

POLICY ISSUE INFORMATION

January 15, 2009

SECY-09-0012

FOR: The Commissioners

FROM: Eric J. Leeds, Director
Office of Nuclear Reactor Regulation

SUBJECT: STATUS OF REACTIVATION OF CONSTRUCTION AND LICENSING
ACTIVITIES FOR THE WATTS BAR NUCLEAR PLANT UNIT 2

PURPOSE:

This paper informs the Commission of the status of the staff's activities and accomplishments regarding the reactivation of construction, licensing, and inspection activities for the Watts Bar Nuclear Plant (WBN) Unit 2. This paper does not address any new commitments or resource implications.

SUMMARY:

In accordance with the direction provided by the Commission in its staff requirements memorandum (SRM), SRM-SECY-07-0096, "Staff Requirements - Possible Reactivation of Construction and Licensing Activities for the Watts Bar Nuclear Plant Unit 2," dated July 25, 2007, the staff has established the foundation of a licensing review approach that employs the current licensing basis for Unit 1 as the reference basis for the review and licensing of Unit 2. In implementing this approach, the staff has formulated the activity topics that remain to be evaluated along with the framework for the outstanding reviews of generic communications issues and other special programs. Further, a newly developed Office Instruction provides direction and expectations from the Office of Nuclear Reactor Regulation (NRR) management for all currently known actions that must be completed for the staff to complete its review of an operating license (OL).

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The staff has established a construction inspection program that will utilize historical inspections and a broad scope of future inspections to provide reasonable assurance that the plant is properly built and ready for operation. A new Inspection Manual Chapter (IMC) was issued to provide guidance for implementation of the inspection program at WBN Unit 2.

BACKGROUND:

The WBN facility is located in Rhea County, which is in southeastern Tennessee, approximately 50 miles northeast of Chattanooga. The facility is owned and operated by the Tennessee Valley Authority (TVA). The plant has two Westinghouse-designed pressurized-water reactors. WBN Unit 1 received a full-power OL in early 1996. Since July 2000, WBN Unit 2 has been in a deferred nuclear plant status, as described in the Commission's Policy Statement on Deferred Plants (52 *Federal Register* 38077, dated October 14, 1987). The current construction permit expiration date for WBN Unit 2 was extended to March 31, 2013, by Order dated July 7, 2008.

By letter dated August 3, 2007, TVA informed the U.S. Nuclear Regulatory Commission (NRC) of its plan to reactivate and complete construction activities at WBN Unit 2 under the existing construction permit issued pursuant to Title 10, Part 50, "Domestic Licensing of Production and Utilization Facilities," of the *Code of Federal Regulations* (10 CFR Part 50). TVA plans to align Unit 2 to the Unit 1 licensing and design basis to the maximum extent possible.

SRM-SECY-07-0096 provides Commission approval of the staff's recommendations for the licensing and inspection programs that should be used for WBN Unit 2, and gives additional directions.

DISCUSSION:

The status of the licensing and inspection activities associated with construction of WBN Unit 2, which include the staff's accomplishments to date, staff activities in focus, and project schedule, is discussed below.

1. Licensing Approach Established

On September 2, 2008, NRR issued Office Instruction LIC-110, "Watts Bar Unit 2 Reactivation of Operating License Review." LIC-110 establishes the organization for the staff team, process work flow, management controls, and internal and external stakeholder interfaces for an effective and efficient licensing review of the OL application for WBN Unit 2. LIC-110 does not address the scope of construction and inspection activities.

The staff's approach to reviewing the OL application involves (1) reconstituting the licensing basis by determining whether a technical topic has been previously reviewed and approved by the NRC and classifying those topics as closed, if appropriate, (2) ensuring the validity of previously approved topics for additional considerations (e.g., effect of dual-unit operation, new safety orders, new regulations), and (3) using the WBN Unit 1 current licensing basis as a reference for reviewing open topic areas, including review of special topics such as the Maintenance Rule (10 CFR 50.65).

2. Licensing Basis Reconstituted

The staff reviewed (a) topics covered in NUREG-0847, "Safety Evaluation Report Related to the Operation of Watts Bar Nuclear Review Plant, Units 1 and 2," issued June 1982 (SER), and its supplements through No. 20, (b) issues addressed in the NRC's generic communications, and (c) topics identified and resolved by the TVA Nuclear Performance Plan (NPP), which included issues described in NUREG-1232, Volume 4, "Safety Evaluation Report on Tennessee Valley Authority: Watts Bar Nuclear Performance Plan, Watts Bar Unit 1," issued January 1990. The results of these reviews are discussed below.

a. Baseline Assessment of NUREG-0847 Topics

In NUREG-0847, the staff documented the evaluation of TVA's application for an OL for WBN Units 1 and 2. The staff conclusions from the review of certain issues in NUREG-0847 through Supplement 4 were applicable to both Units 1 and 2. After the issuance of Supplement 4, WBN licensing activities were suspended while TVA addressed some programmatic deficiencies.

