

REPORT OF COMPLIANCE SAMPLING INSPECTION (CSI)

AT
Alta Wastewater Treatment Facility (WWTF)
Alta, IA 51002

NPDES NO: IA-0024449

May 15-18, 2023

BY
U. S. ENVIRONMENTAL PROTECTION AGENCY
Region 7
Enforcement and Compliance Assurance Division (ECAD)

INTRODUCTION

I performed a Compliance Sampling Inspection (CSI) at the Alta WWTF in Alta, Iowa from April 15, 2023, through April 18, 2023. The inspection was authorized by Section 308(a) of the Federal Water Pollution Control Act, as amended. This narrative report presents the findings of the inspection.

PARTICIPANTS

Alta WWTF

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Fred Theisen, Operator

U. S. Environmental Protection Agency (EPA)

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PROCEDURES

On May 15, 2023, I arrived at the Alta WWTF at 1:00 p.m. and introduced myself to Mr. Pedersen, presented my credentials, and explained the purpose and procedures of the inspection. These procedures included completing the Water Compliance Inspection Report (attachment 1), an EPA Region 7 Biosolids Checklist (attachment 2), a facility walk-through with photos (attachment 3), a check of the self-monitoring records, the collection of influent, effluent and biosolids samples, and an exit interview.

From May 15, 2023, through May 18, 2023, I used an ISCO model 3710 automatic composite sampler to collect a 24-hour composite sample of the influent after screening. I suspended a weighted length of new Tygon tubing into the influent channel before the screen, and I connected the other end to the sampler pump and programmed it to collect evenly spaced aliquots every 30 minutes into a clean Nalgene bottle, which was packed in ice. I returned each day to service the sampler. I removed the bottle, agitated its contents, and poured them into clean, pre-labeled containers for the analysis of Carbonaceous Biochemical Oxygen Demand (CBOD), Non-Filterable Solids (NFS), Ammonia, Total Kjeldahl Nitrogen (TKN), Nitrate+Nitrite, Total Nitrogen (by calculation), Total Phosphorus (TP) and Metals. I measured the pH and temperature in a separate grab sample using a field meter.

From May 15, 2023, through May 18, 2023, I used an ISCO model 3710 automatic composite sampler to collect a 24-hour composite sample of the effluent after the Ultraviolet (UV) disinfection system before effluent discharges through Outfall 001. I suspended a weighted length of new Tygon tubing into the channel and connected the other end to the sampler pump and programmed it to collect evenly spaced aliquots every 30 minutes into a clean Nalgene bottle, which was packed in ice. I returned each day to service the sampler. I removed the collection bottle, agitated its contents, and poured them into clean, pre-labeled containers for the analysis of BOD, NFS, Ammonia, TKN, Nitrate+Nitrite, Total Nitrogen (by calculation), TP and Metals. I measured the pH and temperature in a separate grab sample using a field meter.

On April 18, 2023, I took several grab samples from the biosolids pile before the biosolids are mixed with woodchips, mixed the samples together in a teflon lined bucket then then composited the into one 32-ounce glass jar. I shipped the sample of biosolids with the other collected samples on December 14, 2022. The biosolids were analyzed for Metals, including Mercury, percent solids, Total Phosphorus and TKN.

On May 16, 2023, and May 17, 2023, I placed the samples I collected on ice in an ice chest, sealed the container and shipped it overnight to the EPA Region 7 Science and Technology Center (STC) for analysis. On May 18, 2023, I placed the samples I collected on ice in an ice chest sealed the container and hand delivered the samples to the EPA Region 7 STC for analysis. I followed Region 7 LSASD standard operating procedures in the collection, packaging, transportation, and handling of the samples. Field Sheets and Chain of Custody forms were electronically submitted each day following Region 7 procedures. All samples arrived at the STC within proper holding times.

FACILITY DESCRIPTION

The Alta WWTF is owned and operated by the City of Alta, Iowa. The legal description is the NE ¼, SE ¼, Section 27, Township 91 North, Range 38 West within Buena Vista County, Iowa. The physical address of the WWTF is 0.3 miles Southwest of the intersection of M31/W HWY and West 9th Street, Alta, IA. The mailing address is 223 Main Street, Alta, IA 51002. The WWTF treats domestic wastewater from the city of Alta. According to the NPDES permit there is one significant industrial user (Merrill Manufacturing) that discharges to the WWTF. On April

16, 2023, I conducted an Industrial User (IU) inspection at Merrill Manufacturing. The results of that inspection are contained in a separate report. Final effluent from the WWTF is discharged to an unnamed tributary of the Little Maple River.

