

REPORT OF THE PRETREATMENT COMPLIANCE INSPECTION

AT
Jefferson City
320 E McCarty Street
Jefferson, Missouri 65101

NPDES Permit No.: **MO0094846 & MO0044300**

BY
U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION 7
ENFORCEMENT AND COMPLIANCE ASSURANCE DIVISION (ECAD)
WATER BRANCH/DRINKING WATER & INSPECTIONS SECTION (WB/DWIS)

ON
April 23-25, 2024

At the request of the Water Branch (WB), Enforcement and Compliance Assurance Division (ECAD), a Pretreatment Compliance Inspection of the Jefferson Approved Industrial Pretreatment Program (IPP) was conducted on April 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 with the IPP personnel and file review of the IPP's program records, and visits to two of the regulated industries: Hitachi Energy and Unilever. In addition, I conducted a brief file review of the city's Biosolids Management Program (Sludge). This narrative report presents the findings of the inspection. Brad Allen and Jonathan Basler with the Missouri Department of Natural Resources were also present during the PCI.

Participants

City of Jefferson Regional Water Reclamation Facility (RWRF)

- Eric Seaman, Wastewater Division Director ESeaman@jeffersoncitymo.gov
- Clara Haenchen, RWRF Manager CHaenchen@jeffersoncitymo.gov
- Jacob Schwoerer, Laboratory & Pretreatment Supervisor JSchwoerer@jeffersoncitymo.gov
- Bradley Kleffner, Biosolids/Operation Supervisor BKleffner@jeffersoncitymo.gov

Missouri Department of Natural Resources

- Brad Allen, Pretreatment Coordinator Brad.Allen@dnr.mo.gov
- Jonathan Basler, Environmental Program Analyst NERO Jon.Basler@dnr.mo.gov

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Facility Description and Program Overview

The city of Jefferson is classified as a “home rule” city and is located at the intersection of Highways 63, 54, and 50, in northern Cole County and in the southern part of Callaway County. The main part of the city is located in Cole County, but most of its wastewater is pumped to the north side of the Missouri River to the Jefferson City Regional Water Reclamation Facility (RWRf). The Jefferson City sanitary collection and treatment system consists of 429 miles of sanitary sewer lines, 32 pump stations, and two treatment facilities. The city owns and operates the Jefferson City RWRf and the Algoa Regional Wastewater Treatment Facility (Algoa RWTF).

The Jefferson City RWRf is operating under the Missouri National Pollutant Discharge Elimination System (NPDES) Permit Number MO-0094846 permit that will expire on March 31, 2025. According to the permit, the RWRf has a design flow of 11.0 million gallons per day (mgd), an actual flow of 8.08 mgd, and an annual design sludge production of 5,200 dry tons. According to the IPP personnel, the RWRf has a design peak flow of approximately 55.0 mgd and the average actual daily flow in 2023 was 6.34 mgd. The RWRf is located at 401 Mokane Road in Jefferson City. This Sequential Batch Reactor (SBR) facility consisted of three fine mechanical bar screens/grit removal, four sequencing batch reactor basins, Ultraviolet (UV) disinfection, high water effluent pump station, two solids thickening basins, two solids storage basins, and solids belt filter presses. Produced biosolids are usually land applied. Treated effluent discharges through outfall 001 into the Missouri River. This facility receives discharges from all regulated significant industrial users except from the Jefferson City landfill which discharges to the Algoa Lagoon treatment facility.

The Algoa RWTF is located at 8501 Fenceline Road in Jefferson City, and it is operated under NPDES Permit Number MO-0044300 that will expire on June 30, 2025. According to the permit, the Algoa RWTF has a design flow of 800,000 gallons per day, actual flow of 600,500 gallons per day, and an annual design sludge production of 1,200 dry tons. The Algoa RWTF facility consisted of a bar screen, two basins, four-cell lagoon, UV disinfection, and produced biosolids retained in the lagoon are usually land applied. Treated effluent discharges through outfall 001 into the Missouri River. This facility receives industrial discharge from the Jefferson City landfill.

