



STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF WATER RESOURCES

Johnson City Environmental Field Office
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May 2, 2024

The Honorable Jeff Broyles
Mayor/Town Manager
e-copy: jbroyles@bluffcitytn.gov
Town of Bluff City
4391 Bluff City Hwy
Bluff City, TN 37618

RE: Compliance Evaluation Inspection (CEI)
Bluff City Water Treatment Plant (WTP)
NPDES Permit TN0073423
Sullivan County

Dear Mr. Broyles:

On April 11, 2024, Mr. Corey Click of the Tennessee Department of Environment and Conservation, Division of Water Resources, (the division) performed a routine compliance inspection at the above referenced facility. During the inspection, compliance with General National Pollutant Discharge Elimination System (NPDES) Permit for Filter Backwash and Sedimentation Basin Washout from Water Treatment Plants (WTPs) tracking number TN0073423 was evaluated. The division would like to thank Mr. Allen Moultrie and Mr. Terry Banner for their time and assistance during the inspection. Please see the sections below for details regarding the inspection.

I. Permit

Coverage under the General NPDES Permit for Discharges of Filter Backwash and Sedimentation Basin Washout from WTPs became effective on September 1, 2020 and will expire on August 31, 2025. Coverage under the general permit for the Bluff City WTP became effective on December 1, 2020 under general NPDES permit tracking number TN0073423. The facility NPDES permit authorizes the discharge of filter backwash from one outfall to receiving waters named Underwood Spring Branch to Dry Creek. A plant walk-through and inspection of the facility grounds was conducted, as well as a review of the permit and supporting documentation. Based on the information discussed and site observations during the inspection, the facility generally appeared to be consistent with the issued permit coverage.

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II. Records/Reports

Various selected records and reports were reviewed during the inspection including discharge monitoring reports (DMRs) from February 2021 - February 2024; Pace Analytical Reports from October 2022, March 2023, and January 2024; LabtronX laboratory instrument calibration records from 2023 and 2024; and pH and chlorine calibration logs from October 2022, March 2023, and January 2024. Parts 7.1 - 8.3 of the general NPDES permit contain monitoring, reporting, and documentation requirements. Also, records documenting laboratory analyses, including proper quality assurance/quality control (QA/QC), would need to be maintained to satisfy permit part 7.2. The following deficiencies were noted.

1. General NPDES Permit for Discharges of Filter Backwash and Sedimentation Basin Washout from WTPs part 8.1 details the requirement for monitoring results to be submitted monthly using NetDMR. According to the permit, these monthly submissions must be submitted no later than 15 days after the completion of the monthly reporting period. However, some of the DMRs submitted were received more than 15 days after the completion of the reporting period including May and October 2021, September 2022, and January 2023. Bluff City WTP personnel must ensure that required reports are submitted by the applicable deadline.
2. The October 2022, March 2023, and January 2024 DMRs all report a daily minimum pH result of 7.1 SU. These DMRs also report pH daily maximum values of 8.0 SU, 8.1 SU, and 8.1 SU, respectively. During the inspection, Mr. Moultrie stated the backwash discharge sample results for total residual chlorine (TRC) and pH are recorded on the chain of custody (COC) form attached to the analytical report. The daily maximum values reported on the DMRs mentioned above match the pH result reported on the COCs attached to the Pace Analytical reports for each month reviewed. Based on an April 16, 2024 email from Mr. Moultrie, the daily minimum pH Bluff City WTP has reported is a sample of the daily raw residual, which does not relate to the backwash discharge sample. The Bluff City WTP must report pH results relevant to the backwash discharge.
3. The March 2023 DMR reports a TRC result of 0.0 mg/L. According to an April 16, 2024 email from Mr. Moultrie, the TRC result recorded on the COC is 0.01 and the 0.0 reported on the DMR is a typographical error. Bluff City must amend the March 2023 DMR.
4. As discussed in items 3. above, backwash discharge sample results for TRC and pH analysis are documented on the COC attached to the Pace Analytical Report. Based on COCs reviewed during the inspection, not all the required information as detailed in General NPDES Permit for Discharges of Filter Backwash and Sedimentation Basin Washout from WTPs part 7.3 is being recorded for pH and TRC.

III. Facility Site Review, Self-Compliance Program, and Operations & Maintenance

The Bluff City WTP treats spring water using poly aluminum chloride and liquid chlorine. The water passes through one of two clarifier tanks and one of two filter tanks before receiving post chlorination and going to the clear well. The backwash process occurs automatically after the operator chooses what to backwash and initiates backwash. General NPDES Permit for Discharges of Filter Backwash and Sedimentation Basin Washout from WTPs part 5.2 requires the permittee to maintain a clean and orderly facility and manage the handling, storage, and use of chemicals to prevent release of materials; furthermore, sludge or any other material removed by the treatment works must be disposed of in a

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manner which prevents its entrance into or pollution of any surface or subsurface waters. No deficiencies were noted in these program areas.

IV. Effluent/Receiving Waters

During the inspection, the discharge location of Outfall 001 was observed. The facility was discharging at the time of the inspection. No distinctly visible floating scum, oil, or other matter was noted in the discharge. The following deficiencies were noted in this program area.

