REPORT OF COMPLIANCE SAMPLING INSPECTION (CSI)

at
Rossville Wastewater Treatment Plant (WWTP)
39.1225, -95.9622
Rossville, KS
NPDES No: KS0046477

April 10-12, 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 Rossville WWTP in Rossville, Kansas from April 10, 2023, through April 12, 2023. 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 Rossville
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Brad Kirk, Utility Assistant
Randy Anderson
U. S. Environmental Protection Agency (EPA)
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PROCEDURES

On April 10, 2023, I arrived at the Rossville City Hall at approximately 11:00am. I introduced myself to Mr. Kirk, presented my credentials, and explained the purpose and procedures of the inspection. 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 samples; and an exit meeting. Later that same day, I met Mr. Zlatnik and explained the purpose and procedures of the inspection. A Notice of Preliminary Findings (NOPF) was given to Mr. Zlatnik during the exit meeting on April 12, 2023.

On April 11, 2023, I collected grab samples at the influent splitter box using a sample pole. The samples were poured into clean, pre-labeled containers for the analysis of Biological Oxygen Demand (BOD), Ammonia, Total Phosphorus (TP), Total Kjeldahl Nitrogen (TKN), Nitrate+Nitrite (NO2+NO3), 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. The samples to be analyzed for ammonia, TP, TKN, and NO2+NO3 were preserved with sulfuric acid.

On April 11, 2023, I collected grab samples of the effluent from the overflow of the effluent weir box. The samples were poured into clean, pre-labeled containers for the analysis of BOD, NFS, Ammonia, TKN, NO3+NO2, and TP. I measured the pH using a field meter within 15 minutes of sample collection. The samples to be analyzed for ammonia, TP, TKN, and NO2+NO3 were preserved with sulfuric acid.

I placed the samples I collected each day 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. 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. Shipping of the samples collected on April 11 was delayed causing the BOD parameter to exceed the maximum hold time. Also, the custody seal on the ice chest had been broken prior to its arrival at the STC.

Discharge flow on April 11, 2023, was minimal but sufficient to collect samples. The lagoon was not discharging on April 12, 2023, thus neither influent nor effluent samples were collected that day.

FACILITY DESCRIPTION

The Rossville WWTP is owned by the City of Rossville, Kansas. The latitude and longitude location for the WWTP are 39.1225, -95.9622. The legal description is the NE ¼, NW ¼, SW ¼, Section 3, Township 11 South, Range 13 East within Shawnee County. The mailing address for the City of Rossville is PO Box 337, Rossville, KS 66533. The WWTP treats domestic wastewater from the City of Rossville. Final effluent from the WWTP is discharged to Cross Creek at Outfall 001A1 (39.1209, -95.9619) (photo 9).

In 2004, the lagoon system was expanded from a 2-cell to a 3-cell by adding cell #1. Sludge depth evaluations of all three cells were conducted by the Kansas Rural Water Association (KRWA) on July 12, 2022. Mr. Zlatnik provided a copy of the report which shows an average depth of 9.19” in cell #1, 10.9” in cell #2, and 8.8” in cell #3. Desludging was not recommended until the average sludge depth of cells #1 and #2 are each greater than 16”. The report points out a higher accumulation of sludge near the inlet to each cell.

The facility’s NPDES Permit KS0046477 was renewed as effective on October 1, 2020

(attachment 4). The permit expires on September 30, 2025. The most recent inspection of the facility was conducted by KDHE on May 19, 2022. The inspection report mentions effluent limit exceedances within the last 3 years.

FINDINGS AND OBSERVATIONS

The following findings were noted during the facility and record review. A complete summary is given in the NPDES Compliance Inspection Report (attachment 1). These findings were discussed with Messrs. Zlatnik, Kirk, and Anderson during the exit meeting.

Self-Monitoring Data Review

I obtained a spreadsheet of the discharge monitoring report (DMR) data from the EPA Data Team for the Rossville WWTP from January 2018 - January 2023 and reviewed the data. During the inspection, I obtained electronic copies of the laboratory analytical results from facility personnel for January 2020 – February 2023. The collected data also includes laboratory quality control and quality assurance 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 TSS, E. coli, BOD and Ammonia effluent permit limits (NOPF 1). TSS limits were exceeded during the 3rd quarter of 2021. BOD limits were exceeded during the first quarters of 2020 and 2021 and the second quarter of 2022. E. coli, Ammonia, and TSS limits were exceeded during the second quarter of 2021. Sampling of the influent and effluent was not conducted during the 1st quarter of 2021 for unknown reasons, while "no discharge" was recorded for the 3rd and 4th quarters of 2022.

While discussing the potential causes of the permit limit exceedances, Mr. Zlatnik stated that the KRWA had noted poor sampling techniques during a visit in January 2022 which could have caused inaccurate analytical results in previous months.

Laboratory

The City of Rossville's personnel collect permit-required samples. Analyses of the samples are contracted to Pace Analytical. Samples are first transported to Pace's Salina, Kansas location for analysis of E. coli and, at time, additional parameters. Then, samples designated for the analysis of TSS, TP, BOD, and Ammonia are transported by Pace staff to Pace's Lenexa, Kansas location. I reviewed laboratory records to ensure that all analyses complied with requirements of 40 CFR part 136.

I noted that the 15-minute hold time was not met for the pH parameter during any sampling event within the last three years. According to Part D.2. of the NPDES permit, KDHE has included the following language circumventing the 40 CFR Part 136 regulations: "The pH test…need not meet the 40 CFR Part 136 requirements for sampling-to-test time limit of 15

minutes." This is cause for concern; thus, it is listed as a preliminary finding in the summary section of this report.

