



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

JUN 14 2018

Ms. Tamsen Dozier
Project Manager
U.S. Nuclear Regulatory Commission
Division of New Reactors
Mail Stop: OWFN-12-H08
Washington, D.C. 20555

Re: Draft Environmental Impact Statement (DEIS) for the Clinch River Nuclear Site and the Tennessee Valley Authority's Application for an Early Site Permit, CEQ No.: 20180071

Dear Ms. Dozier:

The U.S. Environmental Protection Agency has reviewed the DEIS for the Clinch River Nuclear (CRN) Early Site Permit (ESP). On May 12, 2016, the Tennessee Valley Authority (TVA) submitted an ESP application for a new small modular reactor power unit at the CRN to the Nuclear Regulatory Commission (NRC). The purpose of this DEIS is to summarize the impacts associated with the ESP. This DEIS is not for the evaluation of modular energy generating technology. The modular reactor technology has not been approved by the NRC. An ESP does not authorize the actual construction and operation of a new nuclear power plant. To construct and operate a nuclear power plant, the holder of an ESP must first obtain from the NRC a construction permit and an operating license, or a combined license, each of which require separate actions and their own safety and environmental reviews.

The DEIS advances four (4) alternatives. Three of the alternatives address the location of the proposed action and the fourth alternative is the "No Build" alternative, which would not allow for the issuance of the ESP. The three alternative sites are: 1) Redstone Arsenal Site 12 in Madison County, Alabama, 2) Oak Ridge Reservation Site 8 in Roane County, TN, or, 3) Oak Ridge Reservation Site 2 in Roane County, TN.

The DEIS does not identify a preferred alternative, but does state that the sites considered meet the requirement for the construction of a modular power unit. The EPA understands and appreciates the complexity and significance of the ESP process. The EPA is rating the DEIS as EC-2 (Environmental Concerns with additional information requested), indicating that we have identified environmental concerns regarding potential impacts to wetlands and streams and future water quality issues associated with this project's alternatives. We have enclosed technical comments and recommendations for your consideration (See enclosure).

The EPA is encouraged by the early collaboration efforts by NRC with the U.S. Army Corps of Engineers. The EPA appreciates the opportunity to work with the NRC, and we look forward to continuing the collaboration process with future CRN site-specific NEPA documents.

If you wish to discuss our technical comments or recommendations, please contact Mr. Larry Long, of the NEPA Program Office, at (404) 562-9460, or by email at long.larry@epa.gov.

Sincerely,



Carol J. Monell
Acting Director
Resource Conservation and Restoration Division

Enclosure

Enclosure
Tennessee Valley Authority's Early Site Permit Application
Nuclear Regulatory Commission Draft Environmental Impact Statement
CEQ No.: 20180071

The Tennessee Valley Authority's (TVA) Early Site Permit (ESP) application to the U.S. Nuclear Regulatory Commission (NRC) is for a new nuclear modular reactor¹. The ESP does not authorize the actual construction and operation of a new nuclear power plant; however, it does allow for site preparation. To resolve environmental issues at the ESP stage, the NRC analyzes the impacts as if a nuclear plant were to be built and operated. For this reason, the EPA's comments address potential impacts about the actual/future construction of the Clinch River Nuclear (CRN) site and evaluate the alternatives presented for potential/future impacts.

Issue: If the ESP is approved, the applicant (TVA) can "bank" the site for up to 20 years for future reactor siting and can conduct certain site preparation and preliminary construction activities as authorized by the NRC. Site preparation and preliminary construction activities are not well defined in the DEIS. Generally, site preparation consists of clearing and grading operations that can potentially affect streams, ponds, and wetlands on the site. New transmission lines would also be built at the CRN site with the potential to cross existing waterbodies. The DEIS states that hydrological studies are limited to the parts of the hydrosphere that may be affected by buildings and the operations of two SMRs. However, depending on the scope and scale of the hydrological study there exist a high probability of surface water and groundwater impacts within a radius of a few miles from the reactor site.

Recommendation: The EPA recommends that site preparation activities be fully addressed in the Final Environmental Impact Statement (FEIS). A table that displays the potential impacts for each alternative would facilitate the future review of this analysis and help to access each alternative location and the site impacts in a comparative manner.

Issue: The considerations for the alternatives are designed for flexibility to optimize site layout and design for environmental and cost mitigation purposes. Locations were identified as satisfying the conditions if a minimum of 120 contiguous acres were available, preferably in a square configuration. There is potential for more functional loss and impact to the streams and wetlands identified onsite beyond those identified for permanent impact. The DEIS describes areas as "Permanently Cleared" and those that are "Temporarily Cleared".

