.9	58.5	0.14
04/24/21	0.140	37.6	43.9	0.15
04/08/21	0.410	40.7	139.3	0.17
10/12/21	0.110	85.1	78.1	0.17
05/03/21	0.190	37.9	60.1	0.19
09/21/21	0.130	46.8	50.8	0.21
04/19/21	0.350	46.2	134.9	0.23
10/07/21	B 0.180	68.9	103.5	0.23
10/11/21	U 0.054	66.8	30.1	0.25
06/24/21	0.160	52.6	70.2	0.26
05/26/21	B 0.130	44.6	48.4	0.27
05/08/21	0.650	34.2	185.5	0.31
09/25/21	0.290	48.1	116.4	0.31
04/10/21	0.200	45.2	75.4	0.33
08/25/21	BJ 0.069	75.8	43.6	0.33
10/08/21	0.170	59.6	84.6	0.33
09/23/21	BU 0.054	71.3	32.1	0.34
06/26/21	B 0.520	58.1	252.1	0.38
04/28/21	B 0.140	53.2	62.2	0.39
08/18/21	0.300	63.1	158.0	0.4
06/18/21	0.470	51.6	202.4	0.52
06/21/21	J 0.067	58.6	32.8	0.53
08/06/21	J 0.080	56.1	37.5	0.56
10/01/21	B 0.140	40.0	46.7	0.68
08/10/21	0.180	56.7	85.2	0.76
10/02/21	B 0.160	51.2	68.4	0.8
06/25/21	0.310	55.5	143.6	1.01
05/28/21	0.180	37.4	56.2	1.03
05/09/21	M 0.280	33.6	78.5	1.7
08/24/21	0.160	52.6	70.2	2.62

Precipitation Range (in)	No. Days	Storm Ditch Immediately Upstream Outfall 001 Channel		
		Ammonia-N Concentration (mg/L)	Flow (mgd)	Ammonia-N Mass Loading (lb/D)

Cleveland-Cliffs Burns Harbor LLC
Unaccounted-For Ammonia-N in Outfall 001 Storm Ditch Study
(April 5, 2021 to October 15, 2021)

Amendola Engineering, Inc.
DRAFT - October 20, 2021

ATTACHMENT F
Daily Temperature Data Summary (Deg. F)

	DIW Sewer/WWPS-2						Storm Ditch Locations (Upstream <----------> Downstream)																		Outfalls					
Sample No.:	21			11			19			22			23			16			16b			16c			17			14			18		
HOBO ID:	*10*			*11*			*1*			*2*			*3*			*4*			*5*			*6*			*7*			*8*			*9*		
	Manhole DIW 611 Upstream WWPS-2			WWPS-2 Wet Well			2,000 ft Upstream WWPS-2 Overflow			Immediately Upstr. WWPS-2 Overflow			Immediately Downstr. WWPS-2 Overflow			750 ft Downstream WWPS-2 Overflow			2,900 ft Downstream at Bend N of US-12			3,500 ft Downstream South of US-12			Immediately Upstream Outfall 011 Chanel			Outfall 011			Outfall 001		
Sample Date	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max
Average	**81.7**	**87.1**	**92.5**	**81.7**	**86.8**	**92.1**	**66.8**	**69.5**	**72.3**	**66.6**	**69.4**	**72.3**	**67.0**	**69.7**	**72.7**	**66.7**	**69.3**	**72.1**	**64.9**	**67.7**	**70.9**	**66.5**	**69.2**	**72.2**	**66.6**	**69.2**	**72.1**	**78.7**	**80.4**	**81.9**	**70.6**	**74.2**	**78.9**
04/05/21	75.5	79.0	83.7	75.5	78.9	83.6	49.4	53.6	59.6	49.5	53.5	59.1	49.5	53.4	58.9	49.6	53.4	59.0	49.8	53.5	58.6	49.8	53.4	58.6	49.9	53.4	58.3	66.2	67.3	68.2	bad/no data		
04/06/21	77.0	81.3	85.6	77.0	81.3	85.7	53.9	57.1	58.8	54.4	57.4	58.7	54.5	57.3	58.6	54.7	57.5	58.8	54.7	57.8	64.4	54.6	57.7	59.6	54.8	57.8	59.7	67.8	69.6	71.4	bad/no data		
04/07/21	78.4	81.6	84.3	78.4	81.5	84.1	56.4	58.1	60.5	56.3	58.4	61.6	56.2	58.4	62.5	56.3	58.5	61.9	56.2	58.8	62.9	56.1	58.7	62.6	56.2	58.8	63.0	69.3	71.0	72.6	bad/no data		
04/08/21	76.6	79.4	82.6	76.6	79.4	82.5	55.1	57.1	58.8	55.1	57.3	58.8	55.4	57.6	59.6	55.2	57.5	59.0	55.1	57.6	59.5	55.0	57.5	59.3	55.2	57.6	59.6	69.8	70.9	71.7	bad/no data		
04/09/21	75.4	79.8	83.6	75.4	79.7	83.5	52.9	56.2	58.5	52.9	56.4	59.1	53.6	56.8	59.1	53.0	56.5	59.2	53.1	56.7	59.5	52.8	56.6	59.4	52.9	56.7	59.4	68.3	69.1	69.8	bad/no data		
04/10/21	73.4	77.8	80.8	73.8	77.8	80.7	51.5	53.3	55.1	51.7	53.5	55.2	52.1	54.0	56.1	51.8	53.6	55.3	51.8	53.7	55.7	51.8	53.6	55.5	51.9	53.7	55.7	68.5	69.4	69.9	bad/no data		
04/11/21	73.4	77.6	81.1	73.4	77.5	81.0	51.2	53.5	56.0	51.1	53.6	56.5	52.0	54.5	59.1	51.1	53.6	56.6	51.0	53.8	57.9	50.9	53.7	57.2	51.0	53.8	57.4	bad/no data			bad/no data		
04/12/21	75.5	78.9	82.7	75.6	78.8	82.6	53.7	56.7	61.5	53.6	56.6	60.3	54.0	56.9	61.6	53.6	56.5	59.9	53.4	56.8	61.4	53.4	56.6	61.1	53.4	56.7	61.4	bad/no data			bad/no data		
04/13/21	72.9	78.9	83.8	73.0	78.8	83.7	56.5	59.0	61.3	56.3	59.1	60.7	56.4	59.1	61.1	56.3	59.1	60.5	56.1	59.3	61.3	56.0	59.1	60.8	56.1	59.2	61.1	67.9	69.1	70.5	bad/no data		
04/14/21	60.7	73.1	84.6	60.8	73.2	84.5	55.8	57.3	58.7	55.8	57.3	59.3	55.9	57.3	59.7	55.8	57.2	59.2	55.7	57.2	59.7	55.7	57.1	59.3	55.7	57.2	59.5	65.9	67.4	68.7	bad/no data		
04/15/21	59.6	64.7	72.3	59.9	64.7	72.2	57.0	58.0	59.6	56.5	57.9	60.5	56.4	58.0	61.6	56.4	57.8	60.5	56.0	57.7	61.3	56.0	57.6	61.0	56.0	57.7	61.2	63.7	65.0	66.1	bad/no data		
04/16/21	71.1	78.6	81.8	71.1	78.6	81.7	54.6	58.0	60.1	54.4	58.1	60.2	54.5	58.2	61.4	54.4	58.1	60.3	54.3	58.1	61.0	54.1	58.0	60.7	54.4	58.1	60.8	64.6	66.4	68.7	60.9	63.1	65.6
04/17/21	76.1	78.2	80.8	76.1	78.1	80.7	51.4	53.1	56.1	51.2	53.3	55.6	51.2	53.4	55.6	51.1	53.3	55.5	51.0	53.6	55.1	50.9	53.4	55.1	51.0	53.5	55.1	67.0	67.7	69.0	60.4	61.5	62.9
04/18/21	76.1	77.9	79.9	76.1	77.9	79.8	51.1	53.8	61.5	50.8	53.5	60.8	50.9	53.4	60.6	50.8	53.3	60.6	50.8	53.3	59.8	50.6	53.2	60.0	50.7	53.2	59.7	66.6	68.3	70.0	59.3	61.7	64.5
04/19/21	72.6	76.8	79.9	72.7	76.8	79.8	59.0	60.0	61.0	58.6	59.6	60.5	58.5	59.4	60.3	58.6	59.5	60.4	58.2	59.0	60.0	58.2	59.1	60.1	58.2	59.0	60.0	64.6	67.6	68.7	63.6	64.2	64.7
04/20/21	71.0	77.5	83.9	71.0	77.5	83.8	56.9	58.4	60.1	57.1	58.2	59.5	57.0	58.1	59.2	57.1	58.1	59.3	56.8	57.8	58.7	56.7	57.7	58.8	56.8	57.7	58.7	65.0	66.5	67.6	59.4	61.5	63.8
04/21/21	74.7	78.6	83.2	74.6	78.5	83.1	57.2	58.6	61.7	45.8	58.3	61.2	54.8	58.3	61.2	51.8	58.2	60.9	56.2	58.1	61.0	56.1	58.1	60.8	56.2	58.0	60.6	65.1	66.6	68.2	61.1	63.0	65.3
04/22/21	71.9	77.8	80.9	71.8	77.8	80.8	57.9	59.2	62.3	57.2	59.3	63.1	57.2	59.3	63.3	57.0	59.2	63.1	56.5	59.3	64.5	56.5	59.2	64.1	56.5	59.2	64.1	66.3	68.8	71.7	62.0	65.0	69.3
04/23/21	71.9	75.8	81.9	72.0	75.8	81.8	54.4	58.0	60.3	54.8	58.2	61.4	54.8	58.3	61.6	54.9	58.3	61.6	54.9	58.5	62.6	54.9	58.4	62.2	55.3	58.5	62.4	68.0	69.5	70.8	63.0	65.2	68.1
04/24/21	69.3	73.6	77.3	69.4	73.6	77.2	53.5	54.8	56.0	53.4	54.9	56.4	53.5	54.9	56.4	53.6	54.9	56.5	53.5	55.0	56.6	53.5	54.9	56.6	53.8	55.2	56.7	68.5	68.9	69.4	62.7	63.8	65.0
04/25/21	74.3	76.7	79.2	74.3	76.7	79.1	52.7	55.9	61.8	52.5	55.7	60.9	52.5	55.6	60.8	52.4	55.6	60.6	52.3	55.5	60.0	52.1	55.4	60.0	52.3	55.4	59.5	66.3	67.4	68.6	60.9	62.8	65.1
04/26/21	71.5	76.9	80.7	72.6	76.9	80.6	58.9	61.3	63.8	59.2	61.5	64.7	59.3	61.5	64.9	59.3	61.5	64.9	59.3	61.6	66.4	59.3	61.5	65.7	59.4	61.4	65.5	65.8	68.3	70.8	63.1	65.7	69.1
04/27/21	71.9	78.3	83.2	72.0	78.2	83.0	58.3	59.0	60.4	58.5	59.4	61.4	58.5	59.4	61.6	58.6	59.6	61.8	58.5	59.8	62.6	58.5	59.8	62.7	58.6	60.0	63.1	69.4	71.2	73.4	62.8	65.1	67.1
04/28/21	76.0	79.3	83.2	76.0	79.3	83.0	57.5	59.1	60.4	57.5	59.0	59.8	57.5	59.0	59.9	57.5	58.9	59.8	57.3	58.8	59.9	57.3	58.8	59.9	57.5	58.9	60.1	68.4	69.9	72.0	61.9	62.9	64.2
04/29/21	72.7	80.0	83.8	73.4	79.9	83.7	58.6	59.8	61.0	58.7	59.8	61.6	58.8	59.9	61.6	58.7	59.8	61.6	58.5	59.6	62.0	58.5	59.6	61.8	58.4	59.7	61.8	67.5	68.3	69.2	63.6	64.6	66.4
04/30/21	75.0	80.9	84.0	75.5	80.9	83.4	57.2	60.4	62.9	57.0	60.6	64.7	57.0	60.7	64.5	56.7	60.5	64.2	56.6	60.7	65.3	56.6	60.6	64.9	56.7	60.8	65.4	68.3	69.8	71.3	61.2	66.1	68.7
05/01/21	78.1	81.2	83.8	78.1	81.2	83.6	55.5	58.4	62.0	55.4	58.9	63.8	55.4	59.0	63.7	55.1	58.6	63.5	55.2	59.3	64.9	55.1	59.2	64.7	55.2	59.5	65.3	68.2	70.1	72.3	59.3	65.7	69.9
05/02/21	77.7	82.1	86.2	77.9	82.0	86.1	57.0	60.8	66.3	57.0	61.0	65.1	57.0	60.9	65.1	56.6	61.4	67.6	57.0	61.1	65.9	57.0	61.1	65.9	57.1	61.4	66.5	67.9	71.3	74.3	65.9	68.6	72.3
05/03/21	66.9	78.2	85.5	67.6	78.2	85.1	63.5	65.2	66.3	63.5	65.3	66.8	63.6	65.3	66.6	63.7	65.4	66.7	63.2	64.8	66.2	63.4	65.3	66.7	63.6	65.4	67.1	72.7	74.0	74.8	65.4	70.6	72.2
05/04/21	77.7	81.2	85.3	77.6	81.1	84.9	58.2	60.6	63.6	58.3	60.6	63.7	58.3	60.7	63.8	58.3	60.7	63.8	58.2	60.5	63.2	58.2	60.6	63.5	58.4	60.7	63.6	70.5	72.1	74.4	61.3	65.3	70.0
05/05/21	72.3	77.5	81.3	72.4	77.5	81.1	58.1	60.7	64.2	57.9	61.0	65.8	58.0	61.0	65.6	58.0	61.0	65.6	57.9	61.0	66.3	58.0	61.0	66.2	58.1	61.3	66.8	68.8	70.6	72.2	61.8	66.2	69.9
05/06/21	63.1	75.1	79.5	63.8	75.1	79.5	57.8	59.1	60.9	57.7	59.0	61.0	57.8	59.0	61.0	57.7	58.9	60.9	57.5	58.7	61.0	57.4	58.7	60.8	57.6	58.9	60.9	68.6	69.4	70.7	63.8	65.2	66.4
05/07/21	71.5	79.9	83.2	72.3	79.9	83.1	57.6	58.8	61.5	57.2	59.0	62.2	57.3	59.0	62.2	55.4	58.5	61.5	56.9	58.9	62.8	56.9	58.9	62.5	56.9	59.1	63.3	67.6	69.0	70.4	63.2	65.2	68.0
05/08/21	70.9	77.4	82.8	71.0	77.4	82.7	54.5	57.6	60.9	54.7	58.0	62.5	54.8	58.0	62.2	52.7	56.7	62.0	54.7	58.2	63.3	54.5	58.1	63.1	54.6	58.4	63.9	68.5	70.1	71.9	63.6	65.7	69.1
05/09/21	75.6	79.2	85.1	75.5	79.1	85.1	50.3	55.7	62.0	50.1	55.1	61.3	50.2	55.2	61.3	50.1	55.0	61.2	50.5	54.8	60.0	50.0	54.7	60.4	50.2	54.7	60.3	67.1	68.1	69.9	60.1	62.7	64.7
05/10/21	66.7	75.6	84.7	66.8	75.6	84.6	61.2	62.3	64.9	61.0	62.1	64.2	61.0	62.2	64.4	60.6	61.9	64.1	60.0	61.6	64.6	60.3	61.8	64.7	60.2	61.9	64.8	67.6	69.2	70.7	64.5	66.4	68.5
05/11/21	75.6	79.2	85.1	75.5	79.1	85.1	50.3	55.7	62.1	50.1	55.2	61.3	50.2	55.2	61.3	50.1	55.1	61.2	50.5	54.8	60.0	50.0	54.7	60.4	50.2	54.8	60.3	67.1	68.1	69.8	60.1	62.7	64.7
05/12/21	74.5	82.5	85.8	75.2	82.5	85.8	56.5	59.2	61.3	56.4	59.7	61.6	56.4	59.7	61.5	56.4	59.6	61.5	56.2	59.7	62.1	56.3	59.7	62.2	56.5	59.9	62.4	70.0	71.6	73.3	50.6	61.9	75.6
05/13/21	74.3	79.9	83.9	73.6	79.8	83.6	54.6	56.0	58.7	54.6	56.3	59.7	54.7	56.5	59.9	54.7	56.5	59.8	54.5	56.6	60.5	54.6	56.6	60.2	54.7	56.8	60.6	69.6	71.7	73.8	55.2	61.1	77.8
05/14/21	75.1	82.2	87.1	76.2	82.2	87.1	53.6	55.4	57.4	53.6	55.7	58.3	53.7	55.9	59.1	53.8	55.9	58.8	53.7	56.0	59.4	53.8	56.0	59.3	53.9	56.3	59.6	69.9	71.8	73.6	57.1	60.9	69.8
05/15/21	75.6	79.7	86.2	75.6	79.7	86.2	52.2	53.1	53.9	52.4	53.3	54.0	52.5	53.4	54.2	52.6	53.4	54.2	52.5	53.4	54.2	52.6	53.4	54.2	52.8	53.6	54.4	69.8	70.7	71.9	56.0	57.6	59.2
05/16/21	78.3	82.8	87.1	79.0	82.8	86.9	51.9	52.7	53.8	52.0	53.0	54.6	52.1	53.2	55.0	52.1	53.2	55.0	52.1	53.4	55.5	52.1	53.4	55.5	52.3	53.6	55.7	68.9	70.4	71.9	56.0	58.8	73.4
05/17/21	69.2	77.1	84.3	69.4	77.0	84.2	52.6	54.2	58.1	52.6	54.2	57.9	52.8	54.4	58.0	52.8	54.3	58.0	52.7	54.3	57.8	52.7	54.4	57.8	52.9	54.5	57.9	69.8	70.5	71.2	56.2	59.3	63.6

