

POLICY ISSUE INFORMATION

February 1, 2010

SECY-10-0015

FOR: The Commissioners

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

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

PURPOSE:

This paper is the second annual status report to inform the Commission of the staff's activities and accomplishments relating to the reactivation of construction, licensing, and inspection for the Watts Bar Nuclear Plant (WBN), Unit 2. This paper updates status information provided in SECY-09-0012, "Status of Reactivation of Construction and Licensing Activities for the Watts Bar Nuclear Plant, Unit 2," dated January 15, 2009. This paper does not address any new commitments or resource implications.

SUMMARY:

The U.S. Nuclear Regulatory Commission (NRC) staff continues its review of the operating license (OL) application for WBN, Unit 2, which the Tennessee Valley Authority (TVA) updated on March 4, 2009. For four consecutive weeks beginning on May 1, 2009, the staff published a notice of the receipt of the updated OL application in the *Federal Register* (74 FR 20350) and provided the public an additional opportunity to request a hearing. In response to the notice, the NRC received a petition to intervene and a request for hearing, which has been granted by the Atomic Safety and Licensing Board.

CONTACTS: Lakshminarasimh Raghavan, NRR/DORL
(301) 415-2429

Patrick D. Milano, NRR/DORL
(301) 415-1457

The Director of the Office of Nuclear Reactor Regulation (NRR) and the Regional Administrator of Region II established a Watts Bar Reactivation Assessment Group (WRAG) to provide oversight and management direction to ensure that the staff's review addresses all relevant regulatory requirements, that appropriate inspections are conducted, and that any conclusions on licensing of the facility are well supported. WRAG held its initial meeting at the Region II offices in Atlanta, GA, on September 28, 2009. WRAG will maintain its overview of the licensing process until the agency makes a final decision on whether to issue a full-power OL or until a time that the Director of NRR and the Regional Administrator of Region II mutually agree to discontinue the WRAG.

The staff has completed its review of TVA's regulatory framework and reconstituted the licensing basis for WBN, Unit 2. NUREG-0847, "Safety Evaluation Report [SER] Related to the Operation of Watts Bar Nuclear Plant, Units 1 and 2," Supplement 21, "Safety Evaluation Report Related to the Operation of Watts Bar Nuclear Plant, Unit 2" (SSER 21), issued February 2009, documents this review. In SSER 21, the staff identified topics that are open for staff review of the OL application for WBN, Unit 2.

As part of its nuclear performance plan for addressing certain construction and performance deficiencies at WBN and other facilities in response to an NRC demand for information in 1985, TVA developed and implemented 18 corrective action programs (CAPs) and 11 special programs at WBN, Unit 1. As part of its OL review for WBN, Unit 1, the staff found these programs acceptable, and TVA implemented them at WBN, Unit 1. TVA is also implementing these programs at WBN, Unit 2. TVA revised several of the CAPs for WBN, Unit 2, as they relate to electrical and cable issues, quality assurance documents, and replacement parts. The staff has completed its review of these revised CAPs, as documented in letters dated August 31 and September 8 and 9, 2009, and determined that, when TVA fully implements them, the revised approaches should adequately address the previous deficiencies. The staff will inspect TVA's implementation of all CAPs and special programs in WBN, Unit 2.

The staff has reviewed TVA's responses to generic correspondence issued since the initial OL application in 1973 for WBN, Units 1 and 2. Based on its review, documented in SSER 21, the staff identified 54 generic communications that require resolution for WBN, Unit 2. The staff has now reviewed TVA's responses to 9 of the generic communications issued after 1995 and found them acceptable. The staff will document the results of its review in subsequent SSERs.

TVA continues to make licensing submittals in the form of amendments to the final safety analysis report for WBN, Unit 2, to address the remaining topics identified in SSER 21. The staff's review is in progress.

On November 12, 2009, TVA submitted an application for a license to receive and store nuclear fuel at WBN, Unit 2, under Title 10 of the *Code of Federal Regulations* Part 70, "Domestic Licensing of Special Nuclear Material." TVA previously held a Part 70 license (SNM-1873) for WBN Unit 2, which was originally issued on February 1981. License SNM-1873 was terminated in January 1998 at TVA's request. The Office of Nuclear Material Safety and Safeguards is reviewing this application, which was accepted for a detailed review on December 23, 2009.

