

REPORT OF COMPLIANCE SAMPLING INSPECTION (CSI)

AT
Fort Scott Wastewater Treatment (WWTF)
Fort Scott KS

NPDES NO: KS-0095923

April 10 -13, 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 Fort Scott WWTF in Fort Scott, Kansas from April 10, 2023, through April 13, 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

Fort Scott WWTF

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PROCEDURES

On April 10, 2023, I arrived at the Fort Scott WWTF at 1:00 p.m. and introduced myself to Mr. Shelden, 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 April 10, 2023, through April 13, 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 after 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 Biochemical Oxygen Demand (BOD), Non-Filterable Solids (NFS), Ammonia, Total Kjeldahl Nitrogen (TKN), Nitrate+Nitrite, Total Nitrogen (by calculation), and Total Phosphorus (TP). I measured the pH and temperature in a separate grab sample using a field meter.

From April 10, 2023, through April 13, 2023, I used an ISCO model 3710 automatic composite sampler to collect a 24-hour composite sample of the effluent from the effluent manhole 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), and TP. I measured the pH and temperature in a separate grab sample using a field meter.

On April 13, 2023, I took a grab sample of biosolids from the east aerobic digester. I hand delivered the sample of biosolids with the other collected samples on April 13, 2023. The biosolids were analyzed for Metals, including Mercury, percent solids, Total Phosphorus and TKN.

On April 11, 2023, and April 12, 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 April 13, 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 Fort Scott WWTF is owned and operated by the City of Fort Scott, Kansas. The legal description of the facility is the E ½, SE ¼, SE ¼, Section 19 and the E ½, SW ¼, SW ¼, Section 20, Township 25 South, Range 25 East within Bourbon County, Kansas. The physical address of the WWTF is 601 North Barbee, Fort Scott, KS 66701. The mailing address for the City of Fort Scott is, One East Third Street, Fort Scott, KS 66701.

The WWTF treats domestic wastewater from Fort Scott Kansas (population approximately 7,500). There are several categorical industries including Anodizing/Extrusions, Labconco, Peerless Products, and Timken-Carlisle that discharge process wastewater to the WWTF. These industries are permitted through the Kansas Department of Health and Environment's pretreatment permit program. These categorical industries have been previously inspected by EPA Region 7 and are not subject to this inspection. One new industrial wastewater source (ADM-Deerfield), located outside of the city limits, hauls process wastewater via tanker truck to the WWTF for treatment. I conducted an inspection of ADM-Deerfield during the same time period that I conducted the inspection at the WWTF. The findings of the ADM-Deerfield inspection are contained in a separate report.

Final effluent from the WWTF is discharged to the Marmaton River, located east of the facility.

The following are components of the WWTF (see attachment 4 for layout):

- Headworks which includes mechanical screening
- Oxidation Ditch (1),
- Final Clarifiers (2),
- UV Disinfection

Biosolids are handled by the following sequence:

- Aerobic Sludge Digestion (1)
- Biosolids Storage Basin
- Biosolids are then land applied to nearby agricultural ground

The facility has a peak design flow of 4.0 MGD with an actual flow average during the inspection of 1.98 MGD.

The facility also utilizes a 3 cell waste stabilization lagoon system to treat industrial process wastewater from the ADM-Deerfield Facility and a peak flow basin for domestic wastewater received at the WWTF in excess of 5.0 MGD. The 3 cell lagoon system includes:

- Cell 1: 2 acres in size
- Cell 2: 11.0 acres in size
- Cell 3: 4.6 acres in size

Cell 1 is an aerated cell consisting of a coarse air system at the time of the inspection. The aeration system was in the process of being converted to a fine bubbler system at the time of the inspection. Cell 1 also contains a curtain to divide the cell into two parts.

Effluent from Cell 3 discharges into a manhole then is mixed with effluent from the mechanical plant before being discharged to the Marmaton River via Outfall 001. At the time of the inspection the lagoon system was not discharging.

A portion of the final effluent is also diverted and pumped to the ADM-Deerfield facility and is used as make-up water within that facility's processes. I spoke with representatives for ADM-Deerfield, and they stated that approximately 0.250 MGD of effluent is diverted to the ADM facility.

