

REPORT OF COMPLIANCE SAMPLING INSPECTION (CSI)

AT

City of Tonganoxie Wastewater Treatment Facility (WWTF)

1536 E 4th Street

Tonganoxie, KS 66086

NPDES No: KS0093092

December 5-8, 2022

BY

U. S. ENVIRONMENTAL PROTECTION AGENCY

Region 7

Enforcement and Compliance Assurance Division (ECAD)

INTRODUCTION

I performed a Compliance Sampling Inspection (CSI) at the Tonganoxie WWTF in Tonganoxie, Kansas from December 5, 2022, through December 8, 2022. The inspection was authorized by Section 308(a) of the Federal Water Pollution Control Act, as amended. This inspection was conducted in accordance with the procedures described herein and followed all applicable EPA Region 7 Standard Operating Procedures. This narrative report presents the findings and observations of the inspection.

PARTICIPANTS

City of Tonganoxie

Kent Heskett, Public Works Director (913) 845-2620 ext.110

Email: kheskett@tonganoxie.org

Josh Sudduth, Operator (913) 908-5134

Email: jsudduth@tonganoxie.org

Bill Jones, Operator in Training

Lloyd Wisdom, Operator (now retired)

U. S. Environmental Protection Agency (EPA)

Hannah Lewis, Life Scientist (913) 551-7679

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PROCEDURES

On December 5, 2022, I arrived at the WWTF unannounced. I introduced myself to Mr. Heskett, presented my credentials and explained the purpose and procedures of the inspection. Mr. Heskett then directed me to another building where I met Messrs. Sudduth and Wisdom. I presented my credentials and explained the purpose and procedures of the inspection to them as well. These procedures included completing the Water Compliance Inspection Report

(attachment 1), a facility walk-through with photos (attachment 2), a check of the self-monitoring records, the collection of influent and effluent, and an exit meeting. A Notice of Preliminary Findings (NOPF) was given to Mr. Sudduth during the exit meeting.

From December 5, 2022, through December 8, 2022, I used an ISCO model 3700 automatic composite sampler to collect 24-hour composite samples of the influent. I suspended a weighted length of new Tygon tubing into the influent channel after the mechanical bar screen. 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 polyethylene containers for the analysis of ammonia, biological oxygen demand (BOD), total phosphorus (TP), total kjeldahl nitrogen (TKN), Nitrate+Nitrite (NO₃+NO₂), lead (Pb), and non-filterable solids (NFS). The NFS parameter reported in attachment 5 is equivalent to total suspended solids (TSS) parameter required in the National Pollutant Discharge Elimination System (NPDES) permit. Each day I collected a grab sample from the same location to measure the pH and temperature using a field meter. The analyses using the field meter were conducted within 15 minutes of collecting the sample. I also gathered flow values daily from the operator.

From December 5, 2022, through December 8, 2022, I used an ISCO model 3700 automatic composite sampler to collect 24-hour composite samples of the effluent. I suspended a weighted length of new Tygon tubing into the effluent channel after the ultraviolet (UV) disinfection system. 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 polyethylene containers for the analysis of ammonia, biological oxygen demand (BOD), total phosphorus (TP), total kjeldahl nitrogen (TKN), Nitrate+Nitrite (NO₃+NO₂), lead (PB), and non-filterable solids (NFS). Each day I collected a grab sample from the same location to measure the pH using a field meter. The analyses using the field meter were conducted within 15 minutes of collecting the sample. I also gathered flow values daily from the operator.

Each day 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. Samples collected on December 8, 2022, were delivered to the STC by me, not shipped. 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. As noted in attachment 5, not all the samples arrived at the STC within the maximum hold time.

FACILITY DESCRIPTION

The Tonganoxie WWTF is owned by the City of Tonganoxie, Kansas. The physical address for the WWTF is 1536 E 4th Street, Tonganoxie, Kansas. The legal description is the NE ¼, SW ¼, SW ¼, Section 10, Township 11 South, Range 21 East within Leavenworth County. The mailing

address for the City of Tonganoxie is 321 S. Delaware, Tonganoxie, Kansas 66086. The WWTF treats domestic wastewater from the City of Tonganoxie. Final effluent from the WWTP is discharged to Tonganoxie Creek at Outfall 001 (photos 14, 15).