Supplement 5 to NUREG-0847 updated the status of the outstanding issues, confirmatory issues, and proposed license conditions. In Supplements 5 through 20, the discussions were generally specific to WBN Unit 1, but in limited instances, applied to both WBN Units 1 and 2.

The staff has completed its review of topics covered in the NUREG-0847 SER through Supplement No. 20. In a letter to TVA dated October 10, 2008, the staff documented its review (Agencywide Documents Access and Management System (ADAMS) Accession No. ML082840361). The baseline assessment review covered 288 topics (excluding introduction and administrative sections associated with these topics) and determined that the NRC had previously approved 163 topics. The staff concluded that TVA should make submittals for the 125 topics that remain open. The staff will use the Unit 1 current licensing basis in its review of the topics.

b. Baseline Assessment of Generic Communication Issues

The staff has completed its review of topics covered in NRC generic communications issued since circa 1973 (the time of the initial OL application for WBN Units 1 and 2). On May 28, 2008, the staff issued a letter to TVA to document the results of the baseline assessment. The letter listed those items that the staff considers to be open. Further review or verification needs to be conducted for open items.

The staff reviewed over 1000 generic communication documents, e.g., bulletins, generic letters, etc., to determine whether the NRC had previously resolved the topics for WBN Unit 2. Based on its review, the staff determined that most of the generic communications have been previously reviewed and resolved. Some were determined to be not applicable (e.g., issues that relate to boiling-water reactors or do not require any response on behalf of WBN Unit 2). However, approximately 60 generic communication issues are considered open for resolution. TVA will likely need to provide additional submittals for identified open issues. The staff will review the submittals and/or perform inspections to resolve the issues for Unit 2. As directed by the

Commission in SRM-SECY-07-0096, the staff will consider how the open issues were resolved for Unit 1.

c. **Baseline Assessment of TVA Nuclear Performance Plan Topics**

In response to an NRC demand for information in 1985, TVA prepared a corporate NPP, which proposed corrective actions for problems with the overall management of TVA's nuclear program and a site-specific plan entitled "Watts Bar Nuclear Performance Plan." During the WBN Unit 1 OL review, the staff reviewed both the corporate and WBN site-specific plans and documented its findings in two SERs, NUREG-1232, Volume 1, issued July 1987, and NUREG-1232, Volume 4. In NUREG-1232, Volume 4, the staff documented its review of 18 corrective action programs (CAPs) and 11 special programs (SPs) at WBN.

For the majority of the CAPs and SPs, TVA plans to implement the approach and actions used to resolve the items for Unit 1, as described in NUREG-1232, Volume 4, without modifications. However, in its letters dated January 29, May 29, and September 26, 2008, providing its plans to address the issues, TVA proposed different approaches for certain sub-issues within the Cable Issues CAP. The staff is currently reviewing these open issues. In the September 26, 2008, letter, TVA states that the approaches for resolution of the Fire Protection and QA Records CAPs, as well as several SPs, were found to be satisfactory at the time of completion at Unit 1. In addition, TVA has elected to resolve the Replacement Items CAP by conducting an extensive refurbishment program rather than performing back checks of previously installed and/or procured replacement items. The staff is evaluating the acceptability of these items.

3. **Construction Permit Extended**

The construction permit for WBN Unit 2 was previously set to expire on December 31, 2010. On May 8, 2008, TVA had requested an extension to provide adequate time to complete construction and licensing efforts. On July 7, 2008, the staff issued an Order extending the construction permit expiration date to March 31, 2013. The staff completed an environmental assessment finding that the extension would have no significant impact on the environment. The Order was published in the *Federal Register* on July 11, 2008 (73 FR 39995). Pursuant to 10 CFR 2.309, "Hearing Requests, Petitions to Intervene, Requirements for Standing, and Contentions," the Order provided 60 days for the public to request a hearing. The scope of the hearing notice was with respect to challenges on the permit holder's asserted good cause justification for the extension. The NRC did not receive any request for hearing on the extension of the construction permits.

