



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

REPLY TO ATTENTION OF  
ECW-15J

**VIA EMAIL**

Mr. Tom Maicher  
Environmental Manager  
Cleveland Cliffs Burns Harbor  
250 West U.S. Highway 12  
Burns Harbor, IN 46304

Subject: July 28, 2022 Reconnaissance Inspection Report for Cleveland-Cliffs Burns Harbor, NPDES Permit Number IN0000175

Dear Mr. Maicher:

Enclosed, please find a copy of the U.S. Environmental Protection Agency Inspection Report that describes and documents the activities at Cleveland-Cliffs Burns Harbor, LLC on July 28, 2022.

The purpose of the reconnaissance inspection at Cleveland-Cliffs Burns Harbor, LLC was to discuss and observe the SWPPP documentation, centrifuges, and ammonia treatment system, among other topics.

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

Sincerely,

**Bahr, Ryan**

Digitally signed by Bahr,  
Ryan  
Date: 2022.08.30  
15:23:30 -05'00'

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

Enclosure

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

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

Ramelito Biscocho, Wastewater Inspector  
Indiana Department of Environmental Management

Kelly Paulson, Wastewater Inspector  
Indiana Department of Environmental Management

Margaret Hayes, Environmental Scientist  
Indiana Department of Environmental Management

Trisha Williams, Permit Writer  
Indiana Department of Environmental Management

Nikki Gardner, Technical Environmental Specialist  
Indiana Department of Environmental Management

Morgan Swanson, Environmental Engineer  
Cleveland-Cliffs Burns Harbor

Vinod Barot, Senior Environmental Engineer  
Cleveland-Cliffs Burns Harbor

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

**Purpose:**

Compliance Evaluation Reconnaissance Inspection

**Facility:**

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

**NPDES Permit Number:**

IN0000175

**Date of Inspection:**

July 28, 2022

**EPA Representatives:**

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

**State Representatives:**

Nicholas Ream, Indiana Department of Environmental Management 219-730-1691  
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**Facility Representatives:**

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[Robert.maciel@ClevelandCliffs.com](mailto:Robert.maciel@ClevelandCliffs.com)

Morgan Swanson, Environmental Engineer 219-787-2646  
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Patrick Gorman, Operator  
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Vinod Barot, Senior Environmental Engineer 219-787-2120  
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**Report Prepared by:**

Joan Rogers

**Inspector Signature/Date:** JOAN ROGERS Digitally signed by JOAN ROGERS  
Date: 2022.08.29 16:02:33 -05'00'

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

**Approver Signature/Date:** Bahr, Ryan Digitally signed by Bahr, Ryan  
Date: 2022.08.30 13:51:57 -05'00'

**1. BACKGROUND**

The purpose of this report is to describe and document the reconnaissance inspection at the Cleveland Cliffs Burns Harbor facility on July 28, 2022. This inspection was performed pursuant to Section 308(a) of the Federal Water Pollution Control Act, as amended. This was a joint inspection by EPA and the Indiana Department of Environmental Management (IDEM).

The Cleveland Cliffs Burns Harbor (CCBH) facility is one of the largest fully integrated steel mills in North America, with the capacity to produce approximately 5 million tons of raw steel per year. They operate under NPDES Permit No. IN0000175, which was issued on January 1, 2022, and expires on December 31, 2026.

The inspection on July 28, 2022 was a Compliance Evaluation Reconnaissance Inspection to discuss their Storm Water Pollution Prevention Plan (SWPPP) documentation, the efficiency of the ammonia treatment and the recent bypass event from Manhole 120 on July 23, 2022. The inspectors also wanted to observe the storm water manholes under the blast furnaces, Manhole 120 and the Wastewater Pump Station 1 (WWPS 1), the centrifuges at the Reclamation Services Building (RSB), and the outfalls while on site.