The city of Jefferson Industrial Pretreatment Program (IPP) was originally approved on February 10, 1984. On January 29, 2021, the city of Jefferson submitted the Evaluation of the Need to Revise Local Limits Technical Memorandum to the Missouri Department of Natural Resources (MDNR) on January 29, 2021, pursuant to the requirement of Special Condition #20 of NPDES Permit Number MO-0094846, and Condition #17 of NPDES number MO-0044300. The MDNR formally approved the local limits evaluation in a letter dated April 6, 2022. The city also proposed in their Statement of Basis letter (page 40 of Attachment 6), dated December 16, 2021, to: 1) adopt the language related to the Dental Amalgam Rule, 2) clarify requirements for the grease and oil interceptor equipment and maintenance, and 3) clarify record keeping requirements. Jefferson City will also adopt in its city ordinance an iron limit of 25 mg/L. which is a less stringent limit than the previous limit of 1.0 mg/l (Attachment 8). For iron, the city used the recommended EPA Region 7 Local Limits Spreadsheet and the mean removal efficiency of 95% at the Jefferson City RWRf.

The changes were approved by the MDNR on April 6, 2022, and the NPDES permit was modified on April 1, 2022.

The city chose not to submit the headwork calculations of the Algoa RWTF at the time, since the landfill was considered an SIU and did not have issues.

Chapter 29 of the city's code or ordinances gives the city the authority to control and enforce its approved IPP. Section. 29-96 of the ordinance indicates that biochemical oxygen demand (BOD) and the total suspended solids discharged to the RWTF shall not exceed 450 mg/l, and any discharges(s) in excess of the limit listed in Table 1 shall enter into an agreement with the city for an exception and/or implementation of an approved pretreatment program. Local limits were calculated as concentration (mg/l) and listed as such in Table 1.

Table 1, Jefferson City RWTF Local Limits (mg/l)

Pollutant	Daily Maximum	Pollutant	Daily Maximum
Arsenic	0.10	Iron	25
Cadmium	0.50	Manganese	1.00
Chromium	5.0	Molybdenum	1.00
Copper	5.00	Selenium	0.50
Lead	1.0	Silver	0.50
Mercury	0.10	Benzene	0.05
Nickel	4.00	BTEX	0.75
Zinc	5.00	Surfactant (MBAS)	100
Cyanide	1.30	Oil and grease	100
Phenols	0.50	pH	5.5-10.5 SU

Although the ordinance, under section 29.91, regulates trucked or hauled waste to the RWTF, staff of the RWTF do not accept hauled waste.

According to the MDNR, The Jefferson City RWTF treats industrial waste from approximately 75 industries within their boundaries. Six of which are permitted by the city as significant industrial users (SIUs).

Industrial Waste Survey and Significant Industrial Users

The Jefferson IPP plans is to conduct an industrial waste survey every three years. Records indicated that the last formal IWS was completed in 2021 while evaluating the local limits.

Currently, there are six significant industries regulated by the Jefferson IPP all of which are located within the city limits, and all are classified as categorical industrial users (CIU) as follows:

- Hitachi Energy USA (ABB) is subject to the Metal Finishing Standard 40 CFR, Part 433.
- Jefferson City Landfill is subject to the Landfills Standard 40 CFR, Part 445.
- Modine Manufacturing Co. is subject to the Metal Finishing Standard 40 CFR, Part 433.
- Porite Jefferson Corporation is subject to the Nonferrous Metals Forming and Metal Powders

Standard 40 CFR 471.

- Prairie Farms/Central Dairy is subject to the Dairy Products Processing Standard 40 CFR, Part 405.
- Unilever USA, Inc. is regulated under the Pharmaceutical Manufacturing 40 CFR 439.

Pursuant to the Dental Offices (Amalgam rule) 40 CFR Part 441 and Section 29-101.1.D. of the city ordinance, in 2023 the IPP reported that they have received and reviewed the One Time Compliance Report (OTCR) from 27 dental offices during the period of 2020-2022. No new offices have been identified since.

