

PROPRIETARY INFORMATION – WITHHOLD UNDER 10 CFR 2.390

This letter is decontrolled when separated from Enclosure 2



Tennessee Valley Authority, 1101 Market Street, Chattanooga, TN 37402

CNL-16-081

May 12, 2016

10 CFR 2.101
10 CFR 52.15

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Clinch River Nuclear Site
NRC Project No. 785

Subject: Application for Early Site Permit for Clinch River Nuclear Site

The Tennessee Valley Authority (TVA) hereby submits the enclosed application for an early site permit in accordance with the requirements contained in Title 10 of the *Code of Federal Regulations* (10 CFR) 52, "Licenses, Certifications and Approvals for Nuclear Power Plants." This application is for the Clinch River Nuclear (CRN) Site in Oak Ridge, Tennessee, and is based on a plant parameter envelope encompassing the light-water small modular reactors (SMR) currently under development in the United States by BWX Technologies, Holtec, NuScale Power, and Westinghouse.

Since 2012, TVA and the U.S. Department of Energy (DOE) have been working together to explore various options under which TVA could license, construct, operate, and maintain two or more SMR units at the CRN Site supplying DOE facilities with clean, reliable electricity. By letter dated February 17, 2016, DOE expressed its support to TVA for the development and licensing of SMRs as a means to meet DOE goals of improving the environmental, economic, and energy security outlook for the United States. DOE believes that SMR deployment near federal facilities could provide enhanced reliability and other benefits, by providing continued operation during a widespread and extended loss of the electrical power grid, meeting reliability needs with clean energy that supports carbon reduction directives.

The ultimate objectives of the Clinch River SMR Project are to demonstrate that power generated by SMRs could be used for addressing critical energy security issues; that SMR technology can assist federal facilities with meeting carbon reduction objectives; that key SMR design features advance safety and security by eliminating several design basis accident scenarios; and that SMR power generating facilities are designed to be deployed in an incremental fashion to meet the power generation needs of a service area. Satisfactory demonstration of project objectives will provide TVA with reasonable assurance that SMRs can be relied upon to meet potential future electrical generation needs.

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NRO

TVA is approaching SMR deployment in a step-wise manner, with various decision gates prior to incremental investment decisions. Accordingly, TVA has not made a decision to submit a combined license application or go forward with construction of a new plant. Several factors, including progress on issuance of the Clinch River Early Site Permit, successful submittal and review progress of one or more SMR vendor Design Certifications, and continued progress on development of other regulatory policy issues appropriately addressing the unique features associated with SMRs will be considered in TVA's future decisions.

As part of this application, TVA is submitting two distinct Emergency Plans for approval. Both plans are based on the existing TVA Generic Emergency Plan. Part 5A of the application contains the major features of an emergency plan for a Plume Exposure Pathway (PEP) Emergency Planning Zone (EPZ) at the Site Boundary. Part 5B contains the major features of an emergency plan for a PEP EPZ consisting of an area approximately two miles in radius from the site center point. The Emergency Plan (5A or 5B) ultimately selected for the site will be based upon the selected SMR design's ability to meet the criteria in the applicable Plan.

The appropriateness of the EPZ size is established using a dose-based, consequence-oriented approach in accordance with U.S. Environmental Protection Agency Protective Action Guides, and based on the reduced consequences characteristic of SMRs. Specifically, SMR designs will have smaller radionuclide inventory and source terms; the projected rate of progression of postulated accidents is anticipated to be slower; and various design features will eliminate several normally considered design-basis accidents. Further, hypothetical beyond-design-basis accidents are projected to be significantly less likely. These features will be demonstrated in a future combined license application following selection of an SMR design.

This application is composed of the following parts containing several documents:

- Part 1 - Administrative and Financial Information
- Part 2 - Site Safety Analysis Report (SSAR)
- Part 3 - Environmental Report
- Part 4 - Limited Work Authorization [not used]
- Part 5 - Emergency Planning
- Part 6 - Departures and Exemption Requests
- Part 7 - Withheld Information
- Part 8 - Enclosures

Consistent with common licensing practice, most of the application text is written in present tense, active voice, including discussions of facilities and programs not yet built or implemented. Exceptions to this approach include discussion of completed studies and evaluations, which are written in the past tense. It should be understood, however, that statements regarding facilities (e.g., structures, systems and components) and pre-construction, pre-operational, and operational activities (e.g., procedures and programs) typically address activities that have not yet been performed and will not be performed until it is reasonable and appropriate to do so.

TVA understands the NRC intent to perform a detailed sufficiency review within 60 days after application submittal. TVA is prepared to work closely with your staff during this sufficiency review and afterwards throughout application review to ensure that the application meets the regulatory requirements for an early site permit. TVA has sufficient technical staff to support the NRC review to achieve efficient, timely permitting of the CRN Site.

This application contains no restricted data or national defense information requiring separation in accordance with 10 CFR 50.330. Part 7 contains sensitive information not suitable for public disclosure and TVA requests it be withheld in accordance with 10 CFR 2.390. An affidavit supporting TVA's request for withholding is included as Enclosure 1 to this letter.