Recommendations: Of the three sites that were selected for further analysis (Redstone Arsenal Site 12 in Madison County Alabama, Oak Ridge Reservation (ORR) Site 8 in Roane County, TN, and Oak Ridge Reservation Site 2 in Roane County, TN), ORR Site 8 would provide for a more desirable preferred alternative site based on the information presented in the DEIS. The land cover data presented in Table 9-3 also indicates there is significantly less wetland acreage on ORR Site 8. The EPA recommends that the FEIS include maps and/or tables that clearly describe the differences in the potential impacts ("Permanently Cleared" & "Temporarily Cleared"). The EPA recommends that the potential to impact aquatic systems, wetlands and terrestrial habitat be further described in the FEIS for each of the alternatives. The EPA also recommends that the FEIS include an additional analysis of the direct and secondary impacts for the application phase which identifies the functional and temporal loss

¹ It should be noted that the terms "unit", "reactor", and Small Modular Reactors "SMR" are used interchangeably throughout the DEIS and in this comment letter.

associated with the temporary activities noting that impact could be accumulated over the 20-year “banking” period. We ask that the wetland impacts identified as “temporary” be better defined in the FEIS to include the functions of the wetlands that are lost temporarily and further evaluated with respect to when such losses would be expected to be partially or fully regained.

Issue: The DEIS indicates an allowance for “temporarily disturbed” wetland areas to return to former conditions upon completion of construction (p. 4-83). However, it is unclear if the extent of disturbance to the wetlands will allow the wetlands to return to their former state after disturbance. To disrupt the hydrology and the facultative vegetation to such an extent that they ‘allow’ wetlands to return to their former state indicates a passive return that may not be possible, and at the very least with some temporal loss of function. The timeframe it will take for the temporary clearing areas to re-vegetate should be accounted for in the temporal loss. Table 2-10 of the DEIS includes all wetlands on site that will potentially be impacted by both temporary and permanent impacts.

Recommendations: The EPA recommends that the FEIS include an additional analysis of functional and temporal impacts to wetlands. Compensatory mitigation will be required not only for the permanent impacts, but for all functional and temporal impacts to wetlands and streams as well. The EPA recommends that the FEIS include both the temporary and permanent impacts in the cumulative impacts analysis. The cumulative impacts analysis might also consider not only the percentage of existing wetlands in the 6-mile radius that are proposed for impact, but also the historic loss of wetlands that have been previously converted or impacted. The proposed impacts from the ESP would be adding to that cumulative effect of historic wetland loss and reasonably foreseeable future loss within the overall project study area. Evaluating the area for the presence of hydric soils would give a potential indication of the historic wetland loss in relation to the current wetlands remaining at each site.

Issue: To prevent significant ‘degradation’, the DEIS (p. 2-56), describes ‘very high quality’ wetlands and identifies them as W009 and W011. Each wetland site is approximately 6-acres in size. While these wetlands are not proposed for fill, there is a high potential for significant secondary impacts to the functions that these wetlands currently provide. Some of the potential impacts could be permanent. According to the DEIS, there are several federally-listed aquatic species identified that benefit from the habitat provided in the transmission line corridors that are proposed to run alongside one of the very high quality wetlands (i.e., W009) and the approximate 2-acre moderate quality wetland (i.e., W010). The DEIS indicates some wetland wildlife species would be lost and some population declines may be permanent with a loss of 200-acres of mixed evergreen-deciduous forest from clearing activities. There are additional areas identified as “Habitat of Very High Significance” (p. 2-77) under the proposed construction footprint that is considered to be of “*very high biological significance due to confirmed and potential habitat for rare plants and wildlife*” (p. 2-72).

Recommendation: The EPA recommends further coordination with the USACE on wetland jurisdiction impact issues. Furthermore, the EPA recommends that additional measures to avoid and minimize impacts to jurisdictional wetlands and the habitat of very high significance from proposed clearing activities be identified and included in the FEIS. The EPA requests that the potential impacts to high quality natural resources for each of the three alternatives considered should be utilized as a key factor in identifying an environmentally-preferred alternative for the selected ESP location.

Issue: Table 2-6 of the DEIS includes the applicable water quality standards for the ‘Water Quality Parameters in the Clinch River Arm of Watts Bar Reservoir’. Footnote (a) denotes that Table 2-6 only includes the water quality standards for only one of the designated uses, *Fish and Aquatic Life Criteria for Continuous Concentration*. The State of Tennessee’s water quality standards consist of the ‘General

Water Quality Criteria and the Antidegradation Statement' found in Chapter 0400-40-03, and the 'Use Classifications for Surface Waters' are found in Chapter 0400-40-04. Under Rule 0400-40-03-.03(4(j)), it states that the applicable water quality standard for mercury for the waters designated for recreation is 0.05 micrograms per liter (for Water and Organisms). However, there is no water quality standard for mercury in Table 2-6. The DEIS also states that the designated uses for the lower Clinch River are: *"domestic and industrial supply, fish and aquatic life, recreation, livestock, watering, wildlife, irrigation, and navigation"*.

Recommendations: The EPA recommends that Table 2-6 be expanded in the FEIS to include the most stringent water quality standards of all the designated uses. The EPA also recommends that the phrase "domestic and industrial supply" be corrected because it is not a designated use. The correct designated uses are: domestic water supply and industrial supply. We also recommend that the table include the EPA-approved test methods used in the sampling. The EPA recommends that the 'Thermal Discharge Effects' section of the DEIS be expanded in the FEIS to include the potential impact of drought conditions/periods (Please see: <https://www.drought.gov/drought/states/tennessee>).