REGULATORY HISTORY

The WWTF's National Pollutant Discharge Elimination System (NPDES) Permit (MO-0040185) was issued on March 1, 2019 (attachment 5). The permit expires on February 29, 2024.

The KDHE inspected the facility on July 1, 2022, and found that the facility was not maintaining or operating the WWTF in accordance with the NPDES permit. The inspection report identified that the process wastewater from the ADM-Deerfield facility was adversely affecting the stabilization lagoons. The inspection report also noted that the Davis Street (Main) Lift Station continued to have an automatic bypass that allows untreated wastewater to enter Buck Run Creek and was in noncompliance (attachment 6).

Over the past year, KDHE and EPA Region 7 have received numerous citizen concerns about how the industrial process wastewater from ADM-Deerfield has affected the WWTF. The citizen concerns revolve around odors caused by the industrial wastewater. Although the odors do not directly affect the operations of the WWTF, the high strength of the industrial process wastewater does. KDHE sent a directive to the City of Fort Scott on December 15, 2022 (attachment 7) requiring actions that the WWTF must take to return to compliance with the NPDES permit. These actions included additional sampling requirements, a modification to the NPDES permit to address current conditions, and the submittal of a plan to return to compliance. The City of Fort Scott, responded to the directive through their engineers on January 9, 2023 (attachment 8). KDHE followed up with a letter on January 31, 2023, with additional requirements (attachment 9).

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. Flater and Mr. Shelden during the exit meeting.

Self-Monitoring Data Review:

I obtained a spreadsheet of the NetDMR data for the Fort Scott 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. After I completed reviewing the information requested, I place the files into ECAD's electronic file system.

While reviewing the data, I noted effluent violations for BOD, TSS, E. coli, Ammonia, and pH at Outfall 001. Table 1 represents the effluent violations noted during the review.

Table 1: Effluent violations at Outfall 001 reported from January 2019 – February 2023

	BOD	Limits	TSS	Limits	E.coli	Limits	Ammonia	Limits	pH	Limits
Mar-19			52.9	45/30						
May-19					493.51	262				
Jan-20	36.4	30/20								
Sep-20							2.1/4.2	0.7/3.1		
Aug-21										
Mar-22	32.7	30/20								
May-22	64.1/33.85	30/20			761.30	262				
Jun-22	65.8/34.2	30/20							10.01	9.00
Nov-22	112/74.9	30/20	162.2/172	80/120						
Jan-23			105	80/120						
Feb-23	115/114.5	30/20	248/254	80/120						

BOD limits are Weekly Average followed by Monthly Average. TSS limits are Weekly Average followed by Monthly Average..E.coli limit is a monthly average. Ammonia is a montly average follwed by a daily maximum.

I noted during the review that the violations for TSS in November of 2022, January 2023, and Feburary 2023, were based off discharges from the 3-cell lagoon system before combining with effluent from the mechanical plant.

At the conclusion of the inspection, during the exit conference, I issued a Notice of Preliminary Findings (NOPF) (attachment 10) to the facility for the continued effluent violations.

Sample Results

The analytical results from the sampling conducted during the inspection were received on May 12, 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, Zinc, pH, and temperature of the samples I collected are presented in Tables 2A and 2C below. See attachment 11 for the analytical data packet. During the ADM-Deerfield inspection (separate report), I took samples of the process wastewater that is trucked to the City of Fort Scott. The results for that sampling are shown in Table 2B.

Table 2A: Analytical Results for Influent

Parameter	(April 11) 2300098-01	(April 12) 2300099-01	(April 13) 2300100-01
BOD₅ (mg/L)¹	105	79.1	87.9
NFS (mg/L)	205	80.2	140
TKN (mg/L)	19.1	15.8	17.2
Nitrate+Nitrate (mg/L)	0.576	0.247	0.102
Total Nitrogen	19.7	16.1	17.3J
Ammonia (mg/L)	9.02	12.1	10.2
Total Phosphorus (mg/L)	3.30	2.02	2.46
Temperature (°C)²	15.9	15.3	15.7
pH³	7.16	7.24	7.29
Flow	NA	1.81 MGD	1.90 MGD