**2. SITE INSPECTION**

**Site Entry and Opening Conference**

|  |   |     |
|--|---|-----|
| <b>Arrival Time:</b>   | 10:00 A.M.  |     |
| <b>Presented credentials?</b>  | Yes.  |     |
| <b>Credentials presented to whom and at what time?</b>   | 10:20 A.M. to Tom Maicher, Pat Gorman, Morgan Swanson, and Vinod Barot. |     |
| <b>Was an opening conference held? With whom?</b>  | Yes. Ms. Swanson, Mr. Maicher, Mr. Gorman, and Mr. Barot.               |     |
| <b>If photographs or documents were taken, does the facility consider any to be Confidential Business Information (CBI)?</b> |   | No. |
| <b>Which information does the facility consider to be CBI?</b>   | None.   |     |
| <b>EPA vehicle parked in approved location?</b>  | Yes.  |     |
| <b>Location where EPA vehicle was parked?</b>  | Environmental Services Building.  |     |

EPA inspector, Ms. Joan Rogers, and IDEM inspectors Mr. Nick Ream, Mr. Ramelito Biscocho, Ms. Margaret (Maggie) Hayes, Ms. Kelly Paulson, Ms. Trisha Williams, and Ms. Nikki Gardner, followed Ms. Swanson to the Environmental Services Building conference room from the main office where EPA and IDEM inspectors received their visitor badges. During the opening conference, the inspection team explained that the focus of the inspection was to discuss SWPPP documentation, and the recent bypass event from Manhole 120 on July 23, 2022, but other areas would also be discussed and observed.

**Whole Effluent Toxicity Testing (WETT)**

IDEM inspector, Mr. Ream, requested to discuss the WETT testing failures of 2020 and the submittal of the Toxicity Reduction Evaluation (TRE). Ms. Swanson stated that after the two WETT testing failures on May 4, 2020, and June 1, 2020, they performed the TRE and have since closed it out. The TRE was submitted to the IDEM toxicologist, Dr. Syed Ghiasuddin. Ms. Swanson stated that the company has not received a response from Dr. Ghiasuddin. As of September 16, 2021, the facility has gone back to quarterly testing with the last tests taken on July 19, 2022.

**Storm Water Pollution Prevention Plan (SWPPP)**

Ms. Rogers requested to review the SWPPP areas of concern from the June 23, 2022 inspection. From the June 23, 2022 inspection report, EPA had the following areas of concern. Each was discussed and the notes from the discussion are listed below each area of concern.

- In a comparison between the SWPPP Annual Review and the list of CPARs, the SWPPP Annual Review lists a CPAR 600 for deficiencies with the Storm Ditch booms located near the Plate Mill. This CPAR is not in the spreadsheet list of CPARs.

CCBH Response: The facility will review the CPAR system and update it to include CPAR 600.

- From the SWPPP Annual Review, during an inspection on 6/16/2021, there were two plates covering the storm sewer grates under C Furnace and D Furnace were found moved with the storm sewer exposed. The annual review states that this issue will be continued to be followed up on in 2022, but there is no CPAR assigned to it. A previous CPAR, CPAR 533, for similar issue was opened on 11/21/19 and verified (closed) on 9/30/20.

CCBH Response: The manhole covers were welded shut with fabricated plates and the weld broke. Mr. Gorman was unsure of the status of the manhole covers and the team expressed interest in seeing these manholes.

- From the spreadsheet of CPARs, three CPARs (451, 581, 715) have expected completion dates that have already passed. CPAR 451's expected completion date was 12/15/21, CPAR 581's expected completion date was 4/30/22, and CPAR 715's expected completion date was 1/15/22.

CCBH Response for CPAR 715: Mr. Gorman and Mr. Barot stated that they had inspected the bubbling water out of the manhole in the aisle between the Caster and Basic Oxygen Furnace Buildings, which CPAR 715 addressed. Mr. Gorman stated that the covers were still missing, and air is still leaking. CPAR expected completion date needs to be updated.

CCBH Response for CPAR 581: CPAR 581 addressed the Storm Ditch booms that needed to be replaced or repaired. Mr. Gorman stated that they were all repaired or replaced and CPAR 581 needs to be updated.

CCBH Response for CPAR 451: CPAR 451 addressed the washouts of W Street. Mr. Gorman stated that a permanent solution has not been installed as that area has hydrologic challenges. CPAR 451 needs to be updated.

