



Billing Code 8120-08-P

TENNESSEE VALLEY AUTHORITY

Ash Impoundment Closure Final Environmental Impact Statement Part I Programmatic Review and Part II Site-Specific Review of 10 Ash Impoundments

AGENCY: Tennessee Valley Authority.

ACTION: Record of Decision.

SUMMARY: This notice is provided in accordance with the Council on Environmental Quality's regulations (40 CFR parts 1500 to 1508) and Tennessee Valley Authority's (TVA's) procedures for implementing the National Environmental Policy Act (NEPA). TVA's Final Ash Impoundment Closure Environmental Impact Statement (EIS) Part I – Programmatic NEPA Review analyzed methods for closing impoundments that hold coal combustion residuals (CCRs) on a programmatic basis. Part II of this EIS addressed closing 10 impoundments or other wet-CCR facilities (collectively, "impoundments") at six of TVA's plants on a site-specific basis.

TVA has decided that the environmental and other factors identified in part I for screening and evaluating closure alternatives on a site-specific basis are appropriate for use in its future decision-making processes involving the

proposed closure of CCR impoundments. It also has decided to implement the preferred closure alternatives identified for each of the site-specific evaluations in part II. The Notice of Availability (NOA) of the Final Ash Impoundment Closure EIS, Part I Programmatic NEPA Review and Part II Site Specific NEPA Reviews was published in the **Federal Register** on June 10, 2016.

FOR FURTHER INFORMATION CONTACT: Ashley Farless, 1101 Market Street BR 4A, Chattanooga, TN 37402, 423.751.2361, CCR@TVA.gov. The Final EIS, this Record of Decision (ROD) and other project documents are available on TVA's website <https://www.tva.gov/nepa>.

SUPPLEMENTAL INFORMATION:

TVA is a corporate agency of the United States that provides electricity for business customers and local power distributors serving more than 9 million people in parts of seven southeastern states. TVA receives no taxpayer funding, deriving virtually all of its revenues from sales of electricity. In addition to operating and investing its revenues in its power system, TVA provides flood control, navigation and land management for the Tennessee River system and assists local power companies and state and local governments with economic development and job creation.

TVA has coal-fired plants and CCR impoundments in Alabama, Kentucky, and Tennessee. CCRs are byproducts produced from burning coal and include fly ash, bottom ash, boiler slag and flue gas desulfurization materials. CCRs are not

hazardous, but they contain small amounts of chemical substances such as arsenic, chromium and cobalt. TVA has monitored ecological conditions adjacent to its plants and conducted toxicity testing of CCR wastewater from its plants for years. None of the data show adverse impacts to human health or the environment from CCR-related contamination.

During 2015, TVA produced nearly 4 million tons of CCR with approximately 2.1 million tons being synthetic gypsum, 1.1 million tons being fly ash, 0.4 million tons of bottom ash and 0.3 million tons of boiler slag. Approximately 34 percent of CCRs produced was used or marketed, and the remaining CCRs are currently stored in landfills and impoundments at or near coal-fired plant sites. TVA CCR impoundments vary in size from less than 10 acres to nearly 400 acres. All of TVA's CCR facilities operate under permits issued by the States in which they are located.

TVA has committed to closing its wet CCR impoundments and converting wet CCR management processes to dry processes. These actions are undertaken on a project-by-project basis, subject to technical feasibility, availability of resources and environmental review.

In April 2015, the U.S. Environmental Protection Agency (EPA) established national criteria and schedules for the management and closure of CCR facilities. EPA purposefully structured its CCR Rule to encourage utilities to accelerate the closure of CCR impoundments because of the decrease in groundwater

contamination risk and increased structural stability that results from eliminating the hydraulic pressure of ponded water.

On April 18, 2016, after release of the Draft EIS, EPA asked the D.C. Circuit Court of Appeals to remand and vacate the accelerated closure incentive in a partial settlement of litigation challenging the CCR Rule. This does not affect EPA's technical determination that accelerated closure will significantly reduce structural failure and groundwater contamination risks. Because of this pending regulatory change, TVA decided not to use the April 2018 incentive closure date as a significant factor in its consideration of the reasonableness of a closure alternative. Instead, TVA took into account the 5-year timeframe that EPA set for completing impoundment closures, [40 Code of Federal Regulations (CFR) 257.102(f).] However, early closure is environmentally preferable to closure later and this still remains an important consideration in TVA's analyses.

