CLEAN WATER ACT INSPECTION REPORT
U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION 5

Purpose: Inspection of East Chicago Sanitary District Force Main Break

Facility: East Chicago Sanitary District
5201 Indianapolis Boulevard
East Chicago, IN 46312

NPDES Permit Number: IN0022829

Date of Inspection: October 7, 2022

Facility Representative:
Kenneth Myers, Director of Wastewater Operations

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Approval Date: _____

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I. INTRODUCTION

The purpose of this report is to describe, evaluate, and document East Chicago Sanitary District's (ECSD's) progress to repair a broken force main at the corner of 152nd Street and Railroad Avenue, East Chicago, Indiana.

II. BACKGROUND

According to information sent by ECSD:

- On September 28, 2022, a semi-truck tractor and trailer broke through the pavement at the intersection of 152nd Street and Railroad Avenue in East Chicago, Indiana, and ruptured a 42-inch force main, which carried wastewater from ECSD's collection system to the wastewater treatment plant for treatment.
- In response to the rupture and subsequent flooding along 152nd Street and Indianapolis Boulevard, operators had shut down the sanitary pumps at the Alder Street lift station.
- Storm pump P106 began pumping untreated wastewater to the Grand Calumet River at Combined Sewer Overflow Outfall No. 003 (CSO 003).
- The force main is estimated to typically carry approximately 80% of the influent to the WWTP. Based on the WWTP's average volume of daily influent during September 2022, i.e., 9.36 million gallons per day, the discharge to the Grand Calumet River from CSO 003 was approximately 7.48 million gallons per day.

To address the ongoing discharge of untreated sewage through CSO 003, ECSD:

- Excavated and dewatered the broken force main area, and
- Built a bypass from a point just upstream of the force main break to the WWTP influent.

Ultimately, ECSD plans to replace the broken section of force main with a ductile iron pipe.

III. INSPECTION ACTIVITY SUMMARY

Initial Interview

On Friday, October 7, 2022, EPA representatives (we) arrived at the ECSD WWTP and convened with Kenneth Myers, Director of Wastewater Operations, in his office. We discussed the following issues with Mr. Myers:

- Status of sampling activities at the Grand Calumet River at:
    - CSO 003;
    - A point upstream of CSO 003 (located immediately east of Cline Avenue access point); and
    - A point downstream of CSO 003 (located at the Kennedy Avenue bridge);
- Circumstances leading up to the discharge at CSO 003;
- Status of ECSD's Long-Term Control Plan;
- Status of ECSD's efforts to construct a bypass around the force main break;
- Plans to repair the force main break by installing a ductile iron pipe;
- Alternative solutions to constructing a force main bypass; and
- Alternatives under consideration for inspecting the condition of the force main break.

Site Visit
Table 1, below, identifies the photo numbers of the locations visited and photographed on October 7, 2022. The photos are contained in the Photo Log in **Appendix A**.

Table 1: List of Sites Visited During the Inspection

Site Visit Location	Photo Numbers as Listed in Attachment A
ECSD WWTP parshall flume	1
152nd Street—by north side of ECSD WWTP	2-13
Site of force main break at intersection of 152nd Street and Railroad Avenue	14-20
CSO 003 outfall	21-24

We observed CSO 003 from the Cline Avenue bridge crossing over the Grand Calumet River. We met a person fishing from the bridge, just upstream of CSO 003. He was aware of the force main break and knew not to eat any fish from the river.

IV. SEWER SYSTEM AND WASTEWATER TREATMENT PLANT

A. Force main break response

- ECSD staff learned about a force main break sometime after 8:00 a.m., September 28, 2022. Staff responded by shutting off the sanitary pumps at the Alder Street Lift Station. Around 9:30 a.m., a storm pump at the Alder Street lift station turned on, directing the sanitary flow to CSO 003. Sanitary flow has been discharging through CSO 003 constantly since then. The estimated flow through CSO 003 is 7.2 to 7.3 million gallons per day (MGD).
- On October 7, 2022, ECSD staff collected E. coli samples at (1) the CSO 003 outlet, (2) an upstream location (shoreline east of Cline Avenue), and (3) a downstream location (Kennedy Avenue bridge). Samples collected over the weekend (October 1 and 2, 2022) were not taken to the lab until October 3, 2022. These samples were held for longer than the maximum holding time for E coli.

B. Collection system

- Alder Lift Station: This lift station collects wastewater from an area east of the Indiana Harbor and Ship Canal (Ship Canal), including the Marktown area. WR Grace is one Industrial User that is connected to the force main coming from this lift station. In response to the Alder Lift Station pumping sanitary sewage to CSO 003, WR Grace temporarily ceased its indirect discharge so that its waste would not flow to the Alder Lift Station. WR Grace has a direct discharge permit, in addition to its indirect discharge permit.
- Magoun Lift Station: This lift station collects wastewater from an area west of the Ship Canal.