- From the spreadsheet of CPARs, three CPARs were listed (631, 709, 748) that had verification dates in 2021, but were not listed in the SWPPP Annual Review. CPAR 631 was verified on 5/6/21, CPAR 709 was verified on 1/8/21, and CPAR 748 was verified on 3/15/21.

CCBH Response: Mr. Maicher and Ms. Swanson stated that they would look into making sure that all CPARs are included in the SWPPP Annual Review.

- From the spreadsheet of CPARs, two CPARs (631, 791) had descriptions by Rob Rogers that said that the work was complete but was later listed as incomplete. (See details in the EPA Inspection Report from the June 23, 2022, Inspection.)

CCBH Response: The presence and absence of tankers and track mats is dynamic and is constantly changing. New tankers may have been brought to the facility after Mr. Rogers observed that they were removed.

- A review of the dates that the CPAR was opened and then was verified/closed shows many issues that take more than a year to complete. (See details in the EPA Inspection Report from June 23, 2022, Inspection.)

CCBH Response: Mr. Maicher stated that the longer timeframes to completion of the tasks for the CPARs in the past year are indicative of the change of

perspective that the new owners of the plant have instilled. Instead of just putting quick fixes on an identified issue, they also look to install permanent solutions that may cause the verification of the CPAR to be longer than it previously was with the previous management. EPA noted that there are regular updates on each CPAR which show that the issues are being addressed.

EPA also pointed out that when an identified SWPPP control has failed, according to the NPDES Permit, the controls need to be fixed before the next storm event and the time completion of CPARs needs to be “expeditiously done” according to the Permit.

### Ammonia Treatment

CCBH representatives stated that the ammonia treatment system is doing well. They have been able to get approximately 95% reduction in ammonia with an average of 300 GPM of blowdown. They are doing daily sampling and comparing the lab analysis with their bench testing. If they see no drifting of the data, they may go back to weekly sampling. Currently, US Water Services Corporation (new owner of the Ramboll Americas O&M Solutions, LLC) provides the management of the ammonia treatment system.

### Centrifuges

The centrifuge system is working better now. The facility currently has two centrifuges working with one spare. They also have a backup Centrysis decanter centrifuge. They feed two different polymers and the solids that are being removed are reasonably dry.

### Bypass Event on July 23, 2022

CCBH personnel showed the inspectors a photo of a lightning strike to the substation near the WWPS 1. The lightning strike damaged the transformer which provided power to the pumps in WWPS 1. A minimum of two pumps are necessary on each side of WWPS 1 (hot mill side and cold mill side). Because of installed uninterruptable power supplies (UPSs) on the pumps, maintenance personnel were fairly quickly able to get two hot mill side pumps working but could only get one cold mill side pump working. Water overflowed from Manhole 120 to the Storm Ditch when the pumps stopped working.

The power company already had the transformer replaced by July 26, 2022. Sampling during the power outage showed no exceedances of NPDES Permit limits. Since the pumps direct the wastewater to the Secondary Wastewater Treatment Plant, approximately 600,000 gallons bypassed secondary treatment and overflowed into the Storm Ditch.

The facility has already ordered a generator as a backup for the pumps. It should arrive in early 2023. Additionally, all the variable frequency drive pump motors will soon have surge protectors installed.

A root cause failure analysis is being completed for this bypass and CCBH will share it with EPA and IDEM when complete.

## Facility Walkthrough

See Attachment A for the photolog of the photos taken during the facility walkthrough. EPA and IDEM concluded the interview portion of the inspection at 11:50 A.M. and stated that they would like to observe the storm sewer manholes under Blast Furnace C and Blast Furnace D, the centrifuges at the RSB, Manhole 120 and the WWPS 1, ammonia treatment, and Outfall 002, Outfall 003, Outfall 011, and Outfall 001.

### Blast Furnace C and D

At 12:05 P.M., EPA and IDEM arrived at the storm sewer beneath Blast Furnace C. Mr. Kenneth Miskimon, the Section Manager for Furnace Operation, joined the inspection.