As part of the updated OL application, TVA supplemented its environmental impact statement to support the operation of WBN, Unit 2. On September 11, 2009, the NRC published a notice of intent in the *Federal Register* to prepare a supplement to the final environmental statement for

operation of WBN, Unit 2, and to conduct a scoping process. On October 6, 2009, the staff held a meeting near the WBN site to provide the public an opportunity to participate in the environmental scoping process. The staff's review of TVA's supplemental environmental impact statement is in progress.

The staff continues to conduct construction inspections to determine if the plant is being built in accordance with the regulatory requirements and can be operated in a safe manner. A self-assessment of this construction inspection program was completed, and actions are underway to address the suggested improvements.

On the basis of its licensing reviews and inspection activities completed to date, the staff remains on a schedule for accomplishing the remainder of the actions that is consistent with TVA's plan to complete construction and request an OL by April 1, 2012.

A detailed discussion of the status of activities on the OL review project for WBN, Unit 2, is enclosed.

COORDINATION:

The Office of the General Counsel has reviewed this paper and has no legal objection. The Office of the Chief Financial Officer has reviewed this paper for resource implications and has no objections.

/RA/

Eric J. Leeds, Director
Office of Nuclear Reactor Regulation

Enclosure:
Status of Reactivation of Construction and
Licensing for the Watts Bar Nuclear Plant, Unit 2

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*via e-mail

OFFICE	LWBP/PM	LWBP/LA	NRR/LWBP/BC	TechEditor	NRR/DIRS	NRR/DLR	NRR/DE
NAME	PMilano	BClayton	LRaghavan	KAzariah-Kribbs	FBrown	BHolian (SLe for)	PHiland
DATE	01/20/10	01/20/10	12/22/09	12/11 /09	12/24/09	12/24/09	01/20/10
OFFICE	NMSS/FFLD*	NSIR/DPR *	NSIR/DSP*	REGION II/DCP*	NRR/DORL/D	OGC nlo	NRR/D
NAME	PHabighorst	KWilliams (SLaVie for)	RCorreia	RCroteau	JGitter	DRoth	ELeeds
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STATUS OF REACTIVATION OF CONSTRUCTION AND LICENSING
FOR THE WATTS BAR NUCLEAR PLANT, UNIT 2

BACKGROUND:

In SECY-09-012, "Status of Reactivation of Construction and Licensing Activities for the Watts Bar Nuclear Plant Unit 2 [WBN, Unit 2]," dated January 15, 2009, the U.S. Nuclear Regulatory Commission (NRC) staff informed the Commission of the status of its activities and accomplishments following notification from Tennessee Valley Authority (TVA) of its plan to reactivate and complete construction activities at WBN, Unit 2.

In Staff Requirements Memorandum (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 Commission provided direction for the licensing and inspection program approach that should be used for WBN, Unit 2. In this regard, TVA will align Unit 2 to the Unit 1 licensing and design basis to the maximum extent possible.

The latest completion date in the construction permit for WBN, Unit 2, is March 31, 2013.

DISCUSSION:

The status of the licensing and inspection activities associated with completion of the construction of WBN, Unit 2, which includes the staff's accomplishments to date, staff activities in focus, and critical path issues, is discussed below.

1. Notice of Operating License Application Published in the *Federal Register* and Request for Hearing Received

As directed by the Commission in SRM-SECY-07-0096, upon receipt of TVA's update of the operating license (OL) application for WBN, Unit 2, the staff published in the *Federal Register* on May 1, 2009 (74 FR 20350), a notice of additional opportunity for the public to request a hearing. In addition to publishing the notice for 4 consecutive weeks in the *Federal Register*, the staff also announced the opportunity for the public to request a hearing in several newspapers in the vicinity of the plant. In response to the notice, the NRC received a petition to intervene and a request for hearing filed jointly by five organizations—Southern Alliance for Clean Energy (SACE), the Tennessee Environmental Council, We The People, the Sierra Club, and the Blue Ridge Environmental Defense League. By its memorandum and order dated November 19, 2009, the Atomic Safety and Licensing Board granted the request for hearing on behalf of SACE.

