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

Purpose: Compliance Evaluation Inspection

Facility:
City of Franklin Wastewater Treatment Plant
796 South State Street
Franklin, Indiana 46131
Johnson County
39.4672N, 86.04194W

NPDES Permit Number: IN0021181

Date of Inspection: October 11, 2023

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Report Prepared by: Joan Rogers

Inspector Signature/Date: JOAN ROGERS Digitally signed by JOAN ROGERS Date: 2023.12.29 12:01:26 -06'00'

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

Approver Signature/Date: JOAN ROGERS Digitally signed by JOAN ROGERS Date: 2023.12.29 12:01:51 -06'00' Acting for Ryan Bahr

1. BACKGROUND

The purpose of this report is to describe, evaluate and document the City of Franklin's compliance with the Clean Water Act (CWA) at its Franklin, Indiana Wastewater Treatment Facility (WWTF) on January 12, 2021. This inspection was performed pursuant to Section 308(a) of the Federal Water Pollution Control Act, as amended.

The City of Franklin operates a Class III, 5.13 MGD activated sludge Municipal WWTF which eventually discharges to Youngs Creek. The facility consists of grit removal, flow equalization, two oxidation ditches, secondary clarification, ultraviolet light disinfection, post aeration, aerobic digestion, biosolids dewatering and biosolids recycling. The WWTF operates under a National Pollutant Discharge Elimination System Permit (The Permit) which was issued on July 27, 2022, and became effective on September 1, 2022. The Permit, number IN0021181 expires on August 31, 2027.

The City of Franklin joined with EPA in an Administrative Order on Consent (Order) on December 14, 2021, to resolve violations identified by EPA inspector Ms. Rogers on January 12, 2021. Those violations included rags and debris at Outfall 001 and on the UV tubes, and rags and solids in the oxidation ditches and clarifiers. As an interim measure, the City installed a temporary screen in the wastewater flow pathway before the UV system and is installing a new screening building with a finer mesh screen.

Recent "foam-out" events had been reported by Ms. Sally Brown to Indiana Department of Environmental Management (IDEM). The foam-out events happened on March 21, 2023, July 17, 2023, August 13, 2023, August 27, 2023, and September 29, 2023. The July 17, 2023, foam-out event caused a fish kill in the receiving waterway after Outfall 001.

During a lab audit on October 19, 2022, IDEM identified issues with preservation and holding times of phosphorus and ammonia samples.

During an inspection by IDEM on April 12, 2022, IDEM inspector Mr. Stark observed foam in the oxidation ditch, foam and solids in the clarifiers, and solids and debris at Outfall 001. Additionally, Mr. Stark identifies some new issues at the WWTP lab.

During a reconnaissance inspection by IDEM on May 20, 2022, Mr. Stark observed foam and low dissolved oxygen (DO) in the oxidation ditches, and sludge on top of the clarifiers.

The joint IDEM/EPA inspection was conducted to identify the causes and extent of problems at the WWTP that would cause the foam out events and to evaluate the operations at the WWTP.

2. SITE INSPECTION

Site Entry and Opening Conference – September 26, 2023

Arrival Time:	8:00 A.M.
Presented credentials?	Yes.
Credentials presented to whom and at what time?	8:09 A.M. to Ms. Brown.
Was an opening conference held? With whom?	Yes with Ms. Brown.
If photographs or documents were taken, does the facility consider any to be Confidential Business Information (CBI)?	No
Which information does the facility consider to be CBI?	NA
Is the EPA vehicle parked in approved location?	Yes.
Location where EPA vehicle was parked?	WWTP Parking Lot.

The inspection team of EPA inspector, Ms. Rogers, and the IDEM inspectors, Ms. Rohr and Mr. Stark arrived at the City of Franklin WWTP at 8:00 A.M. At 8:09 A.M. Ms. Rogers presented her credentials and began the opening conference. Ms. Rogers explained the purpose of the inspection was to determine compliance with the facility's Permit and observe the operations of the plant and outfall.