The WWTF consists of a mechanical bar screen, cyclone grit removal, an activated sludge extended aeration treatment system, two clarifiers, and UV disinfection system (photos 9-13). An aerated sludge holding tank followed by a belt press are utilized for processing sludge. Two decommissioned oxidation ditches are utilized to temporarily hold wastewater during high influent flow events.

The WWTF's NPDES Permit KS0093092 was renewed as effective on December 1, 2021 and expires on November 30, 2026 (attachment 4). The most recent inspection of the facility was conducted by KDHE on January 21, 2021. The inspection report noted two effluent exceedances in 2020.

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 (attachment 1). These findings were discussed with all the participants during the exit meeting.

Self-Monitoring Data Review

I obtained a spreadsheet of the discharge monitoring report (DMR) data for the Tonganoxie WWTF from January 2018 through September 2022 and reviewed the data. During the inspection, I obtained an electronic copy of the laboratory analytical results for the years 2020 – 2022. The collected data also includes laboratory sheets and chain of custody forms from the contract laboratory. After the completion of the inspection, all data obtained from the facility has been stored as electronic records on EPA's secure server.

While reviewing the data, I noted the facility had exceeded the E. coli and Ammonia permit limits (NOPF 1). The E. coli limit was exceeded in July 2020, September 2020, October 2021, and April 22. The ammonia limits were exceeded in September 2021 and Feb 2022. Mr. Sudduth provided explanations for the exceedances which occurred in 2022 (attachment 8).

Laboratory

The facility personnel analyze permit-required samples for pH within 15 minutes of sample collection. The facility is certified by KDHE to conduct this analysis. The pH buffer solutions present during the inspection were recently expired. Mr. Sudduth obtained new buffer solutions on December 8, 2022.

For the remaining permit-required monitoring, a contract laboratory (Pace Analytical) is utilized. All samples are transferred to a courier and transported to Pace's laboratory in Lenexa, KS. After

arriving at Pace's Lenexa location, the E. coli sample is then sent to Pace's laboratory in Frontenac, KS for analysis. During the inspection, I reviewed laboratory records to ensure that all analyses complied with requirements of 40 CFR part 136. I noted that hold times were not met for E. coli samples (NOPF 2).

After the inspection was complete, Mr. Sudduth contacted Pace Analytical to resolve the hold time issue. I received an email from Mr. Sudduth on December 14 which included a statement from Pace Analytical that the sample courier's route would be changed to accommodate the E. coli hold time (attachment 7).

Sample Results

The analytical results from the inspection were received on January 17, 2022, from the Region 7 STC laboratory. This data was not discussed during the exit meeting. The analytical results for BOD, NFS, TKN, NO₂+NO₃, Ammonia, TP, pH, and temperature of the samples I collected are presented in Tables 1 and 2 below. As mentioned previously, the samples collected on December 6 were delayed during shipping which caused the hold time for BOD to be exceeded. See attachment 5 for the analytical data packet.

Table 1: Analytical Results for Influent Samples Collected During the Inspection

Parameter	Dec 6 Sample #1	Dec 7 Sample #2	Dec 8 Sample #3
BOD ₅ ⁴ (mg/L) ¹	200 J ³	188 J ³	185 J ³
NFS (mg/L) ¹	214	172	174
Ammonia	34.2	35.6	38.4
Total Phosphorus (mg/L) ¹	6.44	6.88	6.12
TKN (mg/L) ¹	45.2	36.0	45.6
NO ₂ +NO ₃ (mg/L) ¹	0.05	0.06	0.04
Pb (ug/L) ¹	ND	ND	2.54
pH ²	7.71	7.8	7.73

¹mg/L = milligrams per liter. ug/L = micrograms per liter.

²pH is not to be averaged; pH was measured in the field.

³Although the analyte in question has been positively identified in the sample, the quantitation is an estimate (J-coded) due to poor precision in the laboratory.

