

FINDING OF NO SIGNIFICANT IMPACT
TENNESSEE VALLEY AUTHORITY
CUMBERLAND FOSSIL PLANT WASTEWATER TREATMENT FACILITY
STEWART COUNTY, TENNESSEE

The Tennessee Valley Authority (TVA) proposes to construct a wastewater treatment facility at its Cumberland Fossil Plant (CUF) located in Stewart County, Tennessee.

The purpose of and the need for action is to provide facilities that will treat wet flue gas desulfurization (WFGD) wastewater that meets the regulatory limits for effluent that become finally applicable to the CUF facility. The U.S. Environmental Protection Agency's (EPA's) effluent limitation guidelines (ELGs) for Steam-Electric Generating Facilities promulgated in 2015 included new, stringent discharge limits for mercury, arsenic, selenium, and nitrates/nitrites in WFGD wastewater in addition to the previous limits for total suspended solids, and oil and grease. However, as allowed by the Clean Water Act, TVA submitted a request for alternative effluent limits for selenium and nitrate/nitrite, and that request remains pending. If the request were approved, those alternative limits would supersede the limits in the 2015 ELGs and would be the operative limits for CUF. In addition, the ELGs are currently under review by EPA and may be revised. TVA proposes to meet the final limits that are determined to be applicable to CUF on future applicability dates, either as a result of TVA's request for alternative limits or through the ELGs as finalized by EPA following its review. TVA would comply with all regulations that are finally promulgated, and applicable permits as may be issued or reissued.

TVA prepared an Environmental Assessment (EA) to analyze alternatives for construction of a wastewater treatment facility at CUF to meet this purpose and need. The EA is incorporated herein by reference.

Alternatives

TVA evaluated three primary alternatives in the EA including the No Action alternative. These are summarized as follows:

Alternative 1 (No Action): If a wastewater treatment system is not developed and constructed at CUF, wastewater from the scrubber system would discharge into on-site Process Water Basins (PWBs), which would then discharge through the National Pollutant Discharge Elimination System (NPDES) outfall. This solution is not reasonable, because the wastewater would not be properly treated to meet requirements set forth in the ELGs and incorporated in TVA's NPDES permit; however, this alternative serves as a baseline for comparison of alternatives.

Alternative 2: Under this Alternative, TVA would construct a new WFGD wastewater treatment system at CUF including necessary laydown areas. This alternative would maintain a once-through WFGD (scrubber) operation and implement Stages A and B as follows:

Stage A includes installing the equipment necessary for WFGD wastewater treatment solids removal and dewatering. This may include clarification (single or dual stage) to remove the bulk of the solids and WFGD effluent fines dewatering to prepare for placement in a landfill. Stage A elements are required regardless of EPA's determination on TVA's request for alternative limits or

possible outcomes of EPA's review of the ELG rule limits and are necessary to meet certain requirements of EPA's Coal Combustion Residuals (CCR Rule). Stage A is expected to be completed as soon as September 2020. Gypsum fines removed during this stage will go to an on-site landfill.

Stage B includes the physical-chemical wastewater treatment steps necessary to remove dissolved and particulate metals such as arsenic and mercury from WFGD flows. This stage formed the basis for TVA's request for alternative limits for selenium and nitrate/nitrite; it also represents the expected minimum treatment requirement resulting from EPA's review of the ELGs. This stage is expected to be implemented at CUF by September 1, 2021, to meet the mercury and arsenic limits in the ELGs. If EPA were to approve TVA's request for alternative limits for selenium and nitrate/nitrite, TVA would also attempt to optimize to the extent practical the removal of selenium from discharges using the physical-chemical treatment steps in support of development of site-specific limitations for selenium and nitrate/nitrite. In addition to the potential approval of TVA's request for alternative limits, it is also possible that the installation of only Stage A and B treatment could be appropriate as a result of EPA's reconsideration of the rule and/or other regulatory accommodation that does not require biological treatment.

Alternative 3: This alternative includes implementing Stages A and B as described above, as well as a Stage C element as follows:

Stage C involves additional biological treatment of WFGD effluent to meet selenium and nitrate/nitrite limits that were outlined in the 2015 ELG rule.

Certain components could be shared between stages. For example, clarifiers may be part of both Stage A and Stage B.

Various other Alternatives were considered including reducing the volume of WFGD wastewater, and recycling the effluent, reducing the volume of wastewater and not discharging the effluent, and converting the WFGD effluent to a re-cycle scrubber. These alternatives were dismissed for economic, technical feasibility, and other reasons. Additionally, the physical location of the CUF wastewater facility was evaluated and various sites at the CUF were considered and dismissed.

