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BULL RUN FOSSIL PLANT ASH IMPOUNDMENT CLOSURE PROJECT SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT

Anderson County, Tennessee

Prepared by: TENNESSEE VALLEY AUTHORITY Chattanooga, TN

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Symbols, Acronyms, and Abbreviations

BRF	Bull Run Fossil Plant
BMP	Best Management Practices
CAA	Clean Air Act
CCR	Coal Combustion Residuals
CEQ	Council on Environmental Quality
CWA	Clean Water Act
EIP	Environmental Investigation Plan
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
GWPS	Ground Water Protection Standard
MGD	Million Gallons Per Day
mg/L	Milligrams Per Liter
NĒPA	National Environmental Policy Act
NPDES	National Pollutant Discharge Elimination System
PEIS	Programmatic Environmental Impact Statement
SEA	Supplemental Environmental Assessment
TDEC	Tennessee Department of Environment & Conservation
TVA	Tennessee Valley Authority

CHAPTER 1 – PURPOSE AND NEED FOR ACTION

1.1 Introduction and Background

The Bull Run Fossil Plant (BRF) is located in Anderson County, Tennessee, about 5 miles east of downtown Oak Ridge and 13 miles west of Knoxville (Figure 1-1). BRF is operated by Tennessee Valley Authority (TVA) and is located on a 750-acre reservation on the east side of Melton Hill Reservoir at Clinch River Mile 48. Most nearby lands are United States Department of Energy reservation properties for the Oak Ridge National Laboratory facilities, but there are also residential and recreational land uses in the vicinity.

The BRF plant was built between 1962 and 1966. Commercial operation began in June 1967. Nameplate generating capacity for the single unit is 950 megawatts; BRF is the only single-generator coal-fired power plant in the TVA system. 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.

The coal combustion residuals (CCR) generated by the plant include fly ash, bottom ash, and flue gas desulfurization gypsum. Disposal areas for CCR include a dry fly ash stack located east of the plant and a system of wet CCR disposal areas located south of the plant, ending at the convergence of Bullrun Creek and the Clinch River.



View of Fly Ash Impoundment (Right) and Stilling Pond (Left) along Separator Berm

In accordance with the National Environmental Policy Act (NEPA), in July 2016, TVA issued a Final Programmatic Environmental Impact Statement (PEIS) and Record of Decision that considered alternatives and related environmental impacts associated with closure of ash impoundments containing CCR at fossil fuel plants across the Valley. In Part II of the PEIS, TVA considered the closure of the BRF Sluice Channel and Fly Ash Impoundment which are part of the wet CCR disposal area.

The purpose of this document is to present a supplement to the July 2016 Ash Impoundment Closure PEIS, Part II Site-Specific NEPA Review: Bull Run Fossil Plant. This Supplemental Environmental Assessment (SEA) has been prepared to account for changes to the closure plan for the Fly Ash Impoundment identified in the NEPA review.

As originally proposed, the approximately 33-acre Fly Ash Impoundment would be Closedin-Place which would entail dewatering, grading and covering with an approved cover system. BRF ceased sluicing CCR material in 2015. Non-CCR process water from the plant and storm water continue to be discharged into the system, and ultimately into the Stilling Pond. However, under the originally proposed action, process wastewater flow would be conveyed to the Stilling Pond through a new lined ditch prior to release at Outfall 001.



Figure 1-1. BRF Project Location

Subsequent to the completion of the PEIS, TVA determined that there is a long-term need for wastewater treatment at BRF and revised the closure plan to support the wastewater treatment system at BRF. This site-specific SEA therefore tiers off the programmatic level review provided in Part I and the prior site-specific review of proposed ash impoundment closures under Part II of the PEIS.

1.2 Decision to be Made

TVA must decide how to develop a process water basin at BRF to support the wastewater treatment system. TVA's decision considers factors such as potential environmental impacts, economic issues, availability of resources and TVA's long-term goals.

1.3 Purpose and Need

The purpose of this site-specific action is to support the implementation of TVA's stated goal of eliminating all wet CCR storage at its coal plants by closing the Fly Ash Impoundment and Stilling Pond at BRF, and to assist TVA in complying with state requirements and the U.S. Environmental Protection Agency's (EPA) CCR Rule. This project would support a long-term need for wastewater treatment for BRF by providing a facility for process water and storm water treatment.

1.4 Other Environmental Reviews and Documentation

The following environmental reviews are relevant to the proposed action:

Final Ash Impoundment Closure Environmental Impact Statement (TVA 2016). The EIS was prepared to address the closure of CCR impoundments at all of TVA's coal-fired power plants. The report consists of two parts: Part I – Programmatic NEPA Review and Part II – Site-Specific NEPA Review. In Part I, TVA programmatically considered environmental effects of closure of ash impoundments using two primary closure methods: (1) Closure-in-Place and (2) Closure-by-Removal. A Record of Decision was released in July 2016 that would allow future environmental reviews of CCR impoundment closures to tier from the PEIS. In Part II, TVA considered site-specific ash impoundment closure activities at each of six fossil plants, including BRF. The preferred alternative at BRF was determined to be Closure-in-Place. This SEA is intended to tier from the 2016 PEIS to evaluate the revised closure plan for the existing ash impoundments at BRF.

Integrated Resource Plan, 2015 Final Report (TVA 2015b). The plan provides direction for how TVA will meet the long-term energy needs of the Tennessee Valley region. The document and the associated Supplemental Environmental Impact Statement evaluate scenarios that could unfold over the next 20 years. It discusses ways that TVA can meet future power demand economically while supporting TVA's equally important mandates for environmental stewardship and economic development across the Tennessee Valley. The report indicated that a diverse portfolio is the best way to deliver low-cost, reliable electricity. TVA released the accompanying Final Supplemental EIS for TVA's Integrated Resource Plan in July 2015 (TVA 2015a) and in identified BRF as one of the coal plants that TVA plans to continue operating in the future.

The findings in these documents related to this SEA are summarized in Chapter 3 for each relevant environmental resource, and analyses from Part II of the PEIS are incorporated by reference as appropriate.

1.5 Permits, Licenses and Approvals

TVA had previously identified some permits and approvals required to support the closure of the Sluice Trench and Fly Ash Impoundment at BRF. Authorizations required for the proposed action could include the following:

- National Pollutant Discharge Elimination Permit (NPDES) Construction Storm Water Permit for storm water runoff from construction activities.
- Modification to the Tennessee Multi-Sector Permit for Industrial Storm Water discharges would be made for the addition of new storm water outfalls.

 BRF's Storm Water Pollution Prevention Plan would be revised to include the closed Fly Ash Impoundment.

1.6 Scope of the Supplemental Environmental Assessment

The geographic scope of this supplemental analysis includes the 41.6-acre area that contains the Fly Ash Impoundment and the Stilling Pond (Figure 1-1). All activities associated with the proposed action will be limited to previously disturbed areas. The proposed action would entail regrading and consolidating existing CCR materials and will require less offsite borrow than was predicted in the PEIS Tier II analysis. This SEA addresses the potential impacts of the development and operation of the actions associated with the proposed alternatives.

TVA prepared this SEA to comply with NEPA and regulations promulgated by the Council on Environmental Quality (CEQ) and TVA's procedures for implementing NEPA.

