



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

Hearing Exhibit

Exhibit Number:

Exhibit Title:

August 28, 2019

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE COMMISSION

In the Matter of)
)
TENNESSEE VALLEY AUTHORITY) Docket No. 52-047-ESP
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(Clinch River Nuclear Site Early)
Site Permit Application))

NRC STAFF RESPONSES TO COMMISSION POST-HEARING QUESTIONS
AND REQUEST FOR ADDITIONAL RECORD CORRECTIONS

Pursuant to the Commission’s “Order (Transmitting Post-Hearing Questions)” of August 21, 2019, the staff of the U.S. Nuclear Regulatory Commission hereby responds to the questions posed in that Order. The attachment to this filing presents the staff’s responses.

In addition, the staff requests to make two corrections to statements made by its witnesses during the hearing on August 14, 2019. First, on page 181 of the transcript, lines 5 and 6, the correct regulatory citation is “10 C.F.R. 52.24,” not “10 C.F.R. 52.94,” as was stated. Second, the staff requests to correct its response to Chairman Svinicki’s question regarding how the staff approached its assessment, in Section 10.2 of the Final Environmental Impact Statement, of the relationship between local short-term uses of the environment and the maintenance and enhancement of long-term productivity. In response to Chairman Svinicki’s question, the staff stated as follows:

So, in Section 10.2 the difference between the short-term use and the long-term productivity there were two ways we could have approached it. And we, the staff chose because you postulate a—the building and operation activities in order to reach impact determinations, we postulated that those would occur for that balance. And then we evaluated and looked at it. So, there are aspects of the assuming that there's, you know, the need for, for the project does come into that. But that's the approach that the staff chose to take.

Tr. at 172-73. Although the staff assumed building and operation of a power plant at the site to complete its environmental review of this early site permit application, the staff did not assume that there was a need for power. Because the applicant, the Tennessee Valley Authority (TVA), deferred the need for power analysis pursuant to 10 C.F.R. § 51.50(b), the staff similarly deferred its analysis of the need for construction and operation of a nuclear power facility at the Clinch River Nuclear Site. An applicant for a future construction permit or combined license that references the early site permit will be required to demonstrate the purpose and need for the project in its application.

The staff consulted with TVA, and TVA has no objection to admitting the staff's responses to post-hearing questions and the staff's request to make the corrections discussed above as a new exhibit into the record of this proceeding.

Respectfully submitted,

/Signed (electronically) by/
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Dated at Rockville, Maryland,
this 28th day of August 2019

ATTACHMENT

NRC Staff Responses to Commission Post-Hearing Questions

1. **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?**

Staff Response: No, in the staff's view, the Commission would have an insufficient basis to grant the requested exemptions if it were to dispense with Permit Condition 5 and instead rely on the staff reviewing whether a PEP EPZ smaller than 10 miles is justified in a future combined license (COL) or construction permit (CP) application based on the facts presented in the future application. The implementation of the Tennessee Valley Authority's (TVA's) methodology in that future application might result in PEP EPZ sizes (e.g., 3 miles, 5 miles) that are inconsistent with the information and exemption requests in TVA's ESP application. Although the U.S. Nuclear Regulatory Commission (NRC) is not being asked to approve a specific PEP EPZ size as part of the ESP review, TVA's ESP application includes exemption requests and emergency planning information associated with the specific postulated PEP EPZ sizes of site boundary and two miles. To approve these portions of the application, the NRC must have a sufficient factual basis consistent with these specific PEP EPZ sizes and must impose bounding conditions that ensure that the requested exemptions apply only where appropriate. As explained in the staff's response to Prehearing Question 19 and in SECY-19-0064, the non-design-specific source term provided by TVA and included in Permit Condition 5 is consistent with both a site boundary and 2-mile PEP EPZ, provides the factual basis for the exemptions, and ensures that the exemptions apply only in appropriate circumstances. While it is possible that there could be less detailed bounding conditions that could have provided a sufficient factual basis and ensured that the exemptions would apply only where appropriate, TVA did not develop such conditions.

