

REPORT OF THE PRETREATMENT COMPLIANCE AUDIT

Coffeyville Pretreatment Program

4960 County Road 1400
Coffeyville, Kansas 67337

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
KS0050733

JANUARY 18, 2023

BY
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 7
WATER DIVISION
PERMITS AND LOANS BRANCH



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ACRONYMS

BOD	Biochemical Oxygen Demand
CA	Control Authority
CFR	Code of Federal Regulations
CIU	Categorical Industrial User
CROMERR	Cross-Media Electronic Reporting Rule
CWF	Combined Wastestream Formula
ECHO	Enforcement and Compliance History Online
EPA	U.S. Environmental Protection Agency
ERP	Enforcement Response Plan
GPD	Gallons per Day
IU	Industrial User
I&I	Inflow and Infiltration
KDHE	Kansas Department of Health and Environment
lbs/day	Pounds per Day
MAHL	Maximum Allowable Headworks Loading
MGD	Million Gallons per Day
mg/L	Milligrams per Liter
NOV	Notice of Violation
NPDES	National Pollutant Discharge Elimination System
O&G	Oil and Grease
PCA	Pretreatment Compliance Audit
PCI	Pretreatment Compliance Inspection
POC	Pollutants of Concern
POTW	Publicly Owned Treatment Works

R7	Region 7
SCP	Slug Control Plan
SIU	Significant Industrial User
SNC	Significant Noncompliance
SUO	Sewer Use Ordinance
TOMP	Toxic Organic Management Plan
TSS	Total Suspended Solids
TTO	Total Toxic Organics
WWTP	Wastewater Treatment Plant

INTRODUCTION

A PCA was conducted on the city of Coffeyville, Kansas, approved pretreatment program on January 18, 2023. To direct the PCA, a checklist was used that evaluates all important elements of the pretreatment program. The checklist was provided to the city to complete in advance of the audit to reduce the amount of time needed to address the questions during the onsite review. A copy of the completed checklist is included with this report. The PCA also consisted of a discussion and file review with program staff and an oversight inspection on one industrial user. This narrative report summarizes the PCA findings. Documentation that was collected during the audit will be submitted to and retained in the EPA's facility files.

PARTICIPANTS

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PROGRAM OVERVIEW

The city of Coffeyville, Kansas, owns and operates a POTW and is the CA for its industrial pretreatment program. The WWTP serves an estimated population of 8,826. The WWTP has a design daily average flow of 4.0 MGD, actual daily average flow of 2.7 MGD, and a design peak flow of 6.0 MGD. The CA currently regulates three SIUs under the approved pretreatment program.

LEGAL AUTHORITY

The CA's SUO G-92-02 was originally approved by the KDHE and the EPA on January 27, 1992. An ordinance evaluation was performed by the EPA and KDHE on May 23, 2019, and comments were provided to the CA. The CA is still in the process of finalizing the SUO but did not have an anticipated date for completion. The need for the CA to finalize the SUO was also documented in a PCI performed by the KDHE on August 16, 2022.

The ordinance gives the CA the authority to implement and enforce its pretreatment program such as issuing IU permits; requiring the submittal of permit renewal applications prior to the expiration date; and the right to inspect, sample, enforce, and collect penalties. The SUO also includes a provision to address confidential business information.

LOCAL LIMITS

The EPA and KDHE assisted the CA in the development of its local limits. The local limits were developed and approved during the previous NPDES permit cycle. The CA was reminded of the need to perform a local limit's reevaluation during the current NPDES permit cycle.

The calculated BOD loading to the POTW based on WWTP average influent monitoring and effluent flow data is 698 lbs/day from results obtained on EPA's ECHO database. The calculated BOD loading based solely on the estimated population served is 1,500 lbs/day. The reported BOD MAHL for the POTW is 3,836 lbs/day. The data obtained from ECHO suggests insignificant industrial contribution for BOD. However, the reported annual amount of sludge produced is more than double the amount of annual BOD loading to the POTW. The data set also suggests there is diluted influent to the WWTP along with significant changes to the effluent flow rates.

