

Executive Summary

This Environmental Impact Statement (EIS) addresses the continued disposal of Coal Combustion Residuals (CCR) from the Bull Run Fossil Plant (BRF). BRF is located in Anderson County, Tennessee, about 5 mi east of downtown Oak Ridge and 13 mi west of Knoxville.

BRF was built between 1962 and 1966, and commercial operation began in June 1967. BRF is the only single-generator coal-fired power plant in the TVA system and has a summer net capability of 863 megawatts. Winter net-dependable generating capacity is about 881 megawatts. BRF generates over 6 billion kilowatt-hours of electric power in a typical year, which is enough electrical energy to meet the needs of approximately 430,000 homes. BRF has state-of-the-art air pollution controls and is one of the coal plants that TVA plans to continue operating in the future as identified in TVA's IRP (TVA 2015c). Historically, TVA has managed storage of CCR materials in ash impoundments or dry landfills. In an effort to modernize the facility and comply with TVA's commitment to manage CCRs on a dry basis, TVA completed the construction of a mechanical dewatering facility at BRF in 2014 to manage bottom ash and gypsum using a dry stack basis. TVA had already been handling and storing fly ash on a dry basis, so there were no changes to that process as a result of the transfer to dry storage. These bottom ash and gypsum materials are disposed on-site at the current Dry Fly Ash Stack located east of the plant.

Based on current estimates of energy production and consumption rates, on-site storage capacity will be expended within 10 years. Therefore, TVA needs to identify additional storage capacity for the long-term disposal of the dry CCR materials (fly ash, bottom ash and gypsum) produced at BRF. Additional storage capacity would also enable TVA to continue operations at BRF as planned in TVA's IRP (TVA 2015c) and would be consistent with TVA's voluntary commitment to convert wet CCR management systems to dry systems.

Alternatives Considered

In 2011, TVA performed a siting study to evaluate on-site and off-site alternatives for the construction of a landfill for storage of CCR from BRF which identified eight alternative landfill sites. TVA also identified the off-site transport of CCR to an existing landfill as a potential alternative for management of CCR generated at BRF. The impact of development and/or use of each of these sites were further evaluated against 34 environmental and engineering factors to determine those sites that should be carried over for further analysis in the EIS.

Alternatives Evaluated in the EIS

In addition to a No-Action alternative which served as a baseline, TVA considered construction of a landfill on property adjacent to BRF and off-site transport of CCR to an existing permitted landfill as potential alternatives for disposal of CCR generated at BRF.

Under Alternative B, TVA would construct and operate a landfill for disposal of CCRs generated at the plant on TVA-owned property located approximately 0.4 mi east of BRF. This site, known as Site J, encompasses 119.9 ac and includes perimeter roads, borrow stockpile and laydown areas and sediment ponds with the landfill footprint of approximately 60 ac. The landfill would provide approximately 15.5 years of disposal capacity based on

estimated energy production and consumption rates and would be designed to meet the CCR rule requirements for new landfill development. Development of Site J would also include construction of a dedicated on-site haul road to convey dry CCR from the plant to the landfill.

Under Alternative C, CCR from BRF would be transported to an existing off-site permitted landfill. The analysis of impacts associated with this alternative are based on the closest landfill that can currently accept CCR material. The Chestnut Ridge Landfill is a Class 1 Municipal Solid Waste Facility located approximately 12 mi northeast of BRF. Under this Alternative, CCR generated at BRF would be transported by over-the-road tandem dump trucks on existing roadways to the Chestnut Ridge Landfill for disposal. While barge and rail transport were considered in the Siting Study, they were not considered feasible options for this EIS given the lack of existing infrastructure at BRF and the proximity of Chestnut Ridge to BRF.

Public and Agency Involvement

TVA's 33-day scoping period was initiated on May 21, 2015, with the publication in the Federal Register of the Notice of Intent (NOI). The NOI announced that TVA planned to prepare an EIS to address the storage of CCR generated at BRF. In addition to the NOI in the Federal Register, TVA published notices regarding this effort in regional and local newspapers; issued a news release to media; posted the news release on the TVA Web site; and posted flyers and signs near the alternative landfill site to solicit public input.

To initiate scoping, TVA also sent copies of the NOI to the Tennessee Department of Environmental and Conservation (TDEC) and the United States Department of Interior. TVA received six responses on the NOI and one comment form that was submitted by several interested parties. The predominant theme of the comments were related to potential visual, groundwater and cumulative impacts in the EIS. All comments received during the scoping period were considered in determining the alternatives and scope of the analysis.