4. **Construction Inspection Activities**

a. **Resident Inspector Office Established**

A resident inspector office has been established and staffed with inspectors who are dedicated to performing inspections of the construction activities at WBN Unit 2. Currently, a senior resident inspector (SRI) and two resident inspectors (RIs) are assigned to Unit 2, who are independent of the SRI and RI staffing for Unit 1. As TVA

more clearly defines the scope of remaining construction activities and the inspection resources are better understood, the NRC staff will review the need for additional resident inspectors. The staff issued a coordination plan to address the overlap in duties between the Unit 1 and Unit 2 resident inspectors and to assign responsibility for construction-related inspection activities to the various technical divisions within Region II.

b. Inspection Manual Chapter 2517 Issued

The staff reactivated IMC 2512, "Light Water Reactor Inspection Program—Construction Phase"; IMC 2513, "Light Water Reactor Inspection Program—Pre operational Testing and Operational Preparedness Phase"; and IMC 2514, "Light Water Reactor Inspection Program Startup Testing Phase" for use at WBN Unit 2. The inspection procedures associated with IMC 2512 have been reactivated, while the inspection procedures for IMCs 2513 and 2514 will be reactivated prior to their usage. The staff did not revise the old IMCs to address outdated processes and guidance. Therefore, the staff issued a new manual chapter IMC 2517, "Watts Bar 2 Construction Inspection Program," on February 15, 2008, to (1) provide the policies and requirements for the WBN Unit 2 construction inspection program during that unit's resumption of construction after an approximately 20-year suspension of construction activities, and (2) establish a record of the inspection activities, applicant actions and technical issues resolved to support the decision for issuing an OL. IMC 2517 also addresses the outdated processes and provides additional guidance for the construction inspection program. For example, IMC 2517 describes a construction assessment process with similarity to the Reactor Oversight Process, which replaces the systematic assessment of licensee performance (SALP) process mentioned in many of the construction IMCs and inspection procedures.

c. Inspection Program Reconstituted

The reconstitution effort involves comparing previously performed Unit 2 inspections, as documented in inspection reports, to the construction phase requirements specified in IMC 2512 construction inspection procedures. The staff has completed the reconstitution reviews of inspection reports for all applicable IMC 2512 construction inspection procedures. The reconstitution effort identified the quantity of Unit 2 construction inspections already performed and will assist the staff in determining the scope of future inspections needed to complete the construction inspection program. Approximately 940 old inspection reports were included in this review. Reconstitution of the pre-operational testing IMC 2513 and start-up testing 2514 inspection program procedures was not required because these areas were not previously inspected for Unit 2.

d. Scope of Future Inspections Defined

Future inspections will be performed on construction activities that are covered by applicable IMC 2512 construction inspection procedures and on items identified by the review of other areas. The other areas that will require future inspection include generic communications, CAPs, SPs, open items, licensing identified items, and previously known allegations that are applicable to Unit 2. The staff completed the generic communications issues and allegations reviews to determine which items warrant

inspections. Factors that were considered in the generic communications reviews included the age of the issue, whether the issue was previously inspected at other plants, and any unique circumstances that could increase the significance of the issue at WBN. Approximately 1030 generic communications issues were reviewed, and the staff identified 86 items to be inspected. Because Unit 1 was the NRC's primary focus when many of the historical WBN allegations were previously closed, the allegation review concentrated on potential unresolved Unit 2 hardware type problems. Of the approximate 1000 historical WBN allegations, the staff identified 21 allegations for follow-up inspection on WBN Unit 2. The staff will compare the reconstitution results and the scope of future inspections to ensure all the inspections specified in the construction phase IMC 2512 are completed. The inspections in pre-operational testing IMC 2513 and start-up testing 2514 will be performed as specified in the applicable program requirements.

e. Construction Inspection Program Initiated

The staff conducted a construction readiness inspection during March 3-14, 2008 (ADAMS No. ML08120735). The inspection focused on the quality assurance organization, the corrective action program, procurement, plant equipment lay up and preservation, engineering support, training, and qualification. The intent of this inspection was to determine whether TVA and its contractor, Bechtel Corporation, have adequate programs, procedures, and processes in place to perform safety-related work. On the basis of the inspection, the staff concluded that TVA has adequate controls in place to conduct the limited amount of ongoing procurement, design, and construction activities but noted that much of the guidance and instructions to support construction had not yet been developed. As TVA has issued additional documents and performed construction activities, the staff has inspected these items. Three quarterly inspections have been completed. These inspections were performed primarily by the resident staff and followed up on many of the areas reviewed during the readiness inspection. The inspections concluded that TVA has adequate controls for ongoing construction activities.

f. Self-Assessment Activities Completed

A self-assessment audit was completed in August 2008, to evaluate the program, procedures, and processes that have been developed for NRC oversight of construction activities at WBN Unit 2. The audit team consisted of two Region II inspectors, with no previous involvement with the WBN inspection program, and an NRR staff member from the Division of Inspection and Regional Support. In the audit report dated September 10, 2008 (ADAMS No. ML082540103), the team made a number of recommendations and suggestions to improve the construction inspection program.