1. As detailed in the last inspection report dated October 5, 2020, a modification was made to the dechlorination system of the backwash discharge which resulted in a change of the outfall location. Due to this modification, the division required Bluff City to submit an updated notice of intent (NOI). The corrective action plan dated November 19, 2020 submitted to the division by Bluff City personnel said that a new NOI would be submitted. The division has no record that an updated NOI was submitted. Bluff City WTP must submit an updated NOI detailing the modifications and new outfall location of the backwash water discharge.
2. Part 5.1 of General NPDES Permit for Discharges of Filter Backwash and Sedimentation Basin Washout from WTPs requires the permittee to comply with numerical effluent limitations. The notice of coverage for NPDES tracking number TN0073423 details effluent limitations for the Bluff City WTP backwash discharge. Based on DMRs reviewed during the inspection, the Bluff City WTP exceeded effluent limitations on the following occurrences:
 - a. The Aluminum limit of 0.75 mg/L was exceeded during October 2021 and February 2022.
 - b. The total suspended solids limit of 40 mg/L was exceeded during February 2022 and July 2022.
 - c. The settleable solids limit of 0.5 mL/L was exceeded during July 2022.

V. Laboratory

Part 7.2 item 2. of General NPDES Permit for Filter Backwash and Sedimentation Basin Washout from WTPs requires pollutant analyses be performed in accordance with methods specified in Title 40 CFR Part 136, and part 10.5 requires additional laboratory controls and appropriate QA procedures. Note that updates to 40 CFR part 136 became effective July 19, 2021 and analysis procedures must be updated as necessary to satisfy pertinent requirements. Analysis of monitored parameters pH and TRC are performed on-site. Total suspended solids, settleable solids, iron and aluminum are contracted out to Pace Analytical Laboratory. The following deficiency was noted during the inspection.

1. The Bluff City WTP is not fully implementing the QA/QC requirements as set forth in Title 40 CFR Part 136 for analyses conducted on site. For example, facility personnel could not provide records showing demonstrations of capability (DOCs) being completed by laboratory staff performing analyses on site for pH or TRC. Also, regarding pH analysis, the permittee could provide no documentation showing that duplicate analysis are being performed, and there was no documentation showing initial or continuing calibration verification.

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In addition, there was no documentation to show the initial or ongoing data collection required for the TRC method detection limit (MDL) study. Current MDL procedure requirements are detailed in 40 CFR 136 Appendix B or EPA *Definition and Procedure for the Determination of the Method Detection Limit*, Revision 2. Duplicate analyses were also not being performed for TRC analysis. There was also no documentation to suggest the facility is performing method blank and laboratory fortified blank analysis for TRC.

As discussed in 40 CFR part 136 and approved analytical methods specified therein, proper laboratory QA/QC procedures must be detailed in written standard operating procedures (SOPs) and followed by the facility. Please also refer to the division's guidance documents (see link below), which may be helpful when developing the required laboratory QA/QC program and revising any current laboratory SOPs but cannot substitute for them:

<https://www.tn.gov/environment/program-areas/wr-water-resources/fleming-training-center/resource-center.html> (Note: after clicking on link, go to "Operators" tab then, "Wastewater Treatment Information")

VI. Additional Comments and Recommendations

Additional comments and recommendations noted during the inspection are detailed below. These items were not considered violations of permit requirements at the time of inspection, but may become so in the future, depending upon specific circumstances.

1. During the inspection, some water was observed dripping from a pipe and discharging on the ground at the back of the water treatment plant building. Mr. Moultrie stated this water was likely raw spring water entering the plant or water leaving filters before chlorination. Mr. Banner sampled the water and analyzed for chlorine and obtained a result of 0.00. The division recommends fixing this issue to prevent water loss from the treatment plant.
2. Based on follow up email conversation with Mr. Moultrie, the flow reported on DMRs comes from the finished water daily maximum pumped from the water treatment plant for a given month. The division requests the Bluff City WTP to verify the flows reported on DMRs are the actual backwash discharge flows.
3. Based on follow up email conversation with Mr. Moultrie, it appears the water in the backwash water tank can only be used for backwashing or to discharge. There is no sedimentation basin at the facility. The water directly discharges from the backwash water tank. The division recommends Bluff City research possible ways to further treat the backwash water to prevent permit exceedances and protect water quality.

VII. Conclusion

Compliance with General NPDES Permit for Filter Backwash and Sedimentation Basin Washout from WTPs requirements helps ensure discharges that are protective of downstream fish and aquatic life and water quality. The division requests that you develop and submit, by June 3, 2024, a detailed action plan

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and proposed implementation schedule addressing the numbered points discussed in sections II., IV., V., and VI. items 1. and 2. above. Thank you for your efforts to ensure permit compliance and to protect state water quality. If I may be of assistance in matters concerning this report, please contact me via telephone at 423-426-6477 or via email at corey.click@tn.gov.

Sincerely,



Corey Click
Environmental Consultant I
Division of Water Resources
Johnson City EFO

cc: Mr. William Parks, DWR Program Coordinator, Johnson City EFO (via email)
Mr. Vojin Janjic, DWR Water-Based Systems Unit, Nashville (via email)
Ms. Sarah Elias, DWR Compliance and Enforcement Unit, Nashville (via email)
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WaterLog database