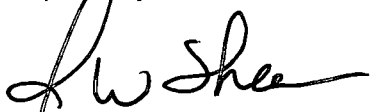
Enclosure 2 is a CD-ROM containing the proprietary version of the early site permit application. Enclosure 3 is a CD-ROM containing the non-proprietary version of the early site permit application. Appropriate pre-submission checks have been successfully performed on the files to ensure compliance with the guidelines provided on the NRC web site and they have been found acceptable for electronic submittal. The disks include a "packing slip" describing the contents, pursuant to NRC instructions for electronic filing.

There are no new regulatory commitments associated with this submittal. Please address matters related to your review and acceptance of this application to me as well as:

Daniel P. Stout
Senior Manager, Small Modular Reactors
1101 Market Street, LP 1G-C
Chattanooga, Tennessee 37402-2801
dpstout@tva.gov
(423) 751-7642

I declare under penalty of perjury that the foregoing is true and correct. Executed on this 12th day of May 2016.

Respectfully,



J. W. Shea
Vice President, Nuclear Licensing

Enclosures

cc: See Page 4

Enclosures:

1. Affidavit Pursuant to 10 CFR 2.390
2. CD-ROM: Clinch River Nuclear Site Early Site Permit Application – Proprietary
(4 copies)
3. CD-ROM: Clinch River Nuclear Site Early Site Permit Application – Non-Proprietary

cc (without enclosures):

Executive Director of Operations
Regional Administrator, Region II
Deputy Executive Director for Reactor and Preparedness Programs
Director, Office of New Reactor Licensing
Director, Office of New Reactors
Branch Chief, Division of New Reactor Licensing
Project Manager, Division of New Reactor Licensing
Project Manager, Division of New Reactor Licensing
Project Manager, Division of New Reactor Licensing
Acting Assistant Secretary, Office of Nuclear Energy, Department of Energy
Deputy Assistant Secretary, Nuclear Reactor Technologies, Department of Energy
Light Water Reactor Technologies, Department of Energy
Program Manager, Licensing Technical Support Program, Department of Energy
Project Manager, Licensing Technical Support Program, Department of Energy
Regulatory Specialist, Eastern Regulatory Field Office, Nashville District,
U.S. Army Corp of Engineers

ENCLOSURE 1

United States Nuclear Regulatory Commission
Washington, District of Columbia

In the Matter of
Tennessee Valley Authority
Clinch River Nuclear Project
Early Site Permit Application

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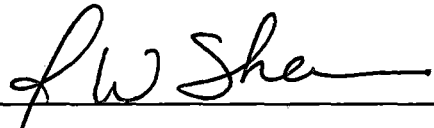
AFFIDAVIT

STATE OF TENNESSEE)
)
COUNTY OF HAMILTON)

Joseph W. Shea, after first being duly sworn, deposes and says:

1. I am employed as the Vice President of Nuclear Licensing for the Tennessee Valley Authority (TVA), an agency and instrumentality of the United States Government. I am familiar with the Early Site Permit Application for TVA's Clinch River Nuclear (CRN) Project and have personal knowledge of the matters stated herein.
2. I am submitting this affidavit in accordance with 10 CFR §2.390(a)(3) and 10 CFR §9.17, and because certain information contained in Part 7 to this Application has been determined by TVA to be of the type customarily held in strict confidence by the agency and is exempted from disclosure by statute under U.S. Code Title 16, Conservation, Section 470hh; the National Historic Preservation Act of 1966, Section 106, as amended; the Native American Graves Protection and Repatriation Act of November 16, 1990; and Tennessee Code Annotated 10-7-504(a)(21)(A)(i).
3. The information that should not be released to the public has been collected and organized into Part 7 of this Application.
4. The Early Site Permit Application Part 7 includes information exempted from disclosure by statute per 10 CFR §2.390(a)(3).
 - a. The application includes information related to historical artifacts and a Native American burial site. The U.S. Code Title 16, Conservation, Section 470hh, Confidentiality of Information concerning nature and location of archeological resources, and the National Historic Preservation Act of 1966, Section 106, as amended 2000, and the Native American Graves Protection and Repatriation Act of November 16, 1990 require the non-disclosure of these historically significant locations.

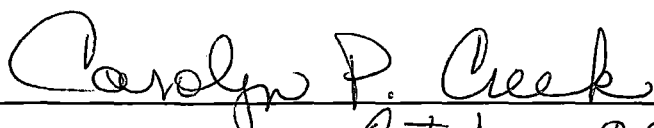
- b. The application also contains information related to the location of municipal water intakes. Tennessee Code Annotated 10-7-504(a)(21)(A)(i) requires the withholding of records that would allow a person to identify areas of structural or operational vulnerability of a utility service provider (including water storage or processing system, water distribution system, or any similar services) or that would permit unlawful disruption to, or interference with, the services provided by a utility service provider. The location of municipal water intakes are encompassed within the information that must be withheld from public disclosure under the statute.
5. The information sought to be withheld ("the information") is being submitted to the NRC in confidence.
6. The information is the sort of information regularly and customarily held in confidence by TVA based on the statutes requiring the withholding of such information; and is, in fact, so held.
7. The information has consistently been held in confidence by TVA.
8. No public disclosure of the information has been made by TVA.
9. All disclosures of the information to third parties by TVA, including any transmittals to the NRC, have been made pursuant to regulatory provisions or proprietary agreements which provide that the information is to be maintained in confidence.



J. W. Shea
Vice President, Nuclear Licensing
Tennessee Valley Authority

Subscribed and sworn to before me,

Notary Public, this 9th day of May 2016:



My Commission expires: October 29, 2019

