STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF WATER RESOURCES
Johnson City Environmental Field Office
2305 Silverdale Road
Johnson City, TN 37601
Phone 423-854-5400 Statewide 1-888-891-8332 Fax 423-854-5401

May 3, 2022

Mr. Chuck Wilkins
WTP Lead Operator
e-copy: cwilkins@cityofelizabethton.org
Big Springs Water Treatment Plant
213 Water Plant Rd.
Elizabethton, TN 37643

RE: **Compliance Evaluation Inspection (CEI)**
Big Springs Water Treatment Plant
NPDES permit TN0068659
Carter County

Dear Mr. Wilkins:

On April 13, 2022, Ms. Brianne Begley of the Tennessee Department of Environment and Conservation, Division of Water Resources, performed a routine compliance inspection at the above referenced facility. During the inspection, compliance with General Permit for Filter Backwash and Sedimentation Basin Washout from Water Treatment Plant (WTP) TN0068659 was evaluated. The division thanks you and Ms. Lisa Childers for your time and assistance. Please see the sections below for details regarding the inspection.

I. Permit

General NPDES Permit for Discharges of Filter Backwash and Sedimentation Basin Washout from Water Treatment Plants became effective on September 1, 2020 and will expire on August 31, 2025. Coverage under this permit for the Big Springs WTP became effective November 1, 2020 and shall expire on August 31, 2025. The Big Springs WTP permit authorizes the discharge of filter backwash and sedimentation basin washwater from the facility located at 213 Water Plant Road in Elizabethton, TN to receiving waters named Gap Creek at mile 1.5 to the Watauga River. 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 description associated with the permit referenced above. No deficiencies were noted in this program area.

II. Records/Reports

Parts 7.1 – 8.3 of NPDES TN0068659 contain monitoring, reporting, and documentation requirements. Also, records documenting laboratory analyses, including proper quality assurance and quality control (QA/QC), must be maintained to satisfy permit part 7.2. Discharge monitoring reports (DMRs) from March 2019 – March 2022; pH calibration, sample results, and QA/QC records from January 2020 – April 2022; pH and total residual chlorine (TRC) standard operating procedures (SOPs); TRC calibration, sample results, and QA/QC records from January 2020 – April 2022; annual pH and TRC demonstrations of capability (DOCs) from 2020 – 2022; TRC method detection limit (MDL) records from 2020 – 2021; Waypoint analytical reports from November 2019 – March 2022; and LabtronX laboratory equipment calibration records from April 2020, October 2020, April 2021, and October 2021 were reviewed during the inspection. Deficiencies pertaining to records are detailed in other pertinent areas of this report.

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

The most recent Notice of Intent (NOI) states the Big Springs WTP is a filtration plant with a design capacity of 1.8 million gallons per day (MGD) which utilizes two horizontal pressure filters with four integrated multi-media cells each. There are two rectangular backwash sedimentation basins (a single trough separated into two basins by a central wall) with a combined capacity to hold 0.15 MG. Two filters are backwashed once a week using approximately 90,000 gallons of water which is sent to the backwash sedimentation basins. Water is released from the backwash basins once a week with a volume of 0.3456 MG released over a 24 hour period into Gap Creek. The sedimentation basins have historically been washed out once a year, however there are plans to clean them on a biannual basis beginning in 2022. Sludge from the settling process is removed from the basins via vacuum truck and deposited at the Elizabethton Wastewater Treatment Plant, where it is dewatered and eventually deposited at the Eco Safe Landfill. (See section VI. below for a more detailed description of sludge removal.) TN0068659 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. Additionally, it requires that sludge or any other material removed by the treatment works must be disposed of in a manner which prevents its entrance into or pollution of any surface or subsurface waters. A plant walk-through was performed, and the facility was found to be in a clean and orderly condition. No deficiencies were noted in this program area.

IV. Effluent/Receiving Waters

Discharge at the point of entry to Gap Creek (Outfall 001) was observed during the inspection. No floating scum, oil, or color contrast was visible in the discharge or in the river around the outfall location. The outfall signage as required by NPDES permit TN0068659 was present and visible to the public from the receiving stream, however, the following deficiency was noted.