I also noted that the hold time was not met for the E. coli parameter for the following sampling events in the last three years: 1st and 2nd quarters of 2020; 2nd, 3rd, and 4th quarters of 2021; 1st quarter of 2022; and 1st quarter of 2023. This preliminary finding is included in the summary section of this report. Samples are promptly transported by city personnel to Pace Analytical in Salina, thus it is unclear why the hold time is not being met by the laboratory.

Sample Results

The analytical results from samples collected during the inspection were received on May 12, 2023, 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, and pH of the samples I collected are presented in Tables 1 and 2 below. As mentioned previously, the BOD samples collected on April 11, 2023, were delayed in shipping and did not meet the 48-hour hold time. Also, the laboratory staff noted that the seal on the ice chest had been broken. See attachment 6 for the analytical data packet. For data marked with a "J" in Tables 1 and 2 below, the analyte in question has been positively identified in the sample, but the quantitation is an estimate due to poor precision in the laboratory. The actual concentrations may be higher than the reported results marked with a "J."

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

Parameter	April 11 (2300121-01)
$BOD5_2$ (mg/L)[1]	333 J
NFS (mg/L)[1]	411
Ammonia	56.3
Total Phosphorus (mg/L)[1]	14.5
TKN (mg/L)[1]	77.2
NO2+NO3 (mg/L)[1]	ND
Flow in gpm[3]	~62.5

[1]mg/L = milligrams per liter
[2]BOD = biological oxygen demand (five-day).
[3]gpm = gallons per minute.

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

Parameter	April 11 (2300121-02)	Concentration Permit Limits[3]
BOD5[4] (mg/L)[1]	27.0 J	30/45
NFS (mg/L)[1]	27.6	80/120
Ammonia (mg/L)[1]	1.98	3.4
TKN (mg/L)[1]	8.19	N/A
NO2+NO3 (mg/L)[1]	ND	N/A
Total Phosphorus (mg/L)[1]	2.40 J	N/A
pH[2]	8.74	N/A

[1]mg/L = milligrams per liter.
[2] pH was measured in the field.
[3]Permit limits for BOD and NFS are Monthly followed by 7-day Averages. Permit limit for Ammonia is Monthly average.
[4]BOD = biological oxygen demand (five-day).

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

Collection System

During the inspection, I discussed the city's sanitary sewer collection system with Mr. Zlatnik. He stated the average age of the collection system is 35 years old. There are approximately 6.79 miles of sanitary sewer lines leading to the WWTP. The city did not report any bypasses from 2019-2022. The city does not have an annual budget item allocated towards the improvement and repair of the collection system. Each year 33% of the collection lines are jetted including all four lift stations, while CCTV is conducted on an as-needed basis.

The facility does receive increased influent flows during rain events which is an indication of inflow, infiltration, or both. The city should investigate the potential causes of the increased flows.

I visited the four lift stations: Hesse Street, Manor, Wehner, and Main. Each station has a visual alarm but only the Main lift station has an auto dialer. All stations appeared well maintained with minimal debris accumulations. The city has one portable generator available.

Operational Observations

I observed all areas of the WWTP during the inspection (photos 1-10). The lagoon system

appeared to be well maintained with well-manicured grounds, good wave action, operational weirs, no foul odors, no indications of bypass, and no floating debris. Some areas of the inner berms showed signs of erosion (photos 2, 3). Also, the influent splitter box had significant corrosion from an improperly designed hatch which did not allow for adequate ventilation. The system appeared to have adequate detention time to treat the designed flow with no evidence of short-circuiting.

There are a few projects that the City of Rossville will be working on this year. They include a new influent splitter box, upgraded fencing to include approximately 50% of the perimeter around the lagoon, and installing riprap along the inner berms. Riprap is added biennially to maintain the inner berms' integrity.

Summary

The WWTP has exceeded the permit effluent limits, but Mr. Zlatnik is unsure what caused these exceedances. The city should continue consulting with the wastewater professionals on appropriate actions to prevent future exceedances.

Hold times do not meet the requirements under 40 CFR Part 136 for the analysis of pH and are often not met for E. coli.

Cells #1 through #3 do not need sludge accumulations removed at this time, but the city should prepare in advance by allocating funds for these future expenses.

The city should continue addressing the inner berm erosion to prevent further soil loss.

During the exit meeting, a NOPF was given to Mr. Zlatnik with the following finding (attachment 6). A response to the NOPF was received (attachment 7).

1. Effluent limit exceedances – NPDES permit Part A

Additional findings have been made after the inspection:

2. The hold time requirement per 40 CFR Part 136 is often not met for the E. coli analytical parameter.
3. The analysis of samples for pH is not conducted within the 15-minute hold time as required by 40 CFR Part 136. KDHE has included a sentence in Part D.2. of the NPDES Permit which circumvents this federal regulation with the following language "The pH test…need not meet the 40 CFR Part 136 requirements for sampling-to-test time limit of 15 minutes."

HANNAH LEWIS
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Nicole Moran
Section Chief

Attachments:

1. Water Compliance Inspection Report, Form 3560-3 (4 pages)
2. Photo Log (11 pages)
3. Facility Layout Map (1 page)
4. NPDES permit effective on October 1, 2020 (7 pages)
5. Laboratory Analytical Report for WO2300121 (13 pages)
6. NOPF (1 page)
7. NOPF Response (1 page)