Permit Condition 5 is sufficient to provide the regulatory certainty the applicant seeks now, and the NRC's regulatory framework provides flexibility for future applicants who may want to use different approaches. Permit Condition 5 provides regulatory certainty to TVA by precisely establishing conditions supporting use of the exemptions in a future COL or CP application. The NRC's regulatory framework provides a future applicant with the flexibility to vary from Permit Condition 5. A variance from Permit Condition 5 that is based on conformance with TVA's dose criteria would impose minimal additional burden. Whether or not Permit Condition 5 and the requested exemptions are included in the ESP, a future COL or CP applicant could reference the ESP and use the methodology and dose criteria to determine an appropriate PEP EPZ size for its selected reactor design. If a variance from Permit Condition 5 is necessary, 10 CFR 52.39(d) provides that the NRC's determination on the variance would be based on "the same technically relevant criteria applicable to the application for the original or renewed early site permit." TVA's dose criteria are the technically relevant criteria for a variance from the source term in Permit Condition 5. Thus, a future applicant seeking a variance from Permit Condition 5 would not be required to conduct technical work in addition to what would already be required for implementation of TVA's methodology. For these reasons, future ESP, CP, and COL applicants are not precluded from proposing different approaches, and a future applicant relying on this ESP could do so by requesting a variance from Permit Condition 5.

2. **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?

Staff Response: The NRC has not granted an exemption from the 10-mile PEP EPZ requirement for an ESP, CP, operating license, or COL for a large light-water reactor. However, there were NRC-licensed reactors with PEP EPZs smaller than 10 miles. As supported by a recommendation from the Federal Emergency Management Agency (FEMA)/NRC Steering Committee, the NRC established a five-mile PEP EPZ for certain light-water reactors with a thermal power level less than 250 MWt (Big Rock Point, La Crosse, and Humboldt Bay) and for the Fort St. Vrain high-temperature gas reactor. See, e.g., Letter from Dennis M. Crutchfield, NRC, to Frank Linder, Dairyland Power Cooperative (June 13, 1980) (ADAMS Legacy Accession No. 8007170240) (regarding EPZ sizes for the La Crosse plant). The Steering Committee’s conclusion was “based on the lower potential hazard from these facilities (lower radionuclide inventory and longer time to release significant amounts of radioactivity for many scenarios).” *Id.* (enclosure). See also NUREG-0654, Rev.1, p. 11, n.6. The establishment of the PEP EPZ sizes for these facilities preceded issuance of the final rule that set forth the 10-mile PEP EPZ requirement. The EPZ sizes for these facilities were consistent with the provision subsequently codified in 10 CFR 50.33(g) that allows for case-by-case determinations of EPZ size for gas reactors and reactors with a thermal power level less than 250 MWt.

3. **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.**

Staff Response: The unique beyond design basis event with the highest risk, which accounts for 99% of the total core damage frequency (CDF), was not provided in the example calculation because its probability is so low. The mean CDF of this scenario is less than 1×10^{-7} per reactor year, and TVA’s dose criteria exclude severe accident scenarios with such low probabilities. The staff determined that it was reasonable to exclude such low probability events based on guidance in RG 1.174, “An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis,” and discussions in NUREG-1860, “Feasibility Study for a Risk-Informed and Performance-Based Regulatory Structure for Future Plant Licensing.” The staff also took into account other precedents on consideration of accident frequency in power reactor severe accident studies, including information from NUREG-0396, in which the lowest frequency considered in the evaluation of substantial reduction in early health effects corresponded to about 10^{-7} per year.

The staff evaluated TVA’s response to eRAI 9206 and audited the proprietary example calculation that supported that response, for the limited purpose of determining whether TVA’s methodology was reasonable and could be implemented. The staff concluded that the methodology was reasonable and could be implemented. The staff did not make findings on

whether the example calculation supports a specific PEP EPZ size for a future COL or CP application or whether the calculation adequately represents specific, detailed design information that might be included in such an application. These issues would be addressed in the future application that references a specific reactor design. The staff will review how the COL or CP applicant accounts for specific accident scenarios in the implementation of the methodology, including scenarios like the one identified in the Commission's question.

4. 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.

Staff Response: Both TVA's methodology and the draft proposed rule for emergency planning for small modular reactors (SMRs) and other new technologies, as described in SECY-18-0103, can be used to determine a PEP EPZ size that is commensurate with the potential radiological risk for a specific facility. Both TVA's methodology and the draft proposed rule are based on the assessment that was done in NUREG-0396 to establish a 10-mile PEP EPZ for large light-water reactors. Both TVA's methodology and the draft proposed rule rely on an analysis of projected offsite dose from a range of potential accidents with radiological releases to determine a pre-determined PEP EPZ for pre-planned protective actions. Both TVA's methodology and the draft proposed rule are similarly protective of human health and safety.

