REPORT OF THE PRETREATMENT COMPLIANCE INSPECTION

AT
Sioux City, Iowa
405 6th Street
Sioux City, Iowa 51102

NPDES Permit No.: IA0043095
BY

REGION 7
ENFORCEMENT AND COMPLIANCE ASSURANCE DIVISION (ECAD)
WATER BRANCH / DRINKING WATER AND INSPECTIONS SECTION (WB/DWIS)

ON
JANUARY 23-25, 2024

At the request of the Water Branch (WB), Enforcement and Compliance Assurance Division (ECAD), a Pretreatment Compliance Inspection of the Sioux City Approved Pretreatment Program was conducted on January 23, 24, and 25, 2024. To direct the inspection, a checklist was used that evaluates all important elements of the Pretreatment Program. A copy of the checklist is attached to this report (Attachment 1). The inspection consisted of a discussion and file review with the City's program. In addition, I conducted brief file review of the City's Biosolids Management Program (Sludge). This narrative report presents the findings of the inspection.

Participants

Sioux City, Iowa, Wastewater Treatment Plant

- Brooklyn Barnett, Pretreatment Coordinator — bbarnett@sioux-city.org
- Vicki Baker, WWTP Manager — vbaker@sioux-city.org
- Rick Simmons, WWTP Operation Supervisor (Biosolids) — rsimons@sioux-city.org

U.S. Environmental Protection Agency (EPA), Region 7

- Naji J. Ahmad, Environmental Engineer, ECAD/WB/DWIS — ahmad.naji@epa.gov

Facility Description and Program Overview

Sioux City, with an approximate population of 85,617 (2021 census estimate), owns and operates a modified ludzack-ettinger (MLE) activated sludge Regional Wastewater Treatment Plant (WWTP) and approximately 300 miles of sanitary sewers, and fourteen lift stations throughout the collection system serving four neighboring communities to Sioux City, Iowa. Those are: Sergeant Bluff, Iowa, North Sioux City, South Dakota, Dakota Dunes, South Dakota, and South Sioux City, Nebraska. Those cities are required to maintain their own collection systems until the wastewater reaches the Sioux City system. Every few years the agreement between the cities and

industries is updated to reflect the current cost of treatment, maintenance of the WWTP, and capacity allocations.

The WWTP is operated under the Iowa National Pollutant Discharge Elimination System Permit (NPDES) number IA0043095 that is set to expire on November 30, 2025.

The activated sludge plant utilizes a bar screen. Screenings and grit are removed, pressed, treated with lime, and disposed of. The facility has six serpentine aeration basins followed by five final clarifiers. Disinfection is achieved by the addition of sodium hypochlorite in the treated effluent. De-chlorination consists of the addition of sodium bisulfite to reduce the concentration or residual of the sodium hypochlorite in the effluent. There are eight anaerobic digesters used to aid in the stabilization of biosolids. Final disposal of solids is by land application. Treated effluent discharges into the Missouri River.

According to the NPDES permit, the WWTP has a design of an average dry weather (ADW) flow of 15.98 million gallons per day (mgd), an average wet weather (AWW) flow of 17.60 mgd, a maximum wet weather (MWW) flow of 28.73 mgd, a design 5-day biochemical oxygen demand (BOD5) load of 87,208 lbs/day, a design Total Kjeldahl Nitrogen (TKN) load of 12,338 lbs/day, and a design Total Suspended Solids (TSS) load of 69,676 lbs/day

The WWTP receives discharges from thirty-two permitted Significant Industrial Users (SIUs) that make up 40 percent (40%) of its actual (average dry weather) influent of 15.2 mgd. Those 32 SIUs are currently located in Sioux City, Iowa, Sergeant Bluff, Iowa, and North Sioux City, South Dakota. The WWTP used to receive industrial waste from three SIUs located in South Sioux City Nebraska, prior to South Sioux City building their own WWTP. The South Sioux City WWTP retained the ability to receive discharge from those three SIUs if needed.

The last NPDES permit[1] required the city to continue implementing its June 12, 1984, approved pretreatment program and submit to the Iowa Department of Natural Resources (IDNR) an annual report by March 1st of each year describing the pretreatment program activities for the preceding calendar year. The last permit also required the city to: (1) evaluate its local limits to meet the general prohibition against interference and pass through listed in 40 CFR 403.5(a) and the specific prohibitions listed in 40 CFR 403.5(b) and submit a report by April 1, 2016, and to (2) evaluate the program with regards to the Streamlining Rule by April 1, 2016. The city complied with the NPDES permit requirements. The IDNR approved the program modification on March 2, 2015. Therefore, because the city completed the evaluation of the adequacy of its local limits and updated their program accordingly, before the issuance of the current NPDES permit (December 1, 2020), the IDNR did not require the city to submit any additional evaluations during this permit cycle.