2. Watts Bar Reactivation Assessment Group Established

On July 10, 2009, the Director of the Office of Nuclear Reactor Regulation (NRR) and the Regional Administrator of Region II established the Watts Bar Reactivation Assessment Group (WRAG). A charter defines its authority and objectives. WRAG will provide oversight and management direction to determine whether the required actions have been reviewed by the staff and implemented successfully by TVA to ensure that WBN, Unit 2, meets all the relevant

regulatory requirements and can be operated safely. WRAG will make a recommendation to the Director of NRR and the Regional Administrator of Region II at the appropriate time as to whether TVA has successfully completed the activities discussed in NRR Office Instruction LIC-110, "Watts Bar Unit 2 Reactivation of Operating License Review," Revision 1, dated September 28, 2009, and in NRC Inspection Manual Chapter (IMC) 2517, "Watts Bar Unit 2 Construction Inspection Program," dated February 15, 2008.

On September 28, 2009, WRAG held its first meeting at the Region II offices in Atlanta, GA. WRAG will maintain its overview of the licensing process until the agency makes a final decision on the issuance of a full-power OL or until a time that the Director of NRR and the Regional Administrator of Region II mutually agree to discontinue the WRAG. The most recent meeting was held on January 12, 2010, in Rockville, MD. Following its internal meeting, WRAG met with TVA management in a public meeting to discuss TVA's overall progress. Two or more meetings are planned each year, consistent with the needs of the project.

3. Operating License Application Review—Licensing Basis Reconstituted

The NRC staff has completed its review of TVA's regulatory framework and has reconstituted the licensing basis for WBN, Unit 2. NRR Office Instruction LIC-110 delineates the staff's review process.

For this effort, the NRC staff used the set of topics covered in NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition," Revision 1, issued July 1981; TVA's nuclear performance plan issues; and the WBN final safety analysis report (FSAR) through Amendment No. 91 (the FSAR version approved for WBN, Units 1 and 2). Based on its review, the staff determined whether the NRC had previously reviewed and approved a technical topic and identified open topics that require further information from TVA and staff review. In addition to the status of topic items related to the safety evaluation report (SER), the framework detailed the status of TVA's response and implementation in response to generic correspondence issued since the start of licensing in 1973 and the status of TVA's corrective action program (CAP) and special program (SP) plans identified in the WBN nuclear performance plan, 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 this determination provided the licensing framework for the project as documented in NUREG-0847, "Safety Evaluation Report Related to the Operation of Watts Bar Nuclear Plant, Units 1 and 2," Supplement 21, "Safety Evaluation Report Related to the Operation of Watts Bar Nuclear Plant, Unit 2" (SSER 21), issued February 2009.

On March 4, 2009, TVA provided an update to its OL application for WBN, Unit 2, addressing the general and technical information required by Section 50.33, "Contents of applications; general information," and Section 50.34, "Contents of construction permit and operating license applications; technical information," of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities." By letter dated December 18, 2008, TVA provided the FSAR for WBN, Unit 2, as Amendment 92 to the FSAR. Earlier FSAR amendments related to WBN, Units 1 and 2. TVA is currently submitting periodic updates to the FSAR as engineering is completed to resolve the open SER topic items. TVA expects to submit the last update by the end of March 2010. The staff is currently scheduled to complete the technical review about March 2011.

4. Program Review of the Tennessee Valley Authority's Corrective Action Program and Special Program Plans Completed

As part of its nuclear performance plan for addressing certain construction and performance deficiencies at WBN and other facilities, TVA developed and implemented 18 CAPs and 11 SPs. During the OL review for WBN, Unit 1, the staff found the CAPs and SPs acceptable for implementation at WBN, Unit 1. With the exception of four CAPs, TVA plans to implement them at WBN, Unit 2, without modifications. In its letters dated January 29, May 29, and September 26, 2008, TVA proposed a modification of its implementation approach relating to the other four CAPs—cable issues, electrical issues, quality assurance records, and replacement parts. The staff has completed its review of the program plans for these four CAPs and determined that these revised approaches should adequately address the previous deficiencies when fully implemented by TVA. The staff's conclusions were documented in letters to TVA dated August 31 and September 8 and 9, 2009.

Therefore, the NRC staff finds the program review of all the TVA CAP and SP plans to be complete. The staff plans to conduct inspections to verify TVA's implementation of all CAPs and SPs.

5. Staff's Review of the Tennessee Valley Authority's Responses to Generic Correspondence Continues

The staff has completed its review of TVA's responses to generic correspondence issued since the initial OL application for WBN, Units 1 and 2. Based on this review, in SSER 21, the staff identified 54 generic communications that require resolution for WBN, Unit 2. The staff is currently reviewing TVA's responses to a number of the generic communications issued after 1995. The remainder will be reviewed along with the evaluation of affected FSAR sections. The staff will document its review results in subsequent SSERs.