⁴BOD = biological oxygen demand (five-day)

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

Parameter	Dec 6 Sample #1	Dec 7 Sample #2	Dec 8 Sample #3	Concentration Permit Limits ³
BOD ₅ (mg/L) ¹	ND UJ ⁴	ND UJ ⁴	ND UJ ⁴	30/45
NFS (mg/L) ¹	ND	ND	ND	30/45
Ammonia (mg/L) ¹	ND	ND	ND	Vary monthly 3.2/9.5 for Dec
TKN (mg/L) ¹	0.83	0.69	0.81	N/A
NO ₂ +NO ₃ (mg/L) ¹	6.14	6.04	6.27	N/A
Total Phosphorus (mg/L) ¹	1.89	1.75	1.83	N/A
Pb (ug/L) ¹	ND	ND	ND	N/A
pH ²	7.12	7.73	7.14	6.0-9.0
Flow (gpm) ⁶	235.96	260.42	243.80	N/A

¹mg/L = milligrams per liter. ug/L = micrograms per Liter.

² 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. Permit limits for Ammonia are Monthly averages followed by Daily Maximum.

⁴UJ = analyte was not found in the sample at or above the reporting limit.

⁵BOD = biological oxygen demand (five-day).

⁶gpm= gallons per minute

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

Biosolids

As mentioned above, the facility utilizes an aerated holding tank to further treat biosolids (Photo 16). Biosolids are sent through a belt press before being hauled to a landfill (Photo 19). A total of 270 tons of biosolids were hauled from the facility in 2022. A biosolids sample was last collected and analyzed for metals in September of 2022. A biosolids sample was not collected during the inspection because the holding tank was empty.

Collection System

During the inspection, I discussed the city's sanitary sewer collection system with Messrs. Sudduth, Heskett, and Wisdom. Facility personnel stated the average age of the collection system is 50 years old. There are approximately 25 miles of sanitary sewer lines leading to the WWTF. No bypasses have been reported in recent years. The city does not have funds allocated specifically to the maintenance and repair of the collection system. Also, collection lines are cleaned on an as-needed basis.

I visited five of the seven lift stations in the collection system (photos 1-5). A lift station is also

located adjacent to the headworks building (photo 8). When this lift station is activated, the mechanical bar screen is subsequently activated. The lift stations had normal debris accumulations and maintained floats. On-site generators are installed at one of the lift stations and at the WWTF. The city has one portable generator for the remaining lift stations. The city should consider obtaining additional generators to operate the lift stations during emergencies.

Operational Issues and Observations

Facility personnel explained that an upcoming WWTF expansion is planned in response to a new dog food manufacturer, Hill's Pet Nutrition, coming to Tonganoxie. The expansion would increase the WWTF's design capacity from 0.75 MGD to 1.25 MGD. We discussed some of the implications that an expansion could have, such as: increased NPDES monitoring, composite vs grab sampling, requirement to obtain an industrial stormwater permit, more stringent effluent limits, creation and enforceability of treatment agreements between the city and Hill's Pet Nutrition, and increased process control sampling.

I observed all areas of the WWTF during the inspection (photos 1-23). At the time of the inspection, the aerator within the aerated sludge holding tank had been removed, and the holding tank was empty (photos 16, 18). Mr. Sudduth explained that the aerator must be removed during the winter months because spray produced by the aerator will freeze on top of the aerator causing it to flip upside down. After the operators empty the holding tank and remove the aerator, the holding tank is not used, thus sludge is not processed until the following Spring. The inability to haul biosolids could have a negative effect on the facility's performance and ability to meet effluent limits. Facility personnel expect the plant expansion to include below-surface aeration in the sludge holding tank which will allow for year-round use of the tank.

I photographed roof damage on the headworks building (photo 17). Mr. Wisdom explained he had met with multiple contractors to repair the roof, but none of them are willing to conduct the complex repair. The city is considering many options like a different design or type of roof.

Summary

During the exit meeting, a NOPF was given to Mr. Sudduth with the following findings (attachment 6). Mr. Sudduth provided multiple responses to the NOPF (attachment 7).

1. Effluent limit exceedances – NPDES permit Part A
2. E. coli samples exceeding hold time – NPDES permit Standard Condition 4

HANNAH LEWIS
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Hannah Lewis
Life Scientist

NICOLE MORAN
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Section Chief

Attachments:

1. Water Compliance Inspection Report, Form 3560-3 (4 pages)
2. Digital Photos with Photo Log (9 pages)
3. Facility Satellite Map (1 page)
4. NPDES permit effective on December 1, 2021 (8 pages)
5. Laboratory Analytical Report for Project HML2303 (20 pages)
6. NOPF dated December 8, 2022 (1 page)
7. NOPF responses (3 pages)
8. Permit Limit Exceedance Explanations (3 pages)