Cleveland-Cliffs Burns Harbor LLC
Unaccounted-For Ammonia-N in Outfall 001 Storm Ditch Study
(April 5, 2021 to October 15, 2021)

Amendola Engineering, Inc.
DRAFT - October 20, 2021

ATTACHMENT F
Daily Temperature Data Summary (Deg. F)

	DIW Sewer/WWPS-2						Storm Ditch Locations (Upstream <----------> Downstream)																		Outfalls					
Sample No.:	21			11			19			22			23			16			16b			16c			17			14			18		
HOBO ID:	*10*			*11*			*1*			*2*			*3*			*4*			*5*			*6*			*7*			*8*			*9*		
	Manhole DIW 611 Upstream WWPS-2			WWPS-2 Wet Well			2,000 ft Upstream WWPS-2 Overflow			Immediately Upstr. WWPS-2 Overflow			Immediately Downstr. WWPS-2 Overflow			750 ft Downstream WWPS-2 Overflow			2,900 ft Downstream at Bend N of US-12			3,500 ft Downstream South of US-12			Immediately Upstream Outfall 011 Chanel			Outfall 011			Outfall 001		
Sample Date	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max
Average	**81.7**	**87.1**	**92.5**	**81.7**	**86.8**	**92.1**	**66.8**	**69.5**	**72.3**	**66.6**	**69.4**	**72.3**	**67.0**	**69.7**	**72.7**	**66.7**	**69.3**	**72.1**	**64.9**	**67.7**	**70.9**	**66.5**	**69.2**	**72.2**	**66.6**	**69.2**	**72.1**	**78.7**	**80.4**	**81.9**	**70.6**	**74.2**	**78.9**
05/18/21	68.3	75.4	79.5	69.0	76.0	80.1	55.6	56.8	57.8	56.1	57.0	58.4	56.2	57.2	59.1	56.3	57.3	58.6	56.3	57.4	58.9	56.3	57.4	58.9	56.5	57.6	59.1	69.3	70.3	71.1	58.8	62.5	71.9
05/19/21	71.1	77.4	84.0	71.7	78.7	85.4	56.8	58.1	60.4	57.1	58.2	60.2	57.3	58.4	60.3	57.4	58.4	60.1	57.4	58.4	59.9	57.4	58.4	59.8	57.5	58.6	60.0	69.8	70.6	71.6	60.7	64.0	71.9
05/20/21	70.4	78.1	82.5	72.0	79.2	82.4	59.4	61.0	62.4	59.9	61.4	64.2	60.0	61.6	64.1	60.1	61.7	64.4	59.8	62.0	65.8	59.8	61.9	65.4	59.8	62.2	66.0	70.5	72.6	74.8	66.5	69.4	78.8
05/21/21	70.2	78.2	83.5	70.8	79.1	83.4	59.2	61.9	65.7	59.9	62.6	66.6	60.1	62.6	66.9	60.4	62.8	66.7	60.3	63.2	67.0	60.3	63.1	66.9	60.5	63.4	66.9	73.2	74.8	76.5	66.2	70.5	77.9
05/22/21	77.2	80.5	85.0	77.2	80.5	85.0	55.2	57.3	59.3	55.3	58.0	61.5	55.4	58.2	61.2	55.5	58.4	61.4	55.5	58.8	62.7	55.5	58.8	62.4	55.8	59.1	62.8	74.1	75.5	76.8	62.9	69.3	93.9
05/23/21	79.9	85.2	90.4	79.8	85.2	90.5	54.6	57.4	60.2	54.9	57.8	60.6	55.0	57.9	60.7	55.2	58.1	60.9	55.2	58.3	61.7	55.2	58.3	61.5	55.4	58.6	61.8	73.0	73.9	75.3	62.4	68.1	76.5
05/24/21	82.1	86.0	89.8	82.1	86.0	89.9	55.6	59.5	64.3	56.8	59.7	63.9	56.9	59.8	64.1	57.4	59.9	63.9	57.5	60.1	63.3	57.5	60.1	63.4	57.8	60.3	63.0	72.6	74.7	76.6	64.1	69.4	79.6
05/25/21	80.1	85.7	91.3	79.9	85.6	91.1	58.8	62.9	68.8	59.5	62.9	67.7	60.0	63.1	67.7	60.2	63.1	66.9	60.3	63.1	66.0	60.4	63.1	66.1	60.6	63.2	65.9	75.1	76.2	77.3	bad/no data		
05/26/21	84.9	88.8	92.3	85.1	88.7	92.2	66.5	68.6	70.7	66.4	68.8	71.4	66.5	69.1	72.3	66.5	69.1	72.1	66.1	69.1	72.4	66.1	69.1	72.4	65.8	69.3	72.8	75.7	77.5	79.9	bad/no data		
05/27/21	79.6	87.3	91.2	80.4	87.2	91.0	59.1	62.4	67.0	60.3	62.7	66.8	60.5	62.9	67.0	60.7	63.1	66.9	60.6	63.0	66.5	60.6	63.1	66.5	60.9	63.3	66.6	74.3	76.2	78.0	bad/no data		
05/28/21	75.0	82.1	89.6	76.8	82.1	89.4	60.0	62.4	65.1	60.0	61.9	64.0	60.1	62.1	64.1	60.1	61.9	63.6	59.6	61.4	63.0	59.7	61.5	63.1	59.8	61.6	63.0	70.1	72.1	74.2	bad/no data		
05/29/21	79.4	83.2	86.5	79.4	83.1	86.4	59.1	61.8	65.3	58.9	62.1	66.4	59.1	62.4	67.0	59.3	62.3	67.4	59.1	62.2	67.4	59.2	62.2	67.4	59.5	62.5	67.8	69.3	71.7	74.2	bad/no data		
05/30/21	80.5	85.7	90.9	80.5	85.6	90.7	58.7	61.8	65.0	58.8	61.9	64.4	59.0	62.2	65.2	58.9	62.0	65.4	58.4	62.0	66.0	58.5	62.0	65.8	58.7	62.2	66.3	71.7	74.0	76.2	bad/no data		
05/31/21	76.8	87.9	94.7	78.8	87.8	94.6	64.4	66.1	67.4	64.1	65.9	67.8	64.3	66.1	67.9	64.2	66.0	67.9	63.8	65.7	67.9	63.8	65.7	67.8	63.8	65.8	68.0	74.3	75.7	77.0	bad/no data		
06/01/21	79.9	87.9	94.8	80.3	87.8	94.6	64.3	65.9	67.2	64.8	66.1	67.8	65.0	66.3	68.1	65.0	66.3	68.2	64.7	66.2	68.7	64.8	66.2	68.7	64.8	66.4	69.0	75.6	77.8	80.2	bad/no data		
06/02/21	76.2	84.1	89.3	77.8	84.1	89.2	64.2	65.4	66.7	64.0	65.5	67.1	64.2	65.8	67.6	64.2	65.8	67.7	63.9	65.6	67.8	64.0	65.7	68.0	64.1	65.9	68.1	76.7	77.9	79.1	bad/no data		
06/03/21	77.3	84.1	92.8	77.6	84.0	92.4	65.7	66.8	69.1	65.5	67.2	70.6	65.7	67.5	71.3	65.5	67.5	71.7	64.9	67.4	71.6	65.1	67.6	71.9	65.1	67.8	72.2	75.6	78.3	81.0	bad/no data		
06/04/21	77.3	84.1	92.8	77.6	84.0	92.4	65.7	66.8	69.1	65.5	67.2	70.6	65.7	67.5	71.3	65.5	67.5	71.7	64.9	67.4	71.6	65.1	67.6	71.9	65.1	67.8	72.2	75.6	78.3	81.0	bad/no data		
06/05/21	83.5	87.7	93.0	83.5	87.7	92.7	65.6	67.8	70.9	64.3	68.1	72.0	64.5	68.3	72.6	64.5	68.4	73.0	64.0	68.3	72.9	64.2	68.5	72.9	64.5	68.6	73.1	77.9	80.5	83.1	bad/no data		
06/06/21	80.2	85.9	91.5	80.2	85.9	91.4	61.2	65.3	68.7	61.4	65.9	69.7	61.8	66.2	69.9	62.0	66.5	70.2	61.9	66.6	70.5	62.0	66.7	70.5	62.5	67.0	70.7	80.8	82.1	83.3	bad/no data		
06/07/21	78.2	82.9	88.3	78.2	82.8	88.2	61.8	65.9	68.6	62.0	65.8	68.1	62.3	66.1	68.2	62.4	66.1	68.3	62.1	65.8	67.7	62.2	66.0	68.0	62.5	66.0	68.0	79.7	80.5	81.7	bad/no data		
06/08/21	79.3	87.9	95.1	79.6	87.8	94.8	64.0	66.4	69.4	64.7	66.8	69.0	65.1	67.1	69.1	65.3	67.3	69.3	65.2	67.2	69.4	65.4	67.4	72.3	65.6	67.6	69.9	78.3	80.6	82.9	bad/no data		
06/09/21	79.4	88.5	93.5	80.6	88.4	93.3	65.4	66.8	69.8	65.4	67.3	71.3	65.7	67.7	71.9	65.8	67.8	71.9	65.5	68.0	72.6	65.6	68.0	72.5	65.7	68.1	72.2	79.4	81.1	82.7	bad/no data		
06/10/21	78.4	87.3	92.9	78.8	87.2	92.9	64.1	65.8	68.4	64.7	66.2	69.6	65.0	66.5	69.9	65.1	66.6	70.1	64.7	66.7	70.5	64.9	66.8	70.3	65.1	66.8	69.7	79.6	80.7	81.7	bad/no data		
06/11/21	79.1	87.3	93.3	79.7	87.2	93.0	64.0	67.9	71.3	64.3	68.5	73.0	64.5	68.8	73.4	64.8	69.0	74.0	64.8	69.2	74.7	64.9	69.3	74.4	65.8	69.2	73.9	79.1	81.3	83.5	73.0	77.2	83.6
06/12/21	80.5	85.0	88.5	80.5	84.9	88.3	60.5	63.2	65.8	60.6	63.8	67.5	60.9	64.1	67.9	61.1	64.4	68.7	61.0	64.7	69.4	61.2	64.8	69.3	61.8	65.2	69.2	80.4	81.8	83.6	72.9	75.6	84.3
06/13/21	84.1	86.5	89.8	84.1	86.4	89.6	60.3	62.1	65.2	60.3	62.6	66.3	60.6	63.0	67.0	60.7	63.1	67.3	60.5	63.4	68.1	60.6	63.4	67.9	61.1	63.7	67.6	79.1	80.8	82.7	bad/no data		
06/14/21	83.9	88.3	93.7	83.9	88.2	93.5	61.7	68.5	77.5	61.1	68.1	76.4	61.2	68.4	76.2	61.2	68.1	75.9	60.8	67.7	76.1	60.9	67.8	75.9	61.5	67.3	74.3	77.9	79.7	81.0	bad/no data		
06/15/21	84.4	90.8	101.2	84.5	90.7	100.5	74.4	75.9	77.1	74.2	75.8	77.5	74.5	76.1	78.2	74.5	76.1	78.0	73.8	75.6	78.0	74.0	75.8	78.2	72.6	74.8	76.8	80.9	83.1	85.6	bad/no data		
06/16/21	84.2	88.3	92.0	84.0	88.3	91.8	76.0	77.6	79.7	75.5	77.4	79.1	75.7	77.7	79.6	75.7	77.6	79.6	74.9	77.0	79.3	75.0	77.2	79.5	74.0	76.7	79.7	80.6	82.3	83.9	bad/no data		
06/17/21	78.0	86.4	91.9	78.3	86.3	91.4	75.1	77.8	80.4	74.6	77.7	81.1	74.9	78.0	81.6	74.9	78.0	81.6	73.7	77.2	81.3	74.1	77.6	81.8	74.0	77.5	81.5	81.6	83.5	85.3	bad/no data		
06/18/21	80.8	85.9	91.2	80.8	85.8	90.9	69.8	76.4	81.0	70.3	76.7	81.4	70.7	77.1	82.0	70.8	77.3	81.7	70.4	76.7	81.4	70.7	77.2	82.1	71.3	77.3	81.9	82.5	84.2	85.6	bad/no data		
06/19/21	81.4	89.7	94.0	81.4	89.5	93.8	68.3	70.4	73.3	68.6	70.7	72.9	68.9	71.1	73.2	69.0	71.2	73.2	68.7	71.1	73.2	68.9	71.3	73.5	69.2	71.6	74.0	83.0	84.5	86.1	bad/no data		
06/20/21	89.9	93.8	100.1	89.8	93.7	99.8	68.0	71.5	73.2	68.3	71.8	73.6	68.7	72.1	73.9	69.0	72.3	74.1	69.7	71.8	73.6	69.8	72.3	74.1	70.5	72.4	74.2	84.4	85.5	86.4	bad/no data		
06/21/21	88.4	91.6	95.1	88.3	91.5	94.8	68.0	74.7	78.4	67.9	74.0	77.0	68.3	74.2	77.3	68.4	74.2	77.3	68.0	72.8	76.4	68.3	73.6	77.2	68.6	73.6	77.5	83.1	84.5	85.8	bad/no data		
06/22/21	87.0	90.3	95.5	86.9	90.1	95.4	75.2	77.0	81.5	75.0	76.4	80.5	75.4	76.4	80.6	75.4	76.8	80.5	73.5	75.5	79.0	74.6	76.2	79.2	74.5	76.1	78.9	70.4	83.6	86.2	bad/no data		
06/23/21	85.2	91.4	96.9	85.3	91.3	96.8	77.1	79.1	81.0	76.4	78.6	80.3	76.7	78.9	80.5	76.7	78.8	80.4	75.9	78.1	79.3	76.2	78.3	79.5	76.1	78.1	79.2	83.0	83.9	84.8	75.8	79.8	82.4
06/24/21	83.7	90.7	97.3	84.0	90.6	97.2	71.7	74.1	77.5	71.6	74.0	76.8	72.0	74.4	76.9	72.0	74.3	76.9	71.6	73.9	75.9	71.8	74.1	76.2	71.8	74.1	76.0	82.8	83.5	84.4	72.5	78.1	80.6
06/25/21	82.2	89.9	98.9	82.6	89.8	98.6	69.9	71.1	72.2	69.9	71.0	71.9	70.4	71.3	72.2	70.3	71.4	72.2	69.9	71.0	72.1	70.1	71.2	72.3	70.3	71.2	72.4	82.3	82.5	82.8	76.6	78.2	79.2
06/26/21	84.8	88.2	96.4	84.8	88.1	96.1	64.0	67.6	70.9	64.4	67.8	71.3	65.6	68.4	71.6	65.2	68.3	71.8	65.8	68.3	71.4	65.9	68.5	71.6	66.5	68.7	71.4	81.9	82.7	83.4	75.4	77.1	78.5
06/27/21	86.1	90.6	97.8	86.0	90.4	97.7	64.1	69.6	72.6	64.6	69.7	72.4	65.7	70.1	72.5	65.3	70.2	72.9	65.8	70.2	73.8	65.8	70.3	73.5	66.8	70.2	73.0	81.8	83.6	85.6	76.0	78.2	85.7
06/28/21	84.8	87.3	90.8	84.8	87.2	90.7	63.3	65.9	72.0	63.8	66.4	72.0	64.6	67.0	72.1	64.4	67.0	72.3	64.4	67.1	71.7	64.5	67.3	71.9	65.2	67.6	71.5	83.1	84.8	86.2	76.0	78.1	85.1
06/29/21	78.3	85.8	94.4	78.4	85.7	94.2	64.4	65.7	67.6	64.4	65.8	66.5	65.1	66.3	67.1	65.1	66.4	67.2	65.0	66.4	68.0	65.2	66.5	67.9	65.4	66.6	68.0	81.4	82.8	84.5	bad/no data		