6. Licensing-Basis Preservation Program Reviewed

The NRC staff recognized that there may be circumstances that could result in the need to reopen an SER topic item that was previously considered resolved. Even if a topic was previously reviewed and resolved within the SER (NUREG-0847) and its supplements, circumstances that could lead to the revision of the previous evaluation or the performance of a new evaluation exist. For example, TVA made design- and licensing-basis changes to WBN, Unit 1, after the issuance of the Unit 1 OL; most of these changes will be implemented for WBN, Unit 2, and will need to be assessed to determine any effect on previous safety evaluations prepared for WBN, Unit 2. The Unit 1 changes include items approved by amendments under 10 CFR 50.90, "Application for Amendment of License, Construction Permit, or Early Site Permit," or changes implemented in accordance with 10 CFR 50.59, "Changes, Tests, and Experiments." In addition, revisions to regulations and guidance will be considered along with the effect of dual-unit operation. TVA will also be assessing the effect of any exemptions, reliefs, and other actions that were specifically granted for WBN, Unit 1, to determine if the same allowance is appropriate for WBN, Unit 2.

In a letter dated September 8, 2009, TVA provided its licensing-basis preservation program at WBN, Unit 2, and the process procedure that its engineering organization will use to evaluate the relevance of previously completed NRC safety evaluations to the final WBN, Unit 2, design

or to identify topics that require supplemental review. The NRC staff is currently reviewing this program and plans to document its findings in the next supplement to the SER.

7. Construction Refurbishment Program Review Underway

Because of the long duration during which plant construction was inactive and the scope of equipment layup activities were limited, TVA is developing a comprehensive program to address the potential for degradation of equipment and the criteria to assess the impact on the design basis of components. The NRC staff is reviewing the program plan that TVA submitted. Upon TVA's completion of its procedures to implement this plan, the staff expects to conduct an inspection to assess the adequacy of these procedures before making its final determination on the acceptability of the program. The staff will conduct inspections as TVA begins to implement the procedures in the field.

8. Application for a License under 10 CFR Part 70 in Review

On November 12, 2009, TVA submitted an application for a license to receive and store nuclear fuel at WBN, Unit 2, under 10 CFR Part 70, "Domestic Licensing of Special Nuclear Material." The Office of Nuclear Material Safety and Safeguards is conducting the review.

9. Environmental Scoping To Obtain Public Comments

TVA submitted an Environmental Impact Statement in November 1972 to support its request for the construction permits. In December 1978, the NRC staff issued NUREG-0498, "Final Environmental Statement related to the Operation of Watts Bar Nuclear Plant, Units Nos. 1 and 2" (FES-OL). As part of its application for WBN, Unit 2, TVA submitted a Final Supplemental Environmental Impact Statement for the Completion and Operation of WBN, Unit 2 (FSEIS), issued June 2007, to the NRC on February 15, 2008. TVA provided additional information in support of the FSEIS on January 2009.

The staff issued a notice of intent to prepare a supplement to its FES-OL for WBN, Unit 2, and to conduct a scoping process. In this regard, the staff held a meeting (two sessions) in Sweetwater, TN, on October 6, 2009, to inform the public that a supplement to the FES-OL related to the review of the license application will be prepared in accordance with 10 CFR 51.92, "Supplement to the Final Environmental Impact Statement," and to provide the public an opportunity to participate in the environmental scoping process, as defined in 10 CFR 51.29, "Scoping—Environmental Impact Statement and Supplement to Environmental Impact Statement." The staff received public comments at the meeting and in writing that will be addressed in a draft supplement to the FES-OL. This draft will also be issued for public comment when it is completed.

10. Construction Inspection Activities

a. Resident Inspector Office Activities

The resident inspector (RI) office was established and fully staffed with one senior RI and two RIs in 2008 to perform the inspections of construction activities at WBN, Unit 2. As a result of increased construction activities, the region plans to add another RI in early 2010. In addition to assisting with construction inspections, the new RI will be involved with system preoperational testing and startup testing. The additional RI will be actively involved in the transition of WBN, Unit 2, from construction to operations and will eventually become an operational RI. Communications between the WBN, Unit 1 and Unit 2 RI staffs occur regularly to discuss plant status, inspection needs, and any construction activities that could impact Unit 1.

