

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of

TENNESSEE VALLEY AUTHORITY

(Clinch River Nuclear Site Early Site Permit
Application)

Docket No. 52-047-ESP

ORDER
(Transmitting Post-Hearing Questions)

The Commission held an evidentiary hearing on August 14, 2019, at its Rockville, Maryland headquarters to receive testimony and exhibits in the uncontested portion of the captioned proceeding. The Tennessee Valley Authority (TVA) and the NRC Staff (Staff) should file written responses to the post-hearing questions listed in the table below no later than **August 28, 2019**. The responses should be filed as exhibits, using the previously established numbering scheme. The parties should consult prior to filing their responses and indicate whether there are any objections to admitting the new exhibits into the record. Absent objection, the new exhibits will be admitted. This order is issued pursuant to my authority under 10 C.F.R. § 2.346(a) and (j).

No.	Category	Reference	Directed To	Question
1	Safety	Ex. NRC-002, Draft Early Site Permit for the Clinch River Nuclear Site (June 21, 2019) (public), at ¶ 5 (ML19219A045) (Draft ESP)	Staff	Could the Commission dispense with Permit Condition 5 and instead rely on the Staff to review whether the emergency planning zone (EPZ) sizing methodology, when applied to a design-specific source term at a later stage of licensing, justifies a plume exposure pathway (PEP) EPZ smaller than that generally described in the regulations? If so, why should Permit Condition 5 be imposed? If not, why not?
2	Safety	10 C.F.R. § 50.33(g) Ex. NRC-002, Draft ESP, at ¶ 4.A.(1)(i)	Staff	10 C.F.R. § 50.33(g) requires an early site permit (ESP) applicant that proposes “major features of the emergency plans” to “meet the requirements” of that paragraph, which states that the PEP EPZ will “generally” be 10 miles, while the ingestion pathway will “generally” be 50 miles. In this case, exemption is sought from the 10-mile EPZ. Has the Staff previously granted exemptions to the general requirement of a 10-mile EPZ? Under what circumstances? How were those circumstances similar to (or different from) this case?
3	Safety	Ex. NRC-008, Clinch River Nuclear Site Early Site Permit Application, Rev. 2—Part 2, Site Safety Analysis Report (Jan. 18, 2019), ch. 13 (ML19227A256) (SSAR) Ex. NRC-014A, Final Safety Evaluation Report for the Early Site Permit Application for the Clinch River Nuclear Site (June 2019) (public), ch. 13 (ML19227A216) (FSER)	Staff	TVA’s response to electronic request for information (eRAI) 9206 provides an example of screening out an accident scenario for the purposes of the PEP EPZ sizing methodology. Please explain the basis of the Staff’s conclusion that it is appropriate for the PEP EPZ sizing methodology to not account for the unique beyond design basis event with the highest risk, which accounts for 99% of the total core damage frequency for the example provided.

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		Letter from J.W. Shea, TVA, to NRC Document Control Desk (Mar. 9, 2018), Encl. at E-7 (ML18068A732)		
4	Safety	“Proposed Rule: Emergency Preparedness for Small Modular Reactors and Other New Technologies,” Commission Paper SECY-18-0103 (Oct. 12, 2018) (ML18134A076) (SECY-18-0103)	Staff	Please describe any differences in methodology between the PEP EPZ sizing methodology contained in this ESP and the methodology contained in SECY-18-0103 and its associated guidance.
5	Safety	Tr. at 128-29 (Mr. Scott) ¹	Staff	After the events of September 11, 2001, the Staff examined its emergency planning requirements to determine if they were adequate or whether they needed to be updated for potential hostile actions, and the Staff concluded that the requirements did not need to be updated. Was that conclusion based, in part, on a ten-mile EPZ with dedicated radiological emergency planning?
6	Safety	Tr. at 135-36 (Mr. Scott)	Staff	Is the Staff finding that the proposed PEP EPZ sizing methodology “maintains the same level of protection” as a 10-mile EPZ necessary for the issuance of the EPZ exemptions?
7	Safety	Ex. NRC-005, <i>NRC Staff Responses to</i>	Staff	In its response to Pre-Hearing Question 18, the Staff stated: “Depending on the plant design, multiple reactor accidents for multi-

¹ Transcript references in this table of questions are to the line-numbered copy of the official transcript provided by the Secretary of the Commission to the parties on August 20, 2019. See Memorandum from Annette L. Vietti-Cook, Secretary of the Commission, to Counsel for TVA and the Staff (Aug. 20, 2019) (ML19232A230).

