



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8

1595 Wynkoop Street
Denver, CO 80202-1129
Phone 800-227-8917
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February 1, 2022

Ref: 8WD-CWW

RETURN EMAIL RECEIPT REQUESTED

Barbara Walz
VP Policy and Compliance
Tri-State Generation and Transmission, Inc.
bwalz@tristategt.org

Re: Pretreatment Compliance Sampling Inspection, JM Shafer Generating Station, Fort Lupton, CO, NPDES ID# CO-PF00107

Dear Mr. Wallingford:

The U.S. Environmental Protection Agency (EPA) conducted a Compliance Sampling Inspection (CSI) at the JM Shafer Generating Station, located at 6811 Weld County Road, #31, Fort Lupton CO 80621 from August 4, 2021 through August 5, 2021. The objective of the CSI was to evaluate JM Shafer's monitoring point to ensure it allows representative sampling of the process wastewater discharge for the production day. In addition, EPA conducted sampling at the monitoring point to gather information necessary to determine compliance with the requirements and limitations in the Steam Electric Power Generating Point Source Category, Pretreatment Standard for New Sources under 40 CFR Part 423.17 and the General Pretreatment Regulations under 40 CFR Part 403. These discharge limits and requirements are incorporated in the Notice of Discharge Requirements control mechanism, NPDES # CO-PF00107.

The enclosed CSI report contains the sampling procedure, observations and findings from the sampling conducted from August 4, 2021 through August 5, 2021. Within **thirty (30) days** of receipt of this report, please provide the EPA with a summary of any actions taken to address the findings identified in the CSI report and any information that may change the findings or content of this report. The summary should be sent to:

Al Garcia
EPA Pretreatment Coordinator
U.S. EPA Region 8
garcia.al@epa.gov

If you have any questions, please contact Al Garcia at (303) 312-6382 or garcia.al@epa.gov.

Sincerely,

**MICHAEL
BOEGLIN**

Michael Boeglin, Chief
NPDES and Wetlands Enforcement Section
Enforcement and Compliance Assurance Division

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BOEGLIN
Date: 2022.02.01 15:37:25
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Enclosures:

1. JM Shafer Generating Station CSI Report

cc: Greg Wallingford, PE, Tri-State Generation and Transmission, Inc., gwallingford@tristategt.org
Jon Wallace, Pretreatment Coordinator, CDPHE, jon.wallace@state.co.us
Jon Mays, Fort Lupton Public Works, jon.mays@jacobs.com



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Enclosure 1

NPDES Pretreatment Compliance Sampling Inspection (CSI) Report

Pretreatment ICIS Number: CO-PF00107

Facility Name and Address: Tri-State Generation and Transmission Association, Inc.
– JM Shafer Generating Station
6811 Weld County Road #31
Fort Lupton, CO 80621

Applicable Pretreatment Regulations: Steam Electric Power Generating Point Source
Category, 40 CFR Part 423 (Pretreatment Standards for
New Sources at 40 CFR § 423.17)

General Pretreatment Regulations, 40 CFR Part 403

CSI date: August 4-5, 2021

Report Review		
Drafter Name	Address/Phone Number	Date
Al Garcia	U.S. EPA Region 8 1595 Wynkoop Street 8WP-CWW Denver, Colorado 80202	01/27/2022
	303-312-6382	
Reviewer Name	Address/Phone Number	Date
Jessica Duggan	U.S. EPA Region 8 1595 Wynkoop Street 8ENF-W-NP Denver, Colorado 80202	12/3/2021
	303-312-6195	
Supervisor Signature/Name	Address/Phone Number	Date
MICHAEL BOEGLIN  Digitally signed by MICHAEL BOEGLIN Date: 2022.02.01 15:38:41 -07'00'	U.S. EPA Region 8 1595 Wynkoop Street 8ENF-W-NP Denver, Colorado 80202	2/1/2022
	Michael Boeglin, Section Chief 303-312-6250	

Section 1.0 – Objective

On August 4-5, 2021, a Pretreatment Compliance Sampling Inspection (CSI) was conducted at the JM Shafer Generating Station (facility) located at 6811 Weld County Road #31, Fort Lupton, CO 80621. The objective of the CSI was to gather information, independent of the facility's self-monitoring report, necessary to determine compliance with the requirements and limitations of the General Pretreatment Regulations under 40 CFR Part 403 and the Steam Electric Power Generating Point Source Category, Pretreatment Standards for New Sources under 40 CFR Part 423.17.