As a result of the city's 2015 evaluation of its local limits, the city removed the TSS limits but added the Fats, Oil, and Grease (FOG) limits as a daily maximum concentration of 400 mg/l and a monthly average of 200 mg/l.

At the request of the city, the IDNR amended the NPDES Permit, on May 1, 2022, to extend the

[1] https://programs.iowadnr.gov/wwpie/Admin/PermitDetails?permitID=8712

Total Residual Chlorine (TRC) compliance schedule. The amendment included that the city shall make necessary improvements to meet the TRC limit according to the following schedule: (1) Submit progress report by November 1, 2023, that shall include specific information on the status of the project and future expected timelines for completing construction and include the status on the submittal of final plans and specifications and the awarding of a contract for construction; (2) Complete construction of wastewater treatment improvements necessary to comply with the final TRC limits by November 1, 2024; and (3) Achieve compliance with final TRC limits by December 1, 2024. The amendment also removed the Nutrient Reduction Requirements page, added annual average mass limits for total nitrogen and total phosphorus, as the facility has met the goals of Iowa's Nutrient Reduction Strategy, updated the standard conditions, removed the ammonia nitrogen compliance schedule, and made the final limits effective, per request of the city.

According to city personnel, currently the city is in the planning stages of a 20-year major upgrade of its WWTP. The Facility Plan (Attachment 2) is to evaluate and document the existing condition and limitations of the WWTP, define needs relative to design flows, loadings, and operational reliability, and outline the recommended improvements for future WWTP investments and needs.

Ms. Brooklyn Barnett is the current Pretreatment Coordinator. Ms. Barnett assumed responsibility of managing the Sioux City Pretreatment Program in March 2023.

Legal Authority and Local Limits

The city's Sewer Use Ordinance (SUO) under Chapters 13.06 -13.08, was approved in 2012 and incorporated the requirements of the 2005 Streamlining rule. A recent revision to increase rates was enacted in May 2022. The city also adopted the FOG ordinance under Chapter 13.14 in 2012. Local limits were evaluated but were not adopted by the city in 2015. The SUO has the necessary elements to provide the city with the authority to continue enforcing its approved Pretreatment Program by issuing permits for a duration of five years or less, the right to inspect, sample, enforce, and collect fines up to one thousand dollars ($1,000) per day.

Industrial Waste Survey and Significant Industrial Users

The most recent industrial waste survey (IWS) was conducted in 2015, during the evaluation of local limits. The survey did not result in any new industries in addition to those already regulated by the city. The list of industries is maintained and updated almost annually because of the active industrial community that covers three states. Currently the city regulates 32 industries by issuing permits and Concentration Based Billing agreements. Ten of the industries are located outside the Sioux City limits, two are in Sergeant Bluff, IA, and eight are in North Sioux City, South Dakota.

On May 13, 2022, Tu-Pak closed in September 2023, Global Food Processing closed, and on December 23, 2023, Bridgeport was sold and now is temporarily closed. Empirical, Ingredion, and Richardson were removed from the list because they now discharge to the South Sioux City, Nebraska newly built WWTP. However, Sioux City continues to issue and maintain emergency discharge permits to those three industries in case they need to redirect their discharge to them.

Red's All Natural, located in North Sioux City, South Dakota, was also added to the IU list in June 2023.

Majority of the Sioux City regulated industrial community is agricultural and food processing facilities. Currently, the city regulates thirty-two significant industrial users, eight of which are subject to Federal Categorical standards or categorical industrial users (CIU). Of those eight, five are subject to the Metal Finishing Federal Categorical standard 40 CFR Part 433; two are subject to the Pharmaceutical Federal Categorical standard 40 CFR Part 439; and one is subject to the Transportation Equipment Cleaning Federal Categorical standard 40 CFR Part 442 Subpart A & D. Of the 5 CIUs that are subject to the Metal Finishing Federal Categorical standard 40 CFR Part 433, three are zero dischargers.

Permits

All industries have current permits and the city issues the permits with five-year durations. Non-categorical industries permits are issued and set to expire on June 31, 2025, and the CIU permits are set to expire on October 31, 2025. Overall, the permits appeared to contain the necessary elements that should be included in an enforceable permit. Permit renewal applications are due 90 days prior to permit expiration date. Records indicate that industries submitted complete and adequate permit renewal applications.