¹mg/L = milligrams per liter

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

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

Table 2B: Analytical Results for Process wastewater from ADM-Deerfield

Parameter	(April 11) 2300101-03	(April 12) 2300102-03
BOD₅ (mg/L)¹	4560	4700
NFS (mg/L)	448	527
COD (mg/L)	7500	30400
TKN (mg/L)	38.9	39.0
Nitrate+Nitrate (mg/L)	0.629	0.684
Total Nitrogen	39.5	39.7
Ammonia (mg/L)	10.0	10.7
Total Phosphorus (mg/L)	53.1	52.8
Temperature (°C)²	20.8	20.6
pH³	4.86	5.08
Flow	NA	NA

¹mg/L = milligrams per liter

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

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

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

Parameter	(April 11) Sample # 2300098-02	(April 12) Sample 2300099-02	(April 13) Sample 2300100-02	Concentration Permit Limits³
BOD5 (mg/L)¹	ND ⁴	ND ⁴	ND ⁴	20/30
NFS (mg/L)	ND	4.13	ND ⁴	30/45
Ammonia (mg/L)	ND ⁴	ND ⁴	ND ⁴	For April 7.1/1.3
TKN (mg/L)	0.809	0.780	0.857	N/A
Nitrate+Nitrite (mg/L)	4.89	4.59	4.67	N/A
Total Nitrogen (MG/L)	5.70	5.37	5.53	N/A
Total Phosphorus (mg/L)	0.123	0.102	0.123	N/A
Temperature (°C)²	21.1	20.8	21.0	N/A
pH²	7.64	7.39	7.39	6.0-9.0
Flow in MGD	1.78	1.97	1.98	N/A

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.

⁴ND = No Detect

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

Parameter	April 13 2300100-05
Aluminum	59500
Antimony	ND
Arsenic*	10.6
Barium	290
Beryllium	ND
Cadmium*	ND
Calcium	35100
Chromium	21.4
Cobalt	4.23
Copper*	405
Iron	10400
Lead*	20.1 J
Magnesium	3130
Manganese	2070
Molybdenum*	ND
Nickel*	81.9
Potassium	3670
Selenium	27.2
Silver*	3.78
Sodium	1940
Thallium	ND
Vanadium	17.9
Zinc*	649 J
Mercury*	Not Analyzed
% Solids	2.58

*40 CFR Part 503 Metals

Results from sampling conducted during the inspection indicate that the facility did not violate effluent limits set in the NPDES permit.

Biosolids (sludge)

As mentioned above, the facility utilizes an aerobic digester to treat biosolids wasted from the clarifiers. After treatment, the biosolids are stored in a concrete basin until they can be land

applied to nearby agricultural fields. During the inspection, I requested electronic copies of the 2021 and 2022 annual biosolids sampling conducted by the facility. Mr. Shelden provided the analytical data for sludge samples taken. After review of the data, I placed a copy into the ECAD electronic file system. After the completion of the inspection, I obtained the 2021 and 2022 annual sludge reports submitted to the EPA. After review, I placed the reports in the ECAD electronic file system. During the inspection, Mr. Shelden stated that no land application was conducted during 2021. He stated that the facility was actively land applying in an agricultural field northwest of the facility.

According to the 2021 and 2022 annual reports, 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. According to the 2021 and 2022 annual reports, the vector attraction reduction (VAR) requirement was achieved by subsurface injection.

Laboratory

The facility contracts with Pace Analytical Laboratories in Lenexa, Kansas for all of its regulatory analysis. 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

As mentioned above, the Fort Scott WWTF accepts wastewater from the City of Fort Scott along with industrial process wastewater from ADM-Deerfield. During the inspection, I discussed the collection system with Mr. Flatter and Mr. Shelden. Mr. Flatter stated that there is approximately 75 miles of sanitary sewer, and that the system is very old with some parts over 100 years old. He stated that the city does have a capital improvement budget of approximately \$400,000 that is used for updating the sanitary system. He also stated that a project will start during the summer of 2023 to line, line burst/replace and do man-hole repairs on approximately 7 miles of sanitary sewer. Mr. Flatter explained that the city does have a vacuum/jet truck used to clean the system when needed, however, he stated that the city does not have a regular cleaning schedule for the system. He stated that the city receives 3-5 calls per week for sewer backups. He stated that the majority of these calls are blockages on the lateral lines and not the city’s responsibility. Mr. Shelden stated that they have bypasses from time to time and that all are reported to KDHE as required. Mr. Selden stated that since 2021, the city has reported 13 bypasses of the sanitary sewer system.

