



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

10 CFR Part 50
10 CFR Part 52

CNL-15-096

June 19, 2015

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

TVA Clinch River Early Site Permit Application
NRC Project No. 785

Watts Bar Nuclear Plant, Unit 2
Construction Permit No. CPPR-92
NRC Docket No. 50-391

Bellefonte Nuclear Plant, Units 1 and 2
Construction Permit Nos. CPPR-122 and CPPR-123
NRC Docket Nos. 50-438 and 50-439

Bellefonte Nuclear Plant, Units 3 and 4
NRC Docket Nos. 52-014 and 52-015

Subject: **TVA Response to NRC Regulatory Issue Summary 2015-07**

References: 1) NRC Regulatory Issue Summary 2015-07, "Process for Scheduling and Allocating Resources in FY 2017 for the Review of New Licensing Applications for Large Light-Water Reactors and Small Modular Reactors," dated May 11, 2015

The purpose of this letter is to provide Tennessee Valley Authority's (TVA) voluntary response to the Nuclear Regulatory Commission (NRC) Regulatory Issue Summary (RIS) 2015-07 (Reference 1). TVA is providing this information to assist the NRC in its planning and scheduling efforts.

For the Clinch River Project, TVA plans to submit an Early Site Permit Application (ESPA) to the NRC for review in the second quarter of NRC fiscal year (FY) 2016 (first quarter of calendar year (CY) 2016). This submittal is based on the development of a Plant Parameter Envelope reflecting application for two or more small modular reactor (SMR) units at the Clinch River Nuclear (CRN) site in Oak Ridge, Tennessee. The design and vendor for the CRN SMR technology has not yet been selected.

TVA is developing the Clinch River site on a schedule that supports submittal of a combined license application (COLA) in the 2nd half of FY 2018, in parallel with supporting NRC's review of the ESPA. This submittal is subject to sufficient progress being made by the SMR vendor(s) with their design certification(s), and a TVA decision on technology selection and to proceed with development of a COLA in FY 2017.

Bellefonte Units 1 and 2 remain in a deferred plant status with activities focused on maintaining the asset. Currently, TVA does not anticipate any significant licensing actions that would require NRC allocation of resources for RIS related activities through NRC FY 2017. Similarly, the COLA for Bellefonte Units 3 and 4 is suspended at TVA's request. TVA does not expect any significant licensing actions associated with this application until further notice. If the status of the Bellefonte applications changes, TVA will notify the NRC promptly.

TVA anticipates Watts Bar Unit 2 receiving an Operating License in the fourth quarter of CY 2015. Consequently, TVA does not expect any NRC reviews as described in this RIS for Watts Bar Unit 2.

TVA's response to this RIS for the CRN site is provided in the Enclosure. If you have any questions, please contact Mr. Gene Cobey at (423) 751-3928.

This letter contains no regulatory commitments or proprietary information.

Respectfully,



J. W. Shea
Vice President, Nuclear Licensing

Enclosure: TVA Response to NRC Regulatory Issue Summary 2015-07

cc (enclosure):

Michael E. Mayfield, NRC Director, Office of Advanced Reactors and Rulemaking/DARR
Joseph F. Williams, NRC PM, DARR, Clinch River Project
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Enclosure
TVA Response to NRC Regulatory Issue Summary 2015-07
for Clinch River Nuclear Project

On May 11, 2015, the Nuclear Regulatory Commission (NRC) issued NRC Regulatory Issue Summary (RIS) 2015-07, "Process for Scheduling and Allocating Resources in FY 2017 for the Review of New Licensing Applications for Large Light-Water Reactors and Small Modular Reactors" (Reference 1). The RIS was issued to obtain new or updated information on the scheduling of potential license applications to assist the NRC in determining future resource and budget needs.

The following information is provided in response to RIS 2015-07 with respect to the TVA Clinch River project.

Questions for all potential/future applicants

In which month and year do you expect to submit your application?

Tennessee Valley Authority (TVA) intends to submit an Early Site Permit Application (ESPA) for the Clinch River Nuclear (CRN) site to the NRC for review in the second quarter of NRC fiscal year (FY) 2016 (first quarter of calendar year (CY) 2016). In parallel with supporting NRC's review of the ESPA, TVA is developing the Clinch River site on a schedule that supports submittal of a combined license application (COLA) in the 2nd half of FY 2018. This submittal is subject to sufficient progress being made by the SMR vendor(s) with their design certification(s), and a TVA decision on technology selection and to proceed with development of a COLA in FY 2017.

What type of permit, license, approval, amendment, or certification (CP, DC, ESP, COL, SDA, ML, LA request, or purchasing-approval request) would you be seeking?

TVA is seeking an Early Site Permit for the CRN site, to be followed by a request for a Combined License (COL) for CRN. See COLA discussion above.

Questions for COL license holders

How many licensing actions, e.g., license-amendment requests, exemption requests, and relief requests, would you expect to submit to the NRC?

Not applicable

Questions for potential/future nuclear power plant applicants

What designs will you be using?

The CRN ESPA is based on the development of a Plant Parameter Envelope (PPE) reflecting application of two or more Small Modular Reactor (SMR) units. The specific design and vendor for the CRN SMR technology has not yet been selected. The PPE will be based on input from the four light-water SMRs currently under development in the U.S.

Where will the plant be located?

The CRN ESPA is based on location of the SMR units on the CRN site in Oak Ridge, Tennessee.

How many units will the plant contain?

The CRN ESPA will address two or more SMR modules.

