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**Sent Via Electronic Transmittal**

January 24, 2022

Mr. Vojin Janjić (water.permits@tn.gov)  
Division of Water Resources  
Tennessee Department of Environment  
and Conservation  
William R. Snodgrass Tennessee Tower  
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Dear Mr. Janjić

TENNESSEE VALLEY AUTHORITY (TVA) – GALLATIN FOSSIL PLANT (GAF) – NPDES PERMIT NO. TN0005428 – WASTEWATER TREATMENT UPGRADES TO COMPLY WITH EFFLUENT LIMITATION GUIDELINES (ELG) – 2021 ANNUAL REPORT

In accordance with Part I.F. of the subject permit, please find enclosed an annual report detailing TVA's progress toward installing the necessary equipment to meet the bottom ash transport water ELG.

If you have questions or need any additional information, please contact Michael Gray at (615) 230-4066 or by e-mail at mgray@tva.gov.

*I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.*

Sincerely,

A handwritten signature in blue ink, appearing to read "Michael K. Bottorff", is written over the word "Sincerely,".

Michael K. Bottorff  
Plant Manager  
Gallatin Fossil Plant

Enclosure

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ECM, ENV Records

# **Bottom Ash ELG Project Updates**

## TVA Gallatin Fossil Plant – NPDES permit no. TN0005428

### 2021 Annual Report

#### **Introduction**

##### Effluent Limitations Guidelines NPDES Permit Requirement and Regulations

Part I.F. of the NPDES permit for Gallatin Fossil (GAF) requires the Tennessee Valley Authority (TVA) to provide the Tennessee Department of Environment and Conservation (TDEC) with an annual report detailing progress achieved during the preceding calendar year as well as identification of upcoming projects needed to attain compliance with EPA's Effluent Limitations Guidelines (ELGs). These update reports are due by January 31 of the following year.

TVA presented information requesting an ELG applicability date for achieving the 2015 no discharge requirement for BATW of December 1, 2023, at GAF. TDEC granted that timetable in the NPDES permit issued in 2018.

On October 13, 2020, the United States Environmental Protection Agency published revisions to the ELGs in 40 CFR Part 423. The revised rule modifies technology-based effluent limitations for FGD wastewater and BATW. (GAF has a dry scrubber; therefore, the ELGs for FGD wastewater are not applicable.) The rule also establishes several new subcategories that provide separate compliance pathways based on unit operation and asset operating plans.

TVA applied for an NPDES permit modification on January 8, 2021, pursuant to the revised ELGs, to incorporate revised limitations based on multiple asset operating scenarios. On August 3, 2021, EPA published in the Federal Register its notice of rulemaking initiative that proposes a revision to the ELG rule. As part of this initiative, EPA will determine whether more stringent limitations and standards are appropriate and consistent with the goals of the Clean Water Act including the limitations for BATW. Therefore, on December 15, 2021, TVA submitted a request to TDEC to remove the commissioning date for a high cycle BATW system from the permit modification. To be clear, if EPA's rule evaluation results in no change to the BATW requirements, TVA still intends to commission a system with sufficient remaining time for TVA to engage with TDEC through the completion of the BPJ process for BATW ahead of TVA's previously requested applicability date of December 31, 2025. However, it is imperative that TVA understand EPA's rulemaking path to ensure that the wastewater treatment system improvements we make will be compliant with any new rule. The cost and schedule information for projects to design and install a high recycle BATW system according to the 2020 ELG Rule included in the January 8, 2021, permit modification submittal remain the same. This information may need to be revised depending on the contents of EPA's forthcoming ELG rule.

EPA intends to issue a proposed rulemaking for public comment in the Fall of 2022. When EPA completes the ELG rulemaking initiative, TVA would request a permit modification to incorporate the requirements found in the new ELG rule as applicable.

#### **Bottom Ash Transport Water Related Projects**

TVA anticipated issues complying with the no-discharge of BATW ELG that was included in EPA's 2015 ELG rule. Based on TVA's experiences at Bull Run in operating a recirculating system, some amount of blowdown discharge needs to be allowed in order to maintain system

chemistry and balance flow volumes in a closed loop. Certain constituents (e.g., chlorides) present in BATW that are not removed by the planned physical-chemical treatment for BATW may “cycle up” or become more concentrated leading to a degradation or failure of the materials of construction. While EPA allows for use of BATW in FGDs or for no discharge uses, flows may still not “balance”, depending upon how much flow can be used without impacting scrubber performance. In the 2020 ELGs, EPA replaced the 2015 BATW no-discharge requirement with a requirement that allows the discharge of up to ten percent of the wetted system by volume in certain prescribed situations.

### **2021 Bottom Ash Activities Summary & Projected 2022 Activities**

Dry management of bottom ash was achieved at GAF when commissioning of the Bottom Ash Dewatering Facility was completed in August 2020. This system dewateres the bottom ash for hauling to the GAF landfill and provides treatment of the BATW.

A study to evaluate various options to recirculate the BATW in compliance with the 2020 ELGs was completed in April 2021. This study resulted in a BATW recirculation system consisting of recirculation tanks and variable frequency drive pumps to convey the BATW from the Bottom Ash Dewatering Facility to the powerhouse in a closed-looped system.

TVA selected contractors to design and construct the recirculation system and issued subsequent contracts to initiate the project in June 2021. Detailed design is underway and is expected be completed in 2022. Procurement of long lead items (variable frequency drive pumps, power distribution center, etc.) has started. Construction activities to install select elements of the recirculation system are tentatively scheduled to begin in the spring of 2022.

During the study phase of the BATW recirculation project, it was found the fire protection system for the GAF plant is supplemented by the existing ash sluice pumps. If the BATW is recirculated in the system as it is currently operated, there is potential for the recycled BATW to comeingle with the fire protection water. Consequently, the fire protection system must be separated from the BATW recirculation system. TVA selected contractors to design and construct the fire system upgrade and issued subsequent contracts to initiate the project in June 2021. Detailed design is underway and is expected to continue into the spring of 2022. Procurement of long lead items (new fire pumps) has started. Construction activities to install elements of the recirculation system are tentatively scheduled to begin in the summer of 2022.