Permits

All industries have current permits, and the IPP continues to issue permits with a three-year duration as required by Section 29-101.4.D which requires permits to be issued for three years and may be issued for a period less than a year or may be stated to expire on a specific date. It also requires that all users shall apply for reissuance of the permit not more than 90 days and not less than 60 days prior to expiration of the current permit. All permits will expire on February 15, 2026.

Industrial permits (Attachment 2) include categorical and local limits, clearly identifies sampling location(s), monitoring and reporting frequencies, include standard conditions, and require the development of an accidental or Slug Discharge control plan. Overall, permits appeared to contain the necessary elements that should be included in an enforceable permit.

Industrial permits also include monitoring requirements for Per- and Polyfluoroalkyl Substances (PFAS) using USEPA method 1633. Permits also require all permittees to sample for priority pollutants listed in 40 CFR 423, Appendix A at least once in the first 18 months during a permit cycle.

Inspections, Compliance Monitoring, Self-Monitoring, and Reporting

The IPP Coordinator (PC) conducted inspections of all regulated industries in the past 12 months. Inspections are usually announced and consisted of facility walkthrough, file review, and conducting compliance sampling. Mr. Jacob Schwoerer (IPP PC) thoroughly completed inspection reports. Inspection reports included cover letters to the industry, 5-page checklist, and the laboratory data for the samples collected by the city during the annual inspection. Inspection reports appeared adequate and comprehensive. The PC evaluated the spill/slug control plan during the inspection and included the determination in the inspection report.

Industrial users are sampled annually by the IPP. Self-monitoring and reporting are described in detail in the industrial permits. The IPP does not perform industrial user monitoring in lieu of industrial user self-monitoring. Sampling frequencies are monthly, quarterly, and semiannually.

Permits require industries to submit self-monitoring reports within 30 days of the end of the reporting period. Reports should include complete laboratory reports and chain of custody for parameters. My review of industrial files indicated that monitoring reports were reviewed by the PC to determine compliance.

The general pretreatment regulations state that facilities subject the electroplating, metal finishing, and electrical and electronic components categories may choose to submit total toxic organics (TTO) certification that they are implementing a solvent management plan (SMP) in lieu of TTO monitoring. Records indicated that Hitachi Energy USA and Modine Manufacturing chose to develop and implement SMPs and submit the TTO certification statements. Records indicated that the SMPs submitted by Modine and Hitachi were adequate. I pointed out to the IPP personnel that although some elements of the SPCC cover what's required in the Slug Control Plan (SCP) and SMP, the SPCC is a federal requirement under 40 CFR Part 112, §112.3 for those industries that have at least 1,320 U.S. gallons of petroleum products (diesel fuel, gasoline, hydraulic fluid, oil, and used oil) stored onsite in various containers such as double-wall tanks, totes, and 55-gallon drums. I added, the SCP should meet the requirement of 403.8(f)(2)(vi)(A) to (D).

Enforcement

The Jefferson City IPP does not have a separate standard Enforcement Response Plan (ERP). They indicated that the ERP is included in the city's code of ordinances under Article IV. Division 1. Sec. 29-108⁽¹⁾. I briefly reviewed this section. It appeared that the ordinance has all required types of enforcement options available to enforce their IPP.

Records indicate that, in 2023 the IPP issued 10 notices of violation (NOVs) to the following four industries:

1. Prairie Farms Dairy: five NOVs issued, no penalties.
2. Unilever: one NOV, no penalties.
3. Hitachi Energy USA, Inc.: one NOV, no penalties.
4. Modine Manufacturing Company: two NOV, no penalties.
5. Jefferson City Landfill: one NOV, no penalties.

Also in 2023, three of the six industries were in Significant Noncompliance (SNC):

1. Prairie Farms Dairy: SNC-M (fail to monitor all required parameters) for first half.
2. Modine: SNC-M (fail to monitor all required parameters) for first half, and SNC-R (late report > 30 days) & SNC-M (failing to monitor all required parameters) for second half.
3. Jefferson City Landfill, LLC.: SNC-S (chronic and TRC violations for arsenic Local Limits) second half.

