UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
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ATLANTA, GEORGIA 30303-8960

JUL 26 2016

Ms. Anita E. Masters
Tennessee Valley Authority
1101 Market St., BR 4A
Chattanooga, Tennessee 37402

Re: Draft Environmental Impact Statement (DEIS) for Bull Run Fossil Plant Landfill, Anderson County, Tennessee; CEQ No: 20160111

Dear Ms. Masters:

The U. S. Environmental Protection Agency (EPA) has reviewed the referenced document in accordance with Section 309 of the Clean Air Act and Section 102(2)(C) of the National Environmental Policy Act (NEPA). The purpose of this Draft Environmental Impact Statement (DEIS) is to address the continued disposal of Coal Combustion Residuals (CCR) from the Bull Run Fossil Plant ('BRF'). The facility is located in Anderson County, Tennessee, approximately 5 miles east of downtown Oak Ridge and 13 miles west of Knoxville. The current on-site storage capacity of approximately 1.2 million yd^3 is estimated to be expended within 10 years. The Tennessee Valley Authority (TVA) will need to identify additional storage capacity for long-term disposal of the dry CCR materials (fly ash, bottom ash and gypsum) produced at the BRF. Additional storage capacity would also enable the TVA to continue operations at the BRF as planned and would be consistent with TVA's voluntary commitment to convert wet CCR management systems to dry systems.

The EPA reviewed the 3 alternatives for disposal of CCR generated at BRF that were considered in this evaluation including the no action alternative (Alternative A), on-site construction and operation of a landfill on property adjacent to BRF (Alternative B), and off-site transport of CCR to an existing permitted landfill (Alternative C). The Chestnut Ridge Landfill is the nearest Resource Conservation and Recovery Act (RCRA) Subtitle D landfill to the BRF and was analyzed as Alternative C in the DEIS. The EPA understands that the TVA has identified Alternative B as their preferred alternative. Alternative B consists of constructing and operating a Landfill for Storage of CCR on the TVA's property adjacent to the BRF. The TVA states that Alternative B would achieve the purpose and need of the project with minimal environmental impact and this alternative will avoid off-site transport of CCR and the associated environmental impacts to human and natural resources.

The EPA has rated this DEIS as "EC-2"– or Environmental Concerns with additional information being requested for the Final Environmental Impact Statement (FEIS). The EPA has identified environmental concerns associated with the proposed action that could require changes to the TVA's preferred alternative and has enclosed detailed technical comments and

recommendations for your consideration (See enclosure). At a minimum, we recommend that the TVA should adhere to the mitigation measures and best management practices (BMP's) that have been identified in Section 2.4 of the DEIS. (See enclosure). The EPA's primary environmental concerns are in regards to the long-term protection of aquatic resources and water quality and fugitive dust emissions from CCR operations. The EPA has not, however, identified a different environmentally-preferred alternative from the TVA's preferred alternative.

The EPA appreciates the opportunity to review the Bull Run Fossil Plant Landfill DEIS. If you wish to discuss this matter further, please contact Mr. Christopher Militscher, Chief of the NEPA Program Office at (404) 562-9512 or by e-mail at Militscher.chris@epa.gov.

Sincerely,

G. Alan Farmer
Director
Resource Conservation and Restoration Division

Enclosure

Enclosure
Draft Environmental Impact Statement
Bull Run Fossil Plant Landfill, Anderson County, Tennessee
CEQ No.: 20160111

Background Information Related to Purpose and Need: The TVA's BRF has state-of-the-art air pollution controls and is one of the coal plants that the TVA plans to continue operating in the future (TVA, 2015c). When at full operating capacity, BRF produces approximately 560,000 yd^3 of CCR a year, which indicates that the TVA would require approximately 11 million yd^3 of disposal capacity to accommodate 20 years of CCR generation. The DEIS states that the current on-site storage capacity of approximately 1.2 million yd^3 will be expended within 10 years. 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.

Recommendations: The EPA found that the in the References section and under *1.4 Related Environmental Reviews* of the DEIS electronic links to each of the TVA's and TVA contractors' (e.g., URS 2011) documents cited are not working and should be corrected and provided in the FEIS. This information is important for understanding many of the assumptions stated in this document that are based on previous studies, such as the assumption of 20-year time horizon for fuel-generated power at BRF.

The DEIS does not identify the estimated quantity of CCR being utilized for beneficial use and the EPA requests that this information be provided in the FEIS. If no CCR is currently being utilized for beneficial use, the TVA might wish to identify its plans for developing future markets of CCR in the FEIS.

The EPA also requests that additional information be provided in the FEIS should there be hydrologic connection between existing groundwater contamination at Area 2 Fly Ash Pond and the future new landfill.

Alternatives Analysis: The TVA has identified Alternative B, Construct and Operate a Landfill for Storage of CCR on TVA Property Adjacent to BRF (Site J), as its preferred alternative. 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.