Cleveland-Cliffs Burns Harbor LLC
Unaccounted-For Ammonia-N in Outfall 001 Storm Ditch Study
(April 5, 2021 to October 15, 2021)

Amendola Engineering, Inc.
DRAFT - October 20, 2021

ATTACHMENT F
Daily Temperature Data Summary (Deg. F)

	DIW Sewer/WWPS-2						Storm Ditch Locations (Upstream <----------> Downstream)																		Outfalls					
Sample No.:	21			11			19			22			23			16			16b			16c			17			14			18		
HOBO ID:	*10*			*11*			*1*			*2*			*3*			*4*			*5*			*6*			*7*			*8*			*9*		
Sample Date	Manhole DIW 611 Upstream WWPS-2			WWPS-2 Wet Well			2,000 ft Upstream WWPS-2 Overflow			Immediately Upstr. WWPS-2 Overflow			Immediately Downstr. WWPS-2 Overflow			750 ft Downstream WWPS-2 Overflow			2,900 ft Downstream at Bend N of US-12			3,500 ft Downstream South of US-12			Immediately Upstream Outfall 011 Chanel			Outfall 011			Outfall 001		
	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max
Average	**81.7**	**87.1**	**92.5**	**81.7**	**86.8**	**92.1**	**66.8**	**69.5**	**72.3**	**66.6**	**69.4**	**72.3**	**67.0**	**69.7**	**72.7**	**66.7**	**69.3**	**72.1**	**64.9**	**67.7**	**70.9**	**66.5**	**69.2**	**72.2**	**66.6**	**69.2**	**72.1**	**78.7**	**80.4**	**81.9**	**70.6**	**74.2**	**78.9**
06/30/21	78.2	84.2	92.4	78.2	84.1	92.3	66.1	67.4	68.7	66.0	67.4	68.5	66.4	67.7	68.7	66.4	67.8	68.9	66.1	67.6	68.6	66.3	67.7	68.8	66.3	67.6	68.5	81.5	82.1	82.7	bad/no data		
07/01/21	74.7	79.9	84.3	74.8	79.8	84.2	66.8	68.4	71.2	66.8	68.3	70.3	67.2	68.6	70.3	67.3	68.8	70.5	66.6	68.5	70.7	66.8	68.6	70.7	66.5	68.4	70.4	78.4	80.8	81.9	70.1	72.8	77.5
07/02/21	79.0	87.0	94.5	79.0	86.8	94.3	69.6	75.9	80.7	69.0	75.5	80.1	69.4	75.4	79.8	69.4	75.7	80.3	68.6	75.0	80.1	68.8	75.2	80.1	68.6	74.5	79.4	77.4	80.1	82.9	67.3	75.7	81.4
07/03/21	88.3	91.0	96.8	88.3	90.9	96.5	72.9	74.4	77.2	72.6	74.4	77.6	72.8	74.6	77.6	72.9	74.8	78.1	72.0	74.5	78.7	72.2	74.6	78.5	72.1	74.5	78.1	82.3	84.9	87.7	73.9	80.0	86.8
07/04/21	89.7	92.6	98.3	89.6	92.4	98.1	72.6	73.4	74.5	72.2	73.6	75.5	72.5	73.8	75.7	72.6	74.1	76.1	71.9	74.0	77.1	72.1	74.0	76.8	72.0	74.0	77.3	85.6	87.4	89.3	77.5	81.6	87.9
07/05/21	84.6	91.1	101.1	84.7	90.9	100.7	72.4	74.9	77.3	72.1	74.8	77.5	72.4	75.1	77.9	72.5	75.3	78.1	72.0	75.1	78.9	72.1	75.2	78.7	72.2	75.4	79.5	86.6	88.3	90.2	77.4	82.5	91.6
07/06/21	92.2	95.7	102.2	92.1	95.5	102.0	77.1	79.0	82.3	76.7	78.8	81.8	76.5	78.6	82.2	77.0	79.3	82.2	76.2	78.8	81.5	76.4	78.9	81.6	76.5	78.9	81.6	87.6	89.8	92.1	77.3	83.5	105.6
07/07/21	90.5	94.7	101.8	90.6	94.7	101.6	72.6	80.2	82.7	72.9	80.4	82.6	73.6	80.1	83.0	73.7	80.8	83.5	73.3	80.4	83.1	73.4	80.6	83.2	73.5	80.4	83.4	88.3	88.8	90.7	bad/no data		
07/08/21	87.2	91.3	95.9	87.1	91.3	95.5	75.5	78.2	81.0	75.4	77.6	80.0	75.8	77.8	80.1	76.0	77.9	80.0	75.5	77.1	78.8	75.6	77.3	79.0	75.7	77.2	78.8	83.3	86.0	88.7	bad/no data		
07/09/21	86.9	94.6	101.4	87.3	94.5	101.3	76.9	80.9	84.4	76.4	80.6	84.3	76.7	80.8	84.4	76.7	80.9	85.6	75.8	80.2	84.6	76.0	80.2	84.1	76.0	80.1	83.9	83.3	85.8	88.4	bad/no data		
07/10/21	77.0	80.8	94.2	77.0	80.8	94.1	73.1	75.7	78.4	72.9	75.7	77.9	73.3	76.0	78.1	73.3	76.2	78.0	72.8	75.8	77.5	72.9	75.9	77.5	72.8	75.9	77.5	83.2	85.6	87.0	bad/no data		
07/11/21	81.0	83.4	89.6	81.0	83.4	89.4	71.7	73.0	74.4	71.7	72.7	73.8	72.1	73.1	74.0	72.2	73.1	74.0	72.0	72.6	73.2	72.0	72.7	73.3	72.0	72.5	72.9	82.4	82.7	83.2	bad/no data		
07/12/21	80.7	84.3	90.8	80.7	84.3	90.5	73.6	76.8	82.5	73.2	76.2	81.6	73.6	76.4	81.6	73.6	76.4	81.7	73.0	75.7	80.6	73.2	75.8	80.7	72.8	75.1	79.3	82.7	84.6	86.3	bad/no data		
07/13/21	82.9	88.3	93.2	82.8	88.2	93.0	78.6	80.6	82.3	78.6	80.3	81.7	78.9	80.5	81.7	79.1	80.7	81.9	78.7	80.2	81.1	78.8	80.3	81.2	78.0	79.4	80.1	85.4	86.5	88.1	bad/no data		
07/14/21	87.2	91.6	95.5	87.0	91.4	95.3	78.7	79.8	81.4	78.2	79.6	81.7	78.2	79.6	82.2	78.7	80.1	82.4	77.9	79.7	82.3	78.0	79.8	82.4	77.4	78.9	81.2	85.0	86.5	87.8	bad/no data		
07/15/21	89.2	92.3	94.7	89.3	92.0	93.8	78.5	79.8	82.1	78.0	79.3	81.1	77.7	78.8	80.4	78.4	79.7	81.6	77.6	78.9	80.9	77.7	79.1	81.0	77.2	78.3	80.0	86.4	87.6	88.9	bad/no data		
07/16/21	88.5	95.0	99.9	91.2	94.5	97.6	75.9	79.4	81.8	75.8	79.1	81.2	76.1	79.2	80.9	76.2	79.5	81.4	75.9	78.9	80.5	76.1	79.0	80.6	75.8	78.2	79.4	87.6	88.2	88.6	bad/no data		
07/17/21	92.3	95.0	101.2	93.1	94.6	97.9	75.2	76.2	78.0	74.8	75.9	77.9	75.0	76.0	77.6	75.2	76.4	78.2	74.6	75.8	77.8	74.7	75.9	77.9	74.3	75.4	76.8	85.9	87.0	87.6	bad/no data		
07/18/21	91.2	94.9	97.3	92.3	94.6	95.9	74.9	78.4	84.2	74.7	77.9	83.1	74.9	77.7	82.2	75.1	78.3	83.2	74.4	77.8	82.0	74.6	77.7	82.3	74.0	76.5	80.1	85.8	87.6	89.4	bad/no data		
07/19/21	90.6	97.4	103.5	92.5	96.8	102.2	80.9	82.6	84.2	80.2	82.3	84.0	80.2	82.1	83.8	79.1	81.9	83.3	78.6	81.5	83.9	78.7	81.6	83.5	78.1	80.1	81.8	87.7	89.6	91.7	bad/no data		
07/20/21	88.2	93.0	99.9	89.2	92.9	99.1	80.7	81.4	83.1	80.0	81.1	83.1	79.9	81.3	83.6	80.2	81.1	83.6	79.2	80.7	84.3	79.3	80.6	83.9	78.1	79.9	84.3	89.0	89.7	91.9	bad/no data		
07/21/21	89.4	94.9	102.8	88.6	94.7	102.4	80.8	81.6	83.0	80.3	81.2	82.6	80.8	81.6	83.1	79.2	80.9	82.0	78.7	80.4	81.9	78.8	80.5	82.0	78.8	80.4	81.9	87.0	87.6	89.1	bad/no data		
07/22/21	91.0	95.3	98.2	90.7	95.1	98.0	82.2	83.8	85.6	81.6	83.3	85.5	82.0	83.7	86.0	81.1	82.1	83.1	80.3	81.7	83.4	80.5	81.8	83.3	80.5	81.9	83.7	86.3	88.6	91.3	71.0	83.5	87.6
07/23/21	93.0	96.0	101.5	92.8	95.8	101.2	78.9	82.5	85.3	78.9	82.4	85.2	79.5	82.8	85.3	78.1	80.6	82.4	77.7	80.4	82.4	77.9	80.5	82.4	78.0	80.7	82.6	90.1	91.2	92.0	84.5	86.4	87.8
07/24/21	94.0	99.1	104.7	93.8	98.9	104.5	77.9	79.7	83.4	77.4	79.6	83.6	78.0	80.0	83.6	77.2	78.3	80.7	76.5	78.1	80.9	76.7	78.2	80.7	76.7	78.2	80.7	89.1	90.5	92.3	77.6	85.2	103.5
07/25/21	93.3	98.9	105.4	93.1	98.7	105.1	78.4	81.3	86.9	78.0	80.9	85.7	78.5	81.0	85.6	77.9	79.4	82.6	77.1	79.0	81.8	77.3	79.1	82.0	76.8	79.1	81.8	89.2	90.5	92.0	74.6	82.3	95.6
07/26/21	87.5	96.2	102.8	87.3	96.0	102.5	80.0	84.0	86.7	79.6	83.9	85.7	80.1	84.2	85.6	78.7	81.9	84.0	78.4	81.7	84.3	78.5	81.8	84.4	78.6	81.6	84.2	89.2	90.7	92.8	73.6	85.3	111.3
07/27/21	88.4	94.0	101.4	88.2	93.8	100.9	79.9	82.4	86.2	79.4	82.2	86.2	79.8	82.4	85.7	77.3	79.7	82.3	76.1	79.2	82.4	76.9	79.6	82.6	76.9	79.8	83.2	88.9	90.0	91.5	72.5	83.2	89.1
07/28/21	82.1	90.1	96.7	82.1	90.2	96.4	80.6	81.2	84.0	79.8	80.8	83.8	80.1	81.1	84.4	77.3	78.0	80.5	76.2	77.5	79.9	76.9	77.9	80.0	76.9	78.0	80.1	89.4	89.7	92.4	78.5	84.1	86.9
07/29/21	80.6	86.3	93.6	80.5	86.2	93.3	79.5	84.0	87.5	78.9	83.4	87.3	79.3	83.9	88.0	77.4	81.1	84.4	76.7	80.7	84.6	76.8	80.7	84.6	76.9	80.9	84.9	87.4	89.2	91.3	79.2	84.1	87.3
07/30/21	83.6	90.9	99.8	83.5	90.8	99.6	80.7	84.2	86.2	80.0	83.8	86.2	80.5	84.3	87.1	79.2	82.2	84.4	78.6	81.8	84.7	78.6	81.8	84.6	78.7	82.0	84.9	87.4	88.7	90.0	71.6	77.6	84.4
07/31/21	92.0	96.6	101.9	91.8	96.4	101.6	78.4	81.2	84.0	77.7	81.0	84.3	78.2	81.6	85.4	77.2	79.3	80.7	76.5	79.0	81.2	76.6	79.1	81.1	76.8	79.3	81.7	88.9	90.9	93.4	75.2	78.4	82.7
08/01/21	93.4	95.4	101.5	93.2	95.2	101.3	78.3	80.1	82.4	77.6	79.5	82.6	78.1	80.1	83.4	77.1	78.2	79.7	76.4	77.7	79.7	76.5	77.7	79.7	76.6	77.9	80.2	86.8	89.1	90.4	73.2	76.4	80.2
08/02/21	92.1	95.5	99.9	91.9	95.3	99.7	78.5	80.4	83.4	77.9	79.9	81.9	78.5	80.4	82.4	77.5	79.1	80.7	76.4	78.7	81.4	76.8	78.8	81.1	76.8	79.0	81.8	86.0	87.4	89.1	72.8	75.0	78.5
08/03/21	89.5	94.0	96.6	89.6	93.8	96.4	80.0	81.8	83.4	79.4	81.5	82.9	79.9	81.9	82.9	79.1	80.6	81.7	78.7	80.2	82.4	78.8	80.4	82.3	78.8	80.6	82.8	86.8	88.0	89.6	70.7	74.8	81.7
08/04/21	91.1	95.4	99.9	90.9	95.1	99.5	79.7	80.9	83.1	79.0	80.7	83.8	79.4	81.0	83.9	79.3	80.5	82.2	78.4	80.2	83.1	78.6	80.2	82.7	78.5	80.2	82.9	85.6	87.3	88.9	68.0	74.4	84.5
08/05/21	89.4	95.7	103.6	89.3	95.4	103.2	79.4	81.5	84.3	78.8	81.1	84.2	79.3	81.5	84.3	79.2	80.5	82.4	78.6	80.1	82.5	78.7	80.2	82.5	78.6	80.3	83.0	85.9	87.6	89.2	68.6	75.8	85.3
08/06/21	87.0	91.9	102.9	87.2	91.6	102.5	78.9	81.2	82.6	78.4	80.8	82.9	78.8	81.1	82.9	78.8	80.0	81.6	77.4	79.1	81.3	78.0	79.7	81.4	78.1	79.9	82.0	86.3	87.3	88.5	72.8	77.1	84.9
08/07/21	93.9	99.8	105.6	93.7	99.0	104.4	76.9	80.0	82.9	76.6	79.9	83.5	77.2	80.0	83.0	75.7	78.9	81.4	73.6	76.8	80.4	75.6	78.6	81.8	75.8	78.9	82.4	85.4	87.7	89.8	72.9	78.7	86.1
08/08/21	91.7	98.4	106.0	93.1	97.5	102.1	76.0	78.5	82.8	75.4	78.3	83.9	75.9	78.4	83.0	74.7	76.3	79.3	71.7	74.4	79.3	74.2	76.2	80.1	74.3	76.5	80.7	88.8	90.1	91.7	75.8	80.1	85.8
08/09/21	90.6	95.2	103.6	90.5	94.5	99.8	77.2	79.9	83.1	76.7	79.6	82.0	77.1	79.6	81.5	75.1	77.3	79.5	70.3	74.7	78.0	74.8	77.1	78.9	75.0	77.4	79.1	88.9	90.2	91.2	75.6	79.8	83.9
08/10/21	-	93.4	98.9	-	92.9	98.4	-	78.6	81.2	-	78.3	81.6	-	78.7	81.6	-	77.2	80.9	-	75.2	80.1	-	77.1	80.7	-	77.3	81.2	-	89.4	91.3	-	82.2	92.5
08/11/21	88.7	94.5	99.1	88.4	94.0	98.5	77.8	81.3	84.3	76.1	80.7	83.0	76.5	81.2	83.5	76.0	80.0	81.3	75.3	79.6	80.9	75.4	79.7	81.0	75.6	79.9	81.3	87.4	88.4	89.3	72.9	80.1	95.3