Mr. Gorman described how the storm sewer system takes 20,000 gpm of non-contact cooling water from shell cooling to Outfall 002. The manhole plate was intact, but the weld had portions that had failed due to the force of air from the water in the pipe.

Beneath Blast Furnace D, EPA observed the manhole cover for the storm sewer. This manhole cover had a handle on it that could cause someone to trip. Mr. Gorman stated that the handle would be removed.

### Outfall 002

The inspectors followed the facility personnel to Outfall 002 and arrived at 12:30 P.M. Approximately 1-2 weeks prior, Mr. Barot designed and installed a spray bar at the head of the outfall structure. The spray consisted of recirculated lake water and was intended to knock down the foam in the outfall.

On the day of the inspection there was foam on both sides of the permanent boom within the outfall structure. There was no foam observed at the soft boom outside the outfall structure.

### Centrifuges

EPA and IDEM arrived at the centrifuges near the RSB. The overhead from hydrocyclones in the RSB is piped to tanks and then to the centrifuges. Two polymers are added to the flow prior to the centrifuges to settle out the solids. The solids are dropped into dumpsters for disposal and the centrate is piped back to the Blast Furnace Recycle System, where there is additional ammonia removal.

EPA observed the solids in the dumpster and noted that it had the consistency of dry soil. EPA also observed secondary containment under the totes that contained the polymers.

### Outfall 003

The inspectors followed the facility personnel to Outfall 003 and arrived at 1:15 P.M. The inspectors did not observe any issues with Outfall 003 on the day of the inspection.



### Ammonia Treatment System

EPA and IDEM arrived at the Ammonia Treatment System at 1:36 P.M. where Mr. Gorman explained the system.

1. Chlorine dioxide is added to treat for free cyanide.
2. Ferric chloride is then added to reduce the complex cyanide. Ferric chloride is only added if the facility expects there to be cyanide in the system. If chlorine dioxide is added for additional cyanide reduction, there are four warning lights and a horn to alert facility personnel.
3. The flow then goes to clarifiers named 2A and 2B.
4. Solids from the clarifiers goes to Tank 5A, the sludge holding tank. Sludge is recirculated to Tank 1A with any extra going to the sinter plant.
5. Tank 1B is used to soften the water with soda ash and bring the pH up to 10.5-11.
6. Additional sludge removal happens in clarifiers 2C and 2D.
7. The flow moves to Tank 3, where the water is heated to 120°F.
8. The flow is then lifted to cooling towers. Approximately 15-20% of the ammonia removal happens in the cooling towers.
9. Breakpoint chlorination occurs in Tank 4 and acid is introduced to bring pH down to 7.
10. The flow is then directed to Cells 6, 5, and 4 before flowing to the Secondary Wastewater Treatment Plant.
11. By Cell 4, the average ammonia removal is at 95%.

### Manhole 120 and WWPS 1

EPA and IDEM followed the facility personnel to Manhole 120, arriving at 2:00 P.M. Once on top of the manhole structure, facility personnel showed the inspectors that the flow from the Hot Mill side of the plant flows into the left chamber, while the flow from the Cold Mill side of the plant flows into the right chamber. The gate between the two sides is open to allow hot to mix with the cold, because sometimes there is flow from the pickling that has a low pH, which is neutralized with the combining of flows.

The flow from the Hot Mill side is directed directly to WWPS 1 and is pumped to SWTP, while the Cold Mill flow receives oil removal in the WWPS 1 before being pumped to the SWTP.

During the power outage on July 23, 2022, both the Hot and Cold Mill sides overflowed to the Storm Ditch.

At WWPS 1, there are five low lift pumps for the Hot Mill side and five low lift pumps for the Cold Mill side. The process requires two functioning pumps from each side to pump all water to the SWTP. On July 23, 2022, maintenance personnel were able to quickly restart two of the pumps on the Hot Mill side but could initially only restart one pump on the Cold Mill side. The damaged surge protectors needed to be removed before more pumps could be restarted. The overflow was stopped approximately two hours after it started and approximately 600,000 gallons overflowed into the Storm Ditch.

