

## **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. When at full operating capacity, BRF produces approximately 560,000 yd<sup>3</sup> of CCR a year, which means TVA would require approximately 11 million yd<sup>3</sup> of disposal capacity to accommodate 20 years of CCR generation.

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. These materials are disposed on-site at the current Dry Fly Ash Stack located east of the plant.

The current on-site storage capacity of approximately 1.2 million yd<sup>3</sup> will be expended within 10 years. 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 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. Subsequent to the identification of the eight alternative landfill sites carried forward from the prior siting study, 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 Chestnut Ridge Landfill is the nearest Resource Conservation and Recovery Act (RCRA) Subtitle D landfill to BRF; therefore, this location was added to represent this alternative. 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 current estimated 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.

TVA released the Draft EIS to the public on May 13, 2016. TVA's public and agency involvement for this Draft EIS included a public notice and a 45 day public review of the Draft EIS document. 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. The Draft EIS document was posted on TVA's Web site and hard copies were available by request. TVA's agency involvement included sending letters to local, state and federal agencies and federally recognized tribes to notify them of the availability of the Draft EIS.

### **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** .

**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)
<b>Air Quality</b> 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.
<b>Climate Change</b> 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 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.
<b>Land Use</b> No impact.	Minor impact resulting from the conversion of undeveloped land to an industrial facility.	No impact.
<b>Prime Farmland</b> No impact.	No impact	No impact.
<b>Geology and Seismology</b> No impact.	Minimal impact. Potential seismic risk mitigated with proper design.	No impact.
<b>Groundwater</b> No impact.	Minimal impact due to incorporation of low permeability synthetic liner and leachate collection system. Runoff would be controlled with appropriate BMPs.	No impact.
<b>Surface Water</b> 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.
<b>Floodplains</b> No impact.	No impact.	No impact.
<b>Vegetation</b> No impact.	Minor impact resulting from the disturbance of a previously disturbed area that lacks notable plant communities.	No impact.
<b>Wildlife</b> No impact.	Minor impact due to loss of previously disturbed habitat.	No impact
<b>Aquatic Ecology</b> 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.
<b>Threatened and Endangered Species</b> No impact.	Minor impact as a result of the loss of bat foraging and roosting habitat. Impact would be mitigated in accordance with TDEC requirements.	No impact.
<b>Wetlands</b>		

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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.
<b>Solid and Hazardous Waste</b>		
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.
<b>Socioeconomic Resources</b>		
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. Minor impact to the access to Valley View Church and Church of Christ during construction due to construction related traffic.	Negligible impact due to anticipated minimal employment increase.
<b>Environmental Justice</b>		
No impact.	Minor to moderate indirect impact to potential EJ community due to increased noise, dust and traffic during construction.  Landfill would present a visual impact during operation, mitigated by a vegetated buffer. No impact associated with haul of CCR to the landfill.	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.
<b>Natural Areas, Parks and Recreation</b>		
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.
<b>Transportation</b>		
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.
<b>Visual Analysis</b>		
No impact.	Landfill would represent a notable change to the existing visual integrity, but there would be minimal change in the overall scenic value.	No impact.
<b>Cultural and Historic Resources</b>		
No impact.	No impact.	No impact.
<b>Noise</b>		
No impact.	Minor impact.	Moderate impact.
<b>Public Health and Safety</b>		
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.
<b>Cumulative Effects</b>		
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 for managing the storage of CCR at BRF. Alternative B would achieve the purpose and need of the project with minimal environmental impact. In addition, Alternative B avoids off-site transport of CCR and therefore minimizes impacts of disposal of CCRs to the surrounding community.

## **Mitigation Measures**

The reduction of environmental impacts was an important goal in TVA's process for analyzing methods to store CCR generated at BRF. Mitigation measures designed to minimize or reduce adverse impacts associated with management of CCRs from BRF were identified. These measures include:

- 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 thru March 31).
- 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.
- An ARAP/401/404 permit will be required for disturbance to wetlands.
- 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.
- TVA would maintain the plantings along the portion of Site J adjacent to Old Edgemoor Road to continue to provide a vegetative screen.

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

- Fugitive dust emissions from site preparation and construction would be controlled by wet suppression and other appropriate BMPs (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 EO 13112, disturbed areas would be revegetated with native or non-native, non-invasive plant species to avoid the introduction or spread of invasive species.
- BMPs would be used during construction activities to minimize and restore areas disturbed during construction.

- 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.
- 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.