The following are components of the WWTF. See attachment 4 for a layout map of the facility:

Influent Parshall Flume

Headworks which includes mechanical screening

(2) Aero-mod Extended Aeration Activated Sludge Basins

UV Disinfection (not in operation during the inspection)

Peak Flow Equalization Basin (converted from an old trickling filter basin)

Biosolids are handled by the following sequence:

Aerobic Sludge Digestion (2)

Biosolids press for dewatering

Biosolids Storage Building (biosolids are mixed with woodchips before land application)

According to Mr. Pedersen, the biosolids are mixed with woodchips as a convenience to dispose of the woodchips. Mr. Pedersen stated that biosolids sampling indicates that the biosolids meets the ceiling concentrations for metals without bulking with woodchips.

The facility has an average dry weather flow of 0.2210 MGD with an actual flow average during the inspection of 0.637 MGD. During the inspection, It was also noted that it appears that the effluent flow meter is not recording an accurate flow from the WWTF. The average influent flow during the inspection was 0.476 MGD.

The WWTF's National Pollutant Discharge Elimination System (NPDES) Permit (MO-0024449) was issued on July 1, 2020 (attachment 5). The permit expires on June 30, 2025. The IDNR amended the permit on June 1, 2022.

FINDINGS AND OBSERVATIONS

The following findings were noted during the plant and record review. A complete summary is given in the NPDES Compliance Inspection Report Checklist (attachment 1). These findings were discussed with Mr. Pedersen during the exit meeting.

Self-Monitoring Data Review:

I obtained a spreadsheet of the NetDMR data for the Alta WWTF from January 2019, through March 2023, and reviewed the data. During the inspection, I also obtained an electronic copy of the facility's Discharge Monitoring Reports for the years 2019 – 2023.

Table 1A below represent the effluent violations noted during the review.

Table 1A: Effluent violations at Outfall 001 reported from January 2020 – November 2022

	Disolved Oxygen	Limits	Copper	Limits	Chromium	Limits
Nov-20	2.16	<2.6				
Jan-21	2.44	<2.6				
Feb-21			0.0175	0.017		
Apr-21	2.19	<2.6	0.364	0.017	0.03	0.016
May-21	2.05	<2.6				
Jun-21	2.55	<2.6				
Aug-21	2.43	<2.6	0.019	0.017		
Sep-21	2.44	<2.6				
Nov-21					0.02	0.016
Jan-22			0.036	0.017		
Mar-22			0.018	0.017	0.02	0.016

Limits are in concentration (mg/L)

During the inspection, Mr. Pedersen stated that the Disolved Oxygen sample had previously been taken right after the UV disinfection, however he started taking the sample at the end of the effluent pipe in 2022. I stated that this appears to be satisfactory as it is more representative of the dissolved oxygen before effluent enters the receiving stream.

At the conclusion of the inspection, during the exit conference, I issued a Notice of Preliminary Findings (NOPF) (attachment 6) to the facility for the continued effluent violations. Mr. Pedersen responded to the NOPF on May 31, 2023, and stated that the facility was continuing to improve the effluent quality. He stated that the city is in the process of a stream study to determine if the proper limits for Copper have been applied to the permit. He also stated that while reviewing the DMRs, he found a data entry error in the March 2022 DMR and that the reported level of Chromium was not correct. After the conclusion of the inspection, Mr. Pedersen submitted a corrected DMR to IDNR.

Sample Results

The analytical results from the sampling conducted during the inspection were received on June 15, 2022, from the Region 7 STC laboratory. This data was not discussed during the exit interview. The analytical results for BOD, NFS, TKN, Ammonia, Nitrates+Nitrites, Total Nitrogen, Total Phosphorus, metals, pH, and temperature of the samples I collected are presented in Tables 2 and 3 below. See attachment 7 for the analytical data packet.

Table 2A: Analytical Results for Influent

Parameter	(May 16) 2300186-01	(May 17) 2300187-01	(May 1) 2300188-01
CBOD₅ (mg/L)¹	34.7	50.5	52.2
NFS (mg/L)	25.1	38.7	40.8
TKN (mg/L)	11.1	12.3	12.0
Nitrate+Nitrate (mg/L)	5.76	4.97	4.61
Total Nitrogen	16.9	17.3	16.6
Ammonia (mg/L)	6.05	6.13	6.23
Total Phosphorus (mg/L)	1.18	1.68	1.43
Copper (mg/L)	0.0245	0.0368	0.0242
Temperature (°C)²	14.4	14.0	13.5
pH³	7.49	7.31	7.41
Flow	0.539	0.480	0.410

¹mg/L = milligrams per liter

²°C = degrees Celsius, Temperature was measured in the field.