1. The sign contained outdated language that is different from the requirements listed in TN0068659 part 15. The signage must be updated to read as follows:

TREATED WATER TREATMENT PLANT WASTEWATER
(*PERMITTEE'S NAME*)
(*PERMITTEE'S PHONE NUMBER*)
NPDES PERMIT TRACKING NUMBER *TN000* _ _ _ _

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V. Laboratory

DMRs from March 2019 – March 2022; pH calibration, sample results, and QA/QC records from January 2020 – April 2022; pH and TRC SOPs; TRC calibration, sample results, and QA/QC records from January 2020 – April 2022; annual pH and TRC DOCs from 2020 – 2022; TRC MDL records from 2020 – 2021; Waypoint analytical reports from November 2019 – March 2022; and LabtronX laboratory equipment calibration records from April 2020, October 2020, April 2021, and October 2021 were reviewed during the inspection. Analyses for pH and TRC are performed in-house, while settleable solids (SS), total suspended solids (TSS), and total aluminum are contracted out to Waypoint Analytical. Part 7.2 item 2. of NPDES permit TN0068659 requires pollutant analyses be performed in accordance with methods specified in Title 40 CFR Part 136, and permit part 10.5 requires additional laboratory controls and appropriate quality assurance procedures. Revisions to Part 136, effective June 18, 2012, explicitly detail required laboratory quality assurance and quality control components. Additional updates to Part 136 became effective July 19, 2021. See below for deficiencies noted in this program area.

1. The pH and TRC bench sheets and SOPs provided for review either had no method number or included outdated method editorial revision dates that are not currently approved in Title 40 CFR 136. Big Springs WTP personnel were using approved methods and thus updated the bench sheets and SOPs to include currently approved method numbers, which were submitted to the division for review. This deficiency was corrected prior to issuance of this report.

2. At the time of inspection, the TRC MDL study was being conducted following Revision 1 procedures, however, the 2016 revision of the MDL procedure (Revision 2) became effective September 27, 2017. Please see 40 CFR 136 Appendix B *EPA Definition and Procedure for the Determination of the Method Detection Limit* – Revision 2 for current MDL procedure requirements. Big Springs WTP staff updated their TRC QA/QC records to incorporate the Revision 2 procedure, which were submitted to the division along with documentation to show procedural changes have been implemented. This deficiency was corrected prior to issuance of this report.

VI. Sludge Handling/Disposal

As mentioned in section III above, NPDES permit TN0068659 part 5.2 requires sludge or any other material removed by the treatment works must be disposed of in a manner which prevents its entrance into or pollution of any surface or subsurface waters. Additionally, the disposal of such sludge or other material must be in compliance with the Tennessee Solid Waste Disposal Act, T.C.A. 68-31-101 et seq. and the Tennessee Hazardous Waste Management Act, T.C.A. 68-46-101 et seq. During the inspection, WTP personnel stated that backwash sedimentation basins were previously cleaned out annually (the last cleaning and sludge removal occurred in September 2021) but will be cleaned out biannually beginning in May 2022. Solids are shoveled by hand, removed via vacuum truck, and deposited onto a drying pad at the Elizabethton Wastewater Treatment Plant. Polymer is sprinkled onto the solids and they are allowed to dry and dewater for approximately one month before final disposal at the Waste Management Eco Safe

Landfill in Blountville, TN. Big Springs WTP sedimentation cleaning and sludge removal records from 2020 and 2021 were reviewed as part of this inspection. No deficiencies were noted in this program area.

VII. Conclusion

Compliance with NPDES permit TN0068659 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, 2022, a detailed action plan and proposed implementation schedule addressing the numbered point discussed in section IV. 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 423-268-4770 or via email at Brianne.Begley@tn.gov.

Sincerely,

J. Brianne Begley

Brianne Begley
Environmental Scientist
Division of Water Resources
Johnson City EFO

cc: Ms. Lisa Childers, Laboratory Technician, Big Springs WTP (via email)
Mr. Joshua Boggan, DWR Program Coordinator, Johnson City EFO (via email)
Ms. Sarah Terpstra, DWR Water-Based Systems Unit, Nashville (via email)
Ms. Sarah Elias, DWR Compliance and Enforcement Unit, Nashville (via email)
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