Cleveland-Cliffs Burns Harbor LLC
Unaccounted-For Ammonia-N in Outfall 001 Storm Ditch Study
(April 5, 2021 to October 15, 2021)

Amendola Engineering, Inc.
DRAFT - October 20, 2021

ATTACHMENT F
Daily Temperature Data Summary (Deg. F)

	DIW Sewer/WWPS-2						Storm Ditch Locations (Upstream <----------> Downstream)																		Outfalls					
Sample No.:	21			11			19			22			23			16			16b			16c			17			14			18		
HOBO ID:	*10*			*11*			*1*			*2*			*3*			*4*			*5*			*6*			*7*			*8*			*9*		
	Manhole DIW 611 Upstream WWPS-2			WWPS-2 Wet Well			2,000 ft Upstream WWPS-2 Overflow			Immediately Upstr. WWPS-2 Overflow			Immediately Downstr. WWPS-2 Overflow			750 ft Downstream WWPS-2 Overflow			2,900 ft Downstream at Bend N of US-12			3,500 ft Downstream South of US-12			Immediately Upstream Outfall 011 Chanel			Outfall 011			Outfall 001		
Sample Date	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max
Average	**81.7**	**87.1**	**92.5**	**81.7**	**86.8**	**92.1**	**66.8**	**69.5**	**72.3**	**66.6**	**69.4**	**72.3**	**67.0**	**69.7**	**72.7**	**66.7**	**69.3**	**72.1**	**64.9**	**67.7**	**70.9**	**66.5**	**69.2**	**72.2**	**66.6**	**69.2**	**72.1**	**78.7**	**80.4**	**81.9**	**70.6**	**74.2**	**78.9**
08/12/21	90.9	96.9	102.4	90.5	96.4	101.8	83.0	84.0	85.3	82.2	83.3	84.9	82.6	83.8	85.4	80.0	81.3	82.9	79.2	80.6	82.5	79.5	80.8	82.6	79.6	81.0	83.0	88.1	89.6	90.8	76.7	79.7	83.4
08/13/21	88.6	96.5	102.7	88.1	96.0	102.1	73.7	82.7	85.7	74.1	82.7	85.9	75.1	83.2	86.4	73.2	80.1	82.6	73.6	79.8	82.7	73.7	79.9	82.5	74.1	80.2	82.6	90.5	91.7	93.2	72.3	78.8	87.4
08/14/21	88.0	94.2	99.8	87.6	93.7	99.2	68.3	73.3	76.5	68.0	73.6	76.3	68.5	74.2	77.0	68.1	72.6	75.0	67.7	72.7	75.5	67.7	72.7	75.4	68.0	73.1	76.0	87.2	89.5	91.2	68.0	73.0	79.7
08/15/21	87.8	93.1	99.1	87.4	92.6	98.4	65.8	69.7	74.6	66.5	69.5	73.7	67.0	70.1	74.2	66.5	68.9	72.5	66.3	69.0	72.0	66.3	69.0	72.1	66.7	69.4	72.2	85.1	86.4	87.6	65.5	70.9	80.1
08/16/21	83.1	87.2	93.9	82.9	86.7	93.3	69.3	71.1	74.1	69.0	71.4	73.5	69.5	72.0	73.9	68.3	70.2	72.3	68.1	70.6	72.6	68.1	70.5	72.0	68.5	71.0	73.2	83.0	84.5	85.3	64.9	71.4	79.5
08/17/21	83.4	88.0	93.3	83.1	87.6	92.8	65.7	68.4	70.8	66.0	68.5	71.1	66.6	69.1	71.7	66.3	68.8	71.7	66.0	68.8	72.1	66.0	68.9	71.8	66.4	69.2	71.9	81.9	82.8	83.7	68.0	74.0	89.0
08/18/21	83.8	88.9	95.2	83.4	88.4	94.6	64.4	67.6	69.8	64.2	67.5	69.5	64.7	68.0	70.2	64.8	68.1	70.0	64.5	67.9	70.8	64.6	68.0	70.4	65.0	68.3	70.8	82.4	83.4	84.5	bad/no data		
08/19/21	84.9	88.2	91.4	84.5	87.7	91.0	67.8	69.4	71.8	67.5	69.5	73.3	68.0	70.1	73.9	68.0	70.2	74.0	67.6	70.1	74.6	67.7	70.1	74.3	67.9	70.4	74.6	80.7	81.7	82.7	bad/no data		
08/20/21	84.0	88.4	91.3	84.2	88.0	90.6	66.8	69.1	71.9	66.5	69.5	73.5	67.0	70.1	73.9	67.1	70.2	73.8	66.7	70.3	76.0	66.8	70.4	75.2	67.1	70.8	76.2	80.6	82.0	83.6	bad/no data		
08/21/21	79.9	83.2	88.3	79.5	82.8	87.7	64.5	67.4	73.2	64.4	67.7	73.9	64.9	68.3	74.4	65.1	68.4	74.3	64.9	68.4	74.3	65.0	68.5	74.1	65.2	68.9	74.6	82.5	83.3	84.1	71.2	76.1	83.3
08/22/21	81.3	87.7	93.6	81.0	87.2	93.1	64.2	66.9	70.7	64.2	66.9	69.9	64.8	67.5	70.6	64.9	67.6	70.5	64.7	67.8	73.0	64.9	67.7	71.6	65.3	68.1	72.6	82.0	83.2	84.7	bad/no data		
08/23/21	79.4	85.1	91.2	79.1	84.7	90.7	70.7	74.4	79.9	69.9	74.0	80.5	70.4	74.6	81.1	70.3	74.5	80.8	69.7	74.1	81.1	69.8	74.2	81.1	69.8	74.2	81.0	81.5	83.5	85.3	bad/no data		
08/24/21	-	87.9	94.0	-	87.4	93.4	-	75.5	79.2	-	75.5	79.8	-	76.1	80.6	-	76.1	80.4	*Discontinued*			-	76.1	80.8	-	76.4	81.3	-	85.2	87.4	bad/no data		
08/25/21	84.5	91.0	96.2	84.0	90.4	95.5	71.8	77.4	84.5	71.9	77.3	84.0	72.4	77.9	84.8	72.7	77.6	84.3	*Discontinued*			72.7	77.5	84.0	73.0	77.6	83.8	84.0	85.7	87.4	bad/no data		
08/26/21	85.1	89.2	94.3	84.6	88.7	93.5	74.8	79.0	82.9	75.5	78.9	83.2	76.2	79.6	84.5	74.5	77.9	81.2	*Discontinued*			74.2	77.7	80.8	74.8	77.9	81.3	85.5	87.8	89.9	bad/no data		
08/27/21	83.9	92.2	99.4	83.4	91.6	98.7	72.9	77.2	81.6	73.0	77.4	82.4	73.7	77.9	83.0	71.8	75.6	78.8	*Discontinued*			71.9	75.8	79.8	72.7	76.1	79.8	86.4	88.2	89.8	82.5	84.1	86.3
08/28/21	89.3	93.9	96.5	88.8	93.3	95.9	67.0	72.8	75.3	69.2	73.4	76.7	70.1	74.0	77.6	69.3	71.9	73.8	*Discontinued*			70.1	72.2	75.2	70.8	72.7	75.5	86.6	88.1	89.6	81.2	82.6	84.4
08/29/21	87.7	90.6	94.0	87.2	90.1	93.4	63.8	67.8	78.2	63.9	67.8	73.5	64.6	68.5	72.9	64.4	67.5	72.1	*Discontinued*			64.4	67.8	71.8	65.7	68.7	72.1	84.9	87.0	87.9	76.3	80.5	83.2
08/30/21	81.9	87.7	92.8	81.5	87.2	92.4	67.9	72.4	80.0	67.6	72.7	78.4	68.7	73.4	77.9	67.0	71.9	77.2	*Discontinued*			66.9	72.2	76.7	67.5	72.4	75.5	83.5	85.2	87.0	77.9	80.8	83.3
08/31/21	85.0	89.1	92.8	84.6	88.6	92.3	67.2	68.9	71.2	67.6	68.8	70.6	68.4	69.4	71.1	67.1	69.0	71.2	*Discontinued*			66.9	68.9	71.2	67.2	69.1	70.8	81.2	82.3	83.4	73.8	75.8	77.8
09/01/21	82.8	88.0	91.5	82.3	87.4	90.9	65.1	66.0	67.7	64.9	66.1	67.7	65.7	66.8	68.6	65.6	66.7	68.4	*Discontinued*			65.4	66.8	68.9	65.9	67.3	69.4	80.0	81.0	81.8	70.4	72.1	74.2
09/02/21	84.2	90.2	93.0	83.6	89.7	92.4	66.9	71.2	75.4	65.7	70.7	75.3	66.3	71.1	75.5	66.3	71.2	75.6	*Discontinued*			65.8	70.8	75.5	66.0	70.5	74.7	78.6	79.8	80.7	70.7	74.0	77.7
09/03/21	85.4	89.3	92.8	84.8	88.8	92.3	68.8	71.6	74.3	68.6	71.3	73.3	69.3	71.7	73.6	69.4	71.7	73.5	*Discontinued*			68.8	71.3	72.8	69.1	71.3	72.4	78.9	79.9	80.9	72.4	75.8	78.4
09/04/21	84.8	87.9	90.7	84.3	87.4	90.1	63.1	67.6	71.9	63.3	67.6	71.3	64.6	68.5	71.7	63.9	68.2	71.8	*Discontinued*			63.9	68.3	71.6	64.8	68.8	72.1	80.1	80.9	81.7	73.7	76.3	78.2
09/05/21	87.3	91.7	99.1	86.8	91.1	98.4	63.0	74.1	81.3	63.1	73.0	79.9	64.5	72.9	79.6	63.8	73.5	80.2	*Discontinued*			63.6	72.7	79.0	64.6	71.9	77.3	79.5	81.4	83.3	71.8	77.7	80.8
09/06/21	90.9	96.8	102.5	90.4	96.2	101.7	80.0	82.2	85.2	79.2	81.3	85.2	79.4	81.7	85.7	78.7	80.9	85.4	*Discontinued*			78.0	80.4	85.3	77.3	79.4	83.8	82.0	84.5	87.0	80.3	82.8	86.1
09/07/21	91.4	95.5	100.8	91.0	94.9	100.2	78.7	79.5	80.6	78.1	78.9	80.6	78.3	79.1	81.3	77.7	78.9	80.5	*Discontinued*			76.9	78.4	80.4	76.9	78.2	80.1	85.9	86.9	88.0	81.1	82.7	84.1
09/08/21	-	92.6	97.1	-	91.8	96.5	-	80.0	81.3	-	79.3	81.5	-	79.7	82.0	-	78.8	81.7	*Discontinued*			-	79.2	81.7	-	79.1	82.1	-	84.6	85.9	-	81.2	83.8
09/09/21	85.6	90.1	93.0	85.1	89.5	92.6	79.9	80.8	81.9	79.3	80.2	82.0	79.7	80.7	82.3	79.6	80.5	82.3	*Discontinued*			78.6	79.9	82.3	78.7	80.0	82.6	81.5	83.1	84.6	79.7	81.3	83.3
09/10/21	90.3	93.9	100.5	89.9	93.4	100.0	74.6	78.3	80.8	74.1	78.0	79.7	74.7	78.6	80.1	74.5	78.5	80.0	*Discontinued*			73.9	78.0	80.4	74.2	78.3	81.0	83.7	85.2	86.7	80.6	82.4	84.5
09/11/21	85.7	91.8	97.2	85.1	91.4	96.8	73.4	74.8	76.9	73.0	74.6	76.9	73.5	75.1	77.5	73.3	74.6	77.2	*Discontinued*			72.6	74.4	77.8	72.9	74.6	77.9	86.1	87.4	88.9	81.0	82.6	85.6
09/12/21	86.7	95.3	103.9	86.2	94.8	103.1	73.6	76.5	79.5	73.0	76.2	79.6	73.6	76.7	80.3	73.5	76.1	79.1	*Discontinued*			72.8	75.7	79.1	73.0	75.7	78.7	86.3	87.7	89.1	81.3	83.3	85.2
09/13/21	91.9	94.8	97.5	91.4	94.2	96.9	76.8	78.9	81.9	75.7	78.4	81.9	76.2	78.8	82.2	75.8	77.3	79.7	*Discontinued*			75.2	76.9	80.2	75.4	76.8	78.9	89.1	89.9	91.2	83.5	84.7	86.5
09/14/21	91.6	96.3	102.9	91.4	95.7	102.0	78.0	79.5	81.2	77.5	79.0	80.8	77.9	79.4	81.1	76.5	78.2	80.0	*Discontinued*			76.0	77.9	79.8	76.1	77.7	79.4	87.1	88.6	89.7	81.6	83.0	84.7
09/15/21	82.9	91.5	101.2	82.4	91.0	100.6	75.6	78.0	80.1	74.9	77.8	79.8	75.4	78.3	80.5	74.7	77.4	80.0	*Discontinued*			73.9	77.1	80.2	74.2	77.2	80.1	85.6	87.0	88.6	80.6	82.6	84.4
09/16/21	82.0	84.8	89.7	81.6	84.3	89.2	74.8	76.4	78.3	73.9	76.0	78.7	74.4	76.5	80.9	73.8	75.5	78.0	*Discontinued*			72.9	75.1	78.7	73.1	75.3	78.8	85.8	86.7	87.7	80.4	82.0	84.2
09/17/21	82.7	87.5	91.4	82.8	87.0	90.6	68.2	71.1	75.7	68.2	71.3	75.6	68.8	72.1	75.7	68.8	71.5	74.7	*Discontinued*			68.8	71.6	74.4	69.9	72.2	74.5	85.2	86.5	88.0	77.7	80.5	82.4
09/18/21	85.0	90.8	95.1	84.5	90.3	94.5	66.3	68.9	72.0	65.9	68.9	71.4	66.6	69.9	75.7	66.5	69.3	72.1	*Discontinued*			66.3	69.4	73.1	67.1	69.9	73.5	84.3	85.5	86.8	76.1	79.6	82.6
09/19/21	86.1	92.6	101.3	85.5	92.0	100.7	69.3	71.7	74.7	68.9	71.7	75.0	69.5	73.4	83.5	69.4	72.2	75.4	*Discontinued*			69.4	72.2	75.4	69.8	72.2	74.9	83.2	84.4	85.3	76.5	80.0	82.9
09/20/21	89.5	93.0	99.6	88.9	92.4	99.0	69.4	70.9	72.3	69.2	70.8	72.5	69.7	71.6	73.9	69.8	71.4	73.2	*Discontinued*			69.5	71.2	73.3	69.8	71.4	73.1	84.9	85.9	87.0	78.9	80.5	82.1
09/21/21	81.5	90.4	97.7	81.2	89.8	97.0	66.7	70.6	75.3	66.5	70.1	74.7	67.0	70.6	75.1	67.0	70.5	75.0	*Discontinued*			66.8	70.1	74.4	67.4	70.2	73.9	80.2	83.9	86.1	73.8	76.6	80.3
09/22/21	78.8	84.8	91.0	78.8	84.4	90.3	70.8	74.0	75.5	70.4	73.5	74.8	70.7	73.8	75.2	70.8	73.7	75.1	*Discontinued*			70.3	73.1	74.3	70.7	73.0	73.9	73.3	76.7	80.2	71.1	74.0	75.2
09/23/21	75.5	80.9	88.8	75.9	80.4	88.1	66.9	69.3	70.9	66.7	68.9	70.4	67.1	69.3	70.7	67.1	69.3	70.8	*Discontinued*			66.8	68.9	70.3	67.4	69.1	70.7	71.4	72.1	73.3	68.2	69.7	71.1