³ pH is not to be averaged; pH was measured in the field.

Table 2B: Analytical Results for Effluent Samples Collected During Inspection

Parameter	(May 16) Sample # 2300186-02	(December 14) Sample 2300187-02	(December 15) Sample 2300188-02	Concentration Permit Limits³
CBOD5 (mg/L)¹	ND ⁴	ND ⁴	ND ⁴	40/25
NFS (mg/L)	ND ⁴	ND ⁴	8.77	40/30
Ammonia (mg/L)	0.140	ND	0.110	For December 1.8/7.1
TKN (mg/L)	0.952	0.891	1.01	NA
Nitrate+Nitrite (mg/L)	9.25	8.65	8.85	NA
Total Nitrogen (lbs/day)	10.2	9.54	9.86	NA
Total Phosphorus (mg/L)	0.664	0.689	0.777	NA
Chromium(mg/L)	ND ⁴	ND ⁴	ND ⁴	0.011/0.016
Copper (mg/L)	0.00769	0.00508	0.00523	0.017/0.027
Temperature (°C)²	13.1	13.0	13.9	NA
pH²	7.31	7.38	7.42	6.0-9.0
Flow in MGD	0.692	0.645	0.576	NA

¹mg/L = milligrams per liter.

²°C = degrees Celsius, pH is not to be averaged, pH was measured in the field.

³Permit limits for BOD and NFS are Monthly followed by 7-day Averages. Limits for Ammonia are Daily Maximum followed by 30-day average. Zinc limits are for Outfall 002 and are Daily Maximum followed by Monthly Average.

⁴ND= No Detection

Table 3: Analytical Results for Biosolids Sample Collected During Inspection reported as Milligrams per Kilograms (mg/kg)

Parameter	May 18 2300188-03
Aluminum	3460
Antimony	2.78
Arsenic*	60.2
Barium	31.2
Beryllium	ND
Cadmium*	ND
Calcium	43100
Chromium	12.0
Cobalt	10.3
Copper*	1060
Iron	18700
Lead*	16.7
Magnesium	5880
Manganese	17800
Molybdenum*	3.04
Nickel*	16.5
Potassium	4670
Selenium	16.7
Silver*	3.43
Sodium	1320
Thallium	ND
Vanadium	8.42
Zinc*	744
Mercury*	Not Analyzed
% Solids	13.5

*40 CFR Part 503 Metals

Results from sampling conducted during the inspection indicate that the facility was in compliance with effluent limits set in the NPDES permit for the sampling conducted during the inspection.

Biosolids (sludge)

As mentioned above, the facility utilizes aeration basins and a belt press to dewater biosolids. According to Mr. Pedersen, the facility dewater biosolids two to three times per week. Dewatered biosolids are temporarily stored in a dump truck then moved to the biosolids storage facility northeast of the office building. Mr. Pedersen stated that biosolids are sampled twice a

year before land application either in the spring or fall. Mr. Pedersen also stated as a convenience to the city, the city adds woodchips from the city brush area as an amendment to the biosolids. He did state that from sampling data, the biosolids meets “Class B” biosolids without having to utilize the woodchips as a bulking agent.

During the inspection, I requested copies of the 2021 and 2022 annual biosolids reports. Mr. Pedersen stated that he has not completed the reports, however, provided the 2022 and 2023 sampling data. I reviewed the sampling data and it appears to meet the requirements of 40 CFR Part 503. Mr. Pedersen stated that no land application occurred in 2021. I then asked for the land application records. Mr. Pedersen explained his process of tracking the land application of biosolids. I informed Mr. Pedersen that records of where and how much biosolids are land applied are required by 40 CFR Part 503. At the conclusion of the inspection, I issued a NOPF for not maintaining accurate land application and biosolids information in accordance with 40 CFR part 503. Mr. Pedersen responded to the NOPF via email on May 31, 2022, and stated that he had updated all of the biosolids records as required.

According to the 2021 and 2022 biosolids sampling results, the facility meets the Pathogen Reduction requirements for producing “Class B” biosolids by having less than 2,000,000 MPU/CFU of fecal coliform bacteria. Mr. Pedersen stated that biosolids are incorporated into the soil after land application, therefore, meets the vector attraction reduction (VAR) requirement.