CIU permits are issued with the applicable categorical limits and other pollutant limits the city determined to be pollutant of concerns (mainly FOG). Permits require all CIUs subject to the Metal Finishing Categorical standard 40 CFR Part 433 to sample for Total Toxic Organics (TTO) once per permit cycle, and allow the development, submittal, and implementation of a Solvent Management Plan (SMP) or Toxic Organic Management Plan (TOMP) in lieu of sampling for TTOs.

Permits also include compliance schedules for industries that are determined by the city to need one based on compliance status.

Inspections, Compliance Monitoring, Self-Monitoring, and Reporting

The Pretreatment Coordinator (PC) conducted inspections of all regulated industries in the past 12 months. Inspection reports appeared adequate and comprehensive. The PC evaluated the need for industries to develop slug control plans during the inspection and included the determination in the inspection report.

Sampling and self-monitoring reporting is described in detail in the industrial permits. The city performs compliance monitoring of its industries at least once per year. The city also samples all non-categorical industries. Therefore, industries are not required to sample or send reports unless the city is unable to do so. However, industries are required to submit self-monitoring reports each month. The reports are due to the city no later than the 10th of the following month, these reports include monitoring for pH, Flow, and temperature data. Since most industries are contributors of conventional pollutants and since the city does not have pollutants of concern restrictions (except for FOG), this monitoring is done to determine industrial surcharge-loading and for billing purposes. Therefore, industrial user permits include two sampling frequencies: permitted industries that discharge more than 25,000 gpd are required to sample once per week,

and permitted industries that discharge less than 25,000 gpd are required to sample once per quarter.

The general pretreatment regulations state that facilities subject the electroplating, metal finishing, and electrical and electronic components categories may choose to submit TTO certification that they are implementing a SMP or TOMP in lieu of TTO monitoring.

As mentioned above, five industries are subject to the Metal Finishing Categorical Standard 40 CFR Subpart 433. However, 3 of which are non-dischargers. Records indicated that FIMCO chose to sample for TTOs, and Interstate Powder Coating chose to develop and implement a SMP/TOMP and submit the TTO certification statements. The industry records indicated that the SMP submitted by Interstate Powder Coating on April 25, 2022, is adequate. Records also indicated that the city monitors for all regulated pollutants including TTOs since FIMCO chose to monitor for TTOs.

Siouxland Tank wash prepared a Pollutant Management Plan that satisfies the requirements as specified in 40 CFR 442.16.(b).

My review of industrial files indicted that monitoring reports were reviewed by Ms. Barnett to determine compliance.

Waste Haulers

The city continues to accept domestic waste at the headworks and high strength waste directly into the anaerobic digester. All waste haulers are required to sample each load waste for BOD_s, Total Solids, and pH prior to dumping. Each analysis shall be submitted with a chain-of-custody. Each hauler is issued an access card to enter the facility and the card will register the time and date of the entry. Wastes cannot be accepted unless the city receives the laboratory analysis and a visual observation by WWTP operators are done randomly. Table 1 below describe the volume of waste accepted and number of loads received in 2022 and 2023 (Attachment 3).

Table 1, Hauled waste in gallons and number of loads.

2022	Total mgd	Estimated # of Loads	Loads per Month	mgd per Month
Commercial/Industrial Waste	0.921	230	19	0.077
High Strength Waste	5.937	848	71	0.495
Septic Waste	2.758	1197	100	0.230
Totals	9.616	2275	190	0.801
2023				
Commercial/Industrial Waste	2.841	281	23	0.237
High Strength Waste	3.549	507	42	0.296
Septic Waste	3.470	1318	110	0.289
Totals	9.861	2106	176	0.822

Enforcement

Section 13.07.110 of the SUO reads, *"All enforcement actions entitled to the Director for violations of this chapter, state and/or federal code are documented in the City of Sioux City Enforcement Response Plan (ERP)".* The SUO also includes that any person who has violated or is violating the provisions of Chapter 13, shall be guilty of a municipal infraction and shall be subject to a fine not to exceed one thousand dollars ($1,000.00) per violation per day, for the duration of the violation.