### Outfall 011

The inspection team arrived at Outfall 011 with the facility personnel at 2:34 P.M. While passing the weirs of the lagoons, EPA observed that there was vegetation growing on the weirs.

EPA and IDEM inspectors observed the composite sampler. The temperature on the inside, as read from a thermometer in water, was 5.0°C. The tubing was last changed on July 6, 2022. The tube was not discolored on the day of the inspection, but the intake end of the tube was caught in the stream vegetation. The water by Outfall 011 was clear on the day of the inspection.

The inspectors observed the temperature log for the refrigerator for the reagent for the daily Total Residual Chlorine monitoring. The temperatures were all at or below 4°C.

### Outfall 001

At 2:54 P.M., the inspection team arrived at Outfall 001 and observed the new emergency generator for Outfall 001. The generator is included in the preventative maintenance program and will be tested periodically.

EPA did not observe a sheen in the receiving waterbody on the day of the inspection. EPA observed that the temperature in the auto-sampler was 2°C. The tube was not discolored on the day of the inspection and was last changed on July 6, 2022. EPA also observed the weir upstream of the sample housing building and it looked intact and there was no debris caught on it.

EPA and IDEM provided a brief closing conference at Outfall 001 and then exited the area at 3:15 P.M.

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

- None

### **4. AREAS OF CONCERN**

- A. Foam was observed inside and outside the permanent boom of Outfall 002.
- B. The CPAR system needs to be updated with current status of some projects.
- C. The facility did not have backup power to run the pumps in WWPS 1 and thereby had a bypass event on July 23, 2022, when a lightning strike hit the electrical substation.

### **5. LIST OF ATTACHMENTS**

- A) Photolog

**Attachment A**  
**Cleveland-Cliffs Burns Harbor**  
**EPA Inspection July 28, 2022**  
**All photos taken by Joan Rogers, Environmental Scientist/Inspector, U.S. EPA**  
**Camera: Olympus Tough TG-4**



1: CHWW0057

Description: Manhole storm sewer cover under Blast Furnace C. During SWPPP inspection this cover was found removed.

Location: Under Blast Furnace C.

Date/Time: July 28, 2022/12:09 P.M.



2: CHWW0058

Description: Manhole storm sewer cover under Blast Furnace C. During SWPPP inspection this cover was found removed.

Location: Under Blast Furnace C.

Date/Time: July 28, 2022/12:09 P.M.



3: CHWW0059

Description: Manhole storm sewer cover under Blast Furnace D. During SWPPP inspection this cover was found removed. Handle in the middle of the cover is a trip hazard and will be removed.

Location: Under Blast Furnace D.

Date/Time: July 28, 2022/12:13 P.M.



4: CHWW0060

Description: Manhole storm sewer cover under Blast Furnace D. During SWPPP inspection this cover was found removed. Handle in the middle of the cover is a trip hazard and will be removed. Two large pipes in the background are pipes for non-contact cooling water.

Location: Under Blast Furnace D.

Date/Time: July 28, 2022/12:16 P.M.