The purpose of this action is to support the implementation of TVA's goal of eliminating all wet CCR storage at its coal plants by closing CCR impoundments across the TVA system in a safe and effective manner, and to assist TVA in complying with EPA's CCR Rule.

Alternatives Considered

The EIS addressed closure alternatives that have reasonable prospects of providing a solution to the disposal of CCR. EPA's rule establishes two primary closure methods: (1) Closure-in-Place and (2) Closure-by-Removal. EPA

observed that most facilities would be closed in place because of the difficulty and cost of Closure-by-Removal. It determined that either closure method would be equally protective of human health and the environment if completed properly. Accordingly, TVA developed three alternatives to the proposed action:

- Alternative A – No Action
- Alternative B – Closure-in-Place
- Alternative C – Closure-by-Removal

The EIS analyzes, to the extent practicable, the impacts resulting from each of these closure alternatives and the effectiveness of best management practices and mitigation measures in reducing potential impacts.

Alternative A – No Action

Under the No Action Alternative, TVA would not close any of the CCR impoundments at its coal-fired power plants. This alternative is included because applicable regulations require consideration of a No Action Alternative in order to provide a baseline for potential changes to environmental resources. However, the No Action Alternative is inconsistent with TVA's goal to convert all of its wet CCR systems to dry systems, the general direction of EPA's CCR Rule and other actions required by state regulatory programs related to CCR management.

Alternative B – Closure-in-Place

Closure-in-Place involves dewatering the impoundment, stabilizing the CCR in place and installing a cover system. The cover system over the compacted CCR prevents precipitation and storm water runoff from reaching the CCR. Doing this reduces hydraulic pressure and thereby reduces risks of structural instability and groundwater contamination. TVA concluded that it would take less than five years to close an impoundment in place, depending on its size, the distance to the cover system borrow area, and the condition of the road network between the borrow location and impoundment being closed.

Alternative C – Closure-by-Removal

Closure-by-Removal involves dewatering the impoundment and excavating CCR, transporting it to a lined, permitted landfill, reshaping the site and filling it with borrow material. The duration of Closure-by-Removal projects would depend on a number of factors including, primarily, the amount of CCR to be removed from the impoundment, logistics associated with drying out the CCR and loading it into trucks or rail cars, and the amount of borrow material that must be transported to the site to fill in the excavated hole.

Environmentally Preferred Alternative

Part I: Programmatic NEPA Review

The EIS includes baseline information for understanding the potential environmental and socioeconomic impacts associated with the closure alternatives considered by TVA. TVA carefully considered 21 resource areas

related to the human and natural environments and the impacts on these resources associated with each closure alternative.

Both CCR impoundment closure alternatives involve several common actions that are anticipated to result in environmental impacts. These include temporary construction-related impacts (e.g., dewatering of impoundments, noise and fugitive dust generated from construction) and those associated with the transport of borrow material needed to close the CCR impoundment.

For Closure-in-Place, TVA's analyses confirm EPA's determination that dewatering and capping impoundments would reduce the potential risks of groundwater contamination and structural instability because the hydraulic pressure would be reduced. Compared to Closure-by-Removal, this alternative would have significantly less risks to workforce health and safety and those risks related to off-site transportation of CCR (crashes, derailments, road damage and other transportation-related effects). It also is less costly than Closure-by-Removal.

Closure-by-Removal would result in a greater reduction in potential groundwater contamination risk than Closure-in-Place over the long term because CCR material would be excavated and moved to a permitted landfill. However, this alternative would result in notably greater impacts associated with other environmental factors and would increase the potential for impacts on worker-related and transportation-related health and safety. In addition, Closure-by-

Removal can raise environmental justice concerns associated with the transportation and disposal of CCR material in off-site locations.