SIGNIFICANT INDUSTRIAL USERS

The industrial community has remained relatively constant since the last KDHE PCI. Acme Foundry was dropped from the list of SIUs after the last KDHE PCI. The CA now monitors three SIUs. Two of the SIUs are subject to categorical pretreatment standards. Coffeyville Resources is a CIU subject to the Fertilizer Manufacturing categorical standard 40 CFR Part 418. Ranews is a CIU subject to the Metal Finishing categorical standard 40 CFR Part 433. The other SIU, John Deere, is regulated as a non-categorical SIU.

INDUSTRIAL WASTE INVENTORY

The CA performs an industrial waste survey periodically. The last formal industrial waste survey was performed May 2016. Prior to this PCA, the EPA provided the CA with a list of businesses (generated from Reference Solutions) via email that are in the Coffeyville area for the CA to use as a tool to aid in identifying unknown SIUs. This list was also briefly discussed during the audit. It was determined that the CA would follow-up on one of the listed industries to verify that there were no regulated activities occurring at that business.

INDUSTRIAL USER PERMITS

IU permits are currently issued with a five-year duration. The permit renewal application that was reviewed as part of the PCA file review appeared to be complete with an original signature and was received by the CA within the required time frame. The IU permit contained the necessary elements that should be included in a well written and enforceable permit. Permits include industrial process descriptions, provisions on accidental discharge, sampling and analytical procedures, self-monitoring,

and reporting frequencies, etc. Local limits for ammonia were incorporated into the Coffeyville Resources permit since the limit was determined to be more stringent than the federal categorical discharge standards.

The CA has authorized John Deere, via their IU permit, to implement a BMP that appears to be less restrictive than the CA's general prohibited discharge standards as identified in the municipal ordinance. The BMP allows John Deere to have two consecutive O&G discharges up to 2,500 mg/L without violating the permit or ordinance conditions. The petroleum-based O&G limit that is established by the ordinance prohibits discharges over 150 mg/L. This value has been applied to another SIU.

SLUG CONTROL PLANS

It has been determined by the CA that SCPs are not required on the SIUs.

INDUSTRIAL INSPECTIONS

All SIUs were inspected and sampled by the CA during the last calendar year. Inspections are normally performed annually using a checklist. Inspections consist of pre-records review, interview questions, completing the checklist, on-site records review, and a facility walkthrough. Sample collection is performed by a private laboratory.

COMPLIANCE MONITORING, SELF-MONITORING, and REPORTING

Monitoring frequencies vary depending on the type of facility and monitored parameter. Compliance monitoring criteria is described in detail in the SIU permits. Periodic monitoring reports and several other IU reports are maintained in hard copy. Each SIU provides a certification of the data submitted with original signature.

The pretreatment regulations allow industries that are subject to 40 CFR Part 433 to develop and implement a TOMP in lieu of routine monitoring, and further allow CIUs to demonstrate compliance with TTO requirements by certifying that the facility is adhering to the plan. The TOMP that was reviewed appeared to contain adequate information. A TTO certification statement was also included in the files with the periodic compliance monitoring reports but did not include the original signature. In addition, the CA does not include TTO monitoring as part of their surveillance activities on the metal finishing IUs.

In addition, the excel spreadsheet used by Coffeyville Resources to determine their production-based limits appeared to contain errors. While the final effluent concentration limits produced by the spreadsheet are correct, the results of the intermediate calculations used to obtain these values appear to be erroneous. Communications that occurred with the CA and KDHE after the PCA suggest the cooling tower blowdown is non-contact and contains a biocide but becomes contaminated with nitrogen from a nearby air scrubbing unit. The concentration of nitrogen in the cooling tower water was not available for review.