There are differences between TVA's methodology and the draft proposed rule in the provisions on accident scenario selection and dose criteria. The accident scenario selection within TVA's methodology includes design-basis accidents (DBAs) and severe accidents, with the further categorization of severe accidents into two categories based on the mean core damage frequency (CDF). The dose consequences for the DBA and less severe core melt accidents are compared to the lower end of the dose range of the Environmental Protection Agency (EPA) early phase protective action guides (PAGs) (1 rem total effective dose equivalent (TEDE), for a 96-hr exposure). The dose consequences for more severe core melt accidents with containment failure or bypass are compared to a separate criterion for substantial reduction in early health effects.

In contrast, the draft proposed rule for emergency planning for SMRs and other new technologies, as described in SECY-18-0103, would require that applicants and licensees establish their PEP EPZ as the area within which public dose is projected to exceed 10 mSv (1 rem) TEDE over 96 hours from the release of radioactive materials resulting from a spectrum of credible accidents for the facility. There would not be a substantial reduction in early health effects criterion for severe accidents with containment failure or bypass; instead, the dose consequences for all credible accidents for the facility are compared to the dose criterion of 1 rem TEDE for an exposure period of 96 hours. The draft guidance for the rule is non-public, pre-decisional information that describes an acceptable methodology for determination of PEP EPZ size that would meet the requirements of the draft proposed rule.

5. 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?

Staff Response: No. After the terrorist attacks of September 11, 2001, the staff evaluated the adequacy of the emergency planning (EP) basis for nuclear power reactors, and the results were sent to the Commission in SECY-03-0165, "Evaluation of Nuclear Power Reactor Emergency Preparedness Planning Basis Adequacy in the Post-9/11 Threat Environment," September 22, 2003 (ADAMS Accession No. ML031960020 (non-public)). The EP "basis" is the consideration of the spectrum of nuclear power plant accidents, and the timing and magnitude of releases associated with accidents, along with the area (i.e., EPZ) within which planning is recommended to implement prompt protective actions (e.g., shelter or evacuation). Although the EPZ is one part of the EP planning basis, the EPZ was not the basis for the conclusion that the EP planning basis remains valid. As stated on pages 1 and 2 of Interim Staff Guidance (ISG) NSIR/DPR-ISG-01, "Emergency Planning for Nuclear Power Plants," November 2011 (ADAMS Accession No. ML113010523):

Following the events of September 11, 2001, the NRC staff reviewed the EP basis for nuclear power plants (NPPs) considering the impact of hostile action contingencies unanticipated at the time the basis was established. The staff concluded that the EP basis remains valid.

Vulnerability studies revealed that the timing and magnitude of releases related to hostile action would be no more severe than in the other accident sequences considered in the EP basis.

The timing and magnitude of accident releases is based on the characteristics of reactors, not the EPZ size.

6. 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?

Staff Response: In order to issue the ESP and the exemptions that TVA has requested, the Commission must find that TVA's proposed methodology for determining the appropriate size of the PEP EPZ in a future CP or COL application is protective of human health and safety. There may be other possible bases for the exemptions that TVA requested that would also have been acceptable, but the staff did not explore alternative bases. The staff's determination that the exemptions may be granted is based, in part, on the following conclusion, as stated during the August 14, 2019, hearing:

[T]he staff finds that the establishment of a plume exposure pathway EPZ, in a combined license or construction permit application, will maintain the same level of protection[,] *that is dose savings*[,] surrounding the Clinch River Nuclear site, as that which currently exists at the ten-mile plume exposure pathway EPZ for large light water reactors.

Tr. at 91 (emphasis added). The staff's finding focuses on dose savings, and the dose-related basis (from NUREG-0396) in TVA's methodology is consistent with the basis for the 10-mile PEP EPZ in current regulations.

7. In its response to Pre-Hearing Question 18, the Staff stated: "Depending on the plant design, multiple reactor accidents for multi- 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.

Staff Response: If the Commission issues the ESP and the NRC receives a COL or CP application for the Clinch River Nuclear Site that references the ESP, the staff will assess the plant-specific design information in the application to determine if multiple module accidents should be included in the PEP EPZ size determination in accordance with TVA’s EPZ sizing methodology. Consistent with site safety analysis report (SSAR) Section 13.3.3.1.4, “COLA,” when a COL or CP applicant that references the ESP uses TVA’s PEP EPZ size methodology, the plant-specific probabilistic risk assessment (PRA) information would address applicable plant operating states, including full power, low power, shutdown and design-specific operating states unique to the selected SMR design, internal and external hazards, and appropriate fuel handling and spent fuel pool accidents. TVA’s methodology excludes consideration of accident sequences of extremely low probabilities.