Section 2.0 – Participants

EPA:

- Al Garcia, Pretreatment Coordinator
- Jessica Duggan, NPDES ECAD
- Lisa Kay Prideaux, NPDES ECAD
- Akash Johnson, NPDES ECAD
- Sophie Wood, EPA Intern
- Trent Rainey, NEIC
- Kristine Anderson, NEIC

JM Shafer:

- Darlene Crosby
- Dan Osborne
- Greg Wallingford

Section 3.0 – Facility Description

JM Shafer is a gas-fired, cogeneration, steam electric generation plant, which produces up to 272 megawatts (MW) of electrical power. The facility is owned and operated by Tri-State Generation and Transmission Association and has been in operation since June 1994. The facility is located approximately 3 miles northeast from Fort Lupton, Colorado and discharges wastewater to the Fort Lupton publicly owned treatment works (POTW). The facility operates 24 hours per day, 7 days per week. JM Shafer is currently supported by approximately 19 employees. Operation personnel (2 staff) work 12-hour shifts (6am-6pm), and maintenance personnel (4-6 staff, depending on the day) work 10-hour or 8-hour shifts.

The process floor drains located in the facility flow to a below-grade oil-water separator located on the north side of the wastewater retention pond. The lined retention pond located on the south side of the facility's property has an approximate volume of 500,000 gallons and serves as a settling pond for process wastewater received from the facility. The process wastewater is discharged into the retention pond through pipes located on the north side of the pond. Water in the retention pond is released as a non-continuous discharge and is regulated with a control valve located on the northwest corner of the pond.

The facility has a cooling tower that consists of a large horizontal cooling water basin with two chiller pumps and three circulating pumps and a total volume of approximately 530,000 gallons. The cooling system pumps move the cooled water into the power generating building to dissipate heat generated in the power generation plant. As the heat-exchanged cooling water is brought back to the cooling tower basin, water is lost from the system through evaporation. Cooling by evaporation increases the dissolved solids concentration in the water thus increasing the potential for corrosion and solids deposition. The facility performs a daily blowdown of the cooling towers to mitigate these tendencies.

The Pretreatment Regulations found in 40 CFR Part 403 impose Pretreatment Requirements on the facility and its process wastewater discharge to the POTW. These Pretreatment Requirements include monitoring, reporting, and notification requirements found in 40 CFR Sections 403.12, 403.16, and 403.17 and specialized definitions and monitoring requirements specific to the Steam Electric Power Generating Point Source Category found in 40 CFR Part 423. The applicable effluent limits are listed in the Steam Electric pretreatment standards for new sources at 40 CFR 423.17(a).

The Pretreatment Requirements apply at outfalls 001 and 002. The Outfalls are defined as follows:

Outfall 001: Discharge of the cooling tower blowdown slip stream. The slip stream enters a small structure located on the southwest corner of the cooling tower basin for monitoring purposes, prior to flowing to the retention pond.

Outfall 002: Discharge of the water in the retention pond to the City of Fort Lupton collection system through a control valve located on the northwest corner of the pond.

Section 4.0 – EPA Sampling Procedures

Based on JM Shafer's Notice of Discharge Requirements for discharges from Outfalls 001 and 002, the EPA's intended sampling procedures consisted of the following for the regulated pollutants:

001 (Cr, Zn, Hg) – Flow proportional composite, ISCO automatic sampler utilizing a connection from the facility's flow meter at Outfall 001 to actuate sampling based on flowmeter pulses generated from the discharge.

Evaluation and deviation of sampling procedure at Outfall 001 –

The sampling protocol for Outfall 001 was to gather flow-proportional composite samples from flow-based pulses generated from the flow meter that measures the discharge to the retention pond. This is the regulated point for cooling tower blowdown pursuant to 40 CFR 423.17(a)(4)(i). During the sampling event on August 4, 2021, it was observed that the flow meter was measuring a wastewater discharge rate of approximately 2 gallons/min when the discharge valve was closed. Upon further investigation, it was determined that the flowmeter is installed upstream of the wastewater effluent discharge valve located at Outfall 001. The contents of the cooling tower basin continually cycle through the discharge pipe leading to the discharge valve and if the discharge valve is in the closed position, this water returns back to the basin through a smaller pipe, at a rate of approximately 2 gallons/min. Based on this information, EPA determined that the flowmeter was not installed in the correct location and was measuring return flow when the discharge valve is closed and discharge flow when the discharge valve is opened. This results in flow data that is not accurate for reporting purposes.