Cleveland-Cliffs Burns Harbor LLC
Unaccounted-For Ammonia-N in Outfall 001 Storm Ditch Study
(April 5, 2021 to October 15, 2021)

Amendola Engineering, Inc.
DRAFT - October 20, 2021

ATTACHMENT F
Daily Temperature Data Summary (Deg. F)

	DIW Sewer/WWPS-2						Storm Ditch Locations (Upstream <----------> Downstream)																		Outfalls					
Sample No.:	21			11			19			22			23			16			16b			16c			17			14			18		
HOBO ID:	*10*			*11*			*1*			*2*			*3*			*4*			*5*			*6*			*7*			*8*			*9*		
Sample Date	Manhole DIW 611 Upstream WWPS-2			WWPS-2 Wet Well			2,000 ft Upstream WWPS-2 Overflow			Immediately Upstr. WWPS-2 Overflow			Immediately Downstr. WWPS-2 Overflow			750 ft Downstream WWPS-2 Overflow			2,900 ft Downstream at Bend N of US-12			3,500 ft Downstream South of US-12			Immediately Upstream Outfall 011 Chanel			Outfall 011			Outfall 001		
	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max
Average	**81.7**	**87.1**	**92.5**	**81.7**	**86.8**	**92.1**	**66.8**	**69.5**	**72.3**	**66.6**	**69.4**	**72.3**	**67.0**	**69.7**	**72.7**	**66.7**	**69.3**	**72.1**	**64.9**	**67.7**	**70.9**	**66.5**	**69.2**	**72.2**	**66.6**	**69.2**	**72.1**	**78.7**	**80.4**	**81.9**	**70.6**	**74.2**	**78.9**
09/24/21	74.9	78.7	82.1	74.4	78.2	81.5	68.4	70.0	72.5	67.6	69.7	72.6	67.7	70.2	73.2	68.0	70.1	73.2	*Discontinued*			67.2	69.8	73.5	67.5	69.9	73.2	71.7	74.4	77.0	69.7	72.2	75.0
09/25/21	76.3	78.7	81.2	75.9	78.2	80.7	68.3	69.3	70.1	67.6	68.8	70.0	67.6	69.3	71.3	67.9	69.3	70.7	*Discontinued*			67.1	68.8	70.7	67.4	68.9	70.7	77.0	78.0	79.2	72.5	74.1	75.7
09/26/21	77.7	80.4	86.3	77.3	79.9	85.7	69.7	71.5	74.1	69.0	70.7	72.8	69.0	71.2	74.1	69.3	71.1	73.2	*Discontinued*			68.5	70.6	73.3	68.5	70.6	73.1	77.6	79.3	80.8	73.8	76.0	78.4
09/27/21	81.2	86.1	92.1	80.7	85.5	91.4	72.3	73.3	74.8	72.0	72.8	75.0	71.9	73.4	76.5	72.3	73.3	75.6	*Discontinued*			71.3	72.9	75.7	71.3	72.9	75.7	79.9	81.5	83.7	77.0	78.3	80.9
09/28/21	86.7	91.4	97.5	86.1	90.8	96.6	71.8	72.9	73.6	71.5	72.4	73.9	71.6	73.0	75.2	71.9	72.9	74.6	*Discontinued*			71.2	72.5	75.0	71.2	72.5	74.6	81.3	82.3	83.7	75.5	77.7	78.9
09/29/21	84.5	89.8	97.2	84.0	89.3	96.5	72.3	72.8	73.5	71.7	72.4	73.7	72.2	73.0	74.6	72.2	72.9	74.4	*Discontinued*			71.5	72.6	74.7	71.5	72.6	74.5	80.2	81.4	82.7	74.6	76.0	78.1
09/30/21	90.3	94.3	99.0	89.9	93.7	98.2	72.4	73.0	73.6	71.8	72.5	73.9	72.0	73.1	75.3	72.2	73.0	74.4	*Discontinued*			71.6	72.6	74.3	71.6	72.6	74.4	79.1	80.8	82.2	74.3	77.1	79.7
10/01/21	90.3	95.6	101.8	89.7	94.9	101.1	72.0	73.4	75.4	71.5	73.0	75.8	71.6	73.5	76.3	70.1	71.7	72.5	*Discontinued*			69.8	71.5	73.0	70.2	71.7	73.4	81.5	84.0	86.6	78.1	79.6	80.9
10/02/21	91.1	94.5	100.8	90.5	93.9	100.0	70.6	72.0	73.5	70.5	71.6	73.5	70.7	72.1	75.2	69.6	70.1	70.8	*Discontinued*			69.4	69.8	71.2	69.6	70.0	71.1	84.8	85.4	86.2	77.5	79.1	80.3
10/03/21	88.0	90.9	96.8	87.4	90.3	96.1	70.3	71.5	73.9	69.7	70.9	73.6	70.0	71.3	74.3	69.2	70.1	72.3	*Discontinued*			68.9	69.8	72.1	69.0	69.9	71.5	83.5	84.2	85.1	76.6	78.2	79.2
10/04/21	89.3	91.8	97.0	89.0	91.2	96.3	72.6	73.4	74.4	72.0	72.7	73.6	72.2	72.9	73.9	70.8	71.4	72.0	*Discontinued*			70.2	71.0	71.7	69.9	70.9	71.6	83.3	83.7	84.1	77.6	78.8	79.6
10/05/21	-	92.1	99.4	-	91.3	98.6	-	73.7	74.6	-	73.0	74.3	-	73.4	75.2	-	72.9	74.7	*Discontinued*			71.2	72.7	74.3	71.2	72.4	73.7	82.2	83.4	83.8	-	77.6	79.3
10/06/21	86.1	92.0	100.7	85.6	91.4	99.9	73.6	73.9	74.3	73.0	73.3	73.6	73.6	73.9	74.2	73.6	73.8	74.2	*Discontinued*			-	73.3	73.9	-	73.1	74.1	-	81.2	82.2	75.4	76.2	76.9
10/07/21	87.2	90.0	92.0	86.7	89.4	91.2	73.4	73.9	75.0	72.9	73.5	74.4	73.4	74.0	75.0	73.4	74.0	74.9	*Discontinued*			72.7	73.7	74.7	72.8	73.8	74.8	80.4	80.9	81.4	75.4	76.4	78.2
10/08/21	85.2	90.0	93.4	84.6	89.3	92.7	69.4	73.4	74.8	69.3	72.8	74.3	69.9	73.4	75.0	69.9	73.0	74.5	*Discontinued*			69.8	72.5	74.6	70.3	72.6	74.7	81.0	82.2	83.4	77.4	78.7	80.1
10/09/21	88.5	96.1	103.6	88.8	95.4	102.9	70.9	73.2	74.5	70.8	73.0	75.2	71.4	73.7	76.4	70.6	72.1	72.9	*Discontinued*			70.3	71.9	73.0	70.5	72.0	73.3	83.2	84.8	86.5	78.2	79.5	80.7
10/10/21	90.9	93.1	95.3	90.3	92.5	94.6	70.1	72.0	75.7	69.7	71.3	74.4	70.3	71.9	74.9	69.8	70.7	72.3	*Discontinued*			69.5	70.4	71.8	69.7	70.5	71.7	85.2	86.2	87.3	78.5	79.5	80.4
10/11/21	89.6	92.7	96.2	89.2	92.1	94.8	71.5	74.0	75.8	71.0	73.4	74.8	71.6	74.0	75.2	71.6	72.6	73.4	*Discontinued*			71.4	72.2	73.6	71.5	72.2	73.5	82.8	84.6	85.9	75.3	77.9	80.1
10/12/21	78.7	88.2	99.0	78.2	87.6	98.2	72.2	73.4	74.1	71.3	72.8	73.4	71.7	73.3	74.0	71.7	73.3	73.9	*Discontinued*			71.2	72.8	73.6	71.4	72.7	73.5	79.9	80.9	82.8	74.6	75.5	76.2
10/13/21	79.0	82.3	85.6	78.5	81.8	84.9	72.3	73.0	73.4	71.7	72.4	73.2	72.2	73.0	74.0	72.2	72.9	73.9	*Discontinued*			71.8	72.6	74.0	71.8	72.5	74.0	77.6	78.7	79.8	73.8	74.5	76.1
10/14/21	78.1	81.5	85.5	77.5	80.9	84.9	72.3	73.3	74.6	71.7	72.7	73.9	72.3	73.2	74.3	72.3	73.2	74.3	*Discontinued*			71.9	72.7	73.7	71.8	72.6	73.5	77.0	77.2	77.6	73.6	74.5	75.5
10/15/21	79.1	84.4	91.4	78.7	83.8	90.6	70.9	73.6	74.6	70.5	73.0	73.9	71.1	73.6	74.5	71.0	73.5	74.4	*Discontinued*			70.5	72.8	73.8	70.7	72.8	73.7	77.2	78.5	79.5	75.0	76.0	77.0