- Roxana Lift Station: This lift station collects wastewater from an area south of the Indiana Toll Road.
- Valve Box**:** ECSD staff controls flows from the Adler and Magoun Lift Stations to the WWTP headworks at a valve box located on the north side of 152nd Street. After ECSD's force main broke, and ECSD staff shut sanitary pumps off at the Adler Lift Station, wastewater from the Magoun Lift Station flowed to the Alder Lift Station which was pumping to CSO 003. ECSD staff closed a valve at the Valve Box, to redirect this flow to the WWTP. However, ECSD staff later found that this valve did not fully close. On October 6, 2022, they manually closed two knife valves—one on each side of the faulty valve—to redirect flow from the Magoun Lift Station to the WWTP.

C. Dewatering

- At the time of inspection ECSD was dewatering the site of the force main break using two pumps and temporary pipes (12-inch and 8-inch).
- At the time of the inspection, wastewater from Chicago Flame Hardening (an Industrial User) and the Roxana Lift Station flowed to the force main break.
- Initially, ECSD piped water to the headworks, but the height of the headworks caused significant head loss and flooding at the WWTP. Therefore, ECSD pumped water into the oxidation ditch at a lower height.
- ECSD staff is not concerned about water from the force main break bypassing the bar screens and grit removal. ECSD staff stated that the bar screens at the lift stations screen wastewater.

D. Wastewater Treatment Plant

- EPA staff asked if, when the WWTP returns to full capacity, there is a concern about a sudden increase in nutrients. ECSD staff replied that it is not a concern:
    - The WWTP was already receiving nutrients from the Magoun Lift Station;
    - ECSD staff had reduced the return activated sludge (RAS) rate and cut back the amount of sludge wasted in order to compensate for the reduced influent rate.
    - ECSD had taken a clarifier off-line. ECSD has returned the clarifier to service, in order to achieve maximum settling.

E. Bypass construction

ECSD plans to have segments of 42-inch HDPE pipe welded together to form a bypass of the force main break. To this end:

- Segments of 42-inch HDPE pipe were set along the side of 152nd Street at the time of the inspection.
- Two valve stops were installed—one just upstream of the force main break, and one near the WWTP influent.

F. Repair of force main

- ECSD intends to temporarily bypass the broken section of force main with the HDPE pipe, but is obtaining a 42-inch ductile iron pipe for a permanent repair to it.
- After the ductile iron pipe is installed ECSD staff stated that it will re-start its sanitary pumps in the Alder Lift Station.
    - The Alder Lift Station has three sanitary pumps.
    - ECSD staff is concerned about putting too much pressure on the force main; therefore, it will not use more than two of its three pumps.

G. Alternate mitigation options

- Hammond: ECSD stated that it would employ significant resources to pump wastewater from the Alder Lift Station to the Hammond WWTP. Also, any pipe from the lift station to Hammond would have to cross a river.
- Gary Sanitary District: ECSD stated that it would take a long time to construct a pipe from the Alder Lift Station to the Gary Sanitary District. In addition, the distance from the lift station to GSD is significant.
- Dumping on land: this option was considered but rejected.

H. Evaluation of force main

ECSD's force main was constructed in 1941. ECSD is considering different options to evaluate the condition of this force main:

- Thermal imaging;
- Internal "smart ball" (for leak detection);
- Pipe drivers (to check pipe integrity);
- Internal camera. At the time of the inspection, ECSD staff stated that it could not use a camera, because of the high-water table.

ECSD has two contractors assisting in its efforts (Donague and Butler, Fehner, and Seifert).

V. CLOSING

EPA stated the following in closing:

- As stated in the October 7, 2022, Unilateral Administrative Order, ECSD's discharge through CSO 003 during dry weather is a violation of ECSD's NPDES permit;
- ECSD stated that it would not run more than two of its three sanitary pumps at the Alder Lift Station. ECSD's NPDES permit requires ECSD to operate its POTW at the maximum treatable flow during wet weather conditions.

ECSD staff stated the following:

- The UAO requires ECSD to post signage at public places that may be affected by CSO 003's ongoing discharge. However, there are not any nearby public places affected by the CSO's discharge.
- The UAO's citation about typos in its public notice has been addressed. Formerly, the public notice stated that "8,000 to 10,000 million gallons per day" was being discharged through CSO 003. Now, it states "8 to 10 million gallons per day" is being discharged.

VI. DOCUMENTS RECEIVED

I received the below listed documents from Mr. Kline during this inspection.

- Emails from Chloe Stumph (Element Materials Technology) to Kenneth Myers (East Chicago Sanitary District)—Subject: E. Coli results from Waste Water Testing (by date):
    a. 10/4/22
    b. 10/5/22
    c. 10/6/22
- Two East Chicago Sanitary District graphs of influent flow from 9/28/22 at 4:02:33 a.m. to 9/30/22 at 4:02:33 a.m.
- Two diagrams titled, "145 and Alder Street, Pump Station Rehabilitation—Phase 2, East Chicago Sanitary District

VII. POST-INSPECTION ACTIVITIES

- ECSD reported that it completed construction of its force main bypass and stopped the discharge from CSO 003 on 10/10/22.
- ECSD replaced the damaged section of force main with a ductile iron pipe on 10/26/22.

VIII. ATTACHMENT

A. Photo log