Laboratory

The facility is certified (IA-Lab #337) by the IDNR for the analysis of BOD and TSS. During the inspection, I reviewed bench sheets for 2022 and 2023, then took copies of bench sheets for the month of March 2023. During the review, I noted that the methods used for BOD and TSS appear to follow the methods required by 40 CFR Part 136. Mr. Pedersen also stated that all other regulatory analysis is conducted by a contract laboratory, Foundation Analytical Laboratory of Cherokee, Iowa. During the inspection, I requested the laboratory records to ensure that all analysis complied with requirements of 40 CFR part 136. My review indicated that all holding times were being met and that all analytical methods appeared to be in compliance with 40 CFR Part 136.

Collection System

During the inspection, I discussed the city’s collection system with Mr. Pedersen. Mr. Pedersen estimated that the city has approximately 15 miles of sanitary sewer and includes two lift stations. Mr. Pedersen stated that in 2022 the city started a project to rehabilitate approximately 4.7 miles of sanitary sewer lines and that the project would be completed by the end of the 2023 summer. He stated that there is not a routine sanitary sewer cleaning program, however he stated that the city does have “problem” areas of the city that will be cleaned on an as needed basis.

Mr. Pedersen and I observed two lift stations (photos 11-12) during the inspection. I observed the wet wells of each station and also noted that each station was well maintained. I also noted that

audible and or visual alarms were at each station. Each station was also equipped with an auto-dialer in case there was a problem at the station.

Mr. Pedersen stated that the city does experience bypasses from the sanitary sewer system from time to time. Mr. Pedersen provided a notebook that is kept with when a call is made of a sewer backup. Mr. Pedersen stated that the city response to each call and notes if it a private service line or the blockage is along the main. Mr. Pedersen stated that there were two occurrences in 2022 that bypasses occurred in which he had failed to contact IDNR as required by the permit. At the conclusion of the inspection, I issued a NOPF for not reporting the bypasses as required by Standard Condition 13 of the NPDES permit. Mr. Pedersen responded to the NOPF on May 31, 2023 via email stating that he has changed procedures to insure that IDNR is notified as required.

Operational Issues and Observations

1. I observed all areas of the WWTF during the inspection (photos 1-12). I noted that all units were operating and functional at the time of the inspection.
2. Mr. Pedersen stated that he believed that there was an issue with the effluent flow meter. He stated that he did not believe that it was reading accurately. He stated that the reported flow was significantly higher than the amount of wastewater that was entering the WWTF. He provided the flow data charts for the facility and I noted that the influent flow was almost always lower than the effluent flow for the facility. During the inspection, I took copies of the flow charts for the month of May 2023 to understand the flow patterns of the facility (attachment 8). I compared these flow charts with other historical charts and noted the same trend, during dry weather flows, influent flow was consistently less than the effluent flow. Due to loss of water throughout the process, effluent flow should actually be similar or less than the influent flow at the facility. I asked Mr. Pedersen when the last time was that the flow meter was calibrated and he stated that it was his understanding that the meter would never have to be calibrated. He provided the operations manual for the flow meter during the inspection for my review. I noted that there was not a calibration requirement for the meter. I stated to Mr. Pedersen that accurate effluent readings are taken in order to determine if the effluent loading limits of the NPDES permit are being met. At the conclusion of the inspection, I issued a NOPF for not providing accurate flow readings.

Summary

The Alta WWTF continues to have sporadic effluent violations for Copper. Mr. Pedersen stated that the facility is in the process of doing a stream study to determine if the proper limits for Copper have been applied to the city's permit.

The Alta WWTF was not maintaining biosolids records as required by 40 CFR part 503.

The City of Alta failed to notify IDNR of bypasses in 2022 as required by the NPDES permit.

The facility appears to have issues with the effluent flow meter that is not allowing for an accurate flow reading.

**JOSEPH
HEAFNER**
Joe Heafner
Life Scientist

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Attachments:

1. Water Compliance Inspection Report, Form 3560-3 (4 pages)
2. EPA Region 7 Biosolids Checklist (3 pages)
3. Digital Photographs with Photo Log (14 pages)
4. Facility Satellite Photos/Maps (2 pages)
5. NPDES permit issued on July 1, 2020 (20 pages)
6. NOPF and facility response (3 page)
7. Laboratory Analytical Report for Activity JAH2313 (33 pages)
8. Facility Flow Charts (17 pages)