Cleveland-Cliffs Burns Harbor LLC
Unaccounted-For Ammonia-N in Outfall 001 Storm Ditch Study
(April 5, 2021 to October 15, 2021)

Amendola Engineering, Inc.
DRAFT - October 20, 2021

ATTACHMENT G
Daily Conductivity Data Summary (µS/cm)

	DIW Sewer/WWPS-2						Storm Ditch Locations (Upstream <----------> Downstream)																		Outfalls					
Sample No.:	21			11			19			22			23			16			16b			16c			17			14			18		
HOBO ID:	*10*			*11*			*1*			*2*			*3*			*4*			*5*			*6*			*7*			*8*			*9*		
	Manhole DIW 611 Upstream WWPS-2			WWPS-2 Wet Well			2,000 ft Upstream WWPS-2 Overflow			Immediately Upstr. WWPS-2 Overflow			Immediately Downstr. WWPS-2 Overflow			750 ft Downstream WWPS-2 Overflow			2,900 ft Downstream at Bend N of US-12			3,500 ft Downstream South of US-12			Immediately Upstream Outfall 011 Chanel			Outfall 011			Outfall 001		
Sample Date	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max
Average	**454**	**618**	**1,009**	**300**	**389**	**609**	**276**	**303**	**327**	**282**	**313**	**340**	**279**	**321**	**357**	**275**	**308**	**334**	**275**	**319**	**365**	**285**	**322**	**355**	**260**	**301**	**350**	**388**	**423**	**660**	**266**	**310**	**470**
04/05/21	650	726	1,564	597	670	1,420	242	263	288	258	277	298	214	258	278	260	277	298	226	289	315	277	293	319	273	291	316	254	402	1,385	bad/no data		
04/06/21	595	704	1,680	290	641	1,525	242	264	295	257	276	296	189	253	297	258	277	298	135	284	310	20	287	311	233	273	294	216	432	2,319	bad/no data		
04/07/21	594	677	1,003	565	636	984	267	281	294	270	283	298	273	289	300	275	291	308	286	305	328	288	307	329	255	269	287	313	412	418	bad/no data		
04/08/21	532	664	762	498	610	712	250	267	279	250	266	280	282	297	311	257	276	285	262	285	297	268	288	299	227	248	269	389	401	410	bad/no data		
04/09/21	657	771	880	568	663	763	244	262	274	242	262	279	271	291	309	251	269	282	261	341	431	263	281	296	229	258	297	383	389	422	bad/no data		
04/10/21	703	825	910	641	719	785	221	250	271	238	252	271	271	286	299	241	259	280	251	276	390	253	272	297	254	274	300	193	387	808	bad/no data		
04/11/21	693	830	1,003	629	756	902	244	259	270	249	261	271	257	278	298	254	268	281	265	280	298	267	281	298	269	283	299	bad/no data			bad/no data		
04/12/21	756	898	1,789	699	840	1,639	251	269	283	232	261	279	253	276	309	259	278	301	268	292	321	270	294	323	269	294	324	bad/no data			bad/no data		
04/13/21	702	816	936	662	776	882	252	275	296	247	271	287	293	320	352	253	279	295	257	281	305	258	287	304	161	279	299	257	395	431	bad/no data		
04/14/21	553	783	1,666	559	752	1,527	241	255	294	237	252	289	253	284	341	241	254	290	232	251	270	248	264	306	232	249	289	-	426	447	bad/no data		
04/15/21	442	600	852	536	658	1,126	254	265	278	249	258	267	257	269	286	257	265	280	246	257	283	276	285	303	269	307	376	-	385	434	bad/no data		
04/16/21	636	781	897	741	907	1,032	248	271	281	245	265	275	255	276	287	254	274	285	249	266	286	274	293	307	266	297	323	-	373	1,346	293	337	353
04/17/21	848	940	1,056	928	1,011	1,129	241	245	251	231	241	249	245	249	255	244	248	254	241	260	279	249	263	274	229	250	307	369	380	991	179	313	331
04/18/21	626	808	1,273	867	976	1,222	237	247	278	237	245	274	240	249	277	240	249	278	256	269	296	238	258	299	228	255	293	296	378	949	225	309	331
04/19/21	512	660	846	698	865	1,070	263	276	287	254	270	286	267	279	305	267	278	288	285	320	371	276	297	307	269	290	387	-	353	1,513	196	306	348
04/20/21	539	687	1,665	721	885	1,889	260	274	289	251	264	291	260	276	290	259	274	290	280	325	387	267	287	306	251	281	337	367	373	730	257	314	340
04/21/21	457	686	1,645	555	825	1,231	273	285	293	36	281	299	64	287	298	244	286	376	288	336	366	272	303	335	260	290	332	381	402	527	259	320	372
04/22/21	479	623	1,755	602	747	1,879	260	281	302	266	288	312	265	285	310	263	286	311	290	336	392	284	314	348	268	295	330	383	392	406	186	278	373
04/23/21	390	565	922	512	697	855	258	270	285	262	276	300	260	273	295	257	271	293	246	292	347	269	298	332	244	270	305	370	384	395	298	343	365
04/24/21	451	552	647	585	695	803	253	267	293	261	274	299	260	272	297	254	267	292	243	255	274	279	290	313	254	271	284	369	382	514	320	335	348
04/25/21	550	610	748	709	774	929	261	274	288	267	279	298	266	277	295	259	271	290	248	283	348	253	296	369	270	282	300	361	373	390	206	283	334
04/26/21	463	568	753	543	730	948	263	289	305	273	295	316	273	294	315	264	285	305	250	292	420	274	307	336	258	279	304	374	391	412	238	318	352
04/27/21	442	622	1,447	379	596	1,187	249	258	272	253	263	281	253	262	275	246	257	269	257	304	401	260	274	324	145	234	299	369	408	706	-	271	324
04/28/21	517	632	962	321	535	856	242	263	278	255	266	285	254	265	283	bad/no data			259	269	289	262	272	293	154	163	178	209	463	1,260	295	321	371
04/29/21	449	635	1,455	316	559	1,286	259	272	280	266	282	297	267	281	290	bad/no data			191	252	297	281	298	311	172	180	193	-	368	2,112	344	360	370
04/30/21	559	699	875	520	651	830	254	277	299	259	282	306	264	288	309	bad/no data			189	203	236	272	301	332	177	276	331	-	278	954	-	340	360
05/01/21	620	739	889	584	694	863	250	273	294	229	269	292	255	284	319	bad/no data			170	211	275	258	301	346	192	298	346	-	296	575	-	241	369
05/02/21	644	782	1,032	598	705	940	268	286	303	263	277	293	280	298	322	bad/no data			210	289	333	299	318	348	297	317	348	-	175	1,573	284	359	388
05/03/21	440	659	935	345	535	755	278	290	300	274	287	296	290	302	316	bad/no data			224	298	321	299	316	333	292	314	333	-	344	405	336	353	367
05/04/21	595	777	985	444	603	782	245	262	291	250	266	290	252	271	301	bad/no data			161	230	273	254	276	309	214	267	319	375	381	398	279	310	345
05/05/21	576	768	1,298	458	612	1,057	246	268	292	257	276	299	249	273	293	bad/no data			178	241	259	244	279	304	242	267	296	383	395	411	264	334	360
05/06/21	478	685	1,735	360	557	1,544	250	261	275	259	270	289	256	272	288	bad/no data			167	348	452	238	252	269	252	272	290	365	378	391	202	314	329
05/07/21	500	693	1,025	428	592	1,338	250	267	286	259	275	304	260	278	300	bad/no data			258	321	406	235	254	277	261	293	323	361	367	378	-	316	345
05/08/21	523	668	816	432	559	690	234	265	281	260	273	291	267	278	298	bad/no data			243	283	312	237	254	280	274	294	329	363	373	391	-	239	361
05/09/21	534	625	930	447	528	815	148	222	274	178	242	288	178	239	289	bad/no data			258	277	309	167	231	283	177	244	293	344	359	374	-	308	344
05/10/21	362	529	726	265	412	638	266	278	288	285	299	309	238	290	308	bad/no data			267	298	322	264	279	301	287	311	328	342	357	386	304	332	432
05/11/21	534	625	930	447	528	815	148	222	274	178	243	288	178	239	289	-	248	312	258	278	314	167	231	283	177	244	293	344	359	374	-	315	350
05/12/21	166	675	907	382	539	705	237	248	266	238	266	290	224	252	281	240	258	281	243	268	292	248	273	300	228	271	318	363	376	665	-	225	353
05/13/21	466	627	810	368	494	633	231	236	246	231	246	257	215	234	253	233	240	249	233	244	260	241	250	265	143	205	258	393	438	828	-	259	324
05/14/21	520	668	1,388	419	523	1,055	230	238	249	242	251	264	203	226	246	232	240	254	231	243	261	240	253	270	127	135	144	434	462	865	-	270	331
05/15/21	563	654	1,058	438	509	820	228	232	236	240	244	249	206	226	238	232	235	239	228	236	244	246	250	256	126	130	133	435	487	1,434	152	266	318
05/16/21	571	652	1,469	440	504	1,013	225	231	236	238	243	249	196	227	242	228	234	240	226	236	247	244	251	259	125	128	133	428	478	902	99	265	343
05/17/21	100	368	1,204	315	442	876	226	235	248	241	247	261	194	227	251	229	239	253	238	242	253	252	258	274	132	135	141	353	498	1,037	116	263	299

Cleveland-Cliffs Burns Harbor LLC
Unaccounted-For Ammonia-N in Outfall 001 Storm Ditch Study
(April 5, 2021 to October 15, 2021)

Amendola Engineering, Inc.
DRAFT - October 20, 2021

ATTACHMENT G
Daily Conductivity Data Summary (µS/cm)