SSAR Section 13.3.3.1.3.1, “Multiple Reactors at the [Clinch River Nuclear (CRN)] Site,” discusses why it is not likely that design basis accidents and beyond design basis accidents would involve more than one reactor due to compliance with the requirements of 10 CFR Part 50, Appendix A, General Design Criterion (GDC) 5. GDC 5 would preclude multiple modules sharing structures, systems, and components (SSCs) that are important to safety unless it can be shown that such sharing will not significantly impair the SSCs’ ability to perform their safety functions. In addition, a multi-module SMR design would be evaluated by the staff in accordance with the guidance in NUREG-0800, Standard Review Plan Section 19.0, “Probabilistic Risk Assessment and Severe Accident Evaluation for New Reactors,” to ensure that the PRA for a multi-module plant identifies accident sequences that could lead to damage to multiple cores or to multiple large releases. The guidance also specifies that the applicant should show that the design and operation of the facility prevents such sequences from occurring and that the applicant has demonstrated that these accident sequences are not significant contributors to risk.

8. 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?

Staff Response: The staff did not review the all-hazards plan for the area surrounding the Clinch River Nuclear Site, and the staff’s conclusions regarding this application did not take into account any assumption regarding the effectiveness of all-hazards planning in the event of a radiological emergency. The dose-based, consequence-oriented approach to emergency planning proposed by the applicant and approved by the staff in this application is consistent with the long-standing regulatory treatment of radiological hazards by the NRC.

If a facility at the Clinch River Nuclear Site has a source term that would support a site boundary PEP EPZ, then the staff does not expect that offsite emergency protective actions would be necessary. Nonetheless, if a highly unlikely release of radioactive material occurs and offsite protective actions are necessary, the staff acknowledges that such a response would occur in the context of an all-hazards framework. This is consistent with how such a release would be handled for NRC reactor licensees that pose very low risk (e.g., non-power reactors).

Because the staff does not review all-hazards plans, the staff cannot provide a specific assessment of their effectiveness. However, the staff can offer the following general observations on all-hazards response. The staff’s view is that the response to a nuclear hazard

is similar to the response to other hazards. This view is consistent with FEMA guidance, as well as with NUREG-0396. For example, FEMA published Comprehensive Preparedness Guide (CPG) 101, "Developing and Maintaining Emergency Operations Plans," in November 2010 to address all-hazards planning. CPG 101 states that "[p]lanning considers all hazards and threats. While causes of emergencies can vary greatly, many of the effects do not." In addition, CPG 101 recognizes that "planners can address common operational functions in their basic plans instead of having unique plans for every type of hazard or threat." CPG 101 further recognizes that, while each hazard's characteristics (e.g., speed of onset, size of affected area) are different, the general tasks for conducting an evacuation and shelter operations are the same. Finally, in NUREG-0396 (page II-6), the EPA/NRC task force states:

Communications, traffic control, evacuation, public notification and other emergency responses will tend to be the same whether or not the emergency involves radiological considerations.

- 9. 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?**

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.

Staff Response: There is no legal barrier that would prevent the Commission from approving only the exemptions for a two-mile PEP EPZ in the ESP for the Clinch River Nuclear Site and denying the exemptions for a site boundary PEP EPZ. To do so, the Commission would either have to require that TVA revise its application to remove the portions pertaining to a site boundary PEP EPZ, or issue an ESP and record of decision that specifically identifies the portions of the application that are not being approved. Either option would be a complex undertaking because TVA and the staff would have to carefully examine the application to determine the portions that are not being approved and consider the impacts these deletions would have on related parts of the application. For some portions of the application, TVA and the NRC staff would likely need to identify specific paragraphs, sentences, or portions of sentences that are not being approved. The deletions might affect the meaning of the remaining portions, and additional review of the remaining portions of the application may be necessary.

- 10. 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?**

Staff Response: Yes.