The Draft EIS was released for comment on May 20, 2016, and a notice of availability, including a request for comments on the Draft EIS, was published in the Federal Register on May 27, 2016. The Draft EIS was posted on TVA's Web site and hard copies were available by request. To solicit public input, the availability of the Draft EIS was announced in regional and local newspapers and a news release was issued to the media and posted to TVA's Web site. In addition, TVA mailed postcard notifications to all residents within a 1-mi radius of the plant (311 addresses). The postcards announced the availability of the EIS and requested comments. The public comment period closed on July 12, 2016. TVA accepted comments that were submitted as late as August 12, 2016.

TVA received 12 comment submissions, which included letters, e-mails and submissions through the project Web site. The comment submissions were carefully reviewed and synthesized into comment statements. The predominant theme of the comments were related to visual impacts, potential air and dust emissions, impacts to land use and groundwater. Comments and TVA's responses can be found in Appendix A of this document.

Summary of Alternative Impacts

The EIS presents a summary of the impacts of each of the alternatives carried forward for detailed analysis. The environmental impacts of Alternatives A, B and C are summarized in Table 2-5.

Table ES-1. Comparison of Impacts of Each Alternative by Resource Area

Alternative A – No Action	Alternative B – Construct and Operate a Landfill on TVA Property Adjacent to BRF (Site J)	Alternative C – Off-Site Transport of CCR to an Existing Permitted Landfill (Chestnut Ridge)
Air Quality No impact associated with current BRF landfill operations. Long-term impacts to plant operations due to inability to store CCR would theoretically result in a decrease in emissions.	Temporary minor impacts during construction from fugitive dust and emissions from equipment and vehicles.	Localized impact due to emissions from increased vehicles used to transport and manage CCR.
Climate Change No impact associated with current BRF landfill operations. Long-term impacts to plant operations due to inability to store CCR would theoretically result in a decrease in greenhouse gas (GHG) emissions.	Minor GHG emissions associated with onsite construction equipment. No discernable effect on regional GHG levels.	No impact associated with construction; however, due to increased vehicle miles travelled and use of public roadways, GHG emissions would be higher than Alternative B.
Land Use No impact.	Impact resulting from the conversion of undeveloped land to an industrial facility. Impact to communities adjacent to the landfill would be moderate, but overall impact minor due to previous disturbance and location adjacent to industrial plant.	No impact.
Prime Farmland No impact.	No impact.	No impact.
Geology and Seismology No impact.	Minimal impact. Potential seismic risk mitigated with proper design.	No impact.
Groundwater No impact.	Minimal impact due to incorporation of low permeability synthetic liner and leachate collection and treatment system. Runoff would be controlled with appropriate BMPs.	No impact.
Surface Water No impact.	Minor temporary impacts due to runoff during construction. Direct permanent impacts to the upper reach of Worthington Branch. Mitigated as a result of adherence to permit requirements.	No impact.

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Floodplains No impact.	No impact.	No impact.
Vegetation No impact.	Minor impact resulting from the disturbance of a previously disturbed area that lacks notable plant communities.	No impact.
Wildlife No impact.	Minor impact due to loss of previously disturbed habitat.	No impact.
Aquatic Ecology No impact.	Permanent impact to Worthington Branch and aquatic resources due to stream realignment and culverts. However, impacts would be mitigated when the realigned stream channel reestablishes flow regime and habitat.	No impact.
Threatened and Endangered Species No impact.	Minor impact as a result of the loss of bat foraging and roosting habitat. Impact would be mitigated in accordance with ESA requirements.	No impact.
Wetlands No impact.	Direct impact to 2.1 ac of wetland. However, these impacts would be mitigated as required by both state and federal agencies.	No impact.
Solid and Hazardous Waste No impact associated with current BRF landfill operations. Long-term impacts to plant operations due to inability to store CCR would theoretically result in a decrease in solid waste produced at BRF.	Minor increase in solid waste generated during construction. Long-term impact associated with the management of solid wastes produced at BRF at Site J as CCR would be disposed in a new landfill.	Long-term impact to the capacity of an existing landfill which limits long-term ability to meet other disposal needs in the region.
Socioeconomic Resources		

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No impact associated with current BRF landfill operations. Long-term impacts to plant operations due to inability to store CCR would theoretically result in significant adverse effects on local employment and economic measures.	Minor short term increases in employment and, payroll during construction resulting in beneficial direct and indirect economic impacts. Negligible long-term beneficial economic impacts.	Negligible impact due to anticipated minimal employment increase.
Environmental Justice	Minor impact to the access to Valley View Church and Church of Christ during construction due to construction related traffic.	
No impact.	Minor to moderate indirect impact to potential EJ community due to increased noise, dust and traffic during construction.	Moderate impact to potential EJ community due to additional traffic noise and dust associated with transport of CCR. However, this impact would not be disproportionate.
	Landfill would present a visual impact during operation, mitigated by a vegetated buffer. No impact associated with haul of CCR to the landfill.	
Natural Areas, Parks and Recreation		
No impact.	Minor indirect impact during construction due to increased vehicles on surrounding roadways. No impact during operation.	Moderate indirect impact to facilities along the haul road during operation.
Transportation		
No impact.	Minor short-term impact during construction of haul road. No impact during operation.	Moderate impact related to increased traffic and potential increase in crash rates during operation.
Visual Analysis		
No impact.	The landfill would change the existing visual integrity which would result in a moderate impact to the viewshed of some members of the surrounding community. However, due to the modifications of the landscape from previous development, as well as the adjacent fossil plant, there would be minimal change in overall scenic value.	No impact.
Cultural and Historic Resources		
No impact.	No impact.	No impact.
Noise		
No impact.	Minor impact.	Moderate impact.
Public Health and Safety		