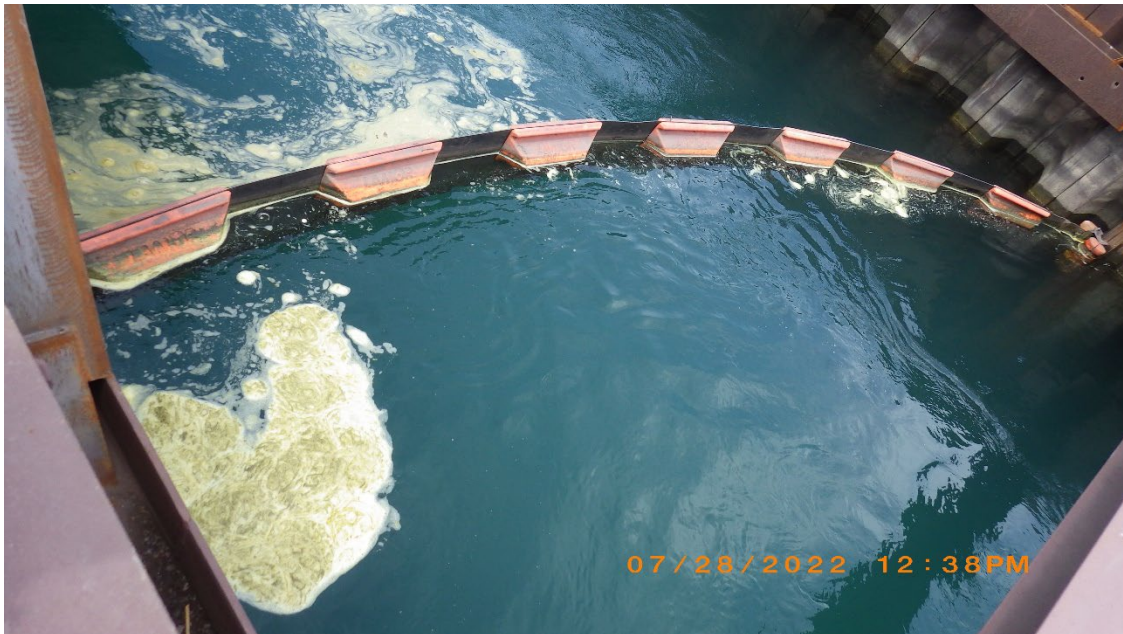
5: CHWW0061

Description: New spray bar at Outfall 002 to knock down foam. No chemicals are added, just recirculated lake water.

Location: Outfall 002.

Camera Direction: Northeast.

Date/Time: July 28, 2022/12:36 P.M.



6: CHWW0062

Description: Permanent boom in Outfall 002 has some foam on inside and outside of the boom.

Location: Outfall 002.

Camera Direction: Down.

Date/Time: July 28, 2022/12:38 P.M.



7: CHWW0063

Description: Temporary, soft boom outside of Outfall 002 will catch any remaining foam that passes the permanent boom.

Location: Outfall 002.

Camera Direction: Northwest.

Date/Time: July 28, 2022/12:39 P.M.



8: CHWW0064

Description: The overflow from the hydrocyclones at the Reclamation Services Building (RSB) flows to the two tanks in the photo before going to the centrifuges.

Location: Reclamation Services Building.

Camera Direction: Northeast

Date/Time: July 28, 2022/1:01 P.M.





9: CHWW0065

Description: Solids from the centrifuges are deposited into dumpsters for disposal.

Location: Reclamation Services Building.

Camera Direction: Northeast.

Date/Time: July 28, 2022/1:02 P.M.



10: CHWW0066

Description: No sheen and the water was clear at Outfall 003 on the day of the inspection.

Location: Outfall 003.

Camera Direction: Northwest.

Date/Time: July 28, 2022/1:18 P.M.



11: CHWW0067

Description: Looking down into Manhole 120. There was an overflow event from this manhole to the Storm Ditch on 7/23/22 when power was disrupted to Wastewater Pump Station I.

Location: Manhole 120.

Camera Direction: Down.

Date/Time: July 28, 2022/2:02 P.M.



12: CHWW0068

Description: The piping from Manhole 120 to the Storm Ditch is in this structure.

Location: Manhole 120.

Camera Direction: North.

Date/Time: July 28, 2022/2:06 P.M.



13: CHWW0069

Description: The Storm Ditch is on the other side of the road from Manhole 120.

Location: Manhole 120.

Camera Direction: North.

Date/Time: July 28, 2022/2:06 P.M.



14: CHWW0070

Description: Weirs from the wastewater lagoons have vegetation on them.

Location: East of the lagoons.

Camera Direction: West.

Date/Time: July 28, 2022/2:33 P.M.



15: CHWW0071

Description: Sample tube for Outfall 011 catches stream vegetation.

Location: Outfall 011.

Camera Direction: South.

Date/Time: July 28, 2022/2:39 P.M.



16: CHWW0072

Description: New emergency generator for Outfall 011.

Location: Outfall 001.

Camera Direction: Northwest.

Date/Time: July 28, 2022/2:54 P.M.