

# U.S. Nuclear Regulatory Commission Pre-Application Site Visit Trip Report Clinch River Nuclear Site March 28, 2023

## Purpose

- Initial pre-application site visit to familiarize the U.S. Nuclear Regulatory Commission’s (NRC’s) Environmental Review Team the proposed site for the Clinch River Nuclear Site (CRN Site) in Oak Ridge, TN.
- Provide perspective to the potential applicant on the proposed licensing approach and discuss the Tennessee Valley Authority (TVA) approach to draft environmental report (ER) chapters with a focus on the purpose and need for the project.
- Develop a mutual understanding of the information contained in the ER for licensing submittals based on applicable regulations and guidance.

## Attendees

<b>Name</b>	<b>Affiliation</b>
Ray Schiele	TVA, Senior Manager, Licensing
David Daigle	TVA, ER Licensing Lead
Ivan Zujovic	TVA, Licensing
Carol Freeman	TVA, NEPA Specialist
Ruth Horton	TVA, CRN Program Manager, Environmental Support
Tom Ryan	TVA, ER Project Manager
Jack Brellenthin	TVA, Environmental Scientist
William Elzinga*	TVA, WSP Project Manager
Connie Heitz*	TVA, WSP Project Manager
Laura Willingham	NRC, Environmental Project Manager
Joseph Giacinto	NRC, Environmental Project Manager
Jordan Glisan	NRC, Safety Project Manager
Peyton Doub*	NRC, Ecologist
Don Palmrose*	NRC, Senior Reactor Engineer
Madelyn Nagel	NRC, Co-op (student)

\*Remote participation via teleconference

## Schedule of Activities:

### Tuesday, March 28, 2023

**0800** Met at Clinch River Site, 1300 Bear Creek Road, Oak Ridge, TN and proceeded to site trailer for orientation.

- Welcome
- Introductions
- Safety Message

- Opening Statements and Anticipated Outcomes
- Status/Update and Overview of CRN Site
- Site History and Previous Work
- Permitting Requirements and Consultation Status

**1000** CRN Site Tour Stops

- Location of proposed Small Modular Reactor reactor sites
- Former location of meteorological tower used for Early Site Permit application
- Tribal burial mound
- Hensley/Peters Cemetery
- Aquifer pump test location
- Proposed intake and discharge locations
- Osprey nesting areas along existing transmission lines
- National Reactor Innovation Center project area
- Existing Department of Energy (DOE) barge staging location
- Bear Creek bridge redevelopment at the site entrance gate
- Drainage basins, drainways and crane tower platform developed for the Clinch River Breeder Reactor Project
- Site perimeter road

**1200** Lunch

**1300** Discussion of Draft ER Chapters

- Preliminary staff review of chapters 1, 8 and 9 of the draft ER
  - Need for Power and Project Assessment
- Action Items and Future Meetings
  - Need for Power and Project Assessment meeting tentatively scheduled for the week of April 24<sup>th</sup> (Tuesday, April 25, 2023)

**1700** Return to Knoxville Crown Plaza Hotel, Knoxville

**Summary of Site Visit at the CRN site**

The NRC staff participated in a site tour of the CRN site with TVA staff. The NRC staff observed and visited the following locations:

- Transmission line right-of-ways where staff observed several osprey nests located on the towers. TVA indicated that at least one nest may need to be removed to support the project's construction. TVA is coordinating with the Fish and Wildlife Service (FWS) for any nest removals. One nest was expected to be moved during spring 2023 due to core boring activities taking place in May 2023.
- Tribal burial grounds near the former meteorological tower. The burial grounds are protected and will not be disturbed as part of the proposed project. A potential new meteorological tower location is yet to be determined.