	DIW Sewer/WWPS-2						Storm Ditch Locations (Upstream <----------> Downstream)																		Outfalls					
Sample No.:	21			11			19			22			23			16			16b			16c			17			14			18		
HOBO ID:	*10*			*11*			*1*			*2*			*3*			*4*			*5*			*6*			*7*			*8*			*9*		
	Manhole DIW 611 Upstream WWPS-2			WWPS-2 Wet Well			2,000 ft Upstream WWPS-2 Overflow			Immediately Upstr. WWPS-2 Overflow			Immediately Downstr. WWPS-2 Overflow			750 ft Downstream WWPS-2 Overflow			2,900 ft Downstream at Bend N of US-12			3,500 ft Downstream South of US-12			Immediately Upstream Outfall 011 Chanel			Outfall 011			Outfall 001		
Sample Date	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max
Average	**454**	**618**	**1,009**	**300**	**389**	**609**	**276**	**303**	**327**	**282**	**313**	**340**	**279**	**321**	**357**	**275**	**308**	**334**	**275**	**319**	**365**	**285**	**322**	**355**	**260**	**301**	**350**	**388**	**423**	**660**	**266**	**310**	**470**
05/18/21	101	353	1,075	294	385	1,034	233	246	252	255	261	270	199	234	256	240	251	258	248	253	263	271	277	286	138	141	150	386	465	679	144	269	541
05/19/21	109	361	882	309	431	608	234	255	309	249	270	317	219	254	301	233	259	302	202	232	291	271	288	338	139	147	177	15	426	741	63	241	383
05/20/21	132	382	700	334	432	501	252	278	296	269	295	315	257	283	318	266	285	305	261	289	317	304	328	357	163	175	192	17	357	676	148	264	469
05/21/21	90	365	1,752	336	447	1,488	255	277	295	260	290	313	260	279	296	268	287	313	279	313	347	301	329	354	154	176	192	30	400	915	99	237	368
05/22/21	148	644	930	388	464	795	235	248	267	229	260	285	220	245	281	223	253	273	236	261	297	267	287	307	129	143	157	334	395	525	-	190	575
05/23/21	220	670	865	413	483	603	237	270	297	241	282	318	230	264	289	244	275	297	241	285	311	271	314	345	128	154	170	382	402	429	177	302	614
05/24/21	237	718	836	456	514	584	250	271	289	250	289	306	248	264	277	255	277	296	272	292	312	299	318	339	154	164	175	380	391	525	208	293	367
05/25/21	536	635	818	235	474	620	244	270	310	263	294	339	227	272	335	0	275	320	232	287	334	272	304	344	157	221	320	382	395	1,283	bad/no data		
05/26/21	449	612	859	254	466	628	232	274	304	279	322	346	257	306	332	267	299	325	268	314	349	291	332	361	268	313	352	388	442	791	bad/no data		
05/27/21	482	631	754	372	479	566	243	265	301	261	303	335	261	288	321	222	281	316	271	295	333	277	316	354	191	221	287	386	402	573	bad/no data		
05/28/21	370	565	703	313	433	521	180	251	278	247	307	340	232	295	344	238	290	326	229	299	334	264	325	357	155	207	228	348	384	636	bad/no data		
05/29/21	571	697	1,562	315	535	1,115	235	254	274	283	316	350	268	300	327	234	289	331	246	308	347	278	327	368	159	205	228	341	363	510	bad/no data		
05/30/21	625	704	785	490	557	603	228	252	287	294	312	330	277	296	317	254	288	310	275	305	330	279	315	344	182	201	219	346	404	628	bad/no data		
05/31/21	451	635	768	396	521	603	282	299	315	291	335	354	311	324	342	304	315	330	312	331	352	306	346	367	206	227	283	382	427	706	bad/no data		
06/01/21	403	628	933	330	497	688	270	283	304	289	324	349	286	307	341	276	297	321	216	298	337	266	324	363	235	260	284	381	400	609	bad/no data		
06/02/21	436	587	811	347	458	1,157	267	283	327	309	325	371	283	304	349	274	291	339	262	282	327	262	316	386	232	252	300	402	434	717	bad/no data		
06/03/21	422	561	658	299	427	719	276	296	313	322	344	364	304	344	428	290	312	332	293	326	371	269	336	371	254	284	313	396	407	486	bad/no data		
06/04/21	438	592	698	239	427	526	276	292	313	320	340	363	318	360	385	286	307	327	266	342	398	301	345	386	242	271	295	387	395	419	bad/no data		
06/05/21	498	687	1,696	236	479	1,122	288	299	318	332	348	379	323	346	378	298	312	336	282	319	386	329	346	373	262	281	316	396	407	416	bad/no data		
06/06/21	453	603	918	266	424	673	269	288	322	315	334	353	311	357	384	285	301	315	299	318	336	315	339	358	250	264	292	405	415	426	bad/no data		
06/07/21	375	555	1,380	195	391	938	272	289	298	317	333	350	294	326	363	287	300	311	300	319	337	326	343	355	252	268	304	383	392	412	bad/no data		
06/08/21	456	586	717	295	415	498	266	285	306	302	326	348	292	334	394	0	295	321	285	312	345	324	383	432	190	244	300	360	374	389	bad/no data		
06/09/21	404	564	723	304	402	502	275	294	311	315	337	363	306	326	354	279	301	322	302	330	355	354	403	446	213	258	331	385	389	396	bad/no data		
06/10/21	422	576	699	308	408	485	266	284	314	297	322	384	289	319	351	252	285	319	286	313	354	312	362	413	231	245	320	384	391	405	bad/no data		
06/11/21	416	549	747	300	388	518	275	299	318	301	330	354	317	340	363	273	298	328	305	335	366	343	389	427	226	240	254	392	397	405	171	284	387
06/12/21	408	560	810	297	390	542	265	277	289	292	306	320	303	322	337	258	292	315	298	314	334	337	357	387	209	222	236	380	386	395	173	253	352
06/13/21	490	625	1,707	347	434	1,045	263	281	357	291	305	330	243	301	338	238	291	325	257	305	349	324	351	390	204	213	225	378	387	402	bad/no data		
06/14/21	517	631	1,113	356	437	715	267	306	349	298	337	385	244	338	406	258	310	355	281	325	377	317	351	404	203	224	307	387	398	414	bad/no data		
06/15/21	382	611	1,644	277	427	1,064	312	322	357	345	357	385	257	336	413	295	327	379	325	349	375	337	356	382	244	254	309	407	424	519	bad/no data		
06/16/21	392	571	763	283	406	538	316	336	402	351	372	453	348	372	441	312	328	384	317	359	436	341	364	432	155	251	385	430	456	501	bad/no data		
06/17/21	421	534	657	306	382	466	328	346	364	336	357	386	355	392	419	299	337	365	365	390	429	359	384	402	309	355	404	433	449	472	bad/no data		
06/18/21	460	577	833	338	416	580	225	331	357	269	346	383	307	374	406	248	324	357	305	411	562	282	358	389	226	286	334	421	430	440	bad/no data		
06/19/21	438	599	698	317	427	494	294	310	331	304	320	336	315	347	380	251	291	317	342	392	571	313	333	358	221	290	360	408	417	453	bad/no data		
06/20/21	569	688	1,682	413	488	1,116	296	315	327	303	325	334	305	357	383	284	300	323	369	385	419	325	344	364	322	340	377	413	426	459	bad/no data		
06/21/21	571	720	1,015	408	509	701	239	330	364	273	336	371	263	363	418	265	301	329	406	483	555	289	350	412	286	322	343	423	432	452	bad/no data		
06/22/21	560	679	1,513	406	487	1,012	319	336	360	317	339	368	334	380	511	0	315	356	330	471	589	333	364	404	266	312	357	234	439	533	bad/no data		
06/23/21	489	641	759	364	470	581	334	349	359	345	361	369	434	476	504	337	351	357	364	373	381	367	378	385	334	365	392	436	447	479	-	182	411
06/24/21	478	654	787	254	472	567	280	322	339	294	333	347	384	484	526	284	323	337	312	348	364	314	350	367	296	330	421	423	433	441	-	137	388
06/25/21	436	615	774	325	459	3,643	243	298	341	261	311	347	396	427	465	247	300	341	268	324	364	273	325	363	321	348	372	405	420	427	-	218	381
06/26/21	527	654	745	373	476	602	184	275	329	207	290	341	381	405	467	196	279	336	218	301	364	224	302	363	280	326	368	412	422	616	-	225	382
06/27/21	544	670	795	369	450	530	280	305	331	291	316	335	361	388	422	286	309	330	292	319	341	307	335	384	286	323	345	413	419	440	-	90	178
06/28/21	519	646	1,610	339	422	988	214	291	324	244	300	331	352	370	403	235	294	325	231	375	477	269	322	354	307	325	366	420	427	433	-	127	375
06/29/21	411	600	802	233	330	468	260	285	302	274	290	307	346	362	382	266	285	302	215	276	372	290	311	333	301	315	338	413	420	425	bad/no data		

Cleveland-Cliffs Burns Harbor LLC
Unaccounted-For Ammonia-N in Outfall 001 Storm Ditch Study
(April 5, 2021 to October 15, 2021)

Amendola Engineering, Inc.
DRAFT - October 20, 2021

ATTACHMENT G
Daily Conductivity Data Summary (µS/cm)

	DIW Sewer/WWPS-2						Storm Ditch Locations (Upstream <----------> Downstream)																		Outfalls					
Sample No.:	21			11			19			22			23			16			16b			16c			17			14			18		
HOBO ID:	*10*			*11*			*1*			*2*			*3*			*4*			*5*			*6*			*7*			*8*			*9*		
	Manhole DIW 611 Upstream WWPS-2			WWPS-2 Wet Well			2,000 ft Upstream WWPS-2 Overflow			Immediately Upstr. WWPS-2 Overflow			Immediately Downstr. WWPS-2 Overflow			750 ft Downstream WWPS-2 Overflow			2,900 ft Downstream at Bend N of US-12			3,500 ft Downstream South of US-12			Immediately Upstream Outfall 011 Chanel			Outfall 011			Outfall 001		
Sample Date	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max
Average	**454**	**618**	**1,009**	**300**	**389**	**609**	**276**	**303**	**327**	**282**	**313**	**340**	**279**	**321**	**357**	**275**	**308**	**334**	**275**	**319**	**365**	**285**	**322**	**355**	**260**	**301**	**350**	**388**	**423**	**660**	**266**	**310**	**470**
06/30/21	388	600	1,618	191	298	682	240	284	299	252	286	295	321	347	389	242	279	287	251	276	293	268	300	309	283	303	338	422	444	483	bad/no data		
07/01/21	333	462	668	179	235	322	283	301	343	287	306	347	318	334	349	279	301	345	283	311	379	298	319	368	289	317	367	461	484	533	-	202	1,296
07/02/21	516	646	877	256	307	386	307	346	398	315	353	403	325	402	461	311	351	405	285	354	427	327	370	428	345	389	456	414	435	460	-	174	471
07/03/21	522	673	928	246	314	419	323	334	350	328	338	355	324	357	408	326	338	359	304	342	365	333	352	371	356	385	453	444	453	462	-	207	457
07/04/21	512	679	1,234	246	312	520	321	330	336	324	332	338	333	350	385	322	333	345	288	341	363	328	340	350	209	308	430	442	449	458	-	291	743
07/05/21	420	610	1,747	208	283	659	320	336	354	323	338	353	317	352	423	320	338	353	320	352	375	332	352	368	210	350	363	437	444	452	-	101	1,238
07/06/21	515	673	927	246	308	400	326	341	353	327	341	354	344	381	414	324	339	353	337	356	375	335	352	370	282	328	370	435	456	466	-	105	813
07/07/21	415	623	1,423	205	288	573	311	342	353	306	339	360	335	386	477	309	338	353	309	350	367	307	347	379	315	340	360	466	489	546	bad/no data		
07/08/21	346	581	747	175	271	332	325	353	405	305	340	384	253	344	463	319	348	399	306	338	385	183	356	419	294	326	369	481	504	517	bad/no data		
07/09/21	462	617	893	227	284	385	326	369	393	324	355	386	252	372	441	297	364	403	331	360	394	340	387	416	294	332	357	462	479	501	bad/no data		
07/10/21	411	500	684	209	242	311	313	322	336	287	319	334	306	338	383	310	320	337	265	318	381	257	308	348	157	216	322	447	458	467	bad/no data		
07/11/21	425	517	714	215	249	323	288	321	335	298	323	338	307	337	382	301	325	339	286	324	358	226	251	267	173	185	297	408	419	447	bad/no data		
07/12/21	416	506	704	209	245	317	314	336	370	296	334	366	294	351	381	314	338	364	308	354	396	236	274	334	166	199	291	405	412	425	bad/no data		
07/13/21	386	488	1,087	195	235	445	257	338	371	283	340	372	273	347	396	278	341	374	242	333	389	275	311	330	156	180	201	405	416	431	bad/no data		
07/14/21	427	553	803	220	280	366	327	348	396	326	346	391	335	367	412	324	348	398	283	325	388	327	354	407	167	195	231	419	433	450	bad/no data		
07/15/21	438	664	1,540	227	289	565	340	359	369	303	355	368	353	380	399	338	364	376	267	283	294	344	364	382	177	186	222	441	449	463	bad/no data		
07/16/21	524	713	924	296	310	337	319	351	363	326	355	365	366	383	403	324	358	370	237	263	297	302	343	362	169	180	185	463	467	473	bad/no data		
07/17/21	600	752	838	314	324	340	321	332	341	322	335	345	335	360	373	321	337	347	237	261	340	293	312	322	162	167	173	439	463	470	bad/no data		
07/18/21	640	779	1,035	315	328	351	322	343	371	325	345	367	332	385	419	325	349	373	203	254	293	257	310	347	164	182	204	453	470	987	bad/no data		
07/19/21	557	705	932	308	322	338	332	357	372	328	352	371	301	407	450	318	358	378	219	274	299	300	335	365	193	217	249	465	473	751	bad/no data		
07/20/21	543	697	1,580	233	307	537	327	339	365	332	340	358	291	322	348	328	344	372	284	316	369	199	317	354	177	233	357	459	465	476	bad/no data		
07/21/21	537	680	907	222	296	352	326	344	418	332	349	415	334	352	424	329	343	398	337	351	413	324	343	392	181	228	416	465	496	542	bad/no data		
07/22/21	475	618	1,289	170	261	461	333	365	390	344	375	402	343	380	409	336	366	392	344	375	403	339	378	411	340	380	413	458	486	561	71	326	458
07/23/21	488	614	1,088	177	254	413	344	360	375	346	371	388	354	401	452	340	356	369	323	365	378	354	369	395	349	371	416	436	449	462	122	389	426
07/24/21	508	652	1,146	214	266	420	292	358	400	326	362	398	349	394	447	324	349	370	321	355	398	340	363	389	331	352	375	426	439	453	-	313	489
07/25/21	516	662	1,038	211	271	401	332	351	379	339	362	395	333	374	410	331	347	368	313	351	390	337	358	383	280	345	377	433	449	585	86	250	417
07/26/21	429	585	948	167	237	348	319	348	382	334	365	399	324	373	466	319	348	384	325	360	403	332	360	403	289	326	530	201	446	875	-	173	414
07/27/21	456	614	1,058	134	242	397	319	360	412	332	376	424	322	369	419	316	343	382	334	370	418	330	369	420	260	303	384	441	476	1,619	79	312	446
07/28/21	370	559	1,288	140	236	381	324	344	374	307	347	382	337	358	390	80	333	350	305	354	413	337	351	395	247	301	359	442	448	590	-	337	421
07/29/21	340	463	921	72	206	355	312	351	369	278	327	350	330	361	384	320	347	368	342	366	393	338	363	388	334	358	385	411	421	442	347	392	462
07/30/21	368	553	993	170	240	384	334	356	371	308	331	349	325	361	380	340	357	375	334	375	399	359	377	399	354	372	395	401	415	1,050	292	384	564
07/31/21	467	668	1,099	217	276	415	333	350	372	307	333	373	316	349	369	338	347	371	359	371	397	352	364	391	346	357	385	425	435	449	289	418	554
08/01/21	574	726	1,108	237	294	416	329	346	359	322	338	359	322	357	376	335	345	360	357	365	385	350	360	381	322	350	377	406	436	594	297	540	860
08/02/21	559	720	1,057	231	290	399	334	343	355	312	344	369	356	379	397	342	353	361	283	360	390	360	375	384	293	358	392	429	438	446	398	603	898
08/03/21	608	710	902	240	280	358	311	329	351	226	312	358	321	377	447	321	339	359	309	361	403	330	356	392	305	357	542	432	442	613	-	349	792
08/04/21	614	709	762	236	279	304	311	326	371	293	317	348	320	363	419	324	334	350	340	353	373	330	345	365	327	362	467	445	483	823	-	104	185
08/05/21	594	736	1,090	190	289	445	318	351	419	297	337	388	319	349	420	325	347	387	347	368	410	335	362	413	334	377	468	480	511	530	-	185	3,733
08/06/21	526	692	1,062	203	289	430	257	352	371	289	348	373	300	347	394	300	356	378	348	387	459	326	379	402	344	389	413	444	466	587	209	778	1,426
08/07/21	666	778	976	305	353	443	338	367	387	317	366	388	353	410	447	340	365	407	390	545	642	354	388	447	352	389	458	436	446	459	223	292	413
08/08/21	682	778	1,085	344	360	389	336	354	377	285	350	366	373	397	421	323	340	354	291	498	596	333	357	424	321	359	400	447	455	465	414	694	1,019
08/09/21	623	713	889	271	321	403	327	345	357	282	343	365	359	385	408	323	335	343	333	447	603	335	349	361	333	370	442	456	462	470	405	548	702
08/10/21	0	681	1,166	0	296	472	0	314	348	0	324	354	0	342	377	0	314	342	0	392	539	0	323	344	0	324	349	0	458	1,094	-	197	591
08/11/21	425	689	1,058	197	298	424	297	332	379	300	341	388	298	341	392	280	328	365	265	328	370	267	341	383	248	315	363	326	497	1,078	-	76	371