The discussion began with an update on the new screening building. Ms. Brown stated that the building and new screens should be operational in November, which is ahead of the deadlines in the compliance schedule in the Order. The plant is waiting on actuators to be delivered. Meanwhile, the temporary screen before the UV system is still in place and is cleaned daily.

Mr. Monson joined the inspection team and Ms. Brown in the conference room.

Mr. Stark reminded Ms. Brown that the next Copper Compliance Plan update is due in March 2024. Mr. Stark asked for more detail on the plan to identify copper sources and treatment in the next update.

The discussion then turned to the errors in the counting of the number of exceedances in the Monthly Report of Operations (MRO) for May, July, and August 2023. Mr. Stark and Ms. Rohr clarified to Ms. Brown how to count exceedances going forward and Ms. Brown corrected the errors. Mr. Stark said that the DMRs for those months would need to be corrected and resubmitted.

In June, the WWTP had an equipment failure in their Autothermal Thermophilic Aerobic Digestion (ATAD) Building, which required the plant personnel to clean up excessive amounts of sludge which they put back through the plant. After that, they cleaned out both tanks in the ATAD building. Using a vac truck, they sucked up the solids in a tank and put them into the oxidation ditches. Then they did the same with the other tank.

Following the cleaning of the ATAD tanks, plant personnel also cleaned out both sides of the Storage Nitrification Denitrification Reactor (SNDR) because the ciruculation pumps were clogging every day. After cleaning each side of the SNDR, facility personnel put the contents from the SNDR into the oxidation ditches, also.

Ms. Brown stated that the WWTP has had issues with ammonia but the problems with the ammonia levels started in May 2023, before the first problem with the ATAD. June levels were in compliance with effluent limits, but they started to go up toward the end of June. Then the plant had five ammonia violations in July and twelve in August 2023.

Ms. Brown stated that each foam-out event had a specific cause. The most recent foam-out event was the previous Friday, September 29, 2023 and was caused by a power outage which caused a mechanical computer part to fail. This part relays alarm conditions in the SNDR for foam levels. When it failed, the SNDR did not shut down when high levels of foam were detected and foam continued to be produced in the SNDR. The foam eventually pushed out of the manhole covers and flowed along the ground. This event began overnight when the plant is not manned, and was observed in the morning when Ms. Brown arrived. Plant personnel used a vac truck to suck up the foam and put the foam into an unused clarifier.

In order to mitigate the ammonia exceedances, Ms. Brown has purchased Formula 150, a nitrifier bacterial blend, to add to the oxidation ditches. There has not been consistent improvement with the addition of the nitrifiers. During the discussion of the ammonia exceedances, IDEM and EPA noted that the timing of the low ammonia coincided somewhat to the times when the plant put the contents of the ATAD and SNDR tanks into the oxidation ditches. The sludge in the ATAD and SNDR would have high levels of ammonia and perhaps overwhelmed the nitrifying bugs in the oxidation ditches.

Ms. Brown also stressed that the plant continues to struggle with excessive rags in the influent wastewater and looks forward to seeing improvement in rag removal when the new screening building is operational.

Facility Tour

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

At 9:41 A.M., the inspection team began the facility tour with the facility representatives starting at the oxidation ditch. Ms. Rohr instructed Ms. Houston to take a sample from the oxidation ditch so she could observe how it settled. A sample was taken in the first oxidation ditch at 9:50 A.M. and although it did settle a bit slowly, it did settle well. The DO in the first oxidation ditch at the time of the sample was 0.46 mg/L. A second sample was taken from the second oxidation ditch at 9:52 A.M. The DO in the second oxidation ditch at the time of the sample was 0.19 mg/L. The DO of the combined samples in the lab was 1.01 mg/L. Ms. Brown stated that the variable-frequency drive on the aerators for the oxidation ditches were maxed out and therefore the aerators cannot provide more aeration.