This assessment tiers off the impact analysis in the PEIS. Based on the specific activities proposed for this project, TVA focused its environmental review on specific resources and eliminated others from further evaluation. This SEA does not contain detailed discussions of resources not found in the project area, or where site-specific conditions would not change the impact analysis presented in the PEIS and the site-specific analysis contained in Part II.

In consideration of the nature and scope of the proposed action, TVA determined that the potential impacts of the alternatives under consideration on the following environmental resources are bounded by the PEIS including the site-specific assessment of the closure of the Sluice Trench and Fly Ash Impoundment at BRF:

- air qualityparksclimate changepublicland useculturprime farmlandvisualvegetationhazarwildlifewasteaquatic ecologysolidthreatened and endangered speciesnoisegeologytranspwetlandssociofloodplainsenvironatural areaspublic
 - parks public recreation cultural and historic resources visual resources hazardous materials and hazardous waste solid waste noise transportation socioeconomics environmental justice public health and safety

Because the proposed action is primarily associated with the closure, consolidation, and reconfiguration of the Fly Ash Impoundment and Stilling Pond, and because volumes of offsite borrow are substantially reduced from that considered in the previous site-specific analysis, the only resources retained for detailed analysis in this SEA are groundwater and surface water.

TVA's action under this SEA would satisfy the requirements of Executive Order (EO) 11988 (Floodplains Management), EO 11990 (Protection of Wetlands), EO 12898 (Environmental

Justice), EO 13112 as amended by EO 13751 (Invasive Species), and applicable laws including the National Historic Preservation Act, Endangered Species Act (ESA), Clean Water Act (CWA), and Clean Air Act (CAA).

1.7 Public and Agency Involvement

The draft EA was posted on TVA's Web site for a 10-day public review period. The availability of the draft EA was announced in local publications. TVA notified local, state, and federal agencies and federally recognized tribes of its availability through their required consultations. Comments were accepted from June 6, 2017 through June 15, 2017 via online comment form, e-mail, and mail.

TVA received substantive comments from the Tennessee Department of Environment and Conservation and the Southern Environmental Law Center. In response to these comments, TVA has revised the text of the SEA and has included a response to comments in Appendix A.

CHAPTER 2 – ALTERNATIVES

2.1 Description of Alternatives

This chapter describes the alternatives TVA evaluated in this review. Alternatives evaluated in detail are described below.

2.1.1 Alternative A – The No Action Alternative

Per Part I of the PEIS, under the No Action Alternative TVA would not close any of the CCR Impoundments at its coal-fired plants. The No Action Alternative was fully evaluated in Part I of the PEIS to provide a baseline for potential changes to environmental resources; however, it was determined to not meet the purpose and need of achieving TVA's goal of closing CCR Impoundments to comply with the federal CCR Rule and affiliated state rules. Therefore, as was discussed in Part II of the PEIS, the No Action Alternative is not carried forward for site-specific consideration.

2.1.2 Alternative B – Fly Ash Impoundment Closure-in-Place and Repurposing of the Stilling Pond and a Portion of the Fly Ash Impoundment

As described in Part II of the Final Ash Impoundment Closure PEIS, TVA plans to close the Fly Ash Impoundment at BRF. Since completion of the PEIS, TVA has developed a proposed plan to include the Stilling Pond in the closure area. In addition, TVA proposes to repurpose the Stilling Pond and a portion of the Fly Ash Impoundment for use as a Process Water Basin.

The Stilling Pond and a portion of the Fly Ash Impoundment (see Figure 2-1) would be Closed-in-Place with a capping system. TVA would repurpose this closed area, and use it as a Process Water Basin. The capping system for the Closure-in-Place would serve as a bottom liner for the Process Water Basin. The new Process Water Basin would handle only storm water flow and non-CCR process water flow from the plant.

To construct this project, the Stilling Pond and a portion of the Fly Ash Impoundment would be dewatered, regraded and consolidated as necessary to meet closure grades. Material would either remain within the repurposed area, or if it is not suitable for regrading, material would be visibly removed, dried and placed in an onsite permitted solid waste facility. A subsurface drainage layer would be installed during closure to handle any water that enters the excavations during the liner placement. Following construction of the subsurface drainage system, the liner for the proposed new Process Water Basin would be installed. The remaining portion of the Fly Ash Impoundment (the area that would not be repurposed as a Process Water Basin) would subsequently be capped and Closed-in-Place as described in Part II of the PEIS. A conceptual grading plan is provided in Appendix B.



Figure 2-1. Proposed Project Activity Areas Under Alternative B

2.1.3 Alternative C – Fly Ash Impoundment Closure-in-Place and Repurposing of the Stilling Pond

Under this alternative, the Stilling Pond would be closed and repurposed as described under Alternative B, and the Fly Ash Impoundment would be capped and Closed-in-Pace as described in Part II of the PEIS (see Figure 2-2). A conceptual grading plan of the Stilling Pond is provided in Appendix B. Due to the reduced size of the proposed Process Water Basin under this alternative compared to Alternative B, retention time and treatment capacity of the basin may be reduced. TVA would implement appropriate mitigative measures that may include waste water treatment technologies, and/or rerouting or recycling of water to ensure discharge waters comply with NPDES permit limits and TDEC water quality criteria. Therefore, TVA prefers Alternative B, which avoids costs associated with upstream water treatment.



Figure 2-2. Proposed Project Activity Areas Under Alternative C

Table 2-1 summarizes the general characteristics of each impoundment under Alternative B and Alternative C in comparison to that under the previously considered action described in Part II of the PEIS.

Attribute	Original Closure- in-Place Alternative Evaluated in Tier II of PEIS	Alternative B – Fly Ash Impoundment Closure-in- Place and Repurposing of the Stilling Pond and a Portion of the Fly Ash Impoundment	Alternative C – Fly Ash Impoundment Closure- in-Place and Repurposing of the Stilling Pond
Fly Ash Impoundme	nt		
Impoundment Status	Inactive	Inactive	Inactive
Size	33 acres	Portion to be Closed-in-Placeper PEIS:21.4 acresRepurposed:11.6 acresTotal:33 acres	33 acres
CCR Material	Bottom Ash/Fly Ash	Bottom Ash/Fly Ash	Bottom Ash/Fly Ash
CCR Volume	3,500,000 yd ³	3,500,000 yd ³	3,500,000 yd ³
Borrow Material Volume	357,000 yd ³	0 yd ³	357,000 yd ³
Temporary Laydown Areas	5 to 10 acres	5 to 10 acres	5 to 10 acres
Stilling Pond			
Impoundment Status		Inactive	Inactive
Size		8.6 acres (7 acres will be Pond Surface)	8.6 acres (7 acres will be Pond Surface)
CCR Material	Not included in	Bottom Ash/Fly Ash	Bottom Ash/Fly Ash
CCR Volume	Plan	51,000 yd ³	51,000 yd ³
Borrow Material Volume		0 yd ³ of borrow soil 0 yd ³ of borrow soil	
Temporary Laydown Areas		No additional laydown required.	No additional laydown required.