b. Inspection of Corrective Action Programs and Special Programs Commenced

TVA developed the CAPs and SPs to resolve concerns with the quality of construction at WBN in the 1970s and early 1980s. TVA implemented the CAPs and SPs on WBN, Unit 1, and the NRC inspected these programs for WBN, Unit 1. For the majority of the CAPs and SPs, TVA plans to take the same actions for WBN, Unit 2, as those taken for WBN, Unit 1. Currently, TVA has established closure plans and points of contact for a majority of the systems affected by these CAPs and SPs. To promote communications and inspection efficiency, the Region II office has assigned system inspectors from various divisions (i.e., the Division of Reactor Safety, the Division of Construction Projects, and the Division of Construction Inspection) to review these plans. Regional inspections have begun for the CAPs and SPs.

c. Construction Inspection Activities

The RIs continued to implement construction inspection procedures identified as not fully completed from initial construction inspections or associated with "new" work at WBN, Unit 2. In 2009, the RIs and supporting regional staff have issued four quarterly inspection reports. These inspection reports primarily concentrated on the completion of inspection procedure samples and the implementation of CAPs and SPs. Additionally, generic communications (e.g., bulletins, Three Mile Island action items, and generic letters) have been screened for applicability to WBN, Unit 2, and have been added to the inspection plan and schedule database as necessary items to close before the restart of WBN, Unit 2. In addition, an RI team conducted a problem identification and resolution inspection in June 2009. The staff has found that TVA has adequate controls for ongoing construction activities.

d. TVA Performance Assessment Activities

The staff completed periodic assessments of TVA's performance for the WBN, Unit 2, project, consistent with the guidance in IMC 2517. An End-of-Cycle review for 2008 and a Mid-Cycle review for 2009 were performed. During these reviews, the staff concluded that overall, TVA's performance at WBN, Unit 2, was adequate and no changes to planned inspections were needed. The 2009 End-of-Cycle review is planned for February 2010.

e. Self-Assessment Activities Completed

The NRC completed an audit in August 2009 to perform a comprehensive evaluation of the implementation of the developed approach for NRC oversight of the WBN, Unit 2, construction project. The audit team consisted of a Region I branch chief, an NRR staff member from the Division of Inspection and Regional Support, and an NRR branch chief from the Division of License Renewal. In the audit report dated August 31, 2009 (Agencywide Documents Access and Management System Accession No. ML092430126), the team made a number of recommendations and suggestions to improve the construction inspection program. Overall, the audit concluded that the implementation of construction inspection activities was adequate. The Region II staff has developed corrective actions to address the recommendations and suggestions from the audit. These items were discussed during the January 12, 2009, WRAG meeting.

11. Technical Review Staff Resource Challenge

The staff has been refining its workload estimates for completing the OL review and preparation of the SER. On the basis of these estimates, the staff recognized that additional electrical and instrumentation review resources may be necessary to complete the project within the schedule. In the electrical area, the staff was able to obtain the services of a retired annuitant to minimize the impact. Management is working to identify possible support from other offices and the NRC Regions to alleviate the projected shortage in the instrumentation and control area.

12. Additional Activities

a. Changes in Security Requirements

The staff will review the changes to the WBN security plan, including actions that TVA has taken to meet the new regulatory requirements relating to physical and cyber security.

b. Department of Homeland Security Consultation

Section 657 of the Energy Policy Act of 2005 requires the NRC to consult with the Department of Homeland Security (DHS) concerning potential vulnerabilities of the location of a proposed facility to terrorist attack. In this regard, DHS has conducted an onsite visit at WBN in August 2008 to implement a portion of their consultation. On November 7, 2008, DHS issued its New Reactor Consultation Report on WBN, Unit 2, which satisfied the requirement of the Energy Policy Act.

c. Radiological Emergency Response Plan

The NRC staff is interfacing with the Federal Emergency Management Agency on the respective agency responsibilities associated with the onsite and offsite emergency preparedness review for WBN, Unit 2. The Federal Emergency Management Agency has agreed to the scope of the reviews and a review schedule, including milestone target dates. In addition, the staff is obtaining contract support for the review of the evacuation time estimates.

d. Antitrust Review

The Atomic Energy Act of 1954, as amended, has eliminated the need for antitrust reviews of OL applications for future applications occurring after the date of the amendment. However, the OL application for WBN, Unit 2, was received and docketed in 1976, and it predates the revision to the Atomic Energy Act. Therefore, the staff will perform an antitrust review of WBN, Unit 2. The staff is working with a contractor to complete the effort.