After the discussion of the flowmeter location and the feasibility of connecting to the facility's flow meter, it was mutually agreed by EPA and facility representatives to program the samplers to run for eight hours on a time-proportional sampling protocol, consisting of 15-minute aliquots, 200 mL/aliquots. The sampler began the sampling at 0833, after the discharge valve was opened. EPA representatives returned to the facility on August 5, 2021 at 0925 to gather samples from the ISCO sampler. The sample container was manually mixed to ensure homogenization of the contents. The well-mixed contents of the sampler container were poured into separate metals (Cr and Zn) and Hg sample bottles that were pre-preserved with HNO₃. In addition, the ISCO sampler contents were poured into duplicate metals and Hg sample bottles that were pre-preserved with HNO₃.

002 (pH) – grab sample for pH and analysis using a three-point calibrated field pH meter within 15 minutes. The pH meter was calibrated with 4.01, 7.00 and 10.01 pH buffers before the sampling event on August 4, 2021. The records for the pH calibration and pH verification checks are documented in the field notebook labeled 2021-0013.

Section 5.0 – QA/QC and Data Assessment/Validation

In addition to the sampling event, the following sampling QA/QC samples were taken to ensure sampling quality and consistency.

- Sample duplicate of automatic ISCO sampling – the ISCO sampler container was well mixed and equal aliquots were collected in the sample bottle and the sample duplicate bottle. The sample bottle and sample duplicate bottle were preserved with HNO₃ for metal analyses.
- Equipment blank of ISCO sampler, prior to sampling event at 0828 on 08/04/2021– reagent water run through sampling/pump tubing into two sample bottles (preserved with HNO₃ for metal analyses)
- The pH meter (Thermo Scientific SN 2660) was calibrated with pH 4.01, 7.00 and 10.01 prior to the pH grab sampling event on 08/04/2021 at 0820. The results of the pH calibration are documented in the JM Shafer field book labelled “2021-0013”. The pH at Outfall 002 was measured as 7.51 s.u. on 08/04/2021 at 0845.
- Based on EPA's evaluation of the analytical results, the sampling project procedures are consistent with established field and laboratory QA/QC procedures to minimize and identify potential errors with field and laboratory activities. This includes consistency in the way data are collected in the field and laboratory, collecting and evaluating duplicate and blank samples, and decontamination procedures, as documented in Section A.7, step 6 of the JM Shafer Generating Station 2021 Pretreatment SIU Sampling Quality Assurance Project Plan (QAPP).

Section 6.0 – Analytical Results

The analytical results from the sampling event conducted by EPA on 08/04/2021 are included in tables 1 and 2. The determination for compliance is noted in the compliance status column.

Table 1 - Sample Result for JM Shafer-Outfall 001 – August 4, 2021 ⁽¹⁾

Pollutant	Daily Maximum Limits (mg/L)	Sample Result (mg/L)	Compliance Status
Chromium, total (Cr)	0.3	0.0429	Compliance
Zinc, total (Zn)	1.0	0.164	Compliance
Mercury (Hg)	No detectable amount	<0.0005	Compliance

⁽¹⁾ The field sample ID = 107-08052021-001-1

Table 2 - Sample Results for JM Shafer, Outfall 002 -- August 4, 2021

Pollutant	Instantaneous Limits (std units)	Sample Result (std units)	Compliance Status
pH, std units	pH shall be greater than 5.0 at all times	7.51	Compliance

Section 7.0 – Observations and Findings

1. Based on the observations during the August 4, 2021 sampling event, JM Shafer was not gathering representative and accurate flow monitoring data. The flow meter was installed upstream of the discharge valve and recording coolant basin return flow when the discharge valve is closed. The daily cooling tower return flow was approximately 2 gallons/min or about 3,000 gallons/day. The Notice of Discharge Requirements control mechanism requires flow-proportional composite sampling at Outfall 001 to ensure the samples are representative of the production day's discharge. In addition, it appears that the flow reported on the discharge monitoring reports is not accurate.

The appropriate location for the flow meter is downstream of the discharge valve to ensure the flow meter is only recording discharge flow and provides accurate discharge flow monitoring. The facility needs to relocate the flow meter to ensure accurate flow monitoring.

2. Based on the analytical data generated from the compliance sampling inspection event on August 4, 2021, JM Shafer was in compliance with the Steam Electric Pretreatment Standards for New Sources.

Attachments:

- EPA Analytical Reports
- JM Shafer August 4, 2021 photolog

Attachment 1 – August 4, 2021 - Analytical Reports

Attachment 2 – JM Shafer August 4, 2021 Sampling Event Photolog