Comments and Recommendations: The stated rationale for the selection of the onsite J Area for the construction of a new CCR landfill (the preferred alternative) versus using the Chestnut Ridge Stage I RCRA-D landfill is somewhat unclear and the criteria evaluated does not appear to be fully explained. For example, the EPA found from the review of the DEIS that the Chestnut Ridge Landfill has a higher preliminary score and does not require new permits. From Table 2-2 (page 11), the Chestnut Ridge Landfill scored better (52) than the J Area landfill site (59). The Chestnut Ridge Landfill is an existing, permitted landfill that has sufficient capacity to meet the need for long-term storage of CCR generated at the BRF. The primary impacts identified in the screening analysis were related to the cost and impacts associated with the transportation of CCR

from the BRF to the Chestnut Ridge Landfill site. To the extent that the TVA anticipates tipping fees charged for disposing at the Chestnut Ridge Landfill (whereas disposal at the J Area CCR Landfill would not entail tipping fees), this should be also clearly identified in the FEIS.

The EPA found that some of the environmental benefits of the preferred alternative may have been overstated in comparison to an off-site disposal option. For example, Alternative Site J contained an on-site private haul road that is located on TVA-owned property adjacent to the BRF. As such, this alternative would have no impacts associated with the transport of CCR on public roadways. Use of this site, in conjunction with existing on-site storage capacity at the BRF, would meet the need for long-term storage of CCR from the BRF. The site had favorable geologic conditions and development and operation of the new landfill would result in relatively low impacts on the natural environment. However, the EPA found that the proposed landfill site is relatively close to existing residential developments and may result in some potential impacts to environmental justice (EJ) populations. The EPA requests that this issue be further analyzed by the TVA and disclosed in the FEIS.

The EPA is also concerned that the J area landfill might fail to satisfy the 20-year disposal capacity for the BRF operational timeline (whereas the Chestnut Ridge Sanitary Landfill would potentially satisfy more than twice the projected disposal capacity). Section 2.2.2 of the DEIS states: "*The landfill would provide approximately 15.5 years of disposal capacity based on current estimated consumption rates.*" The EPA notes, however, that Table 2-1 indicates that the life span of the J area Landfill is estimated at 12 years. This is less than the 20-year time horizon for which the additional disposal capacity for the BRF Plant is planned. The EPA recommends that these potential inconsistencies be addressed in the FEIS and any other plans that might be under consideration to meet the 20-year disposal capacity objective.

The Preferred Alternative: Based upon EPA's review of the DEIS, the construction of the J area landfill potentially entails significant cost outlays, environmental impacts, and administrative hurdles associated with a new road, a stream diversion, the relocation of a transmission line, as well as the issuance of new permits. In addition to designing and building the new landfill in accordance with State and federal requirements, a 1.37 mile, 40 feet wide two-lane asphalt haul road with paved shoulders would be constructed on-site to transport CCR from the dewatering facility to the landfill. Construction of the landfill at Area J would also require relocating the Worthington Branch stream channel, which currently bisects the site. Approximately 2,158 linear ft. of channel would be relocated to the north of the existing channel to an approximately 2,700-ft long, 30-foot deep, and 10-foot wide channel. The channel would require excavation, including blasting, to depths of up to approximately 30 ft., most of which would be in rock. The new haul road impacted area is approximately 14.8 acres, increasing the total project impact area to approximately 134.7 acres. Approximately 1,321 ft. of Worthington Branch would be impacted by the proposed haul road and 2,158 linear ft. of Worthington Branch and its tributaries would be relocated to an excavated 2,700-ft long channel to the north. The DEIS also identified 2.1 acres of direct impacts to jurisdictional wetlands from the construction of the new landfill.

Construction of the haul road would encroach into the Worthington Branch channel at one or more locations. The TVA has coordinated with the Tennessee Department of Environmental Conservation (TDEC) and the U.S. Army Corps of Engineers (USACE) and has proposed mitigation for these areas through payment to an appropriate stream bank and/or restoration on-

site. All applicable State permits and the USACE 404 permit would be obtained and mitigation prescribed by the terms and conditions of these permits would be followed by the TVA.

Leachate and stormwater that may have contacted CCR materials would be handled separately from non-contact stormwater and would be pumped to the plant for treatment prior to discharge through the National Pollution Discharge Elimination System (NPDES) Outfall 001. Stormwater that does not have contact with CCR would be discharged from the two (2) stormwater detention and settling ponds into the re-located segment of Worthington Branch. As the proposed new sources of discharge will adhere to the permit requirements, no impacts to water quality are anticipated. In the later stages of the landfill operation (development of the third cell), a portion of an existing 69 kilovolt overhead electric transmission line would need to be relocated.

Recommendation: The preferred alternative may require modification to the existing Multi-Sector permit to include these two new industrial stormwater outfalls. However, from EPA's review of the DEIS it is not clear whether the wastewater treatment facility has the capability of treating wastewater for potential metals associated with CCR. The FEIS should include additional information on the TVA's preferred alternative and specific measures being considered to avoid and minimize impacts to aquatic resources and water quality.