Table 2-1.Summary of Fly Ash Impoundment and Stilling Pond
Attributes Under Original Closure Plan and Alternative B

2.2 Summary of Alternative Impacts

Table 2-2 provides a summary of environmental impacts associated with the previously considered action described in Part II of the PEIS and Alternative B and Alternative C. This impact summary is only limited to those resources reassessed in this SEA as being potentially affected by the revised action.

Resource	Original Closure-in- Place Alternative Evaluated in Tier II of PEIS	Alternative B – Fly Ash Impoundment Closure-in- Place and Repurposing of the Stilling Pond and a Portion of the Fly Ash Impoundment	Alternative C – Fly Ash Impoundment Closure-in- Place and Repurposing of the Stilling Pond
Groundwater	Reduction of hydraulic input reduces risk of migration of constituents	Reduction of hydraulic input reduces risk of migration of constituents to groundwater.	Reduction of hydraulic input reduces risk of migration of constituents to groundwater.
	to groundwater.	Impervious liner at base of repurposed Fly Ash Impoundment and Stilling Pond prevents contact of non-CCR waste water and storm water with groundwater.	Impervious liner at base of repurposed Stilling Pond prevents contact of non-CCR waste water and storm water with groundwater.
Surface Water	Risk to surface water would be reduced. Construction-related impacts would be negligible.	Risk to surface water would be reduced. Construction- related impacts would be negligible.	Risk to surface water would be reduced. Construction- related impacts would be negligible.

Table 2-2.Summary and Comparison of Original Closure Plan and Alternative B
by Resource Area

2.3 Identification of Mitigation Measures

Mitigation measures identified in Parts I and II of the PEIS to avoid, minimize, or reduce adverse impacts to the environment are summarized below. TVA's analysis of preferred alternatives includes mitigation, as required, to reduce or avoid adverse effects. In addition to the items listed below, best management practices (BMPs) would be used throughout the project to minimize erosion, prevent spills, reduce noise, and further reduce potential impacts on environmental resources.

- Fugitive dust emissions from site preparation and construction will be controlled by wet suppression and BMPs (CAA Title V operating permit incorporates fugitive dust management conditions).
- Consistent with EO 13112, disturbed areas will be revegetated with native or nonnative, non-invasive plant species to avoid the introduction or spread of invasive species.
- TVA will implement supplemental groundwater mitigative measures that could include monitoring, assessment, or corrective action programs as mandated by state and federal requirements. The CCR Rule and state requirements provide an additional layer of groundwater protection to minimize risk.

2.4 The Preferred Alternative

TVA's preferred alternative is Alternative B, under which TVA would close the Fly Ash Impoundment and Stilling Pond in place and repurpose the Stilling Pond and a portion of the Fly Ash Impoundment for use as a Process Water Basin. Alternatives B and C both provide long-term benefits and meet the purpose and need of the project as both these alternatives would eliminate wet CRR storage and provide a facility for wastewater treatment at BRF and both would result in minimal environmental impacts. However, because the proposed Process Water Basin is smaller under Alternative C, retention time and treatment capacity of the basin may be reduced. Therefore additional mitigative measures may be needed to ensure discharge waters comply with NPDES permit limits and TDEC water quality criteria. Therefore, TVA prefers Alternative B, which avoids costs associated with the provision of additional waste water treatment measures.

CHAPTER 3 – AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 Introduction

Chapter 3 describes existing resources that may be affected by the alternatives and the potential direct and indirect impacts on those resources. Chapter 3 focuses on the impacts resulting from the proposed activities associated with Alternative B and Alternative C only. Impacts associated with Alternative A are the same as those summarized in Part II of the PEIS and are, therefore, not re-assessed in this document.

3.2 Groundwater

3.2.1 Affected Environment

3.2.1.1 Physiographic Setting and Regional Aquifer

BRF is located in the Valley and Ridge Physiographic Province, a northeast-southwest trending series of parallel ridges and valleys composed of folded and faulted Paleozoic sedimentary rock. The primary surface features are mainly the result of differential weathering of various rock types, which include limestone, dolomite, shale, sandstone and siltstone. Residual soil typically ranges in thickness from about 10 to 150 feet.

Alluvial overburden with variable thickness mantles much of the site and has been derived by flood events of the Clinch River. Larger valleys may have a comparatively thin mantle of alluvial soils ranging in size from clay to coarse sand to boulders, and deeply weathered alluvium in the vicinity of streams and rivers may be found both in low-lying areas and on hills, reflecting the dynamic geologic nature of the province.

In areas underlain by limestone, solution weathering may result in karst development although karst has not been identified at BRF. Four different bedrock units underlie the site. These are the Rome Formation, the Conasauga and Knox groups, and the Chickamauga Limestone (URS 2011).

The plant site straddles Bull Run Ridge which is underlain by the Rome Formation. The valley south of Bull Run Ridge is underlain by rocks of the Conasauga Group while the valley north of the ridge is underlain by several sub-units of the Chickamauga Formation (Stantec 2009). Shallow fractures, enlarged by carbonate dissolution, are more common in this formation than any other at the site. Residuum produced from the Chickamauga is a silty clay containing variable amounts of chert. In the main plant area, the majority of this clayey soil has been removed, and the remaining residuum is expected to range in thickness from 0 to about 25 feet.

Groundwater underlying the BRF site is derived from infiltration of precipitation and from lateral inflow along the northwest boundary of the reservation.

All groundwater originating on, or flowing beneath the proposed site ultimately discharges to the Clinch River/Melton Hill Reservoir without traversing private property. The subsurface water flow occurs both in a shallow zone just beneath the land surface and in a deeper zone at the bedrock interface (TVA 2012).

The bedrock underlying the main plant area (Chickamauga Formation) may locally exhibit properties in which flow is dominated by fractures enlarged by carbonate dissolution. These fractures may alternately store and transmit relatively large volumes of water. At other areas of the site underlain by relatively impermeable strata (i.e., the Rome and Conasauga units), groundwater movement is controlled by fractures that may store fairly large volumes but transmit only limited amounts of water (TVA 2012).

TVA is currently conducting a hydrogeological characterization of BRF that takes into account Tennessee Department of Environment & Conservation (TDEC) information requests pertinent to groundwater flow, including bedding planes, faults and joints. This characterization is conducted in accordance with the requirements of the TDEC Administrative Order issued to TVA on August 6, 2015 (OGC15-0177) to establish a transparent, comprehensive process for the investigation, assessment, and remediation of unacceptable risks resulting from the management and disposal of CCR at TVA coal-fired plants in Tennessee, and the groundwater monitoring requirements of the EPA Final CCR Rule (TVA 2017). The upgraded monitoring system will be used to confirm that CCR management activities at BRF, including closure of CCR facilities, protect human health and the environment.