Overall, the audit concluded that preparations for construction inspections were adequate. Another self-assessment is planned for 2009 that will focus more on the implementation of the construction inspection program.

5. Public Web Page Initiated

Information regarding the Watts Bar Unit 2 construction project and NRC inspections can be found at <http://www.nrc.gov/reactors/plant-specific-items/watts-bar.html>.

6. Conversion of NUDOCS Documents into ADAMS

Most of the existing documents supporting licensing of WBN Unit 2 were not in the ADAMS Main Library. Therefore, the staff has been working with the Office of Information Systems to place all Watts Bar documents (approximately 500,000 pages) in the ADAMS Main Library to facilitate electronic access to the docket record by the staff and other stakeholders. All available paper documents (approximately two-thirds of the total set) have been scanned into ADAMS. The remaining documents were on microfiche and have also been scanned. The staff is reviewing these documents for Sensitive Unclassified Non-Safeguards Information (SUNSI) before making them publicly available in the ADAMS Main Library. Because of the large volume of documents that require this review, the staff will conduct SUNSI reviews as documents are identified and used in support of the staff's ongoing evaluations and inspection activities.

7. Noticing of Opportunity for Hearing on the OL Application

In SRM-SECY-07-0096, the Commission directed the staff to issue an additional notice of opportunity for hearing on the WBN Unit 2 OL application. On December 27, 1976, a combined notice of receipt of application, notice of consideration of issuance of facility operating licenses, and notice of opportunity for hearing (41 FR 56244) was originally issued. An intervention petition was filed, but the Atomic Safety and Licensing Board ruled that the individual did not have the requisite interest necessary for standing and denied the petition.

The staff originally planned to re-notice the OL application in the summer of 2008. However, the staff determined that it did not have a sufficiently updated application to re-notice the opportunity for hearing. Because TVA needs to provide additional information on both the safety and environmental aspects of the application as required by 10 CFR 50.34, "Contents of Construction Permits and Operating License Applications; Technical Information"; 10 CFR 51.45, "Environmental Report"; and 10 CFR 51.53, "Preconstruction Environmental Reports," the staff revised its schedule for the notice to mid 2009. Specifically, the staff needs information regarding the proposed modified condenser cooling mode (a modification of the currently fully closed mode to include a supplemental once-through cooling mode of operation) for dual-unit operation, and an analysis of severe accident mitigation design alternatives. The regulations in 10 CFR 51.45 require an environmental report that discusses the impact of the proposed action on the environment including an analysis of alternatives available for reducing or avoiding adverse environmental effects.

Based on recent discussions with the TVA, the staff expects to receive the required additional environmental information by February 2009. The staff review in this area generally occurs over an 18-month period to allow sufficient time for scoping audits, data gathering, consultation with other agencies, and preparation of a draft impact statement. However, the staff believes that it may be able to expedite its review.

9. Development of Project Schedule

TVA has completed its initial schedule of engineering and construction activities required for completion of the facility. TVA has defined and scheduled the other supporting activities such as the submittal of final safety analysis report amendments for NRC review. Although the NRC staff has used the TVA schedule to develop its own schedule and assign preliminary branch-level staff resources, activities in the schedule will be refined after receipt of each TVA submittal to baseline the milestones, activity durations, and reviewer resources. NRC staff progress will be managed against these baseline activities. The staff is using the project management capabilities in Enterprise Project Management (which is currently being used by the Office of New Reactors for combined license reviews) to assist in the scheduling and resource management.

COORDINATION:

The Office of the General Counsel has reviewed this paper and has no legal objection.

/RA/

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Enclosure:
Office Instruction LIC-110

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Enclosure:
Office Instruction LIC-110

ADAMS ACCESSION NUMBER: ML083100090 *concurred via email

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NRR Office Instruction LIC-110

“Watts Bar Unit 2 License Application Review”

**ADAMS Accession Number
ML081930063**