Records also indicate that, in 2022 the IPP issued 15 notices of violation to the following four industries:

1. Prairie Farms Dairy: 10 NOVs issued, no penalties.
2. Unilever: three NOVs issued, no penalties.
3. Hitachi Energy USA, Inc.: one NOV, no penalties.
4. Modine Manufacturing Company: one NOV, no penalties.

Also in 2022, three of the six industries were in Significant Noncompliance (SNC):

1. Unilever: SNC-S (discharge standard/parameter above TRC >33%) for first half.
2. Prairie Farms Dairy: SNC-C (failing to meet the 90-day compliance schedule) and SNC-M

- (fail to monitor all required parameters) for first half and second half.
3. Modine: SNC-R (late report > 30 days) and SNC-M (failing to monitor all required parameters) for second half.

During the PCI, I issued Notice of Preliminary Finding (NOPF) because the Jefferson IPP failed to comply with the requirement under 40 CFR 403.8(f)(2)(viii) and issue a public notice in the local newspaper that Modine Manufacturing Co., Prairie Farms Dairy, and Unilever USA which were in SNC with applicable Pretreatment requirements during the 2022 calendar year.

It also appeared that the city is not taken escalated enforcement especially against those industries are in SNC.

40 CFR 403.8(f)(1)(vi)(A) reads, “All POTWs shall have authority to seek or assess civil or criminal penalties in at least the amount of \$1,000 a day for each violation by Industrial Users of Pretreatment Standards and Requirements”. Section 29-118.A - Civil penalties reads, “Any user who is found to have violated an order of the City Council who willfully or negligently failed to comply with any provision of this article, and the orders, rules, regulations, and permits issued hereunder, shall be liable to the Public Works Director for a civil penalty of not more than \$10,000.00 but at least \$1,000.00 per day for each violation. Each day on which a violation shall occur or continue shall be deemed a separate and distinct offense. In addition to the penalties provided herein, the City may recover reasonable sampling and monitoring costs, attorney's fees, court costs, court reporter's fees and other expenses of litigation by appropriate suit at law”.

Data Management

Overall, industrial files have all the necessary and minimum documentation as recommended by the Agency checklist. Each file consisted of permit and permit renewal applications, inspection reports, monitoring reports, and correspondence between the IPP Coordinator and the industry. Records are well kept by Mr. Schwoerer at the IPP offices at the RWRF and maintained at his office for more than three years and are available for public review. Records are also kept electronically.

Site visit to Hitachi and Unilever

We traveled to the Hitachi and the Unilever facilities to observe the city conduct an inspection. Mr. Schwoerer toured the facility reviewed records and inspected the treatment process and outfalls at both facilities. No issues were noted during the inspections.

Jefferson City landfill LLC.

During my interview with IPP personnel. We discussed the Jefferson City Landfill being in SNC-TRC in the fourth quarter of 2023. The city randomly sampled the landfill on December 5, 2023, and results showed that the facility exceeded their local limits for arsenic. The IPP issued an NOV on January 29, 2024. IPP personnel indicated that they were in the process of changing the adopted local limit to accommodate the landfill. This initiative started by the city and not the landfill. I pointed out to IPP personnel that the industry is responsible to explain why they exceeded the limits and what steps they should take in the future to avoid violating their permit limits. I also pointed out that the current local limits are based on the RWRF, not the Algoa

RWTF where the landfill is discharging to. We also discussed the option which the city can revisit the 2021 Maximum Allowable Headwork Loadings (MAHL) local limits calculated for the Algoa RWTF and establish the desired limits for the landfill.

Sludge Quality

One function of the IPP is to protect the city's sludge from metals contamination. As part of this inspection, the 2022 and 2023 annual biosolids reports were reviewed to determine the IPP's effectiveness.

In 2023, the city produced 1,274 dry metric tons (dmt). The city land applied 1,260 dmt as class B sludge and sent 14 dmt to the landfill. In 2022, the city produced 1,225 dmt. All of which were land applied. Biosolids are applied with an average 15.5 % solids. The city uses lime to raise pH to 12 s.u to meet the pathogen reduction and vector attraction requirements. The city has contract with several farmers to land apply over the available 330 acres.