The calculation sequence below is based on mass and utilizes the same values that were included in the spreadsheet provided by KDHE. It demonstrates what intermediate values should have been during the process of calculating the daily maximum limit for ammonia.

$$M_{T,Ammonia} = \sum_{i=1}^N M_i * \left(\frac{F_T - F_D}{\sum_{i=1}^N F_i} \right)$$

$$M_{T,Ammonia} = 1680 \frac{\text{lbs}}{\text{day}} * \frac{(659,344 \text{ gpd} - 192,374 \text{ gpd})}{49,166 \text{ gpd}} = 15,960 \frac{\text{lbs}}{\text{day}}$$

Converting to concentration, this value would become:

$$C_{T,Ammonia} = \frac{15,960 \frac{\text{lbs}}{\text{day}}}{0.659344 \text{ MGD} * 8.34} = 2902 \frac{\text{mg}}{\text{L}}$$

This is not the same value the spreadsheet calculated, but this is the value which should have been produced with the given classification of cooling tower flow as an unregulated stream.

If the cooling tower blowdown is categorized as dilution flow, the values would have been adjusted to those seen below:

$$M_{T,Ammonia} = 1680 \frac{\text{lbs}}{\text{day}} * \frac{(659,344 \text{ gpd} - 610,178 \text{ gpd})}{49,166 \text{ gpd}} = 1,680 \frac{\text{lbs}}{\text{day}}$$

$$C_{T,Ammonia} = \frac{1,680 \frac{\text{lbs}}{\text{day}}}{0.659344 \text{ MGD} * 8.34} = 306 \frac{\text{mg}}{\text{L}}$$

The final concentration value of 306 mg/L was produced by the spreadsheet. However, obtaining this value should only be possible if the cooling tower flow is classified as a dilution flow. This indicates that an error is present somewhere within the intermediate calculations.

ENFORCEMENT

The CA's ERP was originally approved by the EPA and KDHE on January 25, 1991. The CA has updated the ERP as of January 2023 but has not submitted the updated version to the approval authority for final review and approval.

The IUs all reported compliance with their monitoring requirements during 2021 and 2022. Further evaluation of the industrial files indicated that a zinc exceedance had occurred by Ranews during the first half of 2022 that was not correctly reported by the industry or correctly identified by the CA as part of the semi-annual reporting. The IU, therefore, did not perform the proper notification of an exceedance or perform follow-up sampling within the established time frame. After the PCA, the CA issued an NOV to Ranews for the permit limit exceedance and requested that a plan be implemented to prevent a reoccurrence.

OVERSIGHT INSPECTION

An industrial user compliance evaluation inspection was performed at John Deere by CA staff during the PCA. This IU inspection was requested so that the EPA could evaluate the effectiveness, reliability, and completeness of the CA's inspection procedures in the administration of their approved pretreatment program.

John Deere specializes in the production of gears to be used in transmissions. Wastewater dump stations are located throughout the facility to accept spent mop water. The spent wastewater is then pumped to an onsite pretreatment system to remove petroleum oil from the waste. The wastewater pretreatment system is batch discharged as needed.

Areas and items observed or discussed by the CA inspector included chemical storage areas, the

wastewater generation processes, onsite records review, and interview questions using the CA's checklist. The CA concluded that John Deere did not need a SCP based on the site walk-through and lack of floor drains within the production and storage areas. The CA also reviewed some of the facility paperwork but did not go into a detailed onsite review of their monitoring records.

A final copy of the IU inspection report was requested from the CA upon completion. A copy of the report was received from the CA via email on January 20, 2023, and appeared to be complete and accurate based on information obtained during the site walk-through.

HAULED WASTE

The CA accepts an average of 16 loads of hauled domestic waste each month at a diversion manhole just prior to WWTP headworks. Each load is checked for pH and visually inspected before being discharged to the POTW.

SEWAGE SLUDGE METALS MASS BALANCE

One function of the Coffeyville pretreatment program is to protect the WWTP's sewage sludge from high concentrations of metals. The EPA performed a mass balance of metals concentration in the sewage sludge against the metal finishing pretreatment standards and compared that data with the reported flows from Ranews with the idea of identifying potential unknown or noncompliant metals working related operations.

The results suggest that industrial contributions based on the average metals concentration in the sewage sludge for cadmium, lead, nickel, and zinc show expected process wastewater loadings of 22,000 GPD, 10,000 GPD, 34,000 GPD, and over 200,000 GPD, respectively, to meet metal finishing pretreatment standards.