What is the current status of the development of the plant design (i.e., conceptual, preliminary, or final)?

TVA has not yet selected the SMR technology to be utilized at the CRN site. The ESPA is based on the development of a PPE which encompasses the design attributes from four vendors and their technologies. At the COL stage, the SMR technology selection will be finalized.

Have you established a schedule for completing the design? If so, please describe the schedule.

See response above.

Will you be part of an organized Design-Center Working Group (DCWG)?

TVA participates with other utilities and vendors interested in SMR technology in the Nuclear Energy Institute's SMR Working Group. TVA is participating in an industry advisory capacity with multiple SMR vendors and has supported and expects to continue to support SMR vendor design reviews and design certification reviews. TVA is committed to SMR standardization and welcomes the feedback from other utilities to ensure broad utility appeal.

Who are the other members of the DCWG?

Not applicable at this time.

Who will be the primary point of contact for each DCWG?

Not applicable at this time.

Have you developed protocols to provide coordinated responses to the NRC's requests for additional information with generic applicability to a design center?

Not applicable at this time.

Who will be designated as the reference COL applicant? In what order would you like the NRC to review the subsequent applications?

TVA is developing the Clinch River Site on a schedule that supports submittal of a combined license application (COLA) in the 2nd half of FY 2018. This submittal is subject to sufficient progress being made by the SMR vendor(s) with their design certification(s), and a TVA decision to select the SMR technology and proceed with development of a COLA in FY 2017. Whether the COLA is an R-COLA or S-COLA will be a function of progress being made by other applicants and other considerations. TVA is fully committed to standardization and intends to use the 10 CFR Part 52 process, maintaining close coordination between the DCA and COLA, as well as R-COLA and S-COLAs, to maximize efficiency and achieve standardization of the selected SMR design at the Clinch River Site.

Are vendors or consultants assisting in the preparation of the application(s)? If so, please describe their roles and responsibilities for the design and licensing activities.

The ESPA is being developed by TVA with support from Bechtel. TVA has also contracted with ENERCON to provide Emergency Planning services, Barge Waggoner Sumner & Cannon for flooding analysis, and with AECOM for support in the development of the Environmental Report and Environmental Impact Statement. EXCEL Services and Johnson Services are contracted to provide licensing support services.

Have you established a schedule for qualifying fuel and other major systems and components?

Not applicable.

Have you developed computer codes and models to perform design and licensing analyses?

No new computer codes are being developed in support of the ESP application. Various existing codes/modeling techniques are employed as part of standard analyses in support of the application.

Have you defined principal design criteria, licensing-basis events, and other fundamental design and licensing relationships?

Not applicable for ESP application.

Have you established a schedule for completing the design and licensing analyses?

Not applicable for ESP application.

Have you developed procedures regarding the use of thermal fluidic testing facilities and regarding the use of the results of their tests to validate computer models? Have you established a schedule for the construction of testing facilities? Have you established a schedule for completing the thermal fluidic testing?

Not applicable for ESP application.

Have you identified system and component suppliers (including fuel suppliers), manufacturing processes, and other major factors that could influence design decisions? Have you established a schedule for identifying suppliers and key contractors?

Not applicable at this time.

Do you have a quality-assurance program?

TVA-NQA-PLN89-A "Tennessee Valley Authority Nuclear Quality Assurance Program," is the governing Quality Assurance program for the Clinch River SMR. TVA has developed specific implementing procedures for the Clinch River SMR project.

Have you developed probabilistic risk assessment (PRA) models needed to support your applications, including the information needed to support risk-informed licensing approaches (for Chapter 19)? Do you plan to use the PRA for any risk-informed applications (e.g., risk-informed technical specifications, risk-informed in-service inspection, risk-informed categorization and treatment, risk-informed in-service testing, etc.)? Do you plan to use the PRA models in the development of the design? At what level will the PRA be prepared, and at what point during the application process will it be submitted?

Not applicable for ESP application.

Have you developed the plans for the construction and use of a control-room simulator?

Not applicable for ESP application.

Do you have a staffing plan?

Not applicable for ESP application.

What is your current staffing level for the execution and testing of the reactor design?

Not applicable for ESP application.

Do you plan to increase staffing?

Not applicable for ESP application.

Do you plan to submit white papers or technical and topical reports related to the features of your design or for the resolution of policy or technical issues? Do you have a schedule for submitting such reports?

TVA does not expect to submit additional technical or topical reports in advance of the ESP application.

Do you plan to request an ESP? If so, will you seek approval of either proposed major features of the emergency plans in accordance with 10 CFR 52.17(b)(2)(i) or with 10 CFR 52.17(b)(2)(ii)?

TVA expects to submit an application for an early site permit in the first quarter of calendar year 2016 for two or more SMR modules at the Clinch River site in Oak Ridge, TN. The application is expected to include major features of an emergency plan.

Will you use the provisions in Subpart F, "Manufacturing Licenses," of 10 CFR Part 52, instead of, or in combination with, other licensing approaches (e.g., a DC or SDA)?

Not applicable for ESP application.

What is the desired scope of your possible ML?

Not applicable for ESP application.

What design or licensing process would address the remainder of the proposed nuclear power plant? For example, would the ML address an essentially complete plant or would it be limited to the primary coolant system that basically comprises the integral reactor vessel and internals?

Not applicable for ESP application.

Which systems, structures, and components are being fabricated and delivered for the manufacturing, fabrication, and site construction of a completed operational nuclear power plant?

Not applicable for ESP application.

What is being assembled and constructed on site?

Not applicable for ESP application.