Under both closure alternatives, actions to avoid, minimize or mitigate losses of resources, values or associated uses would be included.

Recognizing the potential pathways for risk exposure related to existing CCR impoundments, TVA identified a number of factors that are important in the screening and evaluation of project alternatives. These include: the volume of CCR materials, schedule/duration of closure activities, mode and duration of transportation movements, the potential for health and environmental risks, effects on wetlands, effects on adjacent environmental resources and cost.

At a programmatic level, TVA determined that Closure-in-Place would have fewer overall adverse environmental impacts than Closure-by-Removal and generally would be environmentally preferable.

Part II Site-Specific NEPA Review

TVA identified 10 CCR impoundments at six of its plants that could quickly initiate and complete the closure process within the five-year time period identified in the CCR Rule. These are impoundments at its Allen, Bull Run, Kingston and John Sevier plants in Tennessee and at its Widows Creek and Colbert plants in Alabama. TVA conducted a site-specific NEPA review for each of these facilities that tiers off of the programmatic level review in part I of the Final EIS.

TVA used the screening and evaluation factors discussed above to determine which closure alternatives should be considered in greater detail in its site-specific analyses. Based on these factors, Alternative B was retained for analysis at all sites. Alternative C was retained for the closures proposed at the Allen Fossil Plant and John Sevier Fossil Plant. Alternative C was determined not to be reasonable at the other locations.

TVA has identified Alternative B, Closure-in-Place, as the environmentally preferred alternative in each site-specific review. It would achieve the purpose and need of the project to close the impoundments in a reasonable period while enhancing the protection of human health and the environment and avoid the adverse environmental impacts associated with Alternative C.

Decision

TVA has decided to use the screening and evaluation factors identified in Part I of the EIS to help frame its evaluation of future proposals to close other CCR impoundments at its coal-fired power plants. Conclusions reached from the programmatic analysis of each closure alternative should be applicable to any CCR impoundment within the TVA system regardless of the location. The evaluation of future closure activities at a specific location would tier from the analysis presented in the programmatic EIS and therefore implementation of part I will facilitate the closure of CCR impoundments in an environmentally appropriate manner. Using measures to avoid, minimize and mitigate the

potential impacts associated with individual CCR impoundment closures will further help to protect human health and the environment.

In addition, TVA chose the preferred closure method--Alternative B--identified in the site-specific analyses in part II of the EIS for the proposed closure of the 10 impoundments. The impact analyses for each impoundment concluded that Closure-in-Place would meet the purpose for closing impoundments and enhance the protection of human health and environment. Compared to Closure-by-Removal, Closure-in-Place would have significantly fewer environmental and social impacts, could be completed more quickly, and would be substantially less costly.

In its June 21, 2016 letter summarizing its review of the FEIS, EPA rated the FEIS "LO" (lack of objection) and said: "Overall, EPA concurs with the TVA's preferred alternative to close identified facilities in place according to the CCR Rule.

Public Involvement

On August 27, 2015, TVA published a Notice of Intent (NOI) in the **Federal Register** announcing that it planned to prepare a programmatic EIS to address the closure of CCR impoundments at its coal-fired power plants. The NOI initiated a 30-day public scoping period, which concluded on September 30, 2015. 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

more than 400 media outlets; and posted the news release on the TVA website to solicit public input.

The Draft Environmental Impact Statement (Draft EIS) was released to the public on December 30, 2015, and a Notice of Availability (NOA) of the Draft EIS was published in the **Federal Register** on January 8, 2016 (81 FR 936). Again more than 400 media outlets received notice of the Draft EIS availability. Publication in the **Federal Register** initiated the formal public comment period that was originally scheduled to close on February 14, 2016, but was extended until March 9, 2016 in response to several requests.

TVA accepted comments submitted through an electronic comment form on the EIS website, by post and email. During the comment period, TVA held 10 public meetings to discuss the Draft EIS and proposed site-specific closures with interested members of the public and to accept comments on it. TVA published notices of the public meetings in local and/or regional newspapers as well as provided information on TVA's website.

Additionally, TVA briefed customers, business leaders and local, state and federal officials on the EIS in one-on-one meetings, a webinar and conference calls. TVA created a five minute video that was shown at meetings and posted on the web.