Ms. Rohr examined the sample under the microscope and observed that the sludge was old based on the rotifiers present in the sample. Ammonia was tested in samples from the effluent from the clarifier and the oxidation ditch. The ammonia level went up to 18.7 mg/L from 17.9 mg/L between the ditch and the clarifier, instead of going down. Ms. Brown stated that the sludge in the clarifiers was higher than ideal. It was seven feet deep in Clarifier #1 and four feet deep in Clarifier #2.

Ms. Rohr suggested that they needed to waste sludge at a faster rate. Ms. Brown said that although they are wasting seven days per week, they sometimes have a bottleneck at the sludge drying beds or the ATAD treatment. When the ATAD treatment runs longer than anticipated, the sludge drying process has to be halted because the sludge fills the sludge pit. Then the facility has to stop wasting because there is no capacity to continue moving the sludge through treatment.

Ms. Brown stated that the plant is planning to add two new ATAD units to add capacity for treatment. The current ATAD unit will then be converted to a second SNDR.

EPA and IDEM inspectors observed the pump room and filter building. Outside the filter building, the inspectors observed dried sludge cake on the grass. Ms. Brown stated that the sludge pit overflowed the previous week. Although there are alarms for high levels of sludge in the pit, the facility personnel did not hear the alarm.

The inspectors observed that Clarifier #3 was mostly empty and is on standby mode. The inspectors also walked past the SNDR, which is below grade. Aerators in the SNDR create foam, and there are sensors that automatically shut off the aerators when they detect too much foam. During a foam-out event, foam pushes up and out of the manhole covers and flows along the ground. The inspectors observed the dead grass in front of the SNDR from previous foam-out events.

The inspection team next walked to the filter building. While there, an alarm went off and facility personnel stated that it was a high-level alarm for the sludge pit. Wasting from the clarifiers needed to stop because there was nowhere to store the sludge. Sludge fell off the filter press belt and the facility had totes below the belt to catch the sludge. The facility has put out a bid for a new auger system which will keep all the sludge enclosed and eliminate any spillover.

EPA and IDEM inspectors then walked to the west end of the plant property to observe the new screening building. The construction on the building was near completion and the contractors were preparing to bypass the influent to the new influent chamber so the piping to the screening building could be connected. The new screens were on the lawn and were ready to be installed, also.

Ms. Rogers met and spoke with Mr. Monte Gardner from Wessler Engineering. Mr. Gardner stated that they are aiming for substantial completion by November. The bypass pumping would start on October 16, 2023, and he anticipated that it would take another two weeks to install the remaining equipment.

EPA and IDEM observed the Equalization Basin, which was almost completely empty. The sludge in the basin had been cleaned out and the plant operators keep the levels low, so it is available for large wet weather events.

The inspection team then walked to the oxidation ditches and the old screening building, which is still in use. Ms. Brown manually turned on the sprayer for the screening auger to verify that it worked. On top of the old screening building, there was an influent pump that was leaking oil. The oil flowed to a grate which allowed the oil to flow into the influent.

The inspection team observed the Return Activated Sludge (RAS) from the clarifiers. It was very thick. The oxidation ditches were covered with foam. The DO in the effluent from the north oxidation ditch was 3.16 mg/L. Ms. Rohr suggested that Ms. Brown find the plans for the oxidation ditches and take DO samples from different areas of the ditches to see if they match what they should have. Ms. Brown stated that the plant does not have a portable DO meter and they would have to get one for this work.

The inspection team observed the DO on the readout from the east end of the oxidation ditches. The DO was very low, 0.06 mg/L at the north oxidation ditch and 0.01 mg/L at the south oxidation ditch. Ms. Rohr pulled the DO probes from the oxidation ditch and observed they were covered with debris. After cleaning them off, though, the DO readings did not improve.

Next, the inspectors walked to the clarifiers. Clarifiers #1 and #2 were the only two in operation on the day of the inspection. Clarifier #3 was in standby mode. EPA observed that both clarifiers had a crust of sludge on the surface of the water. The sludge was thick, septic, and crusty. The weirs had sludge and debris on them and there was foam in the effluent. IDEM inspectors recommended removing the sludge with a vac truck and putting it in Clarifier #3.