- 11. What is the probability of a scenario where an all-hazards approach would need to be relied upon?**

Staff Response: TVA's PEP EPZ sizing methodology does not rely on offsite protective actions being taken under an all-hazards framework, and the staff did not rely on such actions when reviewing TVA's methodology. The staff interprets the question as asking for the

probability of a radiological event at the nuclear power plant that would require offsite protective actions be taken in areas outside of the EPZ under an all-hazards framework for a PEP EPZ established in accordance with TVA's EPZ sizing methodology. As explained below, a precise probability cannot be given for the potential radiological events where protective actions may have to be taken outside of the PEP EPZ, but the probability would be 10^{-6} or less per reactor-year.

The staff's response to Pre-hearing Question 14 explains that an offsite protective action is generally appropriate when an EPA PAG is exceeded. The lower end of the range for the EPA early phase PAG is 1 rem TEDE, projected for a 96-hr exposure.

TVA's methodology provides three dose criteria:

- The first criterion, for DBAs, is tied to the EPA early phase PAG. DBAs are not defined by the probability of the accident.
- The second criterion, for less severe core melt accidents, is tied to probability and the EPA early phase PAGs. The projected consequences of the less severe core melt accidents should not exceed 1 rem TEDE for a 96-hr exposure at distances beyond the PEP EPZ. TVA's methodology categorizes the less severe core melt accidents as beyond-design-basis scenarios with intact containment, and accident scenarios with mean CDF greater than 1×10^{-6} per reactor-year.
- The third criterion, for more severe accidents, is tied to probability but not the EPA PAGs. The substantial reduction in early health effects criterion is that the conditional probability of exceeding an acute dose of 200 rem whole body at distances outside of the PEP EPZ is less than 1×10^{-3} per reactor-year. TVA's methodology categorizes more severe core melt accidents as those with mean CDF greater than 1×10^{-7} per reactor-year and with containment failure or bypass.

These criteria provide the bounds for the PEP EPZ sizing. The COL or CP applicant would use TVA's methodology with site- and design-specific accident information and may potentially choose a PEP EPZ boundary distance based on doses that fall well within the criteria (i.e., select a larger PEP EPZ than would strictly be supported by the criteria). For the PEP EPZ size based on these criteria, a precise probability cannot be given for the potential radiological events where protective actions may have to be taken outside of the EPZ, but based on the second criterion alone, the probability would be 10^{-6} or less per reactor-year.

12. 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 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.

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.

- 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?**

Staff Response: (1) Yes, the projected increase in productivity described in Section 10.2 of the Final EIS is based on the maximum electrical output stated in the PPE of 800 MW(e). This projected increase is consistent with the analyses provided in TVA’s ESP application and in the NRC staff’s Final EIS, which describe the environmental impacts that could result from building and operating two or more SMRs with a maximum total electrical output of 800 MW(e) to demonstrate the capability of SMR technology. As discussed in Chapter 1, Section 1.1 of the Final EIS, the EIS addresses the impacts of both the construction and operation of reactors and associated activities because site suitability encompasses construction and operational parameters.

(2) As stated above, the projected increase in productivity described in Section 10.2 is based on the construction and operation of two or more SMRs that would produce a maximum of 800 MW(e), which is consistent with the values in the PPE. The 800 MW(e) value includes the portion of this capacity that could be used to address critical energy security issues for TVA Federal direct-served customers.

While TVA’s ESP application did identify Department of Energy and Department of Defense facilities as potential customers with a particular need that would influence siting criteria, TVA could include additional customers and a broader service area in a need for power analysis if and when it submits an application for a COL or CP referencing an ESP for the Clinch River Nuclear Site.

(3) The term “region” in FEIS Section 10.2 is considered to be the same as is used throughout the FEIS. In Section 2.2.3 of the Final EIS, the region is defined as the area within a 50-mile radius of the site. The region includes all or parts of 33 counties in three states. The staff’s assessment of regional productivity in Final EIS Section 10.2 does not precisely identify where in the region these benefits would appear. If TVA submits a future COL or CP application, the need for power analysis and cost-benefit discussion would define the region where the benefits would be expected to be provided and this would be included in the updated Section 10.2 for the supplemental EIS and the new NEPA findings for that agency action.

TVA’s objective to demonstrate that SMR technology allows reactors to be brought into operation incrementally to achieve a capacity of up to 800 MW(e), along with other discussions in the application, made it reasonable for the staff to accept TVA’s assertion in Section 10.3 of its environmental report that “[t]he production of power throughout the operational life of the SMRs would enhance regional development and economic activity”