Preferred Alternative

TVA's preferred alternative is Alternative 2 – Construct Wastewater Treatment System, Stages A & B and optimize selenium removal to the extent practical to establish site-specific selenium and nitrate/nitrite limits. This alternative would meet the purpose and need of the project. TVA acknowledges that Alternative 2 would not likely enable TVA to meet the limits on selenium and nitrate/nitrate currently set in the NPDES permit issued for CUF, which incorporates the limits promulgated in the 2015 ELG Rule. However, as noted above, TVA's application for alternative limits based on fundamentally different factors is still pending; additionally, EPA is reconsidering the 2015 rule. To the extent that EPA's decision on TVA's fundamentally different factors application and/or the reconsidered rule require more treatment than is contemplated under Alternative 2, TVA would reconsider its preferred alternative to enable compliance with the requirements. In addition, the treatment steps in Alternative 2 are necessary precursors for biological treatment to meet the existing selenium and nitrate-nitrite ELGs, should that ultimately be required at CUF.

Impacts Assessment

Some 25 resource areas were evaluated to identify potential adverse and beneficial effects of the proposed action. These resources include air and water quality, terrestrial and aquatic species including threatened and endangered species, vegetation, solid and hazardous waste, groundwater

and geology, wetlands, floodplains, prime and unique farmland, natural areas and parks, land use, noise, socioeconomics, environmental justice, cultural resources, transportation, and health and safety.

The No Action Alternative was deemed to be an inadequate response to new water treatment regulatory requirements which require advanced technological processes to reduce or eliminate pollutants in the WFGD wastewater generated by the plant.

The environmental effects of Alternatives 2 and 3 due to construction for air quality, geology and soils, roadway transportation, noise, and socioeconomics and environmental justice are similar and were found to be limited to short term, temporary, or intermittent impacts localized to the facility location. Potential impacts to climate change and greenhouse gases, vegetation, terrestrial ecology, wetlands, floodplains, and land use related to the operation of the WWT facility are anticipated to be minor. No impacts are anticipated to groundwater. Beneficial effects are anticipated to waters receiving effluent from the WWT facility, and from temporary increases in local revenue from construction jobs and a small increase in permanent employment required to operate and maintain new facilities. Other studied resource areas were determined to not be affected by the proposed action or the proposed action would cause temporary effects as a result of construction such as temporary de minimis increases in construction equipment emissions.

The facility footprint of the preferred alternative is located within the existing operational areas of the CUF on previously cleared and filled land designated for industrial development.

Public and Intergovernmental Review

A draft environmental assessment (EA) was released for public review on May 8, 2019. TVA received 33 substantive comments on the EA which included letters and email messages as follows: Letters from the Tennessee Department of Environment and Conservation (TDEC), U.S. EPA, Southern Environmental Law Center, and Southern Alliance for Clean Energy and one letter from a citizen. All comments have been considered and responded to in the final EA.

Various sections of the EA have been revised to more fully explain the rationale for selection of the preferred alternative.

TVA consulted with the Tennessee State Historic Preservation Office (SHPO) pursuant to Section 106 of the National Historical Preservation Act concerning impacts to cultural resources, and the Tennessee SHPO concurred the proposed action would not affect cultural resources.

Mitigation Measures

The following mitigation measures and best management practices (BMPs) have been identified to reduce potential environmental effects:

- Best practices and limitations prescribed in the Storm water and Air Permit for Construction Activities (for Alternatives 2 and 3)
- Erosion controls and BMPs for storm water impacts (for Alternatives 2 and 3)
- Dust control during construction (for Alternatives 2 and 3)
- Covering of byproduct during transport and the use of dust control measures during WWTF operation (for Alternatives 2 and 3)

- Use of wastewater treatment additives, as needed, to help with pH control, the settling of solids, and the reduction of metals during dewatering operations (for Alternatives 2 and 3)

Conclusion and Findings

Based upon the findings, TVA concludes the proposed construction and operation of the CUF WWTF as described under Alternative 2 in the EA would not be a major federal action significantly affecting the quality of the environment. Accordingly, an environmental impact statement is not required. Similarly, Alternative 3 would also not be a major federal action significantly affecting the quality of the environment and implementing this alternative would not require preparation of an environmental impact statement.

Ashley K Fulless, for

Lana Bean, Manager NEPA Program
Federally Mandated Environmental Compliance
Tennessee Valley Authority

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Date Signed