3.2.1.2 Groundwater Use

As documented previously (TVA 2002), a 1999 survey of water wells in the BRF vicinity indicated there are 17 domestic wells within approximately 1 mile of the BRF dry ash stacking area. The 1999 survey was confirmed by review of a 2004 database update from TDEC (TVA 2005). In accordance with the Environmental Investigation Plan (EIP) developed in cooperation with TDEC, TVA will conduct an updated water use survey. The purpose of the water use survey is to determine if any surface water or ground water (water wells or springs) are being used by local residents or by TVA as domestic water supplies (TVA 2017). Well depths are unknown, but it is likely that most yield water at a relatively shallow depth in the Chickamauga Formation. Most residences located northeast and northwest of the BRF reservation rely on public water provided by the Clinton Utility Board. None of the residential wells are located downgradient of the proposed facility (TVA 2005). There is no potential for future development of groundwater supplies downgradient of the facility, as all property between the proposed facility and surface water boundaries lies within the BRF reservation (TVA 2012). However, in order to ensure that impacts are minimized, and in accordance with the EIP, TVA in cooperation with TDEC will implement the water use survey, conduct a verification plan to establish well characteristics and groundwater use, and conduct additional sampling and analysis, as appropriate (TVA 2017).

3.2.1.3 Groundwater Quality

Figure 3-1 identifies the network of existing groundwater monitoring wells in the vicinity of Sluice Channel and the Fly Ash Impoundment. Statistical analyses have been performed on monitoring wells in the immediate vicinity of the Fly Ash Impoundment (BRF-1, BRF-S, BRF-10-51, and BRF-10-52) using laboratory analytical results from 2000 through August 2014. Time series analyses have been developed for antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, mercury, nickel, selenium, silver, thallium, tin, vanadium, zinc, turbidity and total suspended solids. The metals series' are developed using the total metals analysis results.



Figure 3-1. Network of Groundwater Monitoring Wells Near Fly Ash Impoundment and Stilling Pond at BRF

Subsequent to the completion of the PEIS, TVA continued to sample and monitor groundwater near the Fly Ash Impoundment. Constituent concentrations from groundwater samples taken from the monitoring wells in the vicinity of the Fly Ash Impoundment exceeded the Ground Water Protection Standard (GWPS) for arsenic (BRF-10-52); this is consistent with past results in which arsenic at BRF-10-52 has exceeded the GWPS of 0.010 milligrams per liter (mg/L) since sampling began at this well in 2010. Concentrations have typically ranged from approximately 0.026 to 0.034 mg/L and appear stable. Barium concentrations at BRF-10-51 have consistently been reported as less than 0.100 mg/L; concentrations at BRF-10-52 have consistently been less than 0.650 mg/L. Exceedances of the GWPS of 2 mg/L for barium have not been reported over the last 3 years at either well since 2014. The remaining samples and parameters exhibit trends that appear stable or non-detectable and do not exceed their applicable GWPS.

3.2.2 Environmental Consequences

3.2.2.1 Alternative B – Fly Ash Impoundment Closure-in-Place and Repurposing of the Stilling Pond and a Portion of the Fly Ash Impoundment

Under this alternative, the Stilling Pond and the southern portion of the Fly Ash Impoundment would be repurposed for use as a Process Water Basin. The portion of the Fly Ash Impoundment that is not included as part of the repurposed area would be Closedin-Place as described in the July 2016 Programmatic NEPA Review.

As described in the PEIS, the dewatering and subsequent lack of rainfall infiltration into the CCR materials in the impoundment will provide an immediate reduction in the potential downward influx of leachate moving from the impoundment. Under Alternative B, reduction of the water level or water pressure in the Fly Ash Impoundment is expected to reduce mounding of the surficial aquifer, reduce vertical leaching of CCR constituents and reduce groundwater impacts in a manner similar to that previously described in Part II of the PEIS. The Stilling Pond and southern portion of the Fly Ash Impoundment would be regraded and, if necessary, and any residual CCR would either remain within the repurposed area, or if it is not suitable for regrading, material would be removed, dried and placed in a permitted solid waste facility. These actions would not increase the potential for leaching of CCR constituents to the groundwater as any CCR material left in place would be similarly dewatered and closed with an approved cover system. A foundation drainage layer would be installed beneath the liner system of the repurposed impoundment to remove water under the liner system during construction, thus reducing the uplift pressure on the liner system.

Repurposing of the southern portion of the Fly Ash Impoundment and the Stilling Pond would entail installation of an approved low permeability liner that would isolate surface water above the liner and prevent groundwater contact. In contrast, under Alternative A, no base liner would be installed to isolate groundwater from non-CCR waste water and storm water within the southern portion of the Fly Ash Impoundment and Stilling Pond.

Consequently, as previously described in Part II of the PEIS, proposed impacts to groundwater from in-place closure of a portion of the Fly Ash Impoundment and repurposing of a portion of the Fly Ash Impoundment and the Stilling Pond are expected to be beneficial. Additionally, TVA will implement any supplemental mitigation measures required pursuant to the 2015 Administrative Order issued by TDEC in August 2015 as well as the closure plan approved by TDEC, which could include additional monitoring, assessment, corrective action programs, or other actions deemed appropriate as specified in the EIP (TVA 2017).

3.2.2.2 Alternative C – Fly Ash Impoundment Closure-in-Place and Repurposing of the Stilling Pond

Under this alternative, the entire Fly Ash Impoundment would be Closed-in-Place, and the Stilling Pond would be repurposed for use as a Process Water Basin. In-place closure of the Fly Ash Impoundment would have the same impacts as discussed in Part II of the PEIS. Impacts associated with the in-place closure of the Fly Ash Impoundment and repurposing of the Stilling Pond for a proposed Process Water Basin would be the same as those described under Alternative B. Therefore, impacts to groundwater under this alternative are expected to be beneficial. Additionally, TVA will implement any supplemental mitigation measures required pursuant to the 2015 Administrative Order issued by TDEC in August 2015 as well as the closure plan approved by TDEC, which could include additional

monitoring, assessment, corrective action programs, or other actions deemed appropriate as specified in the EIP (TVA 2017).

3.3 Surface Water

3.3.1 Affected Environment

3.3.1.1 Regional Surface Water Systems

The regional surface water features and water quality in the vicinity of the BRF plant is detailed in Part II of the PEIS for Surface Water.

3.3.1.2 Surface Water of BRF Ash Impoundments

As described in Part II of the PEIS, BRF has several existing wastewater streams that are permitted under NPDES Permit TN0005410. Because the Fly Ash Impoundment discharge (Outfall 001) is the primary wastewater stream potentially affected by the proposed project. it is the only existing BRF wastewater discharge stream discussed here. About 8.83 million gallons per day (MGD) of effluent is discharged from the Fly Ash Impoundment through NPDES Outfall 001 at river mile 48. Primary contributing sources (greater than 1 MGD) include the sump flows and low volume waste streams, boiler bilge sump, main station sump (equipment cooling water and leakage, service bay floor drainage, plant leakage boilers, and roof drains) and the stack yard sump. The current NPDES permit contains limitations on the ash impoundment discharge with respect to pH, oil and grease, total suspended solids, and toxicity. This permit also requires reporting of total nitrogen, cyanide and 15 metals including total aluminum, antimony, arsenic, barium, beryllium, cadmium, copper, iron, lead, mercury, nickel, selenium, silver, thallium, and zinc. Over the last year, the pH of the ash impoundment discharge generally ranged from 7.01 to 8.29; the oil and grease levels ranged between 4.27 and 5.88 mg/L; and total suspended solids levels ranged between 2.5 mg/L and 10 mg/L. All were within regulatory limits. Additionally, BRF has met aquatic whole effluent toxicity monitoring, which further indicates that this plant discharge is not impacting aquatic organisms or water quality.