During the inspection, I visited 3 of the 12 lift stations that the city owns and operates. The first lift station was the main lift station located on Davis Street. While observing the lift station, I noted that there was an automatic bypass system for the lift station. Mr. Shelden stated that the wet well was approximately 50 feet deep and that when the water levels reach 22.5 feet, untreated wastewater is allowed to bypass and enter Buck Run Creek (photos 17-18). Mr.

Shelden stated that city's consulting engineer was working on a design to remove this bypass. The other two lift stations were located at the industrial park located on the far south end of the city. These lift stations were operating and were in good condition at the time of the inspection.

Although progress has been made to improve the sanitary sewer system, at the conclusion of the inspection, I issued a NOPF for not maintaining and operating the sanitary sewer collection system in a way to allow the system to function properly.

Industrial Users

As mentioned above, there are several categorical industries within the City of Fort Scott that discharge process wastewater to the sanitary sewer. These industries are covered under separate NPDES permits and have been previously inspected by the EPA. Mr. Shelden also noted that the WWTF accepts process wastewater from the ADM-Deerfield facility. Process wastewater from the facility is trucked and released into the 3 cell lagoon system. At the time of the inspection, ADM-Deerfield was trucking approximately 25,000 gallons of process wastewater per day.

The City of Fort Scott and ADM-Deerfield entered into a new contract (attachment 12) to allow process wastewater to be treated by the WWTF under certain conditions. The contract requires that the BOD and COD not to exceed 1,500 mg/L, the TSS not to exceed 350 mg/L, Total Phosphorous not to exceed 1.5 mg/L, TKN not to exceed 10 mg/L and that the pH remain between 6.0 and 9.0. The contract also states that Fort Scott will test and analyze the process wastewater at least two times per month. During the inspection, Mr. Shelden provided a spreadsheet of sampling data from ADM-Deerfield for the years 2018 – 2023. I reviewed that data and noted the following:

- In 2018, there were no exceedances in BOD, TSS or pH. COD, Total Phosphorous and TKN were not analyzed during 2018
- In 2019, there were no exceedances in BOD, TSS or pH. COD was violated 4 times during the week of November 13-18, 2019.
- In 2020, there were no exceedances in BOD, COD, TSS, Total Phosphorous, and TKN. There were 2 exceedances for pH.
- In 2021, there were no exceedances for BOD and TSS, 2 exceedances for COD, 9 exceedances for pH, 3 exceedances for Total Phosphorus, and 2 exceedances for TKN.
- In 2022, there were 15 out of 24 exceedances for BOD, 23 of 24 exceedances for COD, 0 exceedances in TSS, 20 of 24 exceedances for pH, 14 of 24 exceedances of Total Phosphorus, and 14 of 24 exceedances for TKN.
- To the date of the inspection in 2023, there have been 5 exceedances of BOD, COD, Total Phosphorus, pH and 2 exceedances in TKN.

After my review of the spreadsheet, I placed a copy of the spreadsheet in the ECAD electronic file system.

The contract between the City of Fort Scott and ADM-Deerfield also sets up a surcharge system for any exceedance over what is allowed in the contract. After the completion of the inspection,

Mr. Sheldon provided the billing statements that the city issued to ADM-Deerfield. After reviewing the billing statements, I placed copies in the ECAD electronic file system.

Due to the current condition of the lagoon system and the fact that ADM-Deerfield has exceeded the limits of their contract with the City of Fort Scott, it does not appear that the lagoon system can handle the loading that is placed on the system by ADM-Deerfield without further restrictions on the quantity and quality of the process wastewater or additional treatment from ADM-Deerfield. During the exit briefing, I issued a NOPF to the city for not having a proper control mechanism to regulate process wastewater of industrial sources entering the sanitary sewer system in accordance with 40 CFR Part 403.