The ERP was originally developed and approved on October 1, 1990. The ERP has been revised multiple times. The most recent revision was in March 2023 (Attachment 5). The ERP appeared adequate, and it addresses both discharge violations and reporting violations, and includes types of escalating enforcement responses. The ERP also requires the industrial user to respond to the notice of violation, in writing, within ten calendar days to correct the noncompliance. In addition, the ERP includes a fine/penalty schedule and provides guidance on amounts and the time frames for issuing fines. All amounts are per violation per day, unless otherwise specified. Fines and subsequent offenses are based on compliance within a six-month period and the following six-month period or a total of 12 months. If a facility is in compliance relative to a particular violation for a six-month period, then the fine schedule shall re-start unless otherwise determined by the Utilities Director depending on the severity of the violation.

Historically the Sioux City Pretreatment Program struggled to take the appropriate enforcement actions and follow the guidelines of the ERP. However, based on my review of the city's recent pretreatment enforcement records, it appeared that during the past three reporting years (2021-2023), the Pretreatment Coordinator has been taking adequate enforcement and following the ERP more efficiently. During 2023, the city issued 31 notices of violation and collected $10,200 in penalties. In 2022, the city issued 43 notices and collected $12,800.

As mentioned above, the city issues compliance schedules to industries and administers them through industrial permits. During my review of enforcement records and documentations, I noticed that Ms. Barnett documented violations and made accurate compliance determination. However, the program did not take enforcement against industries that are under a compliance schedule.

Ms. Barnett indicated that compliance schedules include a statement that prevent the city from taking enforcement when such industries commit a violation.

Compliance schedules included in industrial permits (Cargill Inc., Attachment 5) include the following language: Any violation of discharge permit limits during the above compliance schedule, from the date of compliance schedule signature through final completion of system commissioning, will not result in Notice of Violation and/or Significant Non-compliance. As long as Cargill, Inc. meets the deadline of the above agreed upon compliance schedule there will be no escalation of enforcement. If Cargill, Inc. does not meet the deadlines of the agreed upon compliance schedule then the facility will be subject to all relative fines and enforcement actions retroactively. Table 2 below lists those industries that are currently on a compliance schedule.

Table 2, SIUs under compliance Schedule

Industry Name	Schedule Issued	Compliance Deadline	Administered
Aramark Uniforms	9.15.2021	6.30.2024	Permit
Bridgeport Logistics (Now closed)	6.6.2019	6.30.2023 (Completed)	Permit
BioChem (Aspen)	8.5.2022	6.30.2024	Permit
Cargill	11.25.2021	11.15.2023 (Completed)	Permit
Hepar BioScience	9.15.2022	12.30.2023 (Completed)	Permit
KayDee Feed	12.01.2021	11.30.2023 (Completed)	Permit
Seaboard Triumph Foods (STF)	2.19.2021	8.30.2024	Permit
T&A Truckwash	9.15.2021	(Completed)	Permit

Table 3 below indicates which industries that were in Significant Noncompliance (SNC) within the last 12 months, including those that did not receive written enforcement actions.

Table 3, SIUs that are in SNC that did not receive enforcement by the city

IU Name	Violation	Date of POTW knowledge	Date of Action	Enforcement Action	required action
Americold	Late SMR	April/ May	6/23/2023	NOV/fine	NOV/fine
Aramark	FOG	June 2023	NONE because of compliance schedule		
Aspen/BioChem	FOG	October 2023	NONE because of compliance schedule		
Cargill	FOG	April /August 2023	NONE because of compliance schedule		
Hepar Bioscience	FOG	May 2023	NONE because of compliance schedule		
Interbake	FOG	July 2023	8/3/2023	NOV/fine & IR Meeting	NOV/fine

Data Management

Overall, industrial files have all the necessary documentation as recommended by the Agency checklist. Each file consisted of permit and permit renewal applications, inspection reports, monitoring reports, and correspondence between the Pretreatment Program and the industries. Records are well kept by Ms. Brentt and maintained at her office for more than three-year durations and are available for public review. Records are also kept electronically.

Sludge Quality

One function of the Pretreatment Program is to protect the city's sludge from metals contamination. As part of this inspection, the 2022 and 2023 annual biosolids reports

(Attachment 6) were reviewed to determine the Pretreatment Program's effectiveness. In 2022 the city produced 9,271.5 dry metric tons (dmt) and applied 1,583.4 dmt. The city removed 441 dmt while cleaning one of its digesters in 2022. In 2023, the city produced 5,801.26 dmt and land applied 7,154.4 dmt.