- A former patrol road along the river on the site perimeter that was part of the Manhattan Project. The road has been determined to be ineligible for the National Register of Historic Places.
- The Hensley graveyard which was evaluated in the ESP. TVA maintains an access procedure for relatives to visit the cemetery and also maintains the cemetery.
- The proposed intake location which may be moved ~50 ft from the location evaluated for the ESP application. Aquatic surveys were being conducted near the intake to inform Clean Water Act section 316(b) determinations. The exact location of the intake, pipe run and type of piping for the intake to the plant has not been determined.
- TVA indicated that a new bat cave was identified on the opposite side of the river at the current transmission line river crossing. The bat cave is potentially new and significant information to be considered in the review of a new application. Corresponding to this information, NRC would consult with the FWS as appropriate. The proposed discharge location on the site coincides with the transmission line crossing location.
- The new bridge being built at the entrance to accommodate heavy haul construction equipment for the anticipated construction. TVA indicated that the entrance road may need to be upgraded to support construction equipment/materials required for site development. A new culvert structure was incorporated into the design of the new bridge. The former culvert was damaged during a recent storm/flooding event.
- Locations of the future borings to support the safety portion of the application. Staff also visited various drainways and drainage ponds that were constructed as part of restoration from the breeder reactor project.
- Staff observed new power poles and transmission lines that were installed to support site development work.
- Location of the DOE-owned barge landing that TVA may use to transport construction equipment/materials to the site. If used, upgrades to the barge landing may be needed to support site construction.

At the site trailer, staff discussed work to date performed on the site since the ESP and described the September Programmatic Environmental Impact Statement (PEIS) record of decision that was developed for the site. Much of the information used for the PEIS development will be applicable to development of the ER for the Construction Permit application and will be cited as such in the ER. TVA mentioned that a 161 kv transmission line was shifted to the west side of the site for power needed during the pre-application site activities.

TVA is currently working with the FWS to inventory bats on the site as some newly listed species have been found on the site and TVA has performed additional bat netting for

inventories. A bat cave was discovered within ½ mile of the site on the west side of the river across from the site and evidence of migration has been found on the CRN Site.

TVA noted that the purpose and need has not changed since the ESP application. Staff had questions related to the method for introducing incremental power to the grid as described in the draft ER chapters reviewed in the electronic reading room. Specifically, staff requested that TVA consider the timeframe of introducing incremental power to the grid and how this would translate into Commission policy as it relates to need for power (or need for the project). TVA described the project as a demonstration project to demonstrate the new technology and licensing of the new technology.

Staff noted that a timeframe and plans for introducing incremental power to grid would be helpful for the staff's evaluation and cited recent Commission policy (ML022200420) related to the need for power analysis in environmental impact statement's (EIS's). Staff discussed the five purpose and need objectives described in the CRN Site final EIS and how every objective may not be applicable or necessary for the CP application. TVA indicated that the intention is to obtain the CP and OL licenses and incorporate by reference the applicable information in the CRN Site Preliminary Safety Analysis Report for other sites. The CRN Site is intended to be a demonstration project in stages and success evaluated incrementally with construction, licensing and then operation. There may be associated business decisions made at each stage of the project to conform with the TVA's evaluation of the licensing process. One of TVA's current goals is to be carbon free by 2050 and advanced reactors is one of the means being considered to reach that goal. TVA noted that the carbon free goal is consistent with recent Administrative executive orders and memorandums. TVA noted that the carbon free goal is one of many benefits of the projects aside from putting power on the grid. TVA noted that their current Integrated Resource Plan (IRP) considers renewables but not advanced reactors because they are not a proven technology; however, a new IRP is being developed for release during 2025. TVA's IRPs are developed every five years.

Staff noted that draft guidance is currently being developed for the need for power analysis for advanced reactor demonstration projects. This guidance is anticipated to assist advanced reactor applicants in the analysis. Staff indicated once drafted, the guidance methodology can be discussed with advanced reactor applicants to guide the analysis for the need for power.

Staff summarized their review of the draft ER chapters 8 and 9 and noted alignment with TVA's methodology for development of these chapters. Staff indicated that a clarification of the incremental power statement in draft ER chapter 1 would benefit the staff's evaluation. Staff agreed to review any additional revisions to chapter 1, 8 and 9 over the next few months and provide comments to TVA.