DENTAL AMALGAM RULE

The CA sent out one-time compliance report questionnaires to all known dental facilities and has received responses from all the facilities. The CA performs continuous reviews for new dental facilities or changes in ownership. A review was performed on the one-time compliance reports. The reports were complete but not all contained original signatures.

RECORDS MANAGEMENT

The industrial files were found to be well maintained and included at least three years of industrial monitoring and reporting. Files are maintained at the WWTP office and are available to the public. The files included current permits, inspection reports, enforcement documentation, monitoring records, etc.

CONCLUSION, EXPECTATIONS and RECOMMENDATIONS

Overall, the CA continues to implement its approved pretreatment program. The following items are provided to address federal regulatory requirements applicable to the Coffeyville pretreatment program. Please note that hyperlinks have been inserted for the referenced guidance materials:

1. The CA must ensure all industrial reports (e.g., monitoring reports, permit applications, control plans, etc.) that are required to be submitted to the CA are submitted with original signatures and with an appropriate certification statement when applicable. The EPA has developed guidance for CAs to pursue CROMERR compliance. This document is located on the EPA's website and is entitled [*Publicly Owned Pretreatment Works \(POTW\) Programs and Electronic Reporting*](#).

2. The CA must continue to pursue and finalize updates to the SUO streamlining provisions and ERP with a goal to finalize these documents within one year from the date of this audit. The updated SUO and ERP will need to be submitted for review by following the EPA R7 *Pretreatment Program Modifications* strategy that was previously provided to the CA via email.
3. To ensure both accuracy of the intermediate values and consistency with the method outlined in EPA's *Guidance Manual for the Use of Production-Based Pretreatment Standards and the Combined Wastestream Formula*, it is suggested that any errors that are identified in the production-based calculations be addressed. For the cooling tower water to be considered an unregulated Wastestream, it must contain significant amount of nitrogen and be discharged through the onsite pretreatment system. If prior to treatment, the industry must perform engineering, production, sampling and analysis to determine nitrogen content. If, however, the non-contact cooling water is comingled with process wastewater after the pretreatment system, the non-contact cooling water should be treated as dilution water.
4. The John Deere facility should not be allowed to exceed established prohibited discharge standards using BMPs without proper authority for the CA to deviate from those standards. The deviation cannot be less restrictive than the federal discharge prohibitions. The CA should either update the SUO ordinance to allow deviations from non-technology based O&G limits, or should apply and enforce the ordinance established limitations.
5. A local limits reevaluation will need to be performed during the current and future NPDES permit cycles. These evaluations should be performed within one year from the NPDES permit's effective date. Any anticipated changes to the local limits that are based on ongoing technical reviews/reevaluations must be submitted to the approval authority for review.
6. Industrial user data verification should be performed as part of the IU inspection process, and when periodic compliance reports are received with the associated contract laboratory reports. Any non-compliant data must be addressed timely with an appropriate ERP response.

The following are recommendations provided to enhance the CA's pretreatment program:

1. The CA should collect TTO samples during each IU permit cycle on Ranews to identify, independent of information supplied by the IU (e.g., TOMP and TTO certification statements), that TTOs are not present in the IU's discharge.
2. The CA should evaluate discrepancies between BOD influent loading and sludge production. This evaluation should include, at minimum, representative sample collection, flow monitoring, and sludge production rates.
3. EPA has developed guidance for CA's on performing industrial sampling inspections that is entitled *Industrial User Inspection and Sampling Manual for POTWs*. This document can be used by the CA as a reference tool to enhance the CA's sampling and inspection program.
4. In addition to sampling for 40 CFR Part 503 metals in the sewage sludge, the CA should include other metals as part of the analyses such as chromium, silver and cyanide. These additional data points may help to provide more reliable local limits calculations and reevaluations.

5. Mass balance calculations should occasionally be performed using available sewage sludge data as a tool to compare the quantity of metals in the sewage sludge with the quantity of metals discharged from the metal finishing IUs.
6. The EPA has created a public website entitle *Pretreatment Tools in the Midwest* as a technical assistance aid for the pretreatment community.

David Pratt
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Date: February 8, 2023

ATTACHMENTS

PCA Checklist