No.	Category	Reference	Directed To	Question
		<i>Commission Prehearing Questions</i> (June 26, 2019) (Staff Pre-Hearing Responses) Tr. at 142 (Ms. Hart)		module designs may or may not be included in the spectrum of accidents used for the PEP EPZ size determination.” Ex. NRC-005, Staff Pre-Hearing Responses, at 18. Please explain the basis of the Staff’s conclusion that it may be appropriate to not consider the cumulative risks of multiple modules when determining an EPZ size.
8	Safety	Tr. at 130-34 (Mr. Scott, Ms. Milligan)	Staff	Is it the Staff’s position that all-hazards planning would be just as effective as dedicated radiological emergency planning in an actual radiological emergency?
9	Safety	Tr. at 142-44 (Mr. Scott, Ms. Sutton) Tr. at 181-82 (Mr. Brown)	Staff	<p>Please clarify whether there is any legal barrier to the Commission approving only the exemptions for a two-mile EPZ at this stage and not the exemptions for a site boundary EPZ. Could the record of decision and the permit specify which requested exemptions were being granted and which were being denied?</p> <p>During the hearing, the Staff stated that the Commission could issue an ESP that specifically identifies the portions of the application that are not being approved but that such an undertaking would be complex. Please describe what this effort would involve.</p>
10	Safety	Staff Pre-Hearing Responses, Question 15 Tr. at 129-34 (Mr. Scott, Ms. Milligan)	Staff	If a combined license (COL) or construction permit (CP) applicant referencing the ESP cannot demonstrate that a site boundary PEP EPZ is justified, will a formal offsite radiological plan for the facility be required?
11	Safety	Tr. at 129-31 (Mr. Scott)	Staff	What is the probability of a scenario where an all-hazards approach would need to be relied upon?
12	Environmental	Ex. NRC-015A, “Environmental Impact	Staff	In Section 1.3 of Final EIS, the Staff states that “[t]he NRC’s purpose and need is informed by the applicant’s objective to use the

No.	Category	Reference	Directed To	Question
		<p>Statement for an Early Site Permit (ESP) at the Clinch River Nuclear Site” (Final Report), NUREG-2226, vol. 1 (Apr. 2019), §§ 1.3, 10.2 (ML19227A213) (Final EIS)</p> <p>National Environmental Policy Act of 1969 (NEPA) § 102(2)(C)(iv)</p> <p>10 C.F.R. § 51.105(a)(1), (4)</p> <p><i>System Energy Resources, Inc. (Early Site Permit for Grand Gulf ESP Site)</i>, CLI-07-14, 65 NRC 216, 218-19 (2007)</p>		<p>power generated by [small modular reactors (SMRs)] to address critical energy security issues for TVA Federal direct-served customers (which included only [U.S. Department of Defense] or [U.S. Department of Energy] facilities).” Ex. NRC-015A, Final EIS, at 1-10.</p> <p>In Section 10.2 of the Final EIS, the Staff assesses the relationship between short-term uses and long-term productivity of the Clinch River Nuclear (CRN) Site. The Staff states that “it is expected that the enhancement of regional productivity resulting from the electrical energy produced by two or more SMRs would lead to a correspondingly large increase in regional long-term productivity that would not be equaled by any other long-term use of the site.” Ex. NRC-015A, Final EIS, at 10-19. The Staff concludes that the negative impacts of constructing and operating two or more SMRs at the CRN Site would be outweighed by the positive long-term enhancement of regional productivity resulting from the production of electrical energy by such SMRs.</p> <ol style="list-style-type: none"> 1. Is the projected increase in productivity described in Section 10.2 of the Final EIS based on the maximum electrical output of the bounding plant parameter envelope (PPE), i.e. 800 MW(e)? 2. Is the projected increase in productivity described in Section 10.2 of the Final EIS based on “the power generated by SMRs to address critical energy security issues for TVA Federal direct-served customers (which included only [U.S. Department of Defense] or [U.S. Department of Energy] facilities)”? 3. What is the region the Staff considered for the purposes of its analysis and conclusions regarding “regional productivity” in Section 10.2 of the Final EIS?

IT IS SO ORDERED.

For the Commission

NRC SEAL

/RA/

Annette L. Vietti-Cook
Secretary of the Commission

Dated at Rockville, Maryland,
this 21st day of August, 2019.

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NUCLEAR REGULATORY COMMISSION

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)	Docket No. 52-047-ESP
(Early Site Permit Application)	
for Clinch River Nuclear Site))	
)	
(Mandatory Hearing))	

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing **ORDER (Transmitting Post-Hearing Questions)** have been served upon the following persons by Electronic Information Exchange.

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Dated at Rockville, Maryland,
this 21st day of August, 2019

[Original signed by Herald M. Speiser]
Office of the Secretary of the Commission