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Alternative A – No Action	Alternative B – Construct and Operate a Landfill on TVA Property Adjacent to BRF (Site J)	Alternative C – Off-Site Transport of CCR to an Existing Permitted Landfill (Chestnut Ridge)
No impact	Worker and public health and safety during construction and operation would be maintained and any impact would be minor.	Increased traffic would increase the potential risk of injuries and fatalities associated with truck crashes.
Cumulative Effects		
No impact.	Minimal impact to overall scenic value.	Minor to moderate impact to transportation.

Preferred Alternative

TVA has identified Alternative B – Construct and Operate a Landfill for Storage of CCR on TVA Property Adjacent to BRF (Site J) as the preferred alternative. Alternative C, would result in few impacts to the natural environment associated with construction of a landfill, because it would utilize an existing, permitted landfill. However, Alternative C would also require the offsite transport of CCR. Transport of CCR would occur daily (during a typical five-day work week) over an approximate 15-year period. Alternative B is preferred because it would achieve the purpose and need of the project, the environmental impact of constructing a new, on-site landfill would be minor and/or temporary, and the location would avoid the off-site transport of CCR along public roads, as well as the air emissions, noise emissions, long-term safety risks and disruptions to the public that would be associated with the long-term off-site transport of CCR along public roadways.

Mitigation Measures

Mitigation measures designed to minimize or reduce adverse impacts associated with implementation of Alternative B include:

- Due to the loss of potentially suitable foraging and roosting habitat for endangered bat species, Section 7 consultation with U.S. Fish and Wildlife (USFWS) will be required. Given the occurrence of potentially suitable roosting habitat for some endangered bat species, all tree clearing would be limited to those times of the year when bats are not expected to be roosting in the area (October 1 through March 31). Impact to bat habitat would be mitigated in accordance with ESA requirements.
- TVA has coordinated with Tennessee Department of Environmental Conservation (TDEC) and U.S. Army Corps of Engineers (USACE) and has proposed mitigation for those areas impacted by relocation and/or encroachment of Worthington Branch through payment to an appropriate stream bank and/or restoration on-site.
- Actions involving wetlands and/or stream crossings and stream alterations would be subject to requirements outlined in the federal Clean Water Act Section 404 permit

and the TDEC Aquatic Resources Alteration Permit (ARAP). TVA would adhere to all conditions stipulated in these permits

- TVA will maintain the plantings along the portion of Site J adjacent to Old Edgemoor Road to continue to provide a vegetative screen.
- TVA will develop a fugitive dust plan which identifies adequate dust control measures for this site. As per CCR rule requirements, TVA has developed a fugitive dust hotline where concerns regarding fugitive dust can be recorded. Every year TVA will prepare a report detailing the dust controls used, any citizen complaints received, and a summary of any corrective actions taken.
- TVA will implement a groundwater monitoring plan that adheres to the requirements established in the CCR Rule and those established by TDEC.

In addition, TVA has identified the following Best Management Practices (BMPs) that will be employed to minimize impacts:

- Fugitive dust emissions from site preparation and construction would be controlled by wet suppression and other appropriate BMPs (Clean Air Act [CAA] Title V operating permit incorporates fugitive dust management conditions).
- Erosion and sedimentation control BMPs (e.g., silt fences) would reduce the potential for erosion of soil minimizing the potential for impact to surface waters during construction.
- Consistent with Executive Order 13112, disturbed areas would be revegetated with native or non-native, non-invasive plant species to avoid the introduction or spread of invasive species.
- TVA would implement operational mitigations to reduce potential surface water impacts from CCR operations, such as requiring that no more than 10 ac of ash be exposed at any one time.
- A Storm Water Pollution Prevention Plan will be created to limit the size of the disturbed areas and to divert storm water runoff away from construction areas into existing ponds.
- Construction debris and excess materials will be disposed of properly.
- TVA would adhere to all appropriate state and county regulatory requirements if burning of landscape waste is conducted.
- Proper spill prevention measures will be taken to reduce the potential for spills of fuel//lube/insulation oil.
- Subcontractor and prime contractor employees would require Occupational Safety and Health Administration (OSHA) 1910.120 training.

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