The inspection team then walked to the south to the UV system. EPA observed the temporary screen that was installed in the channel before the UV system. The inspectors then observed the outfall while the key for the UV system could be brought out to the field. No rags were observed at the outfall or the cascade aerator. There was a trail of foam in the receiving water that continued out of sight.

The inspectors then walked back to the UV system and observed that there were no rags or debris on the UV tubes in the disinfection channel.

Upon returning to the clarifiers, the inspectors noted that plant personnel had already begun to suck up the crust and sludge from the top of Clarifier #2 with a vac truck.

The last observation was the pathway of dead grass from the ATAD building from the most recent foam-out event. The foam pushed out through hatches on the top of the building and flowed down the side of the building and across the facility driveway to the north. The dead grass pathway went to the north and then east and south toward a culvert under the facility driveway. Ms. Brown said that the foam did go under the driveway and then to the

southeastern corner of the facility yard. She stated that the foam-out event in July 2023 also took this same pathway.

At the southeastern corner of the facility yard, there is another culvert for stormwater that allows flow to go to the receiving waterway. In July, this is the pathway that the foam took and caused a fish kill. After the July 2023 foam-out event, facility personnel sealed this culvert with a steel plate. Therefore, the foam from the most recent foam-out event did not flow to the waterway.

The field work ended at 12:52 P.M. and IDEM and EPA provided Ms. Brown with a closing conference.

Closing Conference

EPA and IDEM provided a closing conference to the facility personnel at 1:00 P.M. with these areas of concern, and noted that the list might not be complete:

a. IDEM requested that plant personnel sample for ammonia daily, to verify that the ammonia levels were receding from the current 18 mg/L to the permit limit of 2.0 mg/L for a weekly average.

b. The levels of DO in the oxidation ditches needed to be resolved. If the probes are incorrect, then new DO meters need to be secured and used. If the DO in the ditches is not high enough, then the cause of the low DO needs to be explored and additional aeration needs to be added.

c. The sludge depth in the clarifiers needs to be lowered.

d. The bottleneck of treatment of the sludge needs to be resolved so the facility can waste sludge at the appropriate rate.

e. There was foam in the receiving waterway.

f. The DMRs for May, July, and August needed to be corrected and resubmitted.

g. Mr. Stark stated, and Ms. Rohr confirmed, that a bypass report for the September 29, 2023, foam-out event had not been received at IDEM.

h. IDEM suggested that Ms. Brown would need to reseed the oxidation ditches.

EPA exited the facility at 1:18 P.M.

3. DOCUMENTS RECEIVED FROM FACILITY

No documents were received from the facility.

4. AREAS OF CONCERN

EPA has these areas of concern from the inspection:

a. The facility had high levels of ammonia more than the Permit limit of 2.0 mg/L weekly average.
b. The facility had very low DO readings in its oxidation ditches.
c. The facility was not wasting sludge at an appropriate rate from the clarifiers and the sludge blankets in the clarifiers were not at an appropriate level.
d. There were bottlenecks in the sludge treatment train at the ATAD and SNDR units, in the sludge filter press, and in the sludge pit, that limited the ability to waste sludge from the clarifiers.
e. The clarifiers had a thick, crusty, buildup of sludge on the surface of the water.
f. There were rags and sludge on the weirs of the clarifiers.
g. There was foam in the effluent of the clarifiers.
h. There was foam in the receiving waterway.
i. There was an oil leak from one of the influent pumps at the old screening building that was flowing into the influent to the oxidation ditches.
j. Facility personnel were not properly alarmed to the level of sludge in the sludge pit, which caused an overflow from the filter building.
k. There have been foam-out events from both the ATAD and SNDR which caused large amounts of foam to flow onto the ground. The July 17, 2023, foam-out event reached the receiving waterway and caused a fish kill.

5. LIST OF ATTACHMENTS

A) Photolog