Standard Condition #21 of the NPDES permit requires that “a municipal permittee shall require any industrial user of the treatment works to comply with 33 USC Section 1317.” Title 33 Section 1317 is codified within the Clean Water Act at Section 307 (a) (1). This section of the CWA requires that a list of pollutants (priority pollutants) be developed and effluent guidelines be established for the list of pollutants. The list of pollutants can be found in Chapter 40 of the Code of Regulations Chapter 401.15 (40 CFR 401.15). To Mr. Sheldon’s knowledge, the city has not required all of its industrial users to sample their discharges to the sanitary sewer system for this list of pollutants. During the exit briefing, I issued a NOPF for not complying with the Standard Condition 21 of the NPDES permit.

Operational Issues and Observations

1. I observed all areas of the mechanical plant during the inspection (photos 1-2, 5-6, 9-11). I noted that the mechanical plant was in full operation and appeared to be functioning properly.
2. I observed the 3-cell lagoon system (photos 3-4, 7-8, 12, & 16) at the time of the inspection and had the following observations:
 - The first cell appears to be in a septic condition. Wastewater in the cell had a brown to black appearance with little algal growth in the cell. Mr. Sheldon stated that the city routinely takes dissolved oxygen readings within the cell and that the average reading is between 0.00 and 0.50 mg/L.
 - The city identified a short circuiting problem within the cell and as a result, placed a curtain across the middle of the lagoon to split the lagoon in half.
 - The aging aeration system was in the process of being replaced by an updated diffused air system that the city hoped would help in treating the process wastewater from ADM-Deerfield. The new system was to be turned on in the west half of cell 1 during the week of April 17, 2023.
 - The lagoon system was not discharging at the time of the inspection.
3. Federal regulations at 40 CFR 122.26(b)(14)(xi) requires that treatment works treating domestic sewage or any other sewage sludge or wastewater treatment device or system, used in the storage treatment, recycling, and reclamation of municipal or domestic sewage, including land dedicated to the disposal of sewage sludge that are

located within the confines of the facility, with a design flow of 1.0 mgd or more to obtain a stormwater discharge permit to cover this type of industrial activity. As part of the stormwater permit, a facility is required to develop and implement a Stormwater Pollution Prevention Plan (SWPPP). During the exit briefing with the facility, I issued a NOPF for not obtaining an industrial stormwater permit or developing and implementing the SWPPP as required.

Summary

The Fort Scott WWTF has failed to meet effluent limits for BOD and TSS during the years 2019-2023.

The Fort Scott WWTF struggles to treat industrial process wastewater from ADM-Deerfield. The City of Fort Scott does not have a proper control mechanism in place to regulate sources of industrial process wastewater.

The City of Fort Scott needs to continue to work to eliminate excessive amounts of Inflow and Infiltration (I & I) from the sanitary sewer system.

The Fort Scott WWTF is not maintaining and operating the sanitary sewer collection system in a way to allow the system to function properly

The Fort Scott WWTF is not complying with the Standard Condition 21 of the NPDES permit.

The Fort Scott WWTF needs to obtain an industrial stormwater permit in accordance with 40 CFR 122.26 9b)(14)(xi).

**JOSEPH
HEAFNER**
Joe Heafner
Life Scientist

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**Moran,
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Section Chief

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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 (22 pages)
4. Facility Satellite Photos/Maps (1 page)
5. NPDES permit issued on February March 1, 2019 (12 pages)
6. KDHE Inspection Report from July 1, 2022 (22 pages)
7. KDHE Directive dated December 15, 2022 (2 pages)
8. Fort Scott Response to Directive dated January 19, 2023 (34 pages)
9. KDHE Directive follow-up dated January 31, 2023 (2 pages)
10. NOPF (2 page)
11. Laboratory Analytical Report for Activity JAH2311 (27 pages)
12. 2021 ADM-Deerfield contract (19 pages)