Mr. Rick Simmons provided me with the biosolids 5-year management plan (Attachment 7). He also indicated that the city used to sample its sludge every other month and hired a contractor to haul/store/apply sludge in an agriculture field near the airport. However, the contractor was not able to find enough land acres to apply the sludge. Currently, the city hired new a contractor and samples sludge every month. Below are the 2022 and 2023 tables that compares the city's peak observed metals level against the statutory ceiling and the city's average level against the exceptional quality (EQ) sludge level specified by the 40 C.F.R. Part 503 Sludge regulations. Because the city only sampled its sludge six times in 2022 and monthly in 2023, the monthly average is the maximum value observed.

Table 4, 2022 Sioux City WWTP Sludge Quality (mg/kg)

Pollutant	503 Ceiling	503 EQ	Max	Mo. Avg.	Max/Ceiling	Avg./EQ
Arsenic, As	75	41	29.3	29.3	39.07%	71.46%
Cadmium, Cd	85	39	5.9	5.9	6.94%	15.13%
Copper, Cu	4300	1500	436	436	10.14%	29.07%
Lead, Pb	840	300	29.3	29.3	3.49%	9.77%
Mercury, Hg	57	17	0.56	0.56	0.98%	3.29%
Molybdenum , Mo	75	----	48.1	48.1	64.13%	
Nickel, Ni	420	420	29.3	29.3	6.98%	6.98%
Selenium, Se	100	36	21.8	21.8	21.80%	60.56%
Zinc, Zn	7500	2800	824	824	10.99%	29.43%

Table 5, 20203 Sioux City WWTP Sludge Quality (mg/kg)

Pollutant	503 Ceiling	503 EQ	Max	Mo. Avg.	Max/Ceiling	Avg./EQ
Arsenic (As)	75	41	10.9	10.9	14.53%	26.59%
Chromium (Cr)	3,000	1,200	28	28	0.93%	2.33%
Cadmium (Cd)	85	39	2.2	2.2	2.59%	5.64%
Copper (Cu)	4,300	1,500	537.1	537.1	12.49%	35.81%
Lead (Pb)	840	300	14.9	14.9	1.77%	4.97%
Mercury (Hg)	57	17	0.44	0.44	0.77%	2.59%
Molybdenum (Mo)	75	----	22.2	22.2	29.60%	
Nickel (Ni)	420	420	27.8	27.8	6.62%	6.62%
Selenium (Se)	100	36	13.2	13.2	13.20%	36.67%
Zinc (Zn)	7,500	2,800	902.2	902.2	12.03%	32.22%

As shown in the tables above, the city's sludge is well below both the ceiling and EQ levels for all metals.

Conclusion

Overall, Ms. Barnett is responsible for the implementation of the city's pretreatment program. Ms. Barnett appeared to have an adequate knowledge and the necessary skills implement the

program. Ms. Barnett is familiar with EPA's Significant Noncompliance definition and appeared to be making adequate compliance determination. Ms. Barnett maintains an excel worksheet that includes the current and recent compliance status of all regulated industries.

I noticed a significant improvement of the implementation of the program since the last EPA audit. Ms. Barnett was able to provide me with all requested information and the records.

During the inspection I noted the following issues and made the following recommendations:

1. All non-categorical industrial permits expire on the same day on June 30, 2025, and categorical permits on October 31, 2025. This practice can create a significant workload for the Pretreatment Coordinator and limit the ability to review permit renewal applications more thoroughly.

2. As mentioned above, the city is not allowed to take enforcement actions against those industries that are under compliance schedule. Mr. Barnett was not aware of the reasoning why the compliance schedules include such language. I recommended that the city should refrain from this practice and remove such language. Unless there is a legal obligation to continue this practice.

3. Upon my return to office and my review of the program's 2022 annual report, I noticed that Aspen API, Inc. caused slug load discharges - pass through of heavy FOG at the Air Base Lift Station on 8/23-8/24/2022, 10/11-10/12/22, 11/3/2022 and 12/16/2022 consisting of large amounts of grease building up on the surface in the wet well causing a blockage and pump issues. Aspen was fined $5,756.00 to recoup cleaning fees. The city, however, designated the industry as Infrequent Noncompliance (INC) rather than Significant Noncompliance (SNC).

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JODI BRUNO Digitally signed by JODI BRUNO Date: 2024.02.12 08:17:21 -06'00'

Jodi Bruno
Manager, ECAD/WB

Attachments

1. Checklist
2. Facility Plan
3. Hauled Waste
4. ERP
5. Cargill permit/ Compliance schedule
6. Biosolids monitoring data
7. Biosolids 5-year Management Plan