Endangered Species Issues Associated with the Preferred Alternative: From Section 2.4 of the DEIS, there is potentially suitable roosting habitat for endangered bat species within the project area and 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). Due to the loss of potentially suitable foraging and roosting habitat for endangered bat species, Section 7 consultation with the U.S. Fish and Wildlife (FWS) will be required.

Recommendation: The EPA defers to the FWS regarding matters pertaining to compliance with the Endangered Species Act. The EPA recommends that any additional conservation measures identified by the FWS during consultation be included in the FEIS and/or Record of Decision (ROD).

Potential Compliance Issues with State and County Requirements: In Appendix B under the Alternative Site Screening Analysis, it indicates that compliance with TDEC and county ordinances could prevent the full development of a CCR landfill at the J Area unless additional measures are taken. TDEC's provisions (TDEC Rule Chapter 0400-11-01-.02, Solid Waste Storage Processing and Disposal Facilities), state that: "*Construction of the landfill would adhere to the specific buffer zone standards identified in the rule note that all fill areas must be, at a minimum: (i) 100 ft. from all property lines, and (ii) 500 ft. from all residences, unless the owner of the residential property agrees to a shorter distance.*"

Recommendations: The EPA requests that the TVA further explore and identify if these State and local requirements can or will be met by the selection of the preferred alternative. The EPA has environmental concerns regarding fugitive dust emissions and the proximity of the new proposed landfill to residential areas. With the exception of the small-scale map in Figure 1-1 in the Alternative Site Screening Analysis (Appendix B), the DEIS maps of the BRF Plant's/J Area and its close vicinity do not depict the proximity of the residential areas and that of shopping plazas (the latter, appears to be less than 500 ft. from the proposed onsite, J Area landfill.). The

EPA recommends that the FEIS provide more detailed maps which are accompanied by narrative information concerning the size of the population at 200, 300, 500 and 1,000-ft. diameters from the edges of the proposed J Area landfill. Also, the distance to the closest school(s), community recreation area(s), shopping plaza(s), public parking lots, office buildings and other areas of relatively high congregation in proximity to the proposed onsite J Area landfill might also be identified in more detailed maps. The TVA may also wish to compare these parameters to the same population concentration parameters along the route to the Chestnut Ridge Landfill to fully depict the comparison between the primary alternatives considered.

CCR Fugitive Dust Associated with the Proposed Action: According to DEIS, "*…the air quality impacts are measured by the number of sensitive receptors (i.e., residences) within 200 ft. of the haul routes and the distance between the closest residences and the waste limits of the landfill. Measures to minimize fugitive dust associated with transportation and operation would be employed as needed. Therefore, none of the proposed sites are expected to result in high unavoidable adverse air quality impacts.*" Furthermore, the nearest residential structure is located directly adjacent to the eastern limits of Site J and the surrounding areas are described as primarily residential with some areas zoned commercial to the northwest and heavy industrial to the west where the plant is located.

Recommendation: Regarding CCR fugitive dust, the EPA contends that the effective impact distance and inhaled dust dose to potential recipients is not only dependent on their distance from the source term, but also on the prevailing wind directions and their speed, on the size of (clusters) of recipient population, and on the average time the emissions would spend within the impact zone of the fugitive dust. The EPA recommends that the TVA consider future monitoring to ensure that off-site populations are not potentially impacted by CCR fugitive dusts and include a more robust analysis in the FEIS.

Area J Landfill Design and CCR Rule: Based upon the EPA's review of the DEIS, we were not able to identify specific landfill design criteria pertaining to groundwater levels.

Recommendation: The TVA might consider the elevations of groundwater at the newly proposed onsite landfill at Area J and ensure that these levels comply with the requirements of the 2015 CCR Rule to maintain at least five feet of separation between the bottom of the new disposal unit and the highest level of the groundwater table. The TVA might also specify *all* the measures it would follow to ensure compliance of the new landfill with the April 2015 CCR Rule in the FEIS (i.e., siting requirements, structural stability requirements, and operational requirements).

Related Environmental Reviews: According to the DEIS, the following environmental reviews have been prepared for actions related to CCR management at BRF: *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 National Environmental Policy Act (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. Conclusions reached from the programmatic analysis are generally

applicable to any CCR ash impoundment in the TVA system. Part II is an integrated analysis of ten site-specific ash impoundment closures including the ash impoundments at BRF.

Recommendation: The EPA recommends that the TVA consider a clearer discussion concerning the selection of the closing-in-place alternative for all the ten ponds, including the Fly Ash Pond and Sluice Channel at the BRF, in the FEIS. The TVA may wish to clarify a potential discrepancy between the options selected for consideration for increasing the future disposal capacity of CCR, as required by the decision to continue operating the BRF, and response # 34 in Appendix A of the Final Programmatic Pond Closure EIS where the TVA stated that there is no more on-site space for a landfill that could accommodate the CCR removed from the site's two ponds.