To evaluate and characterize discharges from Outfall 001, an analysis was conducted to summarize the average historical discharges and the instream mixing concentration from BRF (Table 3-1).

Results of the mixing analysis summarized in Table 3-1 demonstrates that all of the constituents except thallium met the TDEC lowest water quality criteria (i.e., limit equal to the minimum of the applicable stream designated criteria). The thallium exception is an artifact produced by high level calculations that do not account for data with values below detection limits, and the fact that the thallium laboratory analysis detection limit of 0.001 mg/L exceeds the TDEC criterion of 0.00024 mg/L.

	Current Baseline	Current Operations		
	Intake	Ash Stilling	Total	
	Conc.	Pond***	Discharge	
	(mg/L)	Conc.	Conc.	Water Quality
Element		(mg/L)	at	Criteria *
			Clinch	Conc., (mg/L)
			River	
			1Q10	
			(mg/L)	
Aluminum	0.120	0.282	0.13661	
Antimony	<0.001	0.002	0.00062	0.0056
Arsenic	<0.001	0.0089	0.00136	0.01
Barium	0.032	0.046	0.03338	2.0
Beryllium	<0.001	<0.002	0.00055	0.004
Cadmium	<0.001	0.00697	0.00116	0.002
Chromium	<0.001	0.00187	0.00064	0.1
Copper	0.0014	0.0032	0.00159	0.013
Iron	0.130	0.463	0.16414	
Lead	<0.001	0.001	0.00060	0.005
Manganese	0.048	0.108	0.05415	
Mercury	0.0000089	0.00000228	0.000010	0.00005
Nickel	0.0014	0.00484	0.00175	0.1
Selenium	<0.001	0.006	0.00104	0.02
Silver	0.00051	<0.002	0.00056	0.0032
Thallium	<0.001	<0.001	0.00050	0.00024
Zinc	<0.01	0.0177	0.00226	0.13
lbs/day = conc. in mg/L X flow in	MGD X 8.34 lbs/gal.			
CCW Flow	129.3			
Stilling Pond Flow	14.8			
Flow s taken from NPDES flow schematic 2013 for permit, except average flow data was taken for Outfall 001 maximum discharges.				
Mass Discharge and Loadings w	ere calculated using 0.5 the N	linimum Detection Limit		
*TDEC Criteria, Rule 0400-40-03				

 Table 3-1.
 BRF Mixing Analysis of Historical Operations

3.3.2 Environmental Consequences

3.3.2.1 Alternative B – Fly Ash Impoundment Closure-in-Place and Repurposing of the Stilling Pond and a Portion of the Fly Ash Impoundment

BRF currently operates a Fly Ash Impoundment at the southern edge of the plant property, adjacent to the Clinch River to the west and Bullrun Creek to the south. A new lined trench has been constructed adjacent to the previous sluice trench and is now in service. The trench currently conveys process water streams to the Fly Ash Impoundment and Stilling Pond. Under this alternative, approximately 11.6 acres of the 33-acre Fly Ash Impoundment would be Closed-in-Place. The southern portion of the Fly Ash Impoundment and the Stilling Pond (an approximately 11.6-acre area) would be lined and repurposed. The Stilling Pond and the southern portion of the Fly Ash Impoundment would be dewatered into the northern portion of the Fly Ash Impoundment and the northern portion of the Fly Ash Impoundment would be dewatered into the Stilling Pond and the Southern portion of the Fly Ash Impoundment and the northern portion of the Fly Ash Impoundment and the northern portion of the Fly Ash Impoundment and the discharge from the northern portion of

the Fly Ash Impoundment would be pumped directly to Outfall 001. A foundation drainage layer would be installed beneath the liner system of the proposed repurposed impoundment to remove water under the liner system during construction, thus reducing the uplift pressure on the liner system. This system would have a discharge that would be directed into the northern portion of the Fly Ash Impoundment or the repurposed impoundment and is not expected to be needed once construction is completed.

By using engineering controls, the northern portion of the Fly Ash Impoundment would be dewatered of free water into the new repurposed pond once completed and all remaining CCR material would be consolidated and compacted in place. An approved cover system would be installed similar to that described in the PEIS. Under the proposed Action Alternative, all systems currently discharging waste water to the impoundment would be rerouted to the proposed Process Water Basin or other areas of the site.

Storm water from the closed Fly Ash Impoundment would be routed through the proposed Process Water Basin. Some storm water would be conveyed directly from the approved closure system and the remaining areas would drain to the lined process water trench, which would discharge into the proposed Process Water Basin.

The wastewater streams that could change under this alternative are as follows:

- The northern portion of the Fly Ash Impoundment would no longer accept process water flows and would be closed, while a portion would be repurposed as a part of the Process Water Basin.
- The Stilling Pond would be repurposed and combined with a portion of the Fly Ash Impoundment to create a lined Process Water Basin approximately 11.6 acres in size.
- Surface runoff to and from the proposed closed impoundment areas would be rerouted to either the lined trench and/or to the proposed Process Water Basin.
- Water from the Stilling Pond would be drawn down by pumping into the Fly Ash Impoundment and then the Fly Ash Impoundment would be drawn down by pumping to the proposed new repurposed Impoundment or directly to Outfall 001 to facilitate closure.

Surface Water Withdrawal and Discharge

Plant withdrawal rates of withdrawal from would not change with the closure of these impoundments, and all waste streams would still be discharged from the current Outfall 001 location. Although the in-flow quantity would be the same for this project, the wastewater treatment system would be altered. Therefore, the volume of discharge flows would likely depend on the length of time it takes for the process water and surface water to flow through the ditch line and proposed repurposed impoundment.

Construction Impacts

Wastewater generated during the proposed project may include construction storm water runoff, dewatering of work areas, domestic sewage, non-detergent equipment washings, dust control, and hydrostatic test discharges. The PEIS described BMPs that would be implemented to avoid or reduce effects to the environment associated with wastewater. Those BMPs would also be implemented under the proposed activities. The potential

impacts to the environment from these wastewater streams are the same as, and bounded by the description already provided in the PEIS (Section 3.7 Surface Water).

Operational Impacts

The main operational change that would take place with the closure of the impoundments is the change in management of the onsite storm water and process wastewater that is currently treated and discharged from the Fly Ash Impoundment and Stilling Pond. This re-routing would use onsite non-CCR impoundments and the lined process trench to enable the proper handling and treatment of the waste streams. Mitigation measures, such as storm water BMPs and wastewater treatment would be employed, as needed, to mitigate any pollutant discharge.

As described above, the mixing analysis indicates that the historical operations do not have substantial negative impacts to surface water quality. The proposed repurposed Process Water Basin is expected to maintain or improve the quality of water that would be discharged. Additionally, waste water would be managed and treated in lined basin(s), thus eliminating any potential seepage. Furthermore, mitigative measures would be introduced to ensure that discharge waters comply with NPDES permit limits and TDEC water quality criteria. These measures could include but would not be limited to implementing BMPs, waste water treatment technologies, and/or rerouting or recycling water. Therefore, with proper treatment implementation, these waste streams from the proposed impoundment would not be expected to negatively impact surface water quality.