Cleveland-Cliffs Burns Harbor LLC
Unaccounted-For Ammonia-N in Outfall 001 Storm Ditch Study
(April 5, 2021 to October 15, 2021)

Amendola Engineering, Inc.
DRAFT - October 20, 2021

ATTACHMENT G
Daily Conductivity Data Summary (µS/cm)

	DIW Sewer/WWPS-2						Storm Ditch Locations (Upstream <----------> Downstream)																		Outfalls					
Sample No.:	21			11			19			22			23			16			16b			16c			17			14			18		
HOBO ID:	*10*			*11*			*1*			*2*			*3*			*4*			*5*			*6*			*7*			*8*			*9*		
Sample Date	Manhole DIW 611 Upstream WWPS-2			WWPS-2 Wet Well			2,000 ft Upstream WWPS-2 Overflow			Immediately Upstr. WWPS-2 Overflow			Immediately Downstr. WWPS-2 Overflow			750 ft Downstream WWPS-2 Overflow			2,900 ft Downstream at Bend N of US-12			3,500 ft Downstream South of US-12			Immediately Upstream Outfall 011 Chanel			Outfall 011			Outfall 001		
	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max
Average	**454**	**618**	**1,009**	**300**	**389**	**609**	**276**	**303**	**327**	**282**	**313**	**340**	**279**	**321**	**357**	**275**	**308**	**334**	**275**	**319**	**365**	**285**	**322**	**355**	**260**	**301**	**350**	**388**	**423**	**660**	**266**	**310**	**470**
08/12/21	416	673	995	187	281	371	330	357	370	350	372	391	321	366	391	332	345	359	325	338	355	350	366	389	341	356	373	445	495	1,039	-	127	227
08/13/21	415	662	941	191	273	361	315	348	371	332	364	389	282	311	357	316	342	356	335	351	376	328	357	376	330	352	371	460	488	1,570	-	104	414
08/14/21	499	620	1,009	216	257	427	286	310	326	297	323	340	254	272	290	293	314	326	311	331	346	311	331	344	294	320	396	435	457	545	-	99	1,775
08/15/21	570	668	958	239	272	358	277	295	316	275	304	329	230	276	333	287	300	324	297	328	417	304	319	349	241	302	399	425	433	535	-	53	169
08/16/21	464	578	775	204	242	299	292	303	315	281	318	335	311	323	334	303	315	325	298	349	418	254	328	347	310	364	480	424	430	573	bad/no data		
08/17/21	474	559	736	173	231	300	260	276	295	251	287	311	256	292	315	273	291	311	293	314	339	232	300	330	271	354	518	417	424	675	bad/no data		
08/18/21	439	540	670	168	224	276	255	278	308	262	288	321	264	292	329	266	291	330	262	306	352	191	244	347	261	292	379	443	454	460	bad/no data		
08/19/21	442	534	733	194	224	289	275	298	312	291	314	336	299	319	338	298	324	346	315	340	360	311	344	369	309	340	396	411	422	462	-	115	205
08/20/21	468	543	690	189	228	275	278	297	315	239	306	346	308	324	345	305	325	350	320	346	507	321	348	415	305	329	361	400	407	423	bad/no data		
08/21/21	381	476	735	189	203	248	262	291	335	274	311	358	279	310	356	274	317	378	291	345	408	282	336	409	271	315	373	388	400	528	bad/no data		
08/22/21	431	498	764	184	214	323	274	287	305	278	300	319	228	301	324	286	316	342	280	327	360	290	337	368	282	316	351	374	381	475	bad/no data		
08/23/21	400	464	645	171	196	255	281	305	342	282	313	363	294	323	372	288	322	375	298	363	535	290	332	400	283	358	549	373	389	999	bad/no data		
08/24/21	-	484	742	-	194	296	-	291	334	-	305	347	-	312	358	-	308	354	*Discontinued*			-	315	381	-	313	385	-	408	780	bad/no data		
08/25/21	422	532	801	133	207	293	265	319	381	260	324	380	271	336	392	237	321	372	*Discontinued*			196	336	403	171	341	399	400	431	753	243	377	442
08/26/21	432	509	773	112	204	284	306	346	376	325	355	383	307	363	405	326	345	370	*Discontinued*			347	368	402	357	424	505	441	448	569	418	428	445
08/27/21	464	557	806	159	218	302	314	340	367	325	349	374	344	377	430	278	333	359	*Discontinued*			330	357	388	388	467	537	318	436	445	405	415	426
08/28/21	509	639	952	161	225	345	296	321	344	315	331	351	306	341	375	279	316	334	*Discontinued*			324	337	358	329	410	487	419	438	690	400	406	431
08/29/21	562	644	913	134	217	315	267	296	338	275	304	325	317	345	374	252	297	337	*Discontinued*			293	320	339	326	435	538	424	435	627	377	395	441
08/30/21	404	590	753	124	219	286	289	314	342	298	324	345	344	371	397	296	327	364	*Discontinued*			312	340	370	332	369	441	416	434	2,511	378	390	399
08/31/21	464	611	856	152	232	309	272	285	308	274	292	314	291	325	368	281	293	319	*Discontinued*			292	305	330	304	406	523	410	413	421	320	354	378
09/01/21	467	642	879	145	234	319	263	269	276	267	274	286	244	304	348	255	274	292	*Discontinued*			278	286	303	364	430	483	308	436	1,494	307	329	371
09/02/21	550	639	886	142	244	330	271	291	311	273	296	319	305	322	345	254	283	312	*Discontinued*			281	305	337	373	436	510	459	475	539	320	340	361
09/03/21	510	624	787	149	243	307	282	317	374	286	321	370	300	322	352	267	291	328	*Discontinued*			295	341	406	331	405	477	458	490	839	335	406	492
09/04/21	531	638	869	149	247	331	272	294	319	282	303	323	305	332	361	282	306	334	*Discontinued*			302	322	351	269	355	465	43	435	462	372	398	422
09/05/21	605	703	946	188	265	348	269	320	359	278	324	360	306	346	403	283	333	370	*Discontinued*			291	340	381	295	370	475	405	433	1,736	354	391	416
09/06/21	580	725	987	174	275	358	335	360	388	341	365	384	366	379	399	222	357	391	*Discontinued*			353	379	404	316	391	456	393	456	1,910	397	416	429
09/07/21	580	692	878	225	271	330	318	332	360	323	338	362	333	377	417	317	339	369	*Discontinued*			324	346	370	351	404	613	445	450	598	355	393	425
09/08/21	-	650	859	-	263	324	-	324	332	-	322	331	-	355	423	-	329	345	*Discontinued*			-	334	348	-	407	562	-	477	553	-	381	403
09/09/21	247	528	820	203	245	312	322	347	401	299	327	375	275	333	438	332	361	422	*Discontinued*			332	365	432	318	350	406	496	508	520	390	429	498
09/10/21	249	588	930	233	275	348	322	341	357	302	333	352	301	366	522	337	362	384	*Discontinued*			342	373	399	328	355	376	475	482	517	417	456	495
09/11/21	157	393	785	157	216	292	310	333	365	281	330	371	286	318	375	330	345	387	*Discontinued*			343	355	401	336	359	394	440	455	487	265	366	450
09/12/21	150	460	973	166	213	277	315	340	354	318	341	362	259	309	368	333	350	365	*Discontinued*			340	361	381	339	358	373	224	430	1,309	253	330	394
09/13/21	362	664	942	230	264	346	328	348	362	303	348	367	308	346	368	329	345	365	*Discontinued*			327	351	380	324	355	379	443	462	2,056	258	415	448
09/14/21	541	707	1,377	229	276	454	318	335	358	320	340	362	254	304	355	319	333	347	*Discontinued*			318	337	355	322	340	359	467	470	482	269	387	440
09/15/21	444	562	823	195	234	313	326	343	371	328	350	374	252	267	309	326	340	368	*Discontinued*			139	341	380	328	345	364	482	499	515	338	438	475
09/16/21	372	480	695	169	208	280	320	334	347	334	362	414	92	298	364	315	328	338	*Discontinued*			319	335	345	335	354	376	347	448	665	249	398	449
09/17/21	196	536	1,391	185	238	447	280	308	339	295	321	352	262	316	351	284	309	328	*Discontinued*			292	319	338	309	334	355	415	422	655	222	342	416
09/18/21	194	456	1,030	226	263	367	291	306	327	268	303	326	124	286	343	291	311	342	*Discontinued*			301	328	368	321	342	369	423	428	437	208	253	379
09/19/21	175	505	884	221	263	326	298	335	389	297	342	402	203	314	384	292	341	404	*Discontinued*			303	365	453	299	340	377	423	437	497	206	241	306
09/20/21	201	612	1,008	243	266	360	294	306	325	297	314	350	246	297	324	291	299	316	*Discontinued*			314	321	400	301	315	343	440	444	450	208	283	420
09/21/21	183	566	1,299	182	244	462	276	288	301	268	289	304	228	290	322	262	273	292	*Discontinued*			260	293	334	268	288	325	397	437	569	244	296	396
09/22/21	157	425	716	175	209	280	290	299	303	295	341	392	236	295	321	265	275	281	*Discontinued*			27	287	328	277	320	364	384	424	1,561	270	290	328
09/23/21	148	410	725	178	203	279	246	282	292	268	306	346	254	290	308	244	267	281	*Discontinued*			230	281	290	258	287	327	424	435	639	250	271	285

ATTACHMENT G
Daily Conductivity Data Summary (µS/cm)

	DIW Sewer/WWPS-2						Storm Ditch Locations (Upstream <----------> Downstream)																		Outfalls					
Sample No.:	21			11			19			22			23			16			16b			16c			17			14			18		
HOBO ID:	*10*			*11*			*1*			*2*			*3*			*4*			*5*			*6*			*7*			*8*			*9*		
Sample Date	Manhole DIW 611 Upstream WWPS-2			WWPS-2 Wet Well			2,000 ft Upstream WWPS-2 Overflow			Immediately Upstr. WWPS-2 Overflow			Immediately Downstr. WWPS-2 Overflow			750 ft Downstream WWPS-2 Overflow			2,900 ft Downstream at Bend N of US-12			3,500 ft Downstream South of US-12			Immediately Upstream Outfall 011 Chanel			Outfall 011			Outfall 001		
	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max
Average	**454**	**618**	**1,009**	**300**	**389**	**609**	**276**	**303**	**327**	**282**	**313**	**340**	**279**	**321**	**357**	**275**	**308**	**334**	**275**	**319**	**365**	**285**	**322**	**355**	**260**	**301**	**350**	**388**	**423**	**660**	**266**	**310**	**470**
09/24/21	307	438	674	141	189	260	291	309	323	303	341	370	234	304	335	279	301	316	*Discontinued*			290	317	338	257	301	343	406	429	693	195	264	396
09/25/21	357	462	1,127	163	197	384	251	296	310	310	341	375	239	301	330	259	292	301	*Discontinued*			229	275	315	296	319	331	379	386	406	187	218	262
09/26/21	394	457	637	174	196	254	306	325	348	324	349	393	256	321	348	295	316	347	*Discontinued*			308	336	378	299	335	376	370	379	386	213	243	278
09/27/21	366	474	659	165	201	314	316	337	375	341	433	538	284	333	356	306	332	374	*Discontinued*			319	350	385	333	367	392	380	388	407	220	264	372
09/28/21	463	624	838	198	250	312	303	321	349	324	352	400	284	329	356	290	314	343	*Discontinued*			304	330	443	339	360	382	394	401	416	255	274	327
09/29/21	483	619	1,177	206	248	399	300	303	306	321	345	387	278	311	319	285	289	295	*Discontinued*			299	304	311	343	365	382	409	441	465	257	282	315
09/30/21	528	667	894	225	265	332	300	333	390	327	364	385	243	312	363	286	322	375	*Discontinued*			150	341	406	333	363	389	462	476	496	259	371	537
10/01/21	484	651	873	211	262	325	325	339	356	322	352	388	252	331	369	298	319	337	*Discontinued*			306	333	357	378	397	418	444	456	476	356	427	453
10/02/21	540	682	1,497	228	269	469	249	316	349	300	322	349	288	331	351	255	290	302	*Discontinued*			266	302	314	295	376	390	378	433	1,866	367	389	406
10/03/21	433	608	777	188	246	294	236	303	341	303	317	329	299	328	351	254	285	298	*Discontinued*			258	292	309	305	328	338	408	416	426	342	375	391
10/04/21	422	548	758	188	229	292	318	330	340	314	340	355	327	340	354	296	307	324	*Discontinued*			303	318	333	320	336	353	397	409	414	208	384	395
10/05/21	-	534	731	-	221	283	-	316	343	-	328	368	-	332	354	-	312	330	*Discontinued*			305	319	366	329	363	415	401	405	414	-	310	391
10/06/21	341	520	1,509	160	212	459	298	300	306	263	291	298	286	305	318	304	306	311	*Discontinued*			-	302	308	-	343	423	-	421	428	-	277	358
10/07/21	413	496	756	173	202	284	289	308	356	279	295	337	278	308	353	297	314	365	*Discontinued*			291	306	357	288	307	396	421	424	428	156	345	419
10/08/21	422	522	682	173	202	245	97	308	349	161	300	335	165	316	361	162	321	366	*Discontinued*			169	315	365	212	338	410	391	402	430	320	387	418
10/09/21	437	594	774	180	221	267	300	324	345	293	310	334	267	327	348	300	321	338	*Discontinued*			234	314	332	293	317	351	393	402	409	361	377	389
10/10/21	519	662	1,622	200	237	434	302	316	341	281	304	330	229	278	346	296	307	322	*Discontinued*			302	309	326	297	311	332	408	421	438	369	379	394
10/11/21	405	625	1,597	168	224	435	225	303	340	242	302	330	185	292	358	242	302	323	*Discontinued*			252	304	333	252	342	476	387	400	434	309	353	391
10/12/21	333	523	855	143	197	278	275	291	296	257	291	303	187	223	281	245	296	307	*Discontinued*			246	300	312	273	330	428	391	405	430	292	334	348
10/13/21	352	427	636	147	171	222	258	288	293	270	288	296	269	300	307	273	294	301	*Discontinued*			279	301	309	298	395	451	429	432	437	332	345	357
10/14/21	322	460	1,190	138	178	330	249	296	329	263	294	321	249	279	314	266	302	334	*Discontinued*			273	311	350	320	382	470	425	430	438	329	364	423
10/15/21	375	472	3,132	157	184	635	298	313	328	291	308	321	286	311	337	305	321	337	*Discontinued*			319	334	353	419	465	501	309	406	1,713	362	378	392