TVA received approximately 70 comment submissions which included letters, e-mails, petition-style submissions, comment forms, and submissions through the project web site. The comment submissions were signed by more than 650 individuals.

Approximately 583 individuals and groups submitted comments as part of organized campaigns. These comments were received as part of e-mails, form letters and submissions consisting of the text and a list of names and addresses of those who supported the comments. TVA provided responses to these comments.

Two organized commenting campaigns were submitted by:

- Sierra Club (411 individuals signed a form letter)
- Southern Alliance for Clean Energy (164 individuals signed a petition)

In addition, the Southern Environmental Law Center (SELC) and nine other environmental advocacy groups submitted an 89-page letter with hundreds of pages of attachments commenting on the Draft EIS. This letter was also carefully reviewed and responded to by TVA.

The most frequently mentioned topics included the public involvement process, the action purpose and need, range of closure alternatives, identification of the preferred alternative, need to comply with other federal and state requirements, need for full public disclosure, beneficial use of CCR and a range of

environmental resource issues such as, potential impacts on groundwater, surface water, transportation, wildlife, floodplains, wetlands, air quality, socioeconomics and environmental justice, land use, safety and waste management.

TVA also provided information about the Draft EIS and its preliminary conclusions to a formal session of its Regional Energy Resource Council on January 20-21, 2016. This council is chartered under the Federal Advisory Committee Act and provides advice to TVA on energy resource activities. Council members represent a diverse group of stakeholders, including TVA customers, state governments, environmental advocacy groups and educational institutions. After discussion of the Draft EIS and TVA's analyses, the only additional action that the Council recommended that TVA take was to conduct a robust monitoring program at its CCR facilities.

The NOA for the Final EIS was published in the **Federal Register** on June 10, 2016. Although not required, TVA solicited comments on the Final EIS during the mandatory 30-day waiting period after a final EIS is released.

Only 11 commenters responded. Most of the comments consisted of brief statements. Four commenters had concerns about impacts from CCRs. TVA responded to similar concerns from commenters on the draft EIS. One commenter simply informed us that it was permitted to construct a municipal solid waste landfill in Tennessee near a rail line that would be able to accept coal ash, but construction had not yet commenced. Another commenter endorsed

Closure-in-Place. The Commonwealth of Kentucky and the U.S. Army Corps of Engineers observed that their approvals may be needed for some closure activities in the future. The Department of the Interior supports TVA's plans to transition to dry ash storage and concluded that TVA had responded to all of its comments in the final EIS.

The two remaining commenters were the SELC with a coalition of other environmental advocacy groups and the EPA. SELC's comments largely repeated its earlier comments. They continue to argue that TVA needs to conduct additional studies before making closure decisions. Notably, no other federal, state, or local agency or government criticized the FEIS or objected to the identification of Closure-in-Place as TVA's preferred approach to closing the 10 CCR facilities that are evaluated in part II of the FEIS. As discussed above, EPA rated the FEIS "LO" and concurred with TVA's identification of Closure-in-Place as its preferred alternative in the site-specific reviews in part II.

Mitigation Measures

The reduction of environmental impacts was an important goal in TVA's process for identifying CCR impoundment closure methods. Mitigation measures, actions taken to reduce adverse impacts associated with proposed actions, include:

- Implementation of fugitive dust control systems;

- Erosion and sediment best management practices (BMPs) (e.g., silt fences and/or truck washes) to reduce the risk of impacts to surface waters from construction impacts;
- Other construction BMPs to minimize and restore areas disturbed during construction such as revegetation with native species;
- Implementation of supplemental groundwater mitigative measures that could include monitoring, assessment, or corrective action programs as required by the CCR Rule and state requirements.

Additional measures identified in Part II, the Site Specific NEPA review include:

- Evaluate the use of a temporary traffic signal to minimize traffic impacts during the transport of borrow material to the Bull Run Fossil Plant.

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Robert M. Deacy, Sr.

Senior Vice President,

Generation Construction, Projects & Services,

Tennessee Valley Authority

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