Additionally, TVA would conduct a characterization to confirm no significant impacts to the Clinch River. The waters would be analyzed for metals and other parameters. Because surface water flow and potential underseepage and groundwater releases to surface waters would be eliminated, and because all work would be done in compliance with applicable regulations, permits, and best management practices, potential direct and indirect impacts of this alternative to surface waters would be negligible.

3.3.2.2 Alternative C – Fly Ash Impoundment Closure-in-Place and Repurposing of the Stilling Pond

Alternative C would entail the closure of the entire Fly Ash Impoundment and would only repurpose the Stilling Pond for future use as a Process Water Basin for treatment of non-CCR transport waters. The construction and operational impacts of Alternative C would be similar to Alternative B. however, because the size of the basin would be reduced, retention time and treatment capacity of the basin would be correspondingly diminished. As with Alternative B, mitigative measures would be introduced to ensure that discharge waters comply with NPDES permit limits and TDEC water quality criteria. These measures would be included as needed, but would not be limited to, implementing BMPs, waste water treatment technologies, and/or rerouting or recycling water. Therefore, with proper treatment implementation, these waste streams from the proposed impoundment would not be expected to negatively impact surface water quality.

Additionally, TVA would conduct a characterization to confirm no significant impacts to the Clinch River. The waters would be analyzed for metals and other parameters. Because all work would be done in compliance with applicable regulations, permits, and best management practices, potential direct and indirect impacts of this alternative to surface waters would be negligible. Unavoidable Adverse Environmental Impacts

No significant unavoidable adverse impacts are anticipated to result from the construction and operation of the proposed action beyond those already identified in Part II of the PEIS.

3.4 Relationship of Short-Term Uses and Long-Term Productivity

There would be no changes in short-term use or long-term productivity of the land designated for ash impoundment closure or repurposing as part of the BRF wastewater treatment system. These facilities would be located within the property already used by TVA for ash management or water treatment. Additionally, the proposed actions occur within a landscape subject to on-going human disturbance and maintenance; therefore, the short-term use of the land is not expected to significantly alter long-term productivity of wildlife or other natural resources.

3.5 Irreversible and Irretrievable Commitments of Resources

As described in Part I of the PEIS, there would be minor irreversible and irretrievable commitments due to the preferred action under Alternative B. No irreversible and irretrievable commitments associated with groundwater or surface water resources other than those discussed in the PEIS would result from Alternative B or Alternative C.

3.6 Cumulative Effects

The cumulative impacts of the proposed ash impoundment closure were previously assessed in the PEIS. Relevant past, present and reasonably foreseeable future actions that had the potential to, in conjunction with the proposed action, have a cumulatively greater effect on the environment included the following:

- Mechanical Dewatering Facility
- House Demolition
- New CCR Dry Storage Landfill

No other foreseeable future actions are known within the project vicinity. Because the proposed action would result in environmental effects that are equal to or less than those identified in Part II of the PEIS, no additional cumulative effects are expected with the proposed action.

CHAPTER 4 – LIST OF PREPARERS

4.1 NEPA Project Management

Name:	Ashley Farless, PE, AICP (TVA)
Education:	B.S., Civil Engineering
Project Role:	TVA Project Manager
Experience:	Professional Engineer and Certified Planner, 15 years in NEPA Compliance

Name:	Bill Elzinga (Amec Foster Wheeler)
Education:	M.S. and B.S., Biology
Project Role:	Project Manager, NEPA Coordinator
Experience:	34 years experience managing and performing NEPA
	analyses for electric utility industry, and state/federal agencies; ESA compliance; CWA evaluations

4.2 Other Contributors

Name: Education: Project Role: Experience:	James Feild, PhD (Amec Foster Wheeler) M.S., Hydrogeology and B.S., Marine Geology Groundwater 18 years experience in Remediation, Investigation, Compliance, Drilling and Well Installation, Subsurface Hydrogeology, Fractured Rock Hydrogeology, Quality Assurance, Health & Safety, Waste Management and Restoration)
Name: Education: Project Role: Experience:	A. Chevales Williams (TVA) B.S. Environmental Engineering Surface Water 12 years of experience in water quality monitoring and compliance; 10 years in NEPA planning and environmental

services.

CHAPTER 5 – LITERATURE CITED

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- _____. 2015a. Final Supplemental Environmental Impact Statement for TVA's Integrated Resource Plan, July 2015.
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- _____. 2017. Environmental Investigation Plan Rev. 0, Tennessee Valley Authority, Bull Run Fossil Plant.
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Appendix A – Response to Comments

No.	Name	Comment	Response
1	Tennessee Department of	TDEC is concerned that the proposed repurposing of the stilling pond and	Thank you for your comment. In section VII.D.1 of the Order, TDEC recognizes
	Environment and	reconfiguration of the fly ash pond could hinder further investigation required	that TVA may, in compliance with CCR Rule requirements, elect to close CCR
	Conservation (TDEC)	for the completion of the Environmental Assessment Report (EAR) for BRF as	surface impoundments before the investigative process outlined in the Order
		a part of the Order. The Order states that the EAR "shall provide an analysis	is complete. While TVA must commence closure and repurposing of the Fly
		of the extent of soil, surface water, and ground water contamination by CCR at	Ash Impoundment and Stilling Pond to meet CCR Rule and state requirements,
		the site. The Department shall evaluate the EAR to determine if the extent of	TVA remains dedicated to the Order and completing the site-wide
		CCR contamination has been fully identified." IVA should consider that its	investigation, comprehensive environmental assessment, and any corrective
		proposed action may result in the need to perform remediation reversing some	actions identified. TVA recognizes that TDEC may later require TVA to take
		of the proposed reconfiguration of the stilling pond and fly ash pond at BRF at	other and/or further remedial actions with respect to the Fly Ash Impoundment
0		a later date.	and Stilling Pond deemed appropriate as a result of the investigative process.
2	IDEC	IVA prefers "Alternative B – Fly Ash Impoundment Closure-In-Place and Deputation of the Stilling Dend and a Dertion of the Fly Ash Impoundment"	IVA disagrees that Alternative B represents a significant change to the
		Repurposing of the Stilling Pond and a Pontion of the Fly Ash impoundment	wastewater treatment system at BRF, and the activity associated with
		as proposed in the Drait Supplemental EA. Alternative B would represent a	I Purposing the wastewater system will not ingger any notifications per Part
		angineering reports plans and specifications to be reviewed and approved by	methods listed in Form 2C of the undated nermit application submitted on
		TDEC's Division of Water Resources permitting unit. In addition, throughout	October 21 2016 and TVA anticipates meeting all discharge limitations at
		the reconfiguration process and with the modified wastewater system in place	Outfall 001 without requesting a modification to the NPDES permit. A revised
		the National Pollutant Discharge Elimination System (NPDES) permitted	closure plan will be submitted for Tennessee Division of Water Resources'
		outfalls must continue to meet existing discharge requirements or have the	review in accordance with Part III.A. of the NPDES permit. A Notice of
		permits modified or new permits issued. Owing to the scale of the operation a	Coverage under the construction general permit was issued to BRF for the
		construction storm water permit will also be required. TDEC would like for these	proposed activity on July 20, 2016, tracking number TNR 191563. TVA will
		considerations to be reflected in the Final Supplemental EA.	update and maintain the Storm Water Pollution Prevention Plan in accordance
			with the general permit.
3	TDEC	TDEC recommends that TVA include additional information in the Final	In response to comments on the Draft SEA, TVA has revised the closure plan
		Supplemental EA to demonstrate that the placement of additional fly ash on	for the Fly Ash Impoundment and Stilling Pond. As identified in the Final SEA,
		top of the existing fly ash in the northern portion of the fly ash pond and that	the Fly Ash Impoundment will be Closed-in-Place with a capping system. TVA
		closing the fly ash pond in place will maintain the necessary structural stability	will repurpose this closed area and use it as a process water pond. The
		and not create a significantly higher hydraulic head affecting the mobility of any	capping system for the Closure-in-Place will serve as a bottom liner for the
		ground water contamination that may be present.	process water pond. To construct this project, the Stilling Pond and a portion
			of the Fly Ash Impoundment will be dewatered, regraded and consolidated as
			necessary to meet closure grades. Any material removed from the Stilling Pond
			will be placed in a solid waste permitted facility. Material in the Fly Ash
			suitable for regrading, material will be dried and placed in a permitted colid
			waste facility
4	TDEC	TVA submitted a closure plan to TDEC on March 11, 2016 for the Final Ash	Thank you for your comment TVA plans to submit a revised closure plan that
		Pond Closure Plan - NPDES Permit No. TN0005410 The closure	explains the modifications studied in the Draft Supplemental FA
		configuration in the Draft Supplemental EA proposes significant modifications	
		when compared to those presented in the closure plan submitted on March 11.	
		2016. TDEC would like for TVA to submit a revised closure plan that includes	
		an explanation of the modifications proposed by Alternative B of the Draft	

		Supplemental EA as compared to those originally proposed in the March 11, 2016 closure plan.	
5	TDEC	During the previous review of the January 2016 TVA Draft Ash Impoundment Closure PEIS, it was noted by TDEC that the potential for generation of hazardous waste may occur during the numerous projects. TDEC realizes that various waste materials may be generated from the use of onsite equipment utilized during construction activities. In the event that this generation is to occur, these materials should be characterized for the appropriate disposal option or recycled in accordance with SWM regulations. Additionally, in the event of a fuel, oil or other material spill, the cleanup of the spill will require characterization by the contractor to determine the appropriate disposal options. SWM recommends the preceding comments be addressed in the Final Supplemental EA.	Management of solid waste, hazardous waste, and hazardous materials was previously addressed in Part I of the PEIS. TVA determined that site-specific conditions would not change the manner in which wastes are managed by TVA from that which had previously been described in the PEIS. Therefore, as noted in Section 1.6, of the SEA, the impact analysis presented in the PEIS is considered to be applicable to the proposed action at BRF. Because methods for waste management under the proposed action are the same as those previously described, subsequent analysis in this SEA is not warranted.
6	TDEC	TVA discusses the beneficial re-use of CCR material in lieu of borrow material to close in place the Sluice Channel and the Fly Ash Impoundment on page 11 of the <i>Bull Run Project</i> . TDEC has discussed with TVA the need for approval from TDEC when CCR material is moved, for reasons other than improvement of wastewater treatment within a CCR surface impoundment.	Thank you for your comment. The movement of CCR material within the Fly Ash Impoundment and the removal of residual CCR from the Stilling Pond will be addressed in the Ash Pond Closure Plan for NPDES Permit No. TN0005410.
7	Southern Environmental Law Center (SELC)	Coal ash is submerged in and contaminating groundwater in the Fly Ash Pond, and the contaminated groundwater is flowing into the nearby surface waters.	As referenced in the SEA, TVA has reported the characteristics of groundwater in the vicinity of the fly ash impoundment and has also supported the analysis of potential groundwater and surface water impacts. Notably, TVA does not have and is not knowledgeable of any data that supports the claim that contaminated groundwater is flowing into the nearby surface waters. As described in the PEIS, dewatering, installation of a low permeability cover, and subsequent lack of rainfall infiltration into the CCR materials in the impoundment will provide an immediate reduction in the potential downward influx of leachate moving from the impoundment through the vadose zone. Under Alternative B, reduction of the water level or water pressure in the Fly Ash Impoundment is expected to reduce mounding of the surficial aquifer, reduce any potential vertical leaching of CCR constituents and reduce any potential groundwater impacts in a manner similar to that previously described in Part II of the PEIS. Since completion of the PEIS, TVA has developed a proposed plan to include the Stilling Pond in the closure area. Under this plan the Stilling Pond and a portion of the Fly Ash Impoundment would be dewatered, regraded and consolidated as necessary to meet closure grades. Material would either remain within the repurposed area, or if it is not suitable for regrading, material would be dried and placed in a permitted solid waste facility. A subsurface drainage layer would be installed during closure to handle any water that enters the excavations during the liner placement. Following construction of the subsurface drainage system, the liner for the proposed

			 new process water pond would be installed. The remaining portion of the Fly Ash Impoundment (the area that would not be repurposed as a process water pond) would subsequently be capped and Closed-in-Place as described in Part II of the PEIS. Consequently, as previously described in Part II of the PEIS, proposed impacts to groundwater from in-place closure of a portion of the Fly Ash Impoundment and repurposing of a portion of the Fly Ash Impoundment and the Stilling Pond are expected to be beneficial. Additionally, TVA will implement any supplemental mitigation measures required pursuant to the Administrative Order issued by TDEC in August 2015 as well as the closure plan approved by TDEC, which could include additional monitoring, assessment, corrective action programs or other actions deemed appropriate as specified in the EIP (TVA 2017).
8 SEL	LC	 The project does not satisfy the purpose and need identified in the SEA, for the following reasons: 1. The federal Coal Ash Rule does not allow TVA to leave coal ash permanently submerged in groundwater. 2. The federal Coal Ash Rule does not allow TVA to use coal ash as "fill" when closing in place an unlined, leaking coal ash pit such as the Fly Ash Pond. 3. The Tennessee Solid Waste Disposal Act requires TVA to obtain authorization before undertaking the Project. 	 (1) Response to SELC Comment: The federal Coal Ash Rule does not allow TVA to leave coal ash permanently submerged in groundwater. In promulgating the federal CCR Rule, EPA concluded that dewatering and capping CCR impoundments in place would reduce any risk of harm from groundwater contamination by reducing the hydraulic pressure of impounded water. See, e.g., 80 Fed. Reg. 21302, 21328, 21342, 21357. In response to comments like this, EPA considered the potential implication of groundwater saturated CCR (CCR that is below the groundwater table) on its risk conclusions and concluded that "this uncertainty is unlikely to have an appreciable effect." EPA, Human and Ecological Risk Assessment of Coal Combustion Residuals, 5-10 - 5-11 (December 2014). Regardless of the location of the ash with respect to the water table, TVA expects the closure will improve groundwater quality relative to baseline (current) conditions. Groundwater also will be monitored after closure to detect groundwater impact improvements in accordance with a closure plan and CCR post-closure requirements, which will include monitoring, assessment, and corrective action, if appropriate. If groundwater quality falls below applicable standards, additional corrective action would be taken. In addition, TDEC is comprehensively evaluating CCR risks under the administrative order at all of TVA's plants in Tennessee, except Gallatin, and expressly retains the authority to require TVA to do more than is required by the EPA rule if it determines there are unacceptable CCR contamination risks. SELC mischaracterizes the closure performance standard in the CCR Rule, which states that utilities utilizing the closure-in-place option:

Original minimizer of all similar to the mentioned state to the mentioned to all the mentioned to all the second states and the second states and the second states are stated as a second state and the second states are stated as a second state and the second states are stated as a second state and the second states are stated as a second state and the second states are st
Control, minimize or eliminate, to the maximum extent feasible, post-closure
infiltration of liquids into the waste and releases of CCR, leachate, or
contaminated run-off to the ground or surface waters or to the atmosphere.
$40 \text{ C} \in \mathbb{R}$ 8 257 $102(d)(i)$ (emphasis added). SELC reads this standard as
somehow precluding any CCR in the closed unit from contacting groundwater
at the completion of closure. The regulatory text, however, says pathing of
at the completion of closule. The regulatory text, however, says holling of the sort, and instead speaks to preventing to the "maximum extent feasible"
the post cleans infiltration of liquids into the wests (i.e., through the final
(ine post-closure minimulation of inquites into the waste (i.e., through the milation of the post-closure system) to provent releases of CCP or contaminated rupoff "to the
around or surface waters or the streamhers" in other words, the
ground of surface waters of the atmosphere. In other words, the
performance standard is speaking to the performance of the inflated of the inflated of the inflated of the second
System— the central reactive provide the proventing liquide from infiltrating the
257.102(0)(5))—and its electiveness in preventing inquits from bring released or
Cover and causing CCR contained in the closed unit norm being released of
door not even mention groundwater because the standard is addressing the
ubes not even mention groundwater because the standard is addressing the
prevention of inquities through the unit's cover system-as opposed to
addressing CON in contact with groundwater. This interpretation is fulfiller
commended by the related regulatory text detailing how this performance
standard is to be met. Thist, the written closure plan for impoundments
the final cover system will achieve the performance standards specified in
$r_{\rm rec}$ interminal cover system will achieve the performance standards specified in paragraph (d) [i.e., the closure in place performance standard] " 40CEP
257.102(h)(1)(iii) (amphasis added). Thus, the rule on its face tice
achievement of the closure in place performance standard to the proper
installation of the final cover system
installation of the linal cover system.
(2) Response to SELC Comment: The federal Coal Ash Rule does not
allow TVA to use coal ash as "fill" when closing in place an unlined,
leaking coal ash pit such as the Fly Ash Pond.
SELC mischaracterizes the CCR Rule, which "does not apply to practices that
meet the definition of a beneficial use of CCR " 40 C F R & 257 50(a) (2016)
In particular, a finding that the material meets the beneficial use criteria in the
CCR Rule means that its use does not pose the degree of risk to human health
and the environmental that EPA regulates under the CCR Rule 80 Fed. Reg
at 21348 (explaining that the four criteria distinguish between regulated and
unregulated activities because "FPA only regulates those [disposal activities]
that present risks that exceed the Agency's acceptable risk levels") TVA did
perform a beneficial use demonstration, which concluded that use of the
bottom ash to close the fly ash pond would meet the beneficial use criteria in
the CCR Rule.

			(3) Response to SELC Comment II.C.: The Tennessee Solid Waste Disposal Act requires TVA to obtain authorization before undertaking the Project. TVA will obtain all required approvals before pursuing this project.
9	SELC	The SEA fails to identify a reasonable range of alternatives. The SEA discusses only the no-action alternative and the Project, both of which would result in TVA violating federal and state water quality and solid waste laws. In comments on the draft Ash Closure EIS, we identified a range of options for closure by removal. TVA must consider such a range, including disposal in the on-site landfill that is currently being developed at Bull Run.	We disagree. As described in 40 CFR § 1502.9(c)(1)(i) a supplement is appropriate when "The agency makes substantial changes in the proposed action that are relevant to environmental concerns" In the case of the subject SEA, TVA has determined that notable changes in the proposed action should be considered to facilitate other objectives related to process water and storm water treatment at BRF. TVA responded to SELC's comments on the range of options for Closure by Removal in the Final Programmatic EIS. Because the No Action and Closure-by-Removal alternatives are unchanged from the prior analyses considered in the PEIS, the scope of this SEA is appropriately limited to the Close-in-Place alternative. As stated in the Final EIS for the Bull Run Landfill (January 2017) that landfill is being constructed to support current plant operations and lacks additional capacity to receive existing CCR from impoundments subject to closure at Bull Run; thus, considering the landfill in this SEA is not a reasonable alternative for this proposed action and need not be considered.
10	SELC	TVA has failed to identify a full list of significant environmental impacts to groundwater and surface water, each of which requires an approval or permission.	We disagree. The SEA as a "supplement" to the PEIS and the Part II site- specific analysis, incorporates all analyses from the PEIS for the full list of environmental resources where they are sufficient in representing the potential effects of the proposed action. Table 2-1 of the SEA demonstrates that Alternative B is consistent with the Close-in-Place alternative described in the PEIS. Attributes of the proposed action under consideration that remain unchanged from the previous analysis include the size of the impoundment, type and nature of CCR materials, size of laydown, characteristics of the fly ash impoundment as "non-waters of the US", location NPDES outfall, etc. Proposed modifications to the closure alternative as described in the SEA are considered to have potential implications for groundwater and surface water resources only; therefore, these resources are the only ones requiring assessment in this SEA. Potential impacts to all other environmental resources are consistent with or reduced in magnitude from that which had previously been described in the PEIS.
11	SELC	The Project requires additional state and federal authorization, including but not limited to, the following: dewatering ash ponds, discharging into Bull Run Creek, modifying or constructing new treatment works, filling waters of the United States, and preparing and posting Coal Ash Rule closure plans and notifying TDEC.	NPDES outfall is to Clinch River, not Bullrun Creek. The Fly Ash Impoundment and Stilling Pond are not TDEC permitted facilities therefore a modification for closure is not required. Groundwater monitoring wells are currently present at these units and are sampled semi-annually for TDEC Rule 0400-11-01 Appendix I parameters and

	the additional 40 CFR Part 257 Federal Coal Combustion Residuals Appendix III and IV constituents. Reports of the results are submitted semi-annually to TDEC.
	The activity associated with repurposing the wastewater system will not trigger any notifications per Part II.B. of the NPDES permit TN0005410. There will be no changes to the treatment methods listed in Form 2C of the updated permit application submitted on October 21, 2016, and TVA anticipates meeting all discharge limitations at Outfall 001 without requesting a modification to the NPDES permit. A Notice of Coverage under the construction general permit was issued to BRF for the proposed activity on July 20, 2016, tracking number TNR 191563. TVA will update and maintain the Storm Water Pollution Prevention Plan in accordance with the general permit.
	A revised closure plan will be submitted for Tennessee Division of Water Resources review in accordance with Part III.A. of the NPDES permit. The revised closure plan will also be posted in the operating record and provided to TDEC.
	Dewatering is an operations and maintenance activity that is performed as part of operations and is not an activity that requires a permit.

Appendix B – Grading Plans



Final Supplemental Environmental Assessment