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 sampled its sludge once a month, the monthly average is the maximum value observed.

Table 2, 2023 Sludge Metal Concentration Quality (mg/kg)

Pollutant	503 Ceiling	503 EQ	Max	Mo. Avg.	Max/Ceiling	Avg./EQ
Arsenic, As	75	41	3	3	4.00%	7.32%
Cadmium, Cd	85	39	0.59	0.59	0.69%	1.51%
Copper, Cu	4300	1500	321	321	7.47%	21.40%
Lead, Pb	840	300	18.4	18.4	2.19%	6.13%
Mercury, Hg	57	17	0.562	0.562	0.99%	3.31%
Molybdenum , Mo	75	----	7.94	7.94	10.59%	
Nickel, Ni	420	420	14.1	14.1	3.36%	3.36%
Selenium, Se	100	36	6.89	6.89	6.89%	19.14%
Zinc, Zn	7500	2800	493	493	6.57%	17.61%

Table 3, 2022 Sludge Metal Concentration Quality (mg/kg)

Pollutant	503 Ceiling	503 EQ	Max	Mo. Avg.	Max/Ceiling	Avg./EQ
Arsenic, As	75	41	4.4	4.4	5.87%	10.73%
Cadmium, Cd	85	39	2.1	2.1	2.47%	5.38%
Copper, Cu	4300	1500	364	364	8.47%	24.27%
Lead, Pb	840	300	21.6	21.6	2.57%	7.20%
Mercury, Hg	57	17	0.35	0.35	0.61%	2.06%
Molybdenum , Mo	75	----	6.2	6.2	8.27%	
Nickel, Ni	420	420	27.6	27.6	6.57%	6.57%
Selenium, Se	100	36	6.4	6.4	6.40%	17.78%
Zinc, Zn	7500	2800	543	543	7.24%	19.39%

Conclusion & Recommendations

Overall, Mr. Jacob Schwoerer is responsible for the implementation of the city's IPP. Mr. Schwoerer appeared to have a very good knowledge and the necessary skills to implement the program. Mr. Schwoerer is familiar with EPA's Significant Noncompliance definition and appeared to be making adequate compliance determination.

- According to the IPP personnel, the RWRF has not experienced interference, pass-through, sanitary sewer overflows (SSOs), or any other issue due to their industrial users. All discharging industrial users are required to have a slug discharge control plan. Slug Control Plans must be submitted in accordance with the requirement of 403.8(f)(2)(vi)(A) to (D).
- All SIUs have current unexpired permits, and all were inspected in the past twelve months.
- On April 29, 2024, the IPP personnel responded to the April 25, 2024, NOPF, stating, *"Our corrective actions to prevent a failure to issue an annual public notification for Significant Non-Compliance (SNC) will be:*
 - A. We have added annual public notification to our operational checklist,*
 - B. We have added electronic reminders to our Outlook calendars to issue the annual public notification (key employee specific),*
 - C. Add an electronic reminder and description of the process to our computerized maintenance management software i.e. JobCAL (general employee notification) "*
- Based on our review of records and enforcement information included in the 2022 and 2023, it appeared that the city is taking enforcement within reasonable time. However, it is not clear if the city following their ERP/ordinance properly especially that they did not publish those SIUs that were in SNC in 2002 in the newspaper.
- The Jefferson City Landfill should report to the Jefferson IPP any exceedances of its permit parameter or local limits and should follow up with a report explaining what steps will be taken to avoid future violations. The city should revisit the 2021 MAHL calculated for the Algoa RWTF and establish limits for the Jefferson City Landfill since it is the only SIU discharging the Algoa RWTF. New local limits evaluation is required every five years.

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Nicole Moran
Section Supervisor, WB/DWIS

Attachments

1. PCI Checklist
2. IU permits (Hitachi & Unilever)
3. Inspections (Hitachi & Unilever)
4. NOPF & Response

5. Biosolids Checklist
6. NPDES MO0094846
7